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2014 Annual Report and Outlook for 2015



Participants at the Validation Workshop of the new Business Plan for WALIC at Kairaba Hotel, Banjul, The Gambia on 4th September 2014

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Executive Summary

This report highlights the Research and Development activities and the ITC Revitalization and Transformation process to WALIC implemented in 2014 and the outlook for 2015. The limited core and research funds received in 2014 were used mainly to conduct few research activities: Institutional Diagnoses of GILMA, determination of the seroprevalence of bacterial zoonoses, lab analyses of cattle serum samples for CBPP antibodies, and to continue the breeding and selection activities designed to improve the genetic merit of the three trypanotolerant endemic ruminant livestock breeds on which ITC has been working on since 1994. The report also documented the activities undertaken on the revitalisation and transformation process of ITC to WALIC. Important documents such as a new Business Plan, Administrative, Finance and Human Resources manuals for WALIC were elaborated.

GILMA's Institutional Diagnoses

Findings of the Participatory Institutional Diagnoses (PID) showed that the functionality of GILMA was closely linked to the operations of their technical partners. GILMA clearly lack defined vision and mission. Main issues to address include capacity development of GILMA's executive committee in terms of institutional management, group facilitation, participatory planning, effective strategies for partnership and ownership. Overall, this PID resulted into a better understanding of GILMA's state of affairs and consensus was reached on proposed action plan to revitalize them. The three main themes contained in this action plan are: 1) Facilitation of strategic reflection and planning, 2) Capacity building, and 3) Coaching and follow-up Support.

Genetic Improvement Program

The outputs of the breeding and selection activity under the genetic improvement program have increased immensely during 2014 compared to the previous year. The size of the nucleus herds and flock has dramatically shot up. Top 30 elite breeding bulls, bucks and rams selected from 70 tested adult males are ready for replacement and dissemination to the nucleus and multiplier tiers. The most remarkable success is the resumption of ram selection after several years of dormancy. The 22 elite breeding males set for dissemination to farmers in the multiplier tier comprises of 7 bulls, 10 bucks and 5 rams. Another hallmark was the visit of the President of the Republic of The Gambia to ITC Keneba station on 29th April 2014 who was highly impressed with ongoing activities at the station.

Monitoring of CBPP vaccination response

A total of 385 cattle serum samples resulting from the monitoring of cattle vaccinated against CBPP in 2013 were tested using competitive Enzyme-linked Immunosorbent Assay (ELISA) for CBPP antibodies. The proportion of cattle with detectable antibodies against CBPP antigens were 14% (19/136), 67% (91/135), and 28% (32/114) for 2 days before vaccination, 2 weeks post vaccination, and 3 months post vaccination, respectively. The results appear to show that two thirds of vaccinated cattle had detectable antibodies 2 weeks post vaccination; and one fourth also had detectable antibodies 3 months post vaccination. Based on the results obtained, it could be concluded that the vaccinated animals have responded to the vaccination.

Seroprevalence of Bacterial Zoonoses

A new project involving ITC, Medical Research Council (MRC), the Central Veterinary Institute (CVI) of Wageningen University (WUR), Centre for Infectious Disease Control of

RIVM, and Utrecht University of the Netherlands was initiated in 2014. The project's objective is to estimate the extent of the problem of *Brucella spp.*, *Leptospira spp.*, and *Coxiella burnetii* infection among humans and small ruminants in The Gambia. The first phase of the fieldwork was in Kiang West district covering 12 villages. Six hundred human participants, 128 sheep and 495 goats included in this study were sampled. Five hundred small ruminants at Brikama livestock market, Abuko livestock market and abattoir were also sampled. All collected blood samples from humans and small ruminants were tested for brucellosis.

Regional Transhumance project

ITC in partnership with PROGEBE and FAO implemented a study on the “*Assessment of the impact of transhumance on the sustainable management of animal genetic resources*” in the Gambia, Guinea, Mali and Senegal. The objectives of this study were to: 1) identify adverse impacts of transhumance on the management of endemic ruminant genetic resources, 2) propose mitigation strategies to adverse impacts, and 3) promote the implementation of the proposed mitigation strategies.

In 2014, one regional and four national consultants were recruited to implement the study. All national consultants conducted the study in their respective countries and validated their report during the national validation workshops in the last quarter of 2014. The regional consultant did a desk review on the impact of transhumance on the management of animal genetic resources, oversee the work of the national consultants, attended the national validation workshop, and synthesise all four national reports into one regional report. This regional report is expected to be validated through a regional validation workshop slated for early 2015.

National and regional workshops

ITC was effectively represented in one national and six regional workshops. The national workshop was organized by the Ministry of Higher Education Research Science and Technology (MOHERST), whilst the regional ones were organized by CORAF/WECARD and AU-IBAR. The regional workshops that drew participants from all over Africa were held in West, Central and East Africa.

Revitalization process of ITC to WALIC

Although it is moving rather slowly than expected, some activities were undertaken in preparation for the launching of WALIC and implementation of the newly approved 10-year strategic plan. Four strategically important documents for mobilizing resources and regulatory guidelines for staff issues were elaborated. These documents include a new Business Plan for WALIC, Administrative, Financial and Human Resources manuals. The Business plan was validated and approved by national and regional stakeholders, whilst the manuals would be assessed and approved by the new Governing Board of WALIC following their inauguration into office.

Both Senegal and Niger were visited by ITC team to advocate for these countries through their Ministries of Livestock to join the WALIC consortium member countries. The visibility of WALIC was also raised during Agricultural Science Week organized by CORAF/WECARD at Niger.

Outlook for 2015

Apart from the monitoring of CBPP vaccination response, all other research and development activities outlined above would be continued in 2015. Similarly, the revitalisation and transformation process to WALIC would be pushed further as the political will of the Government of The Gambia and other West African countries is very strong. There are two projects in the pipeline, one regional and one national, which are expected to kick in by early 2015.

Introduction

As indicated in the outlook for 2014 in the ITC Annual Report 2013, the main work plan for 2014 consist of continuation of Research and Development activities as well as continuation of the Revitalization Process of ITC to WALIC. This year's report is presented in four sections: 1) Research and Development activities, 2) Revitalization and transformation process of ITC to WALIC, 3) Outlook for year 2015, and 4) Conclusion.

Several activities were implemented under Research and Development in the year 2014. These activities are as follows:

- 1) Participatory Institutional Diagnoses (PID) of Gambia Indigenous Livestock Multipliers Association (GILMA),
- 2) Breeding and selection of elite breeding male animals using the Open Nucleus Breeding Scheme (ONBS),
- 3) Monitoring of CBPP vaccination response in cattle,
- 4) Seroprevalence of Bacterial Zoonoses,
- 5) Regional Transhumance Project, and
- 6) Participation at national and regional workshops.

The outputs from these research activities benefitted several livestock farmers, researchers, extension agents, and decision makers. Results of research activities were shared extensively with stakeholders and partners. Thirty elite breeding bulls, bucks and rams were selected for use at the nucleus and multiplier tier. The 22 elite breeding bulls, bucks and rams would be disseminated to farmers within the multiplier tier in 2015.

Continuation of the revitalization process of ITC to WALIC has attained important milestones. Activities undertaken led to the elaboration of a new Business Plan, Administrative, Financial and Human Resource manuals.

The 2015 outlook will focus on continuation of ongoing and new activities on research and development as well as the revitalization process of ITC to WALIC.

1. Research and Development Activities

1.1 Participatory Institutional Diagnosis of GILMA

The role of Gambia Indigenous Livestock Multiplier's Association (GILMA) as multipliers' of the improved genetic materials from the nucleus of the ITC's Open Nucleus Breeding Scheme (ONBS) is paramount to improving the productivity of endemic ruminant livestock species in The Gambia.

During its early years of formation and operations in 2002, the association has been very active for more than five years. Unfortunately, the association's vibrancy was not spared during the turbulent years of ITC's existence which started in 2008. As ITC started its revitalisation and transformation process to WALIC in 2012, it was felt prudent to also reactivate GILMA.

It was conceived that the reactivation process of GILMA should start with a Participatory Institutional Diagnosis (PID). In this respect, the West Africa Rural Foundation (WARF) based in Dakar, Senegal was contracted to work with local personnel from ITC, PROGEBE and members of GILMA to undertake the PID.

The specific objectives of this PID were to:

- identify the constraints and problems affecting the functionality of the association
- provide a better understanding of the organizations, including the functioning and inclusiveness of members and group leaders
- Propose an action plan for enhancing the organizational and entrepreneurial skills of the associations' membership.

The PID was done in three phases: a preparatory phase, field mission diagnosis, and validation workshop for sharing findings and gathering of more inputs from other relevant stakeholders. The final report was produced and the proposed action plan for strengthening GILMA was approved.

The findings of this diagnosis showed that functioning of both GILMAs was closely linked to the operations of their technical partners. This resulted to GILMAs which clearly lack defined vision and mission. Main issues to address include capacity development of GILMA's executive committee in terms of institutional management, group facilitation, participatory planning, effective strategies for partnership and ownership. Overall, this PID resulted into a better understanding of GILMAs state of affairs and consensus was reached on proposed action plan to revitalize them. The three main themes contained in this action plan are: 1) Facilitation of strategic reflection and planning, 2) Capacity building, and 3) Coaching and follow-up Support.

1.2 Genetic Improvement through Breeding and Selection for Elite Breeding males of Endemic Ruminant Livestock Breeds

1.2.1 Introduction

In efforts to revitalize and to reinforce the ITC genetic improvement program at Keneba, a number of activities have been undertaken during the year 2014. The idea is not to reinvent new ideas but to strengthen the operations of an Open Nucleus Breeding Scheme (ONBS) as an ideal program for tropical countries, which Gambia and countries in the sub-region are no exceptions. The day to day management of the nucleus herds and flocks including health and nutritional components alongside the key component which is breeding will ensure effective and more efficient flow of elite breeding males from the nucleus to the end users through multipliers. The herd health program adheres to routine and basic health practices designed to prevent and control enzootic diseases affecting ruminants locally. Local feed resources are being utilized to support physiological functions under the low input system which commensurate with local production systems at community level.

The breeding program was established at the International Trypanotolerance Centre (ITC) in The Gambia in 1994 with the goal of increasing milk and meat production without losing its tolerance to common diseases. The programme operates as an Open Nucleus Breeding Scheme with a three tier structure: Nucleus, Multiplier and Farmer. The breeds of interest and of national relevance are N'Dama cattle, WAD goats and Djallonke sheep. Elite breeding males selected from the nucleus are passed on to the multipliers for multiplication and further dissemination of their offspring to other farmers. Through this way the genetic improvement of the national herd is cumulative and could reach about 1% over generations.

1.2.2 Nucleus herd and flock structure at Keneba and Niamina

There are ten herds assigned to the five herds. Their daily functions include herding, milking, help in the monthly weighing of all the animals, monitor and report cows in heat for mating, provision of feed supplements where necessary and stock checking. At the small ruminants unit only three herders are available.

For ease of management, monitoring and recording for data and genetic analysis, the herds have been divided into five herds. The herds comprise of calves, heifers, cows, teaser and breeding bulls. The teaser bulls have been vasectomised and are used for heat detection among heifers and cows on a daily basis. The composition of the five cattle herds, sheep and goats flocks as of December 2014 is shown in tables 1 and 2. The heifers and young bulls under performance testing at Niamina east are presented in table 1. There has been an increase of over 100 cattle and 27 goats in 2014 over the figures by end 2013.

Table 1. Nucleus cattle herd structure

Herd	Calves	Heifers	Young Bulls	Cows	Teaser Bulls	Br. Bulls	Total per herd
Herd 1	21	3		48	1	.	73
Herd 2	17	3		41	1	.	62
Herd 3	20	3		49	1	.	73
Herd 4	24	4		46	1	.	75
Herd 5	24	4		47	1	.	76
Missra		34					34
Sambelkunda		38					38
Touba1			38				38
Touba2			41				41
Total Count	106	89	79	231	5	6	510

Table 2. Nucleus flock structure

Species	Does/ Ewes	Lambs/ kids	Rams/bucks >90 days old	Teaser bucks/ rams	Breeding Rams/bucks	Total
Goats	96	56	23	1	3	179
Sheep	24	4	3	1	2	34

1.2.3 Herd management

Herd management is the role the herdsmen, field assistants and the senior animal production officer at station level. The management process involves the following:

- Monitoring the activities of the teaser bulls every morning,
- Facilitate natural servicing of females in heat in a timely manner,
- Monitoring the health status of all animals,
- Provision of feed supplement to those animal with very poor body condition score especially lactating cows,
- Separation of calves from their dams and supplement them with hay during the day time,
- Making sure that animals drink enough water, and
- Stock checking.

The following pragmatic interventions were instituted with the goal of improving the overall herd and flock management:

Calf Management: The overall calf management at the nucleus herd has improved substantially over the years resulting in higher calf survival rates and higher weaning weights than records for previous years. The calf holding area established in 2013 was maintained through the year 2014. This facility within the campus premises provided the calves enough shade, feed, and portable water *ad-lib*. Calves are admitted into the holding area when their dams are released for grazing and reunited with them for suckling upon return. This intervention reduced heat stress problems, allows better monitoring, reduced mortality rates, and produced healthier and stronger calves.

Mating System: After establishing the cause of missing/unknown sires for some born calves, a number of approaches were taken up to resolve this problem since 2013. All herdsmen and technicians were sensitized on the importance of getting actual dates of dam mating and the identity of mating bull used. This data is quickly fed into the database once it is collected. More vigilance was exercised in herding the dams in all herds to avoid mating by unknown bulls, and heat detection of dams coming into oestrus was intensified. Teaser bulls were released early each morning and upon return from herding to identify dams on heat. Dams on heat were randomly allocated to a breeding bull in the mating pen for a period of at least 48 hours. These interventions have eliminated the problem of missing/unknown sires for born calves in the nucleus herd.

Nutrition: The feed reserve base for the breeding stocks in the cattle nucleus herds and small ruminant flocks were beefed up by the end of the year in preparation for the critical months of the dry season in 2015. Due to unavailability of financial resources on time, the pasture in the pasture field could not be harvested. By the end of 2014, about 15 tonnes of groundnut hay was purchased and stored for use during the critical period of the dry season. Cuttings of pasture from the pasture field were used to maintain the breeding bulls, calves and other targets of animal category during the remaining parts of the year.

1.2.4 Data collection, entry and analyses

Data collection is a routine practice that provides essential information for analysis and improvement. It is the recipe for genetic analysis and the basis for estimating genetic parameters. Data obtained from the field is inputted into the ITC Breeding Database by the Senior Animal Production Officer. Entering the data is timely and accurate to prevent the outliers in subsequent analysis. After entry, the data is checked for possible errors.

All entries are obtained from weekly records of different activities such as mating, calving, milking, exits/culling, entries, treatment and mortalities. Data on monthly weights, trypanosomosis infection status, and PCV levels of cattle are also entered into the database.

- Annual calving and mortality rate

There has been steady increase in the number of calves born each year and fall in calf mortality rate from 2010 to end 2014 as shown in table 3 below:

Table 3. Calving and mortality in 2014

Year	Total Births	Stock Actual			Calf mortality (%)
		Total	Male	Female	
2010	69	42	11	31	39
2011	88	44	19	25	50
2012	80	59	29	30	26.3
2013	93	85	42	43	8.6
2014	115	104	61	43	9.6

- Exits

By end 2014, a total of 71 cattle exited the nucleus herd due to various reasons as indicated in the table below. Revenues generated from animal sales amounting to more than D200,000 were ploughed back towards the operational cost of maintaining the breeding program. Four outstanding breeding bulls that were selected from the tested bulls in 2013 were also disseminated to farmer-owned multiplier cattle herds in 2014 for breeding purposes.

Table 4. Exits of cattle from the nucleus

S/n	Animal category	Quantity	Reason for exit	Remarks
1	Elite breeding bulls	4	Disseminated to farmers	Active breeders
2	Bulls	3	Culling	Sold out
3	Bulls	2	Present to the President	During a visit
4	Bulls	2	Lost/stolen	
5	Young bulls	5	Mortality	
6	Cows	15	Culling	Sold out
7	Cows	5	Attacked by hyenas	
8	Cows	21	Mortality	
9	Heifer	1	Stolen	
10	Heifer	2	Mortality	
11	Calves	11	Mortality	

- Animal movement

A total of 57 weaners were moved from Keneba station to Kudang during the period May to December 2015. These weaners would be undergoing performance test under high tsetse challenge until the age of 36 months. Similarly, 30 mature heifers were moved from Kudang to Keneba station as replacement breeding females at the nucleus herd.

- Mating, milking and weight records

Matings are recorded as they occur. Weekly records for milk offtake of individual lactating cows are recorded. The average morning milk offtake per cow for the five herds varied between 410 and 586 ml with standard deviations between 277 and 395. Monthly weight records for all animals

1.2.5 Herd health interventions

The cattle herds were vaccinated against Black quarters, Hemorrhagic septicaemia and Contagious Bovine Pleuropneumonia, whilst the Small Ruminants were also vaccinated against Peste des Petites Ruminants (PPR) and Pasteurellosis during the year 2014. All animals were strategically dewormed during the rainy season, while ectoparasite control, hoof

trimming, and treatment of sick animals were carried out as required. Random blood and faecal samples were collected from the animals at Keneba and processed at the laboratory to determine infections, then followed by appropriate treatments.

All weaners, heifers and bulls at Niamina East district (Sambel kunda, Missira and Touba villages) undergoing performance testing for at least two years are bled every month to determine their blood packed cell volume (PCV) and trypanosome infection status. Out of a 1524 blood samples collected from animals in Niamina East in 2014, 85 (5.6%) were found infected with trypanosomes. Breakdowns of the sampling results and treatments are shown in table 5 below:

Table 5. Number of cattle in Niamina herds weighed, sampled and treated monthly

Item	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
No. of cattle weighed	131	127	124	120	116	115	119	118	128	132	143	151
No. of blood samples	131	127	124	120	116	115	119	118	128	132	143	151
No. Positive for trypanosomes	14	5	5	1	4	1	11	12	2	11	17	2
Trypanosomes infection rate (%)	11	3.9	4	0.8	3.4	0.9	9.2	10	1.6	8.3	12	1.3
No. treated for tryps with PCV < 20%	7	3	1	0	0	0	2	1	0	4	15	0

1.2.6 Selection and dissemination of elite breeding males

Selection of elite breeding bulls, rams and buck was done from October to December 2014. Bull selection was on multi-trait selection considering performance in both milk and growth based on the selection index theory. Those highest in the index qualified as multipliers whilst those that ranked low and with negative breeding values were meant for the market. Bucks and rams were selected based on own performance in respect to daily gain at 6 months using heritability estimates in 2013. The heritability estimate took into account maternal genetic effect.

Only 42% (30 out of 71) of the total bulls, bucks and rams were found fit to serve as breeders at the nucleus herd/flock and multiplier herds/flocks as shown in table 6 below:

Table 6. Classification of the tested male animals

Species	Classification						
	Nucleus replacements/exchanges	herd/flock	breeder	Multiplier breeders	Culls	Teaser	Total
Cattle		3		7	15	3	28
Goats		3		10	12	1	26
Sheep		2		5	9	1	17
Total		8		22	36	5	71

1.2.7 President's visit to Keneba station



Figure 1: Arrival of the President at the ITC Keneba station



Figure 2: Line up of ITC and PROGEBE staff to welcome the President

The President of The Gambia, Sheikh Prof. Dr. Alhagi Yahya A.J.J. Jammeh visited ITC Keneba station on 29th April 2015 during his tour around the country. The President was accompanied by the Minister of Agriculture, Hon. Solomon Owens, the Permanent Secretary (PS) of the Ministry, Mr. Ebrima Jawara and other high officials from the government. He was given a conducted tour by the ITC and PROGEBE team around the campus infrastructure

and updated on the ongoing breeding program and the revitalisation process and transformation of ITC to WALIC. He was very impressed with ITC's work and promised to support the transformation process to WALIC. At the end of the visit, he donated D200,000 to the staff of ITC.

1.2.9 Cattle herd and goat flock at Kerr Serigne



Figure 3. N'Dama demonstration herd



Figure 4. F1-Backcrosses demonstration herd

There is a F1 crossbred cattle herd (N'Dama x Holstein-Friesian) mixed with backcrosses x N'Dama, another cattle herd of pure N'Dama breed, and goat flock at the headquarters of ITC located at Kerr Serigne. The purpose of these herds is to serve as demonstration of livestock models that could be adopted by different categories of farmers at peri-urban areas of The Gambia for income generation, milk and meat production. In addition to revenue generation for the centre, the N'Dama cattle herd and goat flock also produce replacement breeding females for the nucleus herd and flock at ITC Keneba field station.

Table 7. Cattle herd and goat flock composition

Category	N'Dama herd	F1/Backcrossed herd	Goat flock
Mating males	1	1	1
Breeding females	15	16	16
Calves/Kids	11	9	9
Weaners	4	12	0
Young bulls/bucks	0	1	6
Heifer	0	0	0
Total herd size in 2014	31	39	32
Increase over 2013 herd size	9	6	8

The total mortalities in 2014 for cattle is 11 (6 N'Dama, 2 F1/Backcrossed, 3 goats), and the total number culled/sold is 10 (1 N'Dama, 2 F1/Backcrossed, 7 goats).

Main undertaken activities during 2014 include the following:

- *Monthly weighing* All station animals are weighed at the end of every month and incorporated into the database
- *Daily milking and milk measurement* Milking is done daily and off-take measured and recorded daily
- *Supplementary feeding* Animals are supplemented with groundnut cake, rice-bran and spent grain from Banjul Breweries to provide them with energy, protein and other essential elements required for maintenance and production
- *Vaccination* Cattle were vaccinated against Blackquartars and Hemorrhagic Septicemia diseases and goats against Peste de Petit Ruminants (PPR) disease
- *Deworming* Done at the beginning and end of the rainy season with anthelmintics to control helminthosis in the animals
- *Spraying* Using acaricides to control ectoparasites mainly ticks on animals
- *Data collection and entry* Data collected from all these activities is recorded and entered into the database
- *Feed purchasing* This involves buying concentrates such as groundnut cake and rice bran. The spent grain from Banjul Breweries is supplied on irregular basis with I.T.C. providing fuel for transportation of this stuff
- *Treatments* This happens as when necessary
- *Pasture production and utilization* Plots of *Panicum maximum* developed on station were harvested and used to feed calves and weaners

Table 8. Milk production of cattle at the headquarters over six months period in 2014

Months	Daily averages (L)		Monthly totals (L)		Total monthly production (L)
	N'Dama	Crosses	N'Dama	Crosses	All cows
Jan	na	na	na	na	na
Feb	na	na	na	na	na
March	10.7	4.6	336.8	144	493
April	14.2	5.2	428.4	156.2	584.6
May	16.8	6.7	520.8	209	729.8
June	17.6	6.7	528.3	201.6	729.9
July	15	31	466	961.5	1427.5
August	20	28.5	630.5	885.5	1516
September	18.6	18.5	560	555	1115
October	15.4	18.6	478	578.5	1056.5
November	12.6	23.02	377.3	690.5	1067.8
December	9.71	30.92	300.9	958.6	1259.5

na: not available

Based on the financial statement of the farm, it is found to have positive balance as indicated in the table 9 below. However, the salaries of the four local herdsman were not taken into account as well as the capital assets of the farm.

Table 9. Financial statement of the headquarters farm

Expenditure		Revenue		Surplus
Item	Amount (D)	Item	Amount (D)	Amount (D)
Groundnut hay	66,783	Milk	527,520	
Groundnut cake	40,500	Manure	825	
Rice bran	31,500	Culled cattle (3)	21,840	
Salt	2,900			
Labour	147,320			
Drugs	30,700			
Rope	4,200			
Fuel for feed collections	117,000			
Car maintenance	18,810			
Totals	459,713		550,185	90,472

1.3 Monitoring of CBPP vaccination response in cattle

Contagious Bovine Pleuropneumonia (CBPP) is a highly infectious, contagious bovine respiratory disease of cattle with high morbidity and mortality rates that could lead to serious production and economic losses. This bacterial disease caused by *Mycoplasma mycoides* subsp. *mycoides* Small Colony variant (MmmSC) is considered as one of the most important

Transboundary Animal Disease (TAD) in cattle. Affected cattle manifest difficult breathing, poor body condition score, and characterised by mortality rate of 30 to 80%.

CBPP was last reported in The Gambia in 1971, but its four decade long history of absence was broken by reports reaching the Animal Health and Production Services (AHPS) in August 2012 of a suspected outbreak of cases in some villages within Niamina Dankunku District, Central River Region South. The suspected CBPP outbreak was confirmed by isolation of *Mycoplasma mycoides subsp. mycoides* from lungs and lymph nodes of seropositive cattle in September 2012.

Following the laboratory confirmation of an outbreak of CBPP in Central River and Upper River Regions and the subsequent follow up assessment mission to the country by the Crises Management Centre-Animal Health of the Food and Agricultural Organisation (FAO), the Government of The Gambia through the Office of the Minister of Agriculture declares a National Animal Health Emergency in the country with effect from Wednesday 8th November 2012. Emergency preparedness plan to contain the disease outbreak was prepared and it included the temporarily suspension of cattle movement and national mass cattle vaccination against CBPP completed in February 2013.

The objective of this research activity was to determine the response of ITC cattle herds located in Niamina East District vaccinated against CBPP using the T₁₄₄ or T_{1SR} strains Lyophilized CBPP vaccines with PANVAC Quality Control Certificate. It specifically monitored the antibody levels against CBPP 2 days before vaccination, 2 weeks and 3 months post vaccination.

Three field missions to the four ITC herds (2 bull herds and 2 heifer herds) located in Sambelkunda and Touba villages in Niamina East District were undertaken on 13th March, 30th March and 28th June 2013, respectively. A sum of three hundred and eighty five (385) blood samples were collected through the external jugular vein of monitored cattle and allowed to coagulate under cold chain, then spin, the serum samples transferred to labelled cryotubes, and stored at -20° Celsius until tested.

The 385 serum samples were tested using IDEXX CBPP competitive Enzyme-linked Immunosorbent Assay (ELISA) for antibodies detection in September 2014. The proportion of cattle with detectable antibodies against CBPP antigens were 14% (19/136), 67% (91/135), and 28% (32/114) for 2 days before vaccination, 2 weeks post vaccination, and 3 months post vaccination, respectively. The results appear to show that two thirds of vaccinated cattle had detectable antibodies 2 weeks post vaccination; and one fourth also had detectable antibodies 3 months post vaccination. Based on the results obtained, it could be concluded that the vaccinated animals have responded very well to the vaccination.

1.4 Seroprevalence of Bacterial Zoonoses

ITC has been part of a consortium working in collaboration with the Medical Research Council (MRC) in The Gambia, the Central Veterinary Institute (CVI) of Wageningen University (WUR), Centre for Infectious Disease Control of RIVM, and Utrecht University of the Netherlands. The objective of this project is to estimate the extent of the problem of *Brucella spp.*, *Leptospira spp.*, and *Coxiella burnetii* infection among humans and small ruminants in The Gambia. This project is two years long, started in September 2014 and expected to finish in August 2016. Both Lenny Hogerwerf and Eveline Germeraad from the RIVM in The Netherlands, were in The Gambia and had worked with ITC and MRC teams from 19th September to 19th December 2014. The fieldwork for the whole study and the lab tests for *Brucella spp.*

The selected study areas for this project include Kiang West District of Lower River Region, Central Abuko Abattoir and Brikama livestock market in The Gambia. Both humans and small ruminants were selected based on certain criteria from households in randomly selected villages and livestock markets. During the sampling period, October – November 2014, questionnaires were administered, and blood samples collected from recruited humans and small ruminants.

The first phase of the fieldwork was in Kiang West district covered 12 villages where 10 compounds with a minimum of 5 small ruminants and 5 adults were selected per village. In every compound 5 human participants and at least 5 small ruminants were selected for this study. In total 600 human participants, 128 sheep and 495 goats were included in the study.

From each human participant a questionnaire was administered and blood sample was collected. For each flock the flock owner was interviewed, the profile of each sampled small ruminant was recorded and samples collected. Blood was collected from every animal and additional milk sample and vaginal swab taken (150 milk samples and 150 swabs).

Another sampling of small ruminants was done in the Greater Banjul Area covering Abuko abattoir and the livestock markets at Abuko and Brikama. A total 500 blood samples were taken: 250 sheep and 250 goats from animals bound for slaughter or rearing. All collected veterinary samples were tested for *Brucella spp* using Rose Bengal Test (agglutination test) and ELISA.

1.5 Regional Transhumance Project

This project “*Assessment of the impact of transhumance on the sustainable management of animal genetic resources*” is one of the projects submitted under the First call for Proposals related to the FAO Trust Account in support of the Global Plan of Action (GPA) for Animal Genetic Resources for the biennium 2013-2014 and approved for funding by the Commission on Genetic Resources for Food and Agriculture. This regional project was implemented in four PROGEBE countries: Gambia, Guinea, Mali and Senegal.

The objectives of the project were to: 1) identify adverse impacts of transhumance on the management of endemic ruminant genetic resources, 2) propose mitigation strategies to adverse impacts, and 3) promote the implementation of the proposed mitigation strategies.

The expected outputs of the project are as follows:

- Hotspots of transhumance in each country are identified
- Knowledge on the incidence of transhumance on the biodiversity improved
- Specific strategies for the mitigation of the negative impacts of the transhumance proposed

In 2014, one regional and four national consultants were recruited to implement the study. All national consultants conducted the study in their respective countries and validated their report during the national validation workshops in the last quarter of 2014. The regional consultant did a desk review on the impact of transhumance on the management of animal genetic resources, oversee the work of the national consultants, attended the national validation workshop, and synthesise all four national reports into one regional report. This regional report is expected to be validated through a regional validation workshop slated for early 2015.

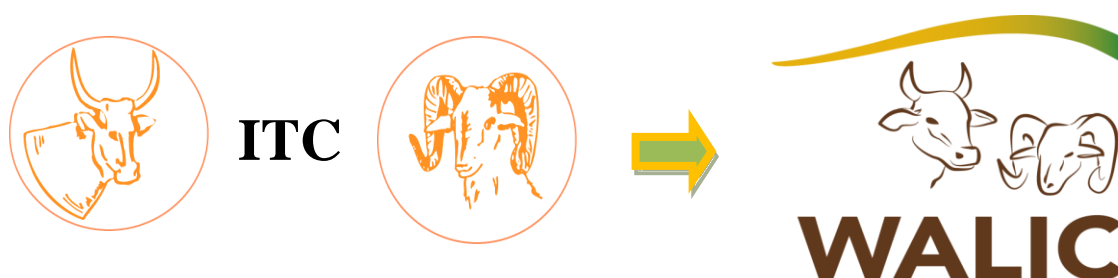
1.6 National and Regional Workshops

ITC was represented at the following national and regional workshops organized in 2014:

Table 1. 2014 National and Regional workshops

S/n	Conference/workshop	Period	Venue
1	CORAF/WECARD Workshop on Evaluation of first Operation Plan and preparation of second Operation Plan	3 rd -5 th February 2014	Dakar, Senegal
2	PROGEBE Regional Capitalization workshop and Regional Steering Committee meeting	24-27 th February 2014	Bamako, Mali
3	Regional Workshop on Strengthening Regional Capacities for the Sustainable use of Animal Genetic Resources in East Africa	3 rd -6 th March 2014	Kampala, Uganda
4	4 th Agricultural Science Week of West and Central Africa and the 11 th General Assembly of CORAF/WECARD	16-20 th June 2014	Niamey, Niger
5	Second National Conference on Science and Technology	17-18 th July 2014	Banjul, The Gambia
6	Regional Consultative Multidisciplinary Stakeholders' Workshop to Establish Regional Livestock Policy Hub	7-8 th August 2014	Lome, Togo
7	Regional workshop for the Strengthening of Capacities for the management of animal genetic resources in Central and West Africa	28-30 th August 2014	N'Djamena, Chad

2. Revitalisation process of ITC to WALIC



For the year 2014 under report, the main activities pursued under the revitalization process were the elaboration of a Business Plan, Administrative, Human Resources and Financial manuals as well as sensitisation of ECOWAS member states, and following up the process of enacting the new WALIC Act by the Government of The Gambia (GoTG).

2.1 A new Business Plan

After emerging from a rigorous selection of suitable consultant through open call for consultancy services, Dr Richard Trevor Wilson from United Kingdom, was contracted for a duration of 90 days (July-October 2014) to develop a new Business Plan for WALIC.

The consultancy work had three deliverables: an inception report, draft business plan and final business plan. In carrying out his tasks, the consultant embarked on field visits to ITC facilities, met stakeholder partners, visited two West African states (Senegal and Ghana) to consult and get their inputs into the business plan. The second deliverable, draft business plan, was shared with a wide range of stakeholders. This draft business plan was validated during a one-day regional validation workshop held in Banjul on September 4, 2014. Comments, suggestions and recommendations emanating from the workshop were included in the final version of the Business Plan as posted on the WALIC website <http://www.walic-wa.org/business-plan/>

2.2 Administrative, Finance and Human Resource Manuals

Mr Maseye Seye from the neighbouring republic of Senegal was selected and contracted for duration of 90 days (July-October 2014) to develop three manuals – Administrative, Finance and Human Resources.

The consultancy had four deliverables: an Inception report, Administrative manual, Human Resource manual, and Finance manual. For self familiarisation and orientation, the consultant undertook some field visits of existing ITC facilities, interviewed ITC personnel and other stakeholder partners. The methodology adopted to deliver the desired outputs includes the following:

- Documentation review and interview of personnel
- Analysis of existing situation and facts finding
- Assessment and options identification
- Decision making on options
- Drafting of manuals
- Sharing of draft manuals with other stakeholders
- Incorporation of received comments and finalization of manuals

The three manuals would be approved by the WALIC Governing Board during their first meeting following inauguration and launching of WALIC.

2.3 Resource mobilization

2.3.1 PROGEBE/AfDB

About US\$126,000 was mobilized from AfDB through PROGEBE to finance the recruitment and remuneration of three consultancy works. Three consultants were recruited for durations of 90 days. The first consultant was tasked to develop a new Business Plan for WALIC; the second one to elaborate Administrative, Finance and Human Resource manuals; and the third one to coordinate the consultancy work and mobilise additional financial resources for WALIC. The consultancies have been completed successfully within the specified durations.

2.3.2 Islamic Development Bank (IDB)

The IDB is financing a project on Building Resilience to Recurring Food Insecurity in collaboration with the government of The Gambia. The project has been approved in 2014, and implementation of activities is schedule to begin in 2015. This five year project would be under the administration of National Agricultural Land and Water Management Development Project (Nema).

The project has several components, but the main partner/beneficiary for the sub-component on *Support to Livestock* is the International Trypanotolerance centre (ITC). ITC would receive support towards its Open Nucleus Breeding Scheme (ONBS) for it to operate more effectively, and also build the Institutional and technical capacity of the Gambia Indigenous Livestock Multipliers Association (GILMA). Total budgetary allocation to ITC for the project's lifespan would be USD585,050.

2.3.3 Belgium development corporation (DGDC)

As a result of changes in the operations and management of this corporation, the annual financial support to ITC in the form of unrestricted core funds have not been forthcoming for the years 2013 and 2014. It has been vigorously pursued but without much success thus far.

2.4 Partnership and advocacy for WALIC

2.4.1 WALIC Act

The process of enacting a new Act for WALIC by the government of The Gambia (GoTG) has registered some important success in 2014. It is spearheaded by the Minister of Agriculture. By the end of 2014, the draft Act was approved by the cabinet and would be forwarded to the National Assembly for endorsement and then accented to by the President of the Republic of The Gambia.

This new Act would give WALIC its legal status and privileges accorded to regional centres hosted by GoTG in The Gambia.

2.4.2 Country visits

Two ECOWAS member states were visited by the ITC team and representation of the Ministry of Agriculture to get their buy-in into joining the WALIC. The first country visited was **Senegal** on 22-24th April 2014. The main goal of the mission was to sensitize the Government of Senegal through the Ministry of Livestock and advocate for the country to join the WALIC consortium and participate actively in all of its activities as described in its ten-year strategic plan. ITC's transformation process to WALIC and the draft MoU between Senegal and WALIC were presented and discussed thoroughly with key decision makers at the Ministry of Livestock. The mission resulted into a general consensus that Senegal would join WALIC, and further reflections would be done through a consultation process to nominate Senegal's focal point and representation at the WALIC's Governing Board.

The second country visited by the ITC team in 2014 was **Niger** on 16-20th June 2014. The first objective of the visit was to participate at the 4th Agricultural Science Week of West and Central Africa and the 11th General Assembly of CORAF/WECARD in Niamey, Niger, in order to raise the visibility of WALIC to attract other stakeholders and partners. The second objective was to sensitise key decision makers at the Ministry of Livestock on WALIC and request them to join the WALIC, review the draft MOU between Niger and WALIC, and nominate a Governing Board representative and a focal person for WALIC.

The Niger mission resulted into the following outcomes:

- WALIC has featured as a key participant at the 4th Agricultural Science Week for West and Central Africa

- WALIC as a livestock institution for West Africa based in The Gambia is now in the memory and awareness of hundreds of participants that came to this scientific event in Niamey during the period 16-20th June 2014
- About 60 to 75 persons from different parts of the African continent visited WALIC's booth and were enlighten on WALIC's formation, mandate, vision, mission, thematic areas and governance structure
- Communication products given out to visitors at the WALIC's booth amounted to 75 brochures, 75 copies of the executive summary of the strategic plan, and 75 copies of A4 size WALIC posters
- A two-hour long meeting with the key personnel of the Ministry of Livestock was implemented which resulted in taking the decision to select a focal person for WALIC, briefing of the livestock Minister of Niger, and willingness to seek for more information before joining WALIC.

3. Outlook for 2015

3.1 Research and Development Activities

3.1.1 Genetic Improvement through Breeding and Selection for Elite Breeding males of Endemic Ruminant Livestock Breeds

All of the activities currently being carried out at all the field stations (Keneba, Kudang and Bansang/Sololo) will be continued in pursuit of our efforts to improve the performance of the three ruminant livestock breeds without affecting their resistance to a number of diseases or reducing their adaptability to the environment in which they have thrived for generations. These animals constitute a valuable animal genetic resource for millions of livestock producers in the region. The 22 selected multiplier bulls, bucks and rams selected in 2014 will be disseminated to the multiplier tier herds and flocks for multiplication and further dissemination to other farmers for the genetic improvement of their cattle, sheep and goats. Restocking with new sheep, goats and cattle at the nucleus flocks and herds at Keneba station would be pursued through the continued breeding of the present stock and introduction of new stock from the IDB resilience project in 2015/16.

3.1.3 Joint FAO/ITC/PROGEBE Regional Transhumance project

The project on "*Assessment of the impact of transhumance on the sustainable management of animal genetic resources*" jointly implemented by FAO, ITC and PROGEBE in the Gambia, Guinea, Mali and Senegal would be completed by mid 2015. Having completed and validated all four national reports by end of 2014, the remaining activities on this project would be completed in 2015. A regional validation workshop for the synthesized regional report would be held in Dakar followed by preparation and dissemination of policy briefs, and closure of the project.

3.1.4 Seroprevalence of Bacterial Zoonoses

Having completed all field work and preliminary lab tests planned for The Gambia, further lab work at molecular level would be carried out in the Netherlands in 2015. ITC would therefore be participating in the preparations of manuscript for publication in partnership with other team members.

3.1.5 Nema resilience project

IDB Board of Executive Directors in its 285th Meeting approved a regional program for building resilience and sustainably alleviating recurrent food insecurity among its seven African Sahelian member countries including The Gambia. The program addresses cyclical food crises in the region in a three pronged approach: (i) rehabilitation and preservation of the livelihoods of the affected people; (ii) investments to enhance adaptation to climate change and to reduce post-harvest losses; and (iii) building up strategic food reserves to provide a safety net for vulnerable households. The program also enhances the role of national and regional institutions to respond to food crisis. The total cost of the program is estimated at around US\$351 million, to be provided by IDB (US\$176 million), International Islamic Trade Finance Corporation (ITFC, US\$140 million), and the respective Governments (US\$35 million).

Under the framework of the above program, a country project “Building Resilience to Recurring Food Insecurity in the Gambia” was approved by IDB in September 2013. The project has been developed in partnership with the ongoing International Fund for Agricultural Development (IFAD) project *Nema* and other stakeholders. The project is expected to be declared effective in early 2015.

The goal of the project is to ward-off droughts and famine that devastate Gambia and set-back its economic and social achievement resulting from a decade of positive economic growth. The project Development objective will be achieved through the following specific objectives: (i) enhancing the livelihoods of the targeted rural population by increasing their productivity; (ii) developing the capacity of the target communities to adapt to climate change; (iii) and improving the decision makers’ capacity to manage the food crises. The key components of the project provide for: (i) improved access to agricultural inputs through providing a line of trade credit¹, (ii) preservation of and enhancing the productivity of endemic livestock breeds; (iii) improving crop production through the promotion of a package of technology and improved water retention infrastructure; (iv) minimizing the post-harvest losses and building household level reserves through the promotion of improved silos technology; (v) enhancing national food reserve management capacity, and (v) building the government capacity to appropriately identify onset of food security crisis, and through regional coordination and support minimize its impact on the vulnerable and affected poor population.

Under subcomponent 2.2, Support to Livestock, ITC would be expecting some logistics and operational support to carry on its program on the improvement of the performance of three livestock breeds (N’Dama cattle, Djallonke sheep, and WAD goats) that constitute the bulk of ruminant livestock raised by farmers in The Gambia through permanent, cumulative, and multiplicative genetic improvement.

3.1.6 PROGEBE project

The Regional Project for Sustainable Management of Endemic Ruminant Livestock in West Africa (PROGEBE) covering The Gambia, Guinea, Mali and Senegal that was launched in 2008 is expected to be closed by mid 2015. PROGEBE worked at preserving and strengthening in a sustainable manner the genetic traits of three priority endemic livestock, species (N’Dama cattle, Djallonké sheep, and the West African Dwarf goat), increasing its productivity and exploitation within an enabling physical and institutional environment.

¹ This will be supported through ITFC Mudarbah line of financing.

About two and a half million inhabitants in the participating countries benefitted from the project.

The project is funded mainly by the African Development Bank (AfDB), the Global Environment Facility (GEF), the Governments of member countries and its partners, ITC, UNOPS, ILRI, CIRDES and FAO. It is implemented by the International Trypanotolerance Centre (ITC) for the AfDB and United Nations Office for Project Services (UNOPS) for UNDP-GEF.

The main project partners are ministries and research institutes in charge of livestock in the four member countries: ITC in The Gambia, Agricultural Research Institute of Guinea (IRAG), Institute of Rural Economy (IER) in Mali and Senegalese Agricultural Research Institute (ISRA), ILRI, CIRDES and FAO.

The Regional Coordination Unit is hosted by ITC in Banjul. In each country, the project operates through a National Coordination Unit, based respectively at Abuko for the Gambia, Conakry for Guinea, Bouzouki for Mali and Kolda for Senegal.

During its six years of implementation, PROGEBE recorded a significant number of relevant achievements. Among these are:

- revitalization and strengthening of genetic improvement programs with the dissemination of improved selected bulls;
- model for sustainable management of ERL and its habitat;
- construction and equipment of ERL marketing and valorisation infrastructures and their sustainable management;
- characterization of ERL population including its marketing;
- policy, legal and institutional frameworks;
- capacity building of agro-breeders and other stakeholders; and
- management of a complex regional project.

A sustainability strategy for capitalizing on the gains registered by PROGEBE was developed and submitted to AfDB in 2014 for consideration. It would be a regional approach, where ITC/WALIC would work with the four countries to consolidate and expand on the gains made during the lifespan of the project.

3.2 Revitalisation process of ITC to WALIC

ITC will continue to mobilize resources through partnership with the governments of member countries, CORAF/WECARD and ECOWAS commission. The new WALIC would be launched as soon as sufficient resources are mobilised to recruit additional staff and operate to start implementing programs of the new 10-year Strategic Plan (2013-2022).

4. Conclusion

The year 2014 has registered some successes on research and development activities and the revitalization and transformation process of ITC to WALIC despite major challenges and limitations on human and financial resource strength. In conclusion, ITC has achieved the following:

- Five research and development activities have been undertaken successfully in 2014

- ITC was well represented at one national and six regional workshops organized by partners in West, Central and East Africa.
- Twenty two multiplier/elite breeding bulls, bucks and rams have been selected and would be disseminated to the multiplier tier in 2015.
- Four important documents: Business plan, Administrative, Finance and Human Resource manuals have been prepared for WALIC takeoff.
- On partnership development with ECOWAS member countries – both Senegal and Niger were visited and sensitized to join WALIC.