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**REPORT OF AN ELECTRONIC FORUM
ON THE “NEW” ITC 10-YEAR STRATEGIC PLAN
DEVELOPMENT**

**Held on
DADNET West and Central Africa
from 20th August to 21st September 2012**

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Report of an Electronic Forum On the “New” ITC 10-Year Strategic Plan Development

Introduction

1 Background

The International Trypanotolerance Centre (ITC) is an autonomous, non-profit-making research for development institution, established by an act of Parliament of The Gambia in 1982. It was conceived to serve the West African region, particularly the sub-humid and humid zones, with the original main objective being research on the unique N'Dama cattle breed in its traditional habitat in West Africa.

In May 2009, ECOWAS Heads of States and Governments, during their 10th Summit held in Yamoussoukro, made a far reaching decision to transform ITC into a West African Regional Centre for Livestock Research and Development. The process to bring about this transformation involves among others, the development of **a new Strategic Plan** that will address contemporary issues of importance to livestock research and development in the region, and the adoption of a governance structure and institutional arrangements that reflect this wider regional reach.

The development of this strategy and its implementation plan comprise a number of stages:

- A Stakeholder and Experts consultative planning workshop held in The Gambia, from 6th to 8th June, 2012.
- A dedicated Stakeholders dialogue with livestock farmers' organizations, other Civil Society Organizations e.g. NGOs working with farmers in West Africa held in The Gambia from 11th to 12th June, 2012.
- **An electronic forum (e-forum)** held from 20th August, 2012 to 21st September, 2012.
- Drafting of the Strategic Plan
- Validation workshop to review the emerging draft Strategic Plan
- Finalization of the Strategic Plan based on the feedback
- Financing and implementation of the Strategic Plan, scheduled to start early 2013.

2 Objective of the e-forum

The e-forum was intended to provide an opportunity for stakeholders who were not able to participate in the consultative workshops to have their say and to help shape new ITC Strategy, and was also open to everyone interested in sustainable animal genetic resource management in Africa.

Participants at the two stakeholder consultative planning workshops were also given an opportunity to reflect further on the key issues that emerged from the conclusions and recommendations of the workshops and make further inputs to enrich the Strategic Plan being developed. Thus the main expected result of the e-forum was the collection of additional materials to be used as inputs for the development of the 10-year Strategic Plan for the new ITC.

3 Scope of the e-forum

The e-forum focused on the following four major thematic areas that emerged from the two consultative workshops held in June 2012:

- Diversity conservation, improvement and use
- Capacity building along the value chain
- Knowledge management
- Institutional and partnership brokerage

An Executive Summary of the two stakeholder workshop reports were sent to subscribers before the forum started and was also available on the e-forum platform and on the ITC website.

Each session was introduced by the moderator of the forum who oriented and guided the discussion. The participants posted their messages in English or French or in both languages. At the end of each session, the results of the discussions were synthesized and shared.

4 E-forum platform

The electronic forum used the discussion group entitled **DAD-Net West and Central Africa** “Domestic Animal Diversity Network (DAD-Net) for West and Central Africa”. It was hosted by Dgroups of FAO DAD-NET at: <http://next.dgroups.org/fao/DAD-Net/DAD-Net-West-Central-Africa/>.

The e-forum was facilitated by Dr Richard Osei-Amponsah, Department of Animal Science, University of Ghana, Legon, Ghana, West Africa with the technical assistance of Mr. Alassane Diallo, Regional Project on Sustainable Management of Endemic Ruminant Livestock in West Africa (PROGEBE), The Gambia.

5 Outcome of the e-forum

In all a total of 26 colleagues from stakeholder institutions took part in the forum.

DAD-Net West and Central Africa counts 178 Members from 45 countries and territories mainly from West and Central Africa who received all the messages and files posted during the electronic forum.

The next chapter presents a synthesis of the four themes discussed and the Annex contains a list of participants with their institutions and contacts and the number of inputs they made.

All contributions are available in both English and French in a dedicated directory at: <http://dgroups.org/fao/DAD-Net/dad-net-west-central-africa/library/khw0alcg?o=lc>

On behalf of Prof. Olanrewaju Babatunde Smith and the management of the ITC, we thank all the contributors for the interest shown in this exercise which will be a major step towards the development of a 10-year strategic plan for the new ITC.

Synthesis of the four themes discussed

Theme 1. Diversity conservation improvement and use

Background

The central dilemma here is how can livestock diversity be safeguarded while increasing productivity and production to keep pace with rapidly increasing demand for meat and milk in the West African sub-region?

It is well accepted that the most sustainable approach to ‘conservation’ of agricultural biodiversity is to ensure they remain functioning parts of the production system. The stakeholder consultation suggested two contexts relevant for the conservation and use of indigenous ruminant genetic resources:

1. In **low potential areas**, where smallholders and herders currently keep endemic sheep, goats and cattle for meat and milk production, the objective will be to gradually improve the productivity of these animals without losing adaptation to the environment, such as tolerance or resistance to certain diseases and tolerance to heat, humidity and other stresses. This will be done through niche-matching (of breeds and breed types to local production systems) and well designed and executed selective breeding programs which take advantage of new tools, such as marker-assisted breeding. There may also be opportunities for improvements in the production environment – feeding, health, housing etc. The new ITC’s role will be to :i) share proof of concept and outputs of its niche-matching and selective breeding programs; ii) help countries define their breeding goals and strategies as part of programs for livestock improvement in these systems.
2. In **medium and high potential areas**, especially in peri-urban systems or in wetter areas with relatively abundant feed most of the year and opportunity to control animal diseases, the objective will be to significantly increase productivity through development and use of medium to high input germplasm based on endemic cattle crossed with carefully chosen exotic dairy breeds. At the same time, strategies will be developed to deliver required feed, health and breeding services, and the private sector will be enhanced to enable sustainable delivery of inputs and services.

Question 1

Is this two-tier approach an appropriate strategy to balance diversity conservation with the pressing need to significantly increase production and productivity? VOTE: YES/NO and give reasons for your choice?

Response/Suggestions

Most of our contributors indicate that the two-tier approach is an appropriate strategy to balance diversity conservation with the pressing need to significantly increase production. In low input systems, there is need to have long term sustainable breeding programs and the farmers who keep the animals must be involved from conception to implementation. Such a system should ensure good record keeping and traceability. There is also need to improve pastures/provide feed to suit the improvement in genetics as the right nutrition is needed to enhance expression of genes. In order to strengthen the sustainability of the low input productions systems, it is suggested that special niche markets be developed for endemic livestock to motivate their keepers.

The need for systematic and sustainable crossbreeding programs for medium to high input areas in the sub-region was stressed. There was an overwhelming consensus on the need to maintain and improve our local animal genetic resources through selective breeding programs with perhaps the new ITC providing nucleus breeding center in the Gambia and expertise/capacity in other project areas in the sub-region. ITC should also partner organizations and countries in the region to attain its objectives. To be able to achieve these objectives the new ITC will require sustainable funding and political will from the participating countries.

Question 2

How viable are systems based on crossbred dairy cattle in the West African sub-region? If this approach is considered to be too risky, how can the level of risk be reduced to an acceptable level?

Response/Suggestions

Systems based on crossbred dairy cattle have recorded some varying degrees of success in the West African sub-region. The system has been successful especially in peri-urban areas where there exists reliable artificial insemination (AI) service, good transport and the necessary logistics. It was suggested that the viability will be enhanced if the system responds to a demand or if there is a market for the end product as in the case of peri-urban dairy production in the sub-region. One needs to be cautious of the level of dilution of the local germplasm in view of their adaptability. The recommended level of exotic blood is 50% if the farmers are to be able to adopt the technology. Only farmers with resources are able to maintain the F₁ population.

On the other hand, there was also a strong indication that not enough credible, long term information is available and therefore the new ITC may consider encouraging more applied research to critically evaluate the viability of crossbred dairy systems in the West African sub-region.

Participants in the forum alluded to some potential risks of systems based on crossbred dairy cattle in the West African sub-region particularly dilution of adaptive local genes. The level of risk can also be reduced if lessons/best practices from past crossbreeding programs in the region are incorporated at the planning stage. There is also the need for all stakeholders to understand the system and play their part. Furthermore we need political will from governments, appropriate regulations, technical guidelines and legal framework and sustainable funding. The new ITC should take the lead in ensuring that this is done and also build capacity of all stakeholders to ensure successful implementation. In addition existing facilities for crossbred dairy cattle programs in the region should be renovated and used to minimize costs.

Question 3

What are the challenges and opportunities of establishing and managing a system based on crossbred dairy cattle? How can the challenges be addressed? What are the candidate breeding/introduction strategies/approaches and genotypes you would propose for the different environments and systems in the West Africa sub-region?

Response/Suggestions

Our participants have outlined a number of challenges and opportunities of establishing and managing a system based on crossbred dairy cattle in the sub-region:

<i>Challenges</i>	<i>Opportunities</i>
Sourcing of crossbred dairy heifers is expensive	High/increasing demand for dairy products/ Possibility of establishing a regional market
Indiscriminate mating	Political will from Governments/ECOWAS
Low human resources in Animal Breeding and Genetics	Availability of a variety of adapted breeds in the sub-region for crossbreeding
Poor feed resources/pasture development	Enabling legal framework for animal production
Lack of AI infrastructure/AI expensive/Lack of technical knowledge in AI/ lack of quality semen/high storage costs/lack of logistics and transport	Increased income to farmers
Dependence on external funding	Introduction of sustainable, useful or desired traits in the crossbreds
Poor adoption rates by farmers	Intensification of agriculture will provide more by-products for animal feed
Poor government policies	Availability of suitable exotic germplasm for the crossing – Jerseys and Holstein
Lack of breeding programs for local Animal Genetic Resources	Emergence of new breeding techniques
Health challenges for the animals especially for the crossbreds	Availability of institutional support
Lack of hormones for oestrous synchronization	Nucleus breeding centers/facilities available in some countries in the sub-region
Marketing problems/Poor processing and distribution of dairy products/ Poor transportation network.	Training of the human resource or capacity building

Various suggestions were also made on how the new ITC can work with stakeholders to overcome some of the challenges raised:

- Sensitize Governments on the need to maintain and promote the breeding of local animals
- Sensitize Governments on the need for crossbreeding in the dairy sector to boost food security and commit them to budget or fund such projects in their respective countries
- Support reforms in government policy on livestock and public-private partnerships/ Formulate sustainable animal breeding policies
- Pursue in-situ conservation as a priority and support the breeding and improvement of local animal genetic resources
- Pursue a breeding objective which will ensure that exotic blood are carefully introduced to avoid dilution of local adapted genes/ Establish nucleus breeding centers to supply crossbred F₁ heifers for the farmers
- Establish land laws to favor the small scale livestock farmers
- Provide more education on animal feeding including establishment of fodder/forage banks/rangelands/pasture
- Make use of agricultural by products from the crop sub-sector

- Strengthen health laboratories by providing the necessary veterinary medicines and equipment needed
- Adopt the value-chain approach in the production and marketing of milk to ensure viability and sustainability
- Strengthen stakeholder producer/farmer/breeder associations in the sub-region through periodic trainings and workshops
- Establish banking and micro-finance schemes for livestock farmers
- Encourage countries to have compulsory animal health systems

Question 4

What are the challenges, opportunities and candidate interventions in setting up within-breed improvement schemes for endemic livestock? How should priority breeds/locations be selected?

Response/Suggestions

Participants views on the challenges and opportunities and candidate interventions in setting up within-breed improvement schemes for endemic livestock.

Challenges:

- How to increase the local breed's productivity and market value without losing their unique attributes
- Lack of sustainable breeding policies/ Slow progress in breeding local animals to meet high demand for animal protein/ Poor adaptation of realized genetic progress by farmers
- Lack of funding/ Lack of long term funding
- Gene dilution of endemic breeds
- Globalization
- Climate change leading to desertification and degradation of natural pastures
- Poor livestock recording/lack of pedigree or performance recording
- Limited resources – feed and health, human capital
- Low human resource capacity/Low level of literacy of farmers
- Poor farmer/breed organizations in the sub-region
- Small herd sizes of local animal farms/Attitude towards animal farming handed from generation to generation

Opportunities:

- Increase demand for livestock production
- ITC can provide a purebred nucleus herd for the sub-region
- ITC can share experience in dissemination of genetic improvement through training
- PROGEBE can be used as a model and its experiences shared across the sub-region
- PROGEBE/ILRI have developed models/guidelines for generic improvement which can be shared with countries in the sub-region
- Emergence of networks, producer organizations (APESS, ROPPA, RBN) will help build a strong collaboration among stakeholders along the value chain
- Potential to develop genetic resources at national and regional levels
- Availability of local/endemic breeds

How should priority breeds/locations be selected?

- All stakeholders will be involved/ ensure close collaboration from start of the project to implementation/ Selection concepts should be well understood by all stakeholders

- Efficient production will lead to adopted breeds – Open Nucleus Breeding Scheme (ONBS)/AI established
- Seek interested communities and areas where there are adequate feed resources
- Focus on endemic breeds and consider the needs of farmers, adaptation to the environment and consumer perceptions/ Selection based on desirable/marketable traits
- Utilize institutions in the sub-region with relative advantage/experience in dairy crossbreeding to ensure sustainability and maximize success

Question 5

What is the appropriate role for the new ITC, versus other public, private and civil society players in the range of actions required for conservation through use?

Response/Suggestions

- Manage knowledge secured over the years/serve as a technical information hub as well as a catalyst to link all the actors in the conservation and use of endemic livestock
- Build capacity among stakeholders/ Evaluation/sensitization of farmers
- Provide improved genetic material for the Gambia and expertise to other breeding schemes in the region/ Simplify selection tools of the ONBS and make them available to farmers/ Help farmers in the identification of superior stock and assist farmers to use them
- Collaborate with the National Agricultural Research Systems (NARS) across the sub-region/play a lead role/ Identify and revitalize existing structures in each country
- Establish true economic value of trypanotolerant livestock/back program with relevant research
- Identify market opportunities/niche markets
- Liaise with Governments and all stakeholders/ Encourage national data record keeping

Question 6

What role, if any, should the new ITC play in ex-situ cryopreservation and ex-situ live animal conservation domains?

Response/Suggestions

It was indicated that the role of the new ITC in ex-situ cryopreservation and ex-situ live animal conservation domains will be determined among the stakeholders. However other contributors will like the new ITC to focus primarily on ex-situ conservation (live animals) as ITC currently has herds of N'Dama cattle, Djallonke sheep and West African Dwarf goats. There was also the view for more research on ex-situ cryopreservation. Finally, the new ITC should collaborate with FAO in the implementation of the Global Plan of Action (GPA) on Animal Genetic Resources in the West African sub-region as the GPA also captures ex-situ cryopreservation and ex-situ live animal conservation.

Theme 2. Capacity development of actors along livestock value chains

During the consultative workshops a clear need emerged for capacity building along the whole value chain (meat and milk) from production to consumption, including inputs and services needed by the different value chain actors. The overall goal would be to empower value chain actors – including livestock keepers, feed, health, breeding and advisory service providers, traders, transporters, processors, wholesalers and retailers – to facilitate functioning livestock value chains.

Question 1

Capacity development of actors along value chains would likely be needed at different levels, targeted at different actors, and delivered in different formats and mediums – ranging from conventional university-type courses to less formal on-the-job practical training. What kinds of capacity development activities should ITC focus on (be specific), and with whom (specific organization or type of organization) should it partner to design, deliver and monitor these interventions?

What role should the new ITC play in each of the named capacity development activities?

(Please insert more rows to accommodate all your suggested interventions)

Capacity development intervention	ITC role	Key partner(s)	Remarks?
Postgraduate training			
Postgraduate Training (Masters and PhD) in Animal Breeding and Genetics - to have human resource capacity in selection of local breeds and appropriate crossbreeding with exotic breeds, conservation techniques, etc.	Provide funding/sponsorship and supervision or mentoring of students; Host trainers in its departments and laboratories under the supervision of its researchers	Research Centers ; Universities/Graduate Schools/Higher Technical Institutes in the sub-region; NARSs; CIRDES; advanced laboratories of the sub-region; ILRI; PTF	Theses will make recommendations to address problems confronting livestock production in the sub-region
Post graduate training and specific tailored made training modules on disciplines needed for implementing the new strategy	Provide work facilities and supervisory roles to postgraduate students and short term trainees through attachments	Faculties and colleges specialized in research and teaching and capable of training and awarding post graduate degrees Stakeholders in education, research and development such as universities, NARS, regional institutions, etc.	Collaborate with CIRDES which has practical experience training and developing training materials ITC will seek resources to support these programs, even though applicants must also pay.

Capacity development intervention	ITC role	Key partner(s)	Remarks?
Training of staff on genetics, Biometrics and statistics (MSc /PhD level),Artificial insemination technicians, Laboratory technicians and researchers	To identify and recruit suitable candidates from the sub-region	Universities, NARS, Government Departments of Agriculture/livestock CORAF,CTA ILRI, Donor agency	Retention of trained staff is key to success.
Research for Development			
Training on the paradigm of Integrated Agricultural Research for Development (IAR4D)	Identification of partners to be trained; Funding of the training workshop; Organization of training	CORAF/WECARD, NARS Training institutions, NGOs and POs	CIT can approach CORAF/WECARD to mobilize the necessary expertise for the training facilitation. This training helps strengthen the capacity of stakeholders and facilitate their relations
Vocational training of actors			
Staff training support for public and private sector on controlling the environment for the genetic improvement (food, health, housing, monitoring and evaluation, standardization, traceability, etc.)	Host trainers and supervise learners	Ministry of Livestock; private sector institutions in the sub-region	The states/countries and the private sector should pay these trainings
Specific vocational technical training for all the stakeholders of the chain values Train livestock producers, processors, transporters and marketers on various aspects of livestock value chains development and management	Organize in partnership with NARS Mobilize resources, facilitate and coordinate training activities	Professional organizations involved in the value chain, support services for professionals in the field, NGOs, NARS Stakeholders in education, research and development such as universities, NARS, regional institutions, etc.	Sponsored training for all the actors of the value chain
Training of stakeholders in environmental baseline needed for genetic improvement (food, health, housing, standardization, traceability, etc.)	Design and make available training packages to managers and technicians from the public, private, NGOs and professional organizations.	Specialized research centers and universities in the sub-region	The training of actors at the base/grassroots should be the responsibility of the countries. The new ITC will help disseminate the technical content of the scientific modules

Capacity development intervention	ITC role	Key partner(s)	Remarks?
<p>Training of professional groups (paid) on the modules defined by the ITC based on their areas of expertise they want to share with or transfer to NARS in the sub-region.</p> <p>Vocational training (paid) to meet the demand of stakeholders (research, development, NGOs, individuals, etc.).</p>	<p>Initiator, implementer and host of training.</p>	<p>Companies and public and private sectors of livestock and other institutions / lab visits for sharing best practices and / or exchange of experiences.</p> <p>Producers / pilot farms, businesses and public and private companies of animal production chains.</p>	
<p>Training of livestock farmers in:</p> <ul style="list-style-type: none"> • Breeding and herd management. • Forage production and storage technics. 	<p>Develop and organize packages for herd management and simple recording scheme for breeders in the region; breeding and herd management; and forage production and storage.</p> <p>Set up good and viable farmer breed specific organization</p> <p>Mobilize funds and coordinate training.</p>	<p>Livestock farmer organizations, cooperatives and associations e. g GILMA, NARS, NGO, individual farmers, PROGEBE, NARS, training centers in animal breeding. Donors, Regional and international partners.</p>	<p>The development of such packages should be inspired by an in-depth analysis of success stories in the use of herd management practices within the Africa region.</p> <p>Farmers should be well trained on proper recording and selection of livestock.</p> <p>Breeding program of the Gambia developed by ILRI\PROGEBE should be implemented.</p> <p>Low availability of good quality roughage remains one a major constraint to the development of animal productions in the sub-region. Even the ¾ improved blood lactating cows are fed poor quality bush hay throughout the dry months of the year.</p>

Capacity development intervention	ITC role	Key partner(s)	Remarks?
Training animal products processors in: <ul style="list-style-type: none"> • Business management. • Food quality norms and standards. 	Development of applied business management packages. Development of training packages on food quality norms and standards.	Cooperatives and associations of animal products processors, NARS, Training Centers and institutes specialized in food processing. Government Services and Institutes in charge of food quality norms and standards, Cooperatives and associations of animal products processors	Most animal products processors in the Africa region do not perceive their activities as a business where profit is the main aim. Nonprofessional management is the most frequent reason of failure. Norms and quality problems constitute one of the major constraints to the access of processed agricultural products of the Africa region to potential markets, especially export markets.
Institutional Development			
Upgrade the institutional capacity of the new ITC to implement the new strategy, and backstop NARS activities on livestock and support universities through teaching and research	Mobilize resources to recruit competent staff Network and collaborate with other institutions	Donors, regional political blocks, regional and international development partners	
Policy Interpretation and Implementation	Specific national policies that address the needs of value chain actors can be assessed and promoted. Turn policy objective to projects and programs that would empower the entire livestock stakeholders.	ECOWAS; Governments; Policymakers	
Training of Civil society organizations on leadership institutional management. Actors in the value added chain and innovative platform should be trained.			
Support universities to strengthen institutional capacities through teaching and supervision of students.	Mobilize funds and coordinate activities.	Donor agency, Regional and international partners.	

Capacity development intervention	ITC role	Key partner(s)	Remarks?
Extension, advice/counseling and exchange visits			
Propose an extension system adapted to livestock	Conceptualize/develop the extension system; Support countries in its implementation	Extension services; NGOs and professional organizations of farmers in the countries of the sub-region	A team of the “new” ITC experts could support the countries of the region to adapt the extension model proposed to address challenges in the respective countries
Collaborating with the existing groups	Provision of continuous technical advice and leverage for such stakeholders/ unions/institutions will hopefully enhance their commitment and efficiency.	The formidable Unions and associations (at both the local and national levels) that deal with livestock value chains National Agricultural Research(NARS) Institutes; Universities and other academic institutions; Trade unions; Ministries of Agriculture, Commerce; Farmers' associations, Livestock input manufacturing/suppliers associations, etc.	
Organization of exchange visits and open days.	Identification of partners, funding, organization of exchanges.	NARS, Universities and higher education schools, professional organizations of producers	To convince, particularly producers, these types of training are needed. Their visit of successful experiences promotes horizontal exchanges of knowledge.
Knowledge Management			
Continuous training and information sharing/dissemination among actors of the chain of values on institutional issues (laws and regulations) of their specific field	Initiator and moderator Facilitating seminars, workshops, exhibitions, academic/talk shows, leadership training, etc.	Institutions and funding agencies, training in business law actors from different parts of the value chain.	

Capacity development intervention	ITC role	Key partner(s)	Remarks?
Exploration of local Knowledge	Explore what people have known and hence build on that foreknowledge of especially the local people/indigenous knowledge		
Training in monitoring and evaluation in Results Based Management (RBM)	Identifying partners, financing, organization of trade	CORAF / WECARD, ILRI, NARS, OP, all partners involved	Since it is more and more about capitalization of information, all stakeholders should be trained in data collection, processing and analyzing tools; and also in the mechanisms of monitoring of innovation and information sharing platforms. Liaise with ILRI and CORAF/WECARD for expertise mobilization.

Question 2

What types of capacity development could be delivered through which type of currently available ICT?

Participants were of the view that the “New ITC” should be seen as an information hub and a training center in the West African sub-region. To do this, it must develop, in collaboration with research scientists in the region, a database enabling it to capitalize on the strategic and scientific information emerged during the two workshops of 8 to 12 July 2011. The New ITC should have a website where all the information will be stored to allow a general public access. Depending on the target audience, television, radio and major sub-regional newspapers may be used. A "call center" will be created in the ITC to provide in real time useful information to the various stakeholders.

With regards to the role of ICT in empowering value chain actors, the possibility of using the mobile phone as a communication tool among all the actors was suggested. Even though this approach is still subject to relative level of literacy among the intended actors, a case study of "iCow" (<http://afriapps.com/app/icow>) developed for the dairy sector in Kenya might however give some further insights into the feasibility of this opinion.

Some modules of training courses could be scheduled regularly throughout the year and conducted by E-learning from ITC or CIRDES targeting organizations and associations of actors in member countries. Training modules could be offered to trainees through online e-learning, videos, and tutorials. It will be necessary to strengthen the structures and the internet in these centers and the NARS and train actors to use. Training modules on pure breeding scheme of ITC could help to share this experience with other countries in the sub –region. There should be also training modules on the breeding values evaluation for the indigenous breeds.

What would need to change for ICT-based capacity development to be appropriate for other actors or types of capacity development interventions?

The use of ICTs in capacity building program may in many cases strongly depend on the level of literacy and computer skill of training candidates. In the case of the actors along livestock value chains in the Africa region, where literacy and computer skill are low; this may be a major hindering factor to the use of ICTs in capacity building program. Nevertheless, adapted or simplified versions of ICTs based programs, e.g. simplified herd structure, herd monitoring softwares, may be planned for peri-urban livestock farmers.

Participants called for the establishment of a call center (main) within ITC which will be networked with all the countries of the sub-region (call center side) in order to provide information in the main languages spoken in these countries. Then the training of actors at the base using demonstration films discussed in local languages could also afford more results. Access to affordable fast speed internet connection, computers and electricity 24/7 should be increased to get more targeted users. Capacity building of actors in the livestock value added chain is fundamental and strong collaboration with partner institution/ universities to undertake training for ITC staff to various levels are a necessity.

Question 3

Under what circumstances and for what kinds of capacity development could livestock value chains be able to support capacity development interventions?

Value chains livestock could support the process of capacity building on the basis of structure/organization prior actors at the various links of the animal industry. This structure/organization will lead to national umbrella and networks at the sub-regional level which can bring out the major concerns of stakeholders in carrying out their activities. Structure/organization, which can also be a source of own financial resources, can effectively support interventions reinforcement of the capacities of actors based on their concerns and prioritized by themselves. Training is also needed to implement effectively and concretely respond to the real concerns expressed by the value chain actors themselves. To do this, ITC must work closely with the associations of producers, processors, vendors, etc. (all actors along the value chain) in the definition of training modules. In this way, the new ITC will provide the right training which the actors and their organizations will pay for.

Appropriate and simple packages should be used taking into account the social and economic environment of the actors. Participants must be carefully identified amongst actors that are sufficiently aware of the benefit of the training they will undergo.

It was further suggested that innovation platforms should be established around livestock value chains, as it could support capacity development interventions such as livestock management, feeding, transportation, processing and marketing. Support (applied research / funding sustainable development) from ITC to structure and empower different links/actors in the value chain of animal products was also advocated. Livestock value chain capacity building could be done through intensive short term trainings, workshops and sensitizations through radio.

What are the other sustainable options for capacity development of value chain actors?

Sustainable options for capacity building of actors in the value chain should take into account:

- The resolution of the concerns of actors through dissertations and theses (Masters, engineers, PhD) for those yet without appropriate solutions;
- The effective involvement of the main actors themselves in the capacity building strategy through the establishment of farmer field schools belonging to them;
- The development of the principle of "farmer trainers" to allow farmer field schools owners to train in turn other professionals.

Additional to the development of value chain actors' skills, there is a need for coordinated flow of ideas and innovations, easy and relatively affordable access to updated information, service and personnel - encouraging the use of specially designed mobile phone service might however be relevant in this perspective. Other options include training of trainers (ToT), Farmer field forums, Radio and Television, study tours, and livestock fairs.

The "new" ITC should function as an integrated part of a holistic approach to livestock development in the region. The phrase "A catalyst for innovative approaches to sustainable improvements in livestock production" was suggested as a relevant aspiration for the "new" ITC. Innovative approaches are surely needed as current approaches have left many livestock owning communities bereft of anything near to an acceptable level of animal health and production service. There is thus the need to drastically

upgrade the skills and competencies of all service providing personnel with relevant and updated information and knowledge. The need to urgently review the framework in which these personnel are delivering those services addressing the conflicts between private and public, the disconnect between professional, para-professional and frontline; as well as the fractionisation between health and production was stressed.

Starting from the basic premise that each livestock unit has a productive and reproductive livelihood and income generating potential, we should consider building on this livestock sector e-consultative process “catalyzed” by ITC to stimulate an on-going exchange of views and ideas, most critically inclusive of representation by service providers and livestock owners, as to what practices do or might work to maximize those potentials, and the challenges faced in realizing them. It was suggested that the “new” ITC could be instrumental in strengthening the DAD-NET West and Central Africa forum to continue providing an extremely valuable information exchange where the answers to the questions that this e-forum is posing might be more fully explored - and lay the foundation for achieving consensus as to the best way forward and the collaboration needed to implement identified approaches. With respect to addressing the needs to improve the quality and quantity of animal health and production services, it is essential that reference is made to the assessments already undertaken in most if not all West African countries, using the OIE Performance of Veterinary Services and Gap Analysis tools and the analysis and action plans as laid out in AU-IBAR Strategic Plan 2010-2014.

Other options for strengthening the capacity of stakeholders are the strengthening of civil society organizations (CSOs) in the logistics materials and communication tools for a better management of information and research results, and improvement of dissemination and promotion of products.

Theme 3. Knowledge management and use for advocacy

During the consultative workshops the need for better, more comprehensive and more accessible information and data to inform decision-making in the entire livestock sector in West Africa emerged as a real need and a major opportunity for new ITC. The idea that the new ITC could become the default place to go to by livestock sector actors for information/data and knowledge on livestock production (breeds, breeding, feeds, animal health), markets & marketing, policies, and trends (national, regional and global), and other aspects of livestock value chains was considered by stakeholders as a potential cornerstone of new ITC Strategy.

Question 1

Do you agree with workshop participants that the establishment and operation of a livestock knowledge hub should be a major focus of new ITC? VOTE YES/NO and give reasons for your choice.

All the contributors voted YES, that the establishment and operation of a livestock knowledge hub should be a major focus of the new ITC.

They gave the following reasons for their choice:

- Good information and reliable statistics on livestock value chains are lacking in most of the countries of the West African sub-region
- Provision of relevant livestock data for stakeholder
- Creation of a functional, dynamic and useful livestock database.
- Any attempts to promote livestock development should focus on research and the dissemination of these research findings to enable the various actors on the different tiers in the value chain to access the information and work towards improving livestock development. The information available should also be accessed in a way that is friendly to the user with very little difficulty. The information should also be reproduced in ways that all stakeholders can understand, utilize and manage.
- Will assist in getting research outcomes to the intended stakeholders or actors. Similarly, this approach will enhance public accessibility to meaningful studies that could have otherwise ended up on the researchers' desks or shelves.
- The new ITC will also use the medium to draw attentions of the world to the potentials of endemic animals in West Africa thereby raising support for their management and sustainable utilization.

However, a caution was sounded that data collection and management is a difficult task and any duplication of work should be avoided. For instance, one needs to be clear about the role of ILRI in this regard. If this function falls under the mandate of ILRI to systematically collect the literature of livestock in Africa and there especially the so-called grey literature, then there is need to forge a close collaboration between the two bodies.

It was further suggested that the new ITC should be concerned about HOW the desired information could be collected to be accurate and relevant for the animal populations of interest. Studies on infrastructure arrangements in Sub Saharan Africa to support conservation and sustainable use of AnGR clearly show that there is a serious lack of livestock recording schemes to generate essential information about the animal populations. Compared to the western world as a whole, establishment of livestock recording schemes have for a century been the absolutely most important source of information on animal populations, whether it is at individual, herd, regional or national level, for

breeding, feeding, management and monitoring purposes, and for all traits of interest. The new ITC could develop alternative livestock recording schemes that would be relevant for use under different conditions in West and Central Africa and should preferably partner with ILRI and some northern organizations on that matter. In this way the new ITC could both support countries in the region in their developments of recording schemes and also generate important animal population data for analysis and dissemination of important results.

Question 2

If the answer to question 1 is YES, please list the types of information or data that should have highest priority to be included in the hub.

According to the participants, the following types of data/information should have the highest priority to be included in the hub:

- National and regional livestock policy reviews;
- Breed population census data per geographical locations;
- Animal disease outbreaks monitoring on a regional basis;
- Livestock market system information;
- Livestock value chains supply information within the region;
- Fact sheets of successful field experiences in terms of adoption of technology and innovation;
- The results of the research on livestock / publications / research documents / journals / reports on case studies;
- The findings of the sub-regional symposia and workshops;
- Funding sources for research on animal genetic resources;
- Demand and supply of animal products in the sub-regions;
- Nutrition information: grazing resources (water and pasture), especially in the dry season/ availability of concentrates and alternative animal protein sources;
- Opportunities for capacity building in the sub-region;
- Training videos;
- Packages and technological innovation in breeding, animal health, nutrition, and livestock management;
- Information about animal genetic resources (AnGR) which need to include their inventories, gene flows, socioeconomic and physical description of each breed;
- Marketing potentials, trends and utilization purposes of those breeds;
- Parameters on characterization of local animal genetic resources / Results / outcomes of specifically designed researches on West African breeds of livestock.

However, a contributor thinks that "marketing and trade policies" issues should not be part of this hub, due to their complexity and the difficulties that the new ITC may face to fill this role.

Question 3

Many previous attempts to establish comprehensive information and data systems have failed, largely because incentives were lacking for partners to contribute regularly updated information and data. As a regional organization operating under the auspices of ECOWAS, how could the new ITC overcome this problem in order to have a dynamic, relevant, sustainable and continuously up to date set of information?

The types of information/data that the hub should be involved with are either at Government services, NGOs or institutional levels in individual countries. Most of the information needed may be collected

and sent to the ITC database through collaborative efforts organized among ITC and appropriate partners in the different countries of the sub-region region. These efforts can be organized through contracts or memorandums of understanding mutually benefiting the parties and agreed upon prior to execution. The new ITC should give priority to management of information and data systems just as it does to other areas such as M&E and programs to ensure adequate budgetary allocation to this sector. In order to have an information system that is dynamic, relevant, sustainable and constant, user fees for access to information may be charged. Journals developed by the new ITC may be free for students but not free for institutions. Institutions, particularly higher learning institutions should pay a license fee to enable students' access information from the ITC database. Most importantly, member countries should contribute towards the maintenance of the management of information system.

Participants recommended that the new ITC should:

- organize a stakeholder workshop to establish and operationalize the information hub and let all stakeholders know their commitments to ensure sustainability;
- establish a win-win partnership with research organizations and universities in the sub-region to ensure continuous update and use of the database;
- assign responsibility to ensure update of their data in the sub-regional database;
- hold regular meetings to assess the operations of the information hub;
- ensure easy access to all types of professional literature for livestock production in its widest sense. Most of these journals are nowadays electronically (on CD or DVD) available (for volumes many years back). I think it would not be very costly to build up an 'electronic' library of the most important journals and make papers on request easily available to whoever needs it (email – PDF file);
- Establish a system of selective dissemination of information (SDI) and documents delivery;
- facilitate the publication of the results of applied research concerning West Africa's livestock production. That could be done with the help of an Open Source Journal;
- learn best practice from DAD-IS in a bid to overcome the challenges of data collection and dissemination. Creation of an enabling environment where relevant national research institutes and collaborating partners can upload data to a database system may be essential in this perspective;
- ensure active and direct involvement of ITC staff in data collection and analysis also needs to be emphasized – a joint research could be explored in this perspective;
- design of a viable monitoring and evaluation system by the new ITC is hopeful to assist in overcoming the challenge of continuous flow of data.

Question 4

Although many potential users of livestock-related information and data have internet access, a large number of important actors in livestock value chains in Africa do not currently enjoy access. In addition to the internet, what other means of disseminating information and data should new ITC consider? Please give specific examples of mediums, target audiences and types of information.

Obviously, the type of information support to use depends on both the nature of the audience and that of the information. Thus, one cannot rule out the use of ICT based mediums for certain audiences and types of contents. Other supports that can be used may include newsletters which at appropriate periods and localized printing may deliver most kind of livestock-related information. Annual reports, livestock yearbook can be used to deliver comprehensive livestock system information on a yearly basis. Livestock identification catalogues can also be produced if the new ITC were to develop such

programs. Cellular phone technology can also be used to deliver livestock market information through SMS.

One very relevant channel for disseminating information to actors in the livestock value chain particularly livestock owners is the community radios and mobile telephones. Whilst the majority of livestock owners are not literate, nearly all have access to mobile phones. Some information can thus be accessed via mobile phones. This however will require the livestock farmer to be literate or have access to someone who is literate (family member, community member).

Community radios are an effective channel that can also be used for the dissemination of information for the rural population and there is currently a widespread use of community FM radios in most countries in the West Africa sub-region. Whilst the amount of information via SMS may be very limited and getting feedback may be difficult, the radio programs can give more in-depth information and allow feedback through radio phone-in programs.

One other important channel for the dissemination of information is the development of training videos to provide information on best practices, showcase success stories and share innovative ideas. These videos can be translated in many languages and distributed at village level through community based associations. These can be replayed over and over again at the farmers level with little supervision from technicians from central level.

Livestock keepers and the closely related value chain actors - the type of information targeted at these particular stakeholders should be easy and readily simple to understand. Using their everyday circumstances as a means of instruction and information dissemination may be worth considering. Also, the use of flyers, training manuals with detailed diagrams and descriptions are hereby suggested.

Policymakers (are always very busy and perhaps have little time to read the broadly written research outcomes) - the type of information targeted at these particular stakeholders should be brief short and readily understandable. Exploitation of mediums such as policy briefs and newsletters are hereby suggested. Journalism is another useful phenomenon in this regard. The new ITC can reach out to a wide audience especially with regard to policy advocacy and awareness creation through e.g. a weekly/monthly publication in a national newspaper.

The new ITC website is also a good medium. Summarized information about previous and present researches can be made available through ITC's and other partner institutions' websites. Peer-reviewed articles: for this approach, publication in open-source mediums needs to be among the priorities because this will assist in reaching many interested readers who may not have access to the subscribed journals.

Question 5

Is there a potential to develop and make available certain types of information and data on a fee-paying basis? If so, what sort of information and data, and targeted at whom?

Livestock yearbooks and breed catalogues which deliver comprehensive data or information on livestock over a period of time can easily be proposed on a fee-paying basis. Access to livestock market information system may also involve paying some fee to maintain sustainability.

The potential exists to develop and make available certain types of information such as research documents on specific issues and journals. The target will be students studying in these areas, professionals conducting research or any other person requiring such information. There can also be specific license fees charged to institutions to enable their students to access material from the ICT database.

The new ITC can take up the responsibility of editing and publishing research manuscripts with focus on livestock species in West Africa. However, I'm of the opinion that this role should be left to the well-established publishers in the region while the New ITC then focus on its main mandates.

Target Audience	Information/data type
Technical advisory support structures and public and private extension	Technological packages and innovation in breeding, animal health, improving nutrition, livestock management; Datasheets of successful experiences in the real environment in terms of adoption of technology and innovation
Researchers and technicians Members of professional organizations	Terms of access to financing from financial institutions;
Researchers; Technical advisory support structures and public and private extension Members of professional organizations	The results of research on breeding
Members of professional organizations traders	Demand and supply of animal products in the sub-region
Members of professional organizations Technical advisory support structures and public and private extension	Opportunities for capacity building in the sub-region

Faced with the potential difficulty of "selling" currently technical and scientific information to some actors of the value chain in West Africa, given the economic level, another financing mode is suggested through with States will impose a small tax (0.05%) on imports of certain products of animal origin (milk, meat, etc.). These taxes would go into a fund managed by a regional authority and serve to support centers such as the new CIT and other similar institutions in the sub-region.

Question 6

What existing information and data resources and initiatives should be built upon (or linked to) by the new ITC?

Participants outlined the following as data/information resources and initiatives that the new ITC could build upon:

- DADIS – <http://dad.fao.org> – The Domestic Animal Diversity Information System hosted by FAO has information on the animal genetic resources of the countries in the West-African sub-region to which the new ITC can link up with and help fine tune/certify the information on especially transboundary breeds.
- Domestic Animal Genetic Resources Information System (DAGRIS): <http://dagris.ilri.cgiar.org>
- ILRI – <http://www.ilri.org/AnimalGeneticResources>; <http://agtr.ilri.cgiar.org>

- AU-IBAR (ARIS 2) - <http://www.au-ibar.org>
- Inter-Réseaux Développement Rural - Bulletin de Veille (Inter-networks Rural Development - Technological Development Monitoring/Watch Bulletin)
- Regional Centre for Training and. Application in Agrometeorology and Operational Hydrology (AGRHYMET)
- International Information System on Agricultural Sciences and Technology (AGRIS)
- FAOSTAT
- CIRDES
- IRSAT
- NARS
- Universities and specialized schools.
- The new ITC can generate its own database management system that would fit its mandates

Finally, it was suggested that the new ITC should also build upon its own existing information from the “old” ITC. The new ITC should consider starting to archive relevant old information as well as translating some of these into other forms such as videos for particularly the non-literate populations.

Theme 4. Advocacy and institutional partnership brokerage

During the consultative workshops, it became apparent that the livestock sector has stagnated due to its low profile and low prioritisation by governments and other investors relative to other alternative investment options in agriculture that was not commensurate with the sector's contribution to GDP or livelihoods in the West African sub-region. Participants also alluded to poor coordination within the sector and inadequate attention to cultivation of partnerships.

At the same time it was recognized that approaches based on innovation platforms that bring key stakeholders together to discuss issues openly at local, national or regional levels offered an attractive new way of addressing industry-wide challenges and unlocking potentials

Question 1

What would be the best way for the new ITC to help the livestock sector in West Africa raise its profile and increase its prioritisation by governments and other investors?

Participants were of the view that the livestock subsector in West Africa is not receiving due attention because of its low profile/visibility compared to other subsectors. This was attributed in part to the lack of reliable data and credible evaluation of the contribution of the livestock to the national GDP of the countries of the sub-region. The new ITC should therefore help the countries in the design and implementation of harmonized good appraisal studies of the livestock subsector. Reports consolidating the findings of such studies can be used for advocacy of the subsector to governments, investors and other stakeholders. The potential for improvement in the livestock sector and its contribution to economy and poverty alleviation in the sub-region should be stressed.

The new ITC should assemble/employ a reliable and a strong scientific team/group to come up with good research and development proposals that are realistic/demand-driven and achievable and appealing to donor agencies for long term sustainable funding. This should lead to implementation of projects which will produce results/visible change in the livestock sector. There should be regular briefings for governments and other actors on achieved results and open days to display research results. This can be done in workshops/conferences with government officials/policy makers in attendance. Government awareness with regard to information on livestock management and trading activities can also be enhanced through policy briefs. Furthermore, a forum with ECOWAS, CILLS AU-IBAR, and other sub-regional bodies to update Heads of States and government officials on the status of livestock in West Africa will encourage greater prioritisation of livestock in the sub-region.

Researchers should communicate their findings to all stakeholders and get feedback from the end users/farmers. In this way, there is need for appropriate communication tool to get all involved. There should also be other fora including workshops where all stakeholders across the sub-region could discuss project results. Finally, documentaries/films on achievements and the status of animal genetic resources in the West African sub-region could also be produced. Raising public awareness through sensitization and educational campaigns/publications should be encouraged with strong institutional collaborations at regional and international levels.

Question 2

Which partners and on-going initiatives could the new ITC engage with to effectively advocate for the livestock sector in West Africa?

A number of partners such as the following were listed by participants during the e-forum: AU-IBAR;

- PROGEBE;
- CIRDES;
- ILRI;
- UEMOA;
- CEDEAO;
- CILSS/INSAH;
- CENSAD;
- ABN;
- ESRO;
- the MRU;
- Regional/sub-regional projects on livestock / sub-regional organizations such as the Liptako-Gourma (ALG), the Authority of the Niger River Basin (ABN), CILSS;
- National livestock research institutes/ NARS and Universities – making their research findings impactful is essential;
- Local actors (members of the value chain and their organizations);
- NGOs and other relevant associations including all professional organizations and networks that are already active in the region;
- The private sector;
- FAO – through its Global Plan of Action for Animal Genetic Resources (AnGR). The new ITC will need to actively engage the AnGR National Coordinators in this pursuit;
- Convention on Biological Diversity (CBD) – the national coordinators (focal points) should be adequately involved as well;

Question 3

What sorts of messages, information and data need to be made available and in which formats and mediums targeted at which audiences?

Results of good research must be communicated. However, the discussion during the E-forum indicated that it is not enough to publish it in some scientific journal, but we have to communicate it also to the farmers/herders and to the decision makers. For each target group we need to use the appropriate communication tool. Messages must be "digestible"/understood and reflect scientific advances in livestock farming. Simple information accessible to users and policies, to show that this or that technology solves this problem (and how), or what is the real profitability of such a technique proposed by the research (with supporting figures) etc. The information must be made available in a form understood by the end users and not in a scientific language (publications) which most stakeholders do not understand.

Effective communication according to participants of the e-forum could be achieved through among others:

- Posters in public areas showing achievements on livestock production and productivity for the public at large including livestock owners;
- Electronic media, radio/TV documentaries in the local and official dialects,

- Newspapers, journals, magazines and scientific publications (for government officials, donor partners and politicians).
- Information on genetic improvements should be made known to the community
- Information on all breeds should be made available to all sectors
- New techniques for livestock improvements should also be made available
- Information on the management and the economic returns of keeping crossbred livestock should be disseminated.
- Media - cinemas from information vans in the farming communities, experimental visits, forums or agricultural show, etc.

Question 4

What should the new ITC's role be in relation to establishing and nurturing partnerships and innovation platforms at local, national and/or sub-regional levels?

Participants suggested that the new ITC should:

- play a coordinating role/facilitator in establishing, maintaining and nurturing partnerships and innovation platforms at local, national/sub-regional levels.
- be innovative and set innovation platforms around value chain actors and take a leading role in its implementation within the sub-region
- be engaged in capacity building for all the actors in the form of workshops, seminars, short training courses, exchange visits, attachment to research institution or universities, , internship opportunities, exchange of researchers, etc.
- source for funding for partner activities and establish a good system for monitoring and evaluating partner activities/ timely availability of research dividend to the stakeholders including donors and farmers' groups should be pursued
- organize livestock farmers fields day, farm schools
- encourage the creation of livestock farmers groups/associations,
- organize national livestock shows,
- introduce international livestock fairs/contests at the sub-regional level.
- provide a platform, where committees composed of the experts of the region can make well founded recommendations which cannot be so easily ignored by the policy makers.
- organize conferences and discussion forums
- ensure availability of regular and updated communication materials, progress reports and budgets for the partners need to be ensured.
- Be an actor and a real communication channel with all stakeholders platforms (organizations of links in the chain of values), with services NARS, NGOs, the private sector, the IRA (ILRI, INSAH...), FAO,
- work through the community based associations particularly in the dissemination of information.
- support the strengthening of the governance of the village CBOs and develop their capacities to share information on best practices and provide mentorship to each other. The knowledge or skills gained are utilized and the impact on the activities of the farmers are often not monitored. Working through the small village association and strengthen capacities on advocacy as well as providing the means to duplicate these knowledge sharing at village level is key to ensuring a relatively higher level of adoption of good practices for livestock development.

Question 5

In what other ways could the new ITC help reduce duplication and competition, and enhance collaboration, and synergy among livestock sector initiatives and players in the sub-region?

It was indicated that “duplications always sounds very negative”, but if one tries to work out a system for medium/higher input, then the problems to be solved might be quite different in northern (dryer) part of the region than in the more southern (more humid) part of the region (e.g. different diseases are of importance). Thus some seemingly ‘duplication’ might be unavoidable. However, the best way to go would be an overall experimental design plan, where things are harmonized/co-ordinated approach as far as possible which usually yields much more information. Contributors indicated that the new ITC should facilitate this kind of coordination. For instance, the need for the new ITC and CIRDES to have clearly defined mandates which complement rather than duplicate each other was mentioned as a way of getting a united support from ECOWAS. This will ensure rational and efficient use of scarce resources.

It was suggested that the new ITC should try and find out what has been done in the area of livestock production in the sub-region through collaborating and partnership with institutions. There will be the need to gather country level information on livestock programs/projects implementation and results and sharing them at the sub-regional level to avoid duplication of efforts. The new ITC can achieve this by running country level surveys and also developing a good electronic media/ library having collections of all publications from the sub-region on livestock research and development. There should be a high degree of transparency in all programs and activities being implemented. In addition, creating and facilitating a forum for collaborative researches will also help avoid duplicity.

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Appendix

List of Contributors

	Name	Institution/Contacts	Theme ¹				Total
			1	2	3	4	
Regional/National Agricultural Research Systems (4 participants)							
1	Prof. Hamidou H. Tamboura	Directeur de Recherches INERA/CNRST/MRSI 01 P. O. Box: 3388 Ouagadougou 01 Burkina Faso Email: hh_tamboura@hotmail.com Phone: (226) 50 34 02 71 (office) (226) 50 35 63 20 (home) GSM: (226) 70 30 29 29/79 10 10 25	1+		1+	1+	3+
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¹ 1+: response to the questions raised in the text posted by the moderators; 1: contribution, but not a response as such to the text posted by the moderators

Higher/University Education (7 participants)						
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8	Dr (Mrs.) Orunmuyi Modupe	Animal Science Department Ahmadu Bello University Zaria, Nigeria Email: modupeorunmuyi@yahoo.com Tel: +234-8065308475	1+			1+
9	Dr Serekye Yaw Annor	Senior Lecturer In Animal Breeding & Genetics Department of Animal Science Education University of Education, Winneba P.O. Box 40 Mampong Ashanti, Ghana Email: sayannor@yahoo.com Tel: 233 20 822 6300/ 233 24 613 5123	1+			1+
10	Dr Jan Philipsson	Prof emeritus Animal Breeding Department of Animal Breeding and Genetics Swedish University of Agricultural Sciences (SLU), Box 7023, SE75007 Uppsala, Sweden Email: Jan.Philipsson@slu.se			1+	1+

11	Dr Mohamed Ould Ahmed	Enseignant-Chercheur Faculté des Sciences et des Techniques Université de Nouakchott Laboratoire de Biotechnologies B.P 5026 Mauritanie Email : ouldahmedmohamed@yahoo.fr Tel : 00 222 46 05 85 48	1					1
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13	Mr. Modibo Oumarou	Ingénieur Zootechnicien Coordinateur du Centre APESS de Dori Association pour la promotion de l'Elevage au Sahel et en Savane (APESS), BP 291, Dori, Burkina Faso Email: omodipadl@yahoo.fr Website: http://www.apessafrique.org/ Tel: +226 40460802; +226 76785623	1+	1+	1+	1+		4+
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Group 2: Development Partners (3Participants)								
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	Name	Institution/Contacts	Theme ¹				Total
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Ministries (1 participant)							
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Resource Persons/Experts (1 participant)							
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Local Partners (6 participants)							
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22	Prof Olanrewaju Babatunde Smith	Technical Adviser to the Ag. Director General International Trypanotolerance Centre (ITC) Kerr Serigne, PMB 14, Banjul, The Gambia Email: olabsmith@aim.com or olabsmith@aol.com Tel: +220 3570678 +220 4463423	1				1
23	Dr Momodou Mbake	Research Scientist	1+	1+			2+

	Name	Institution/Contacts	Theme ¹				Total
			1	2	3	4	
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