

# **PARTNERS ROUNDTABLE MEETING REPORT 6th March 2013 KAMPALA, UGANDA**



**AFRICAN UNION**  
**INTERAFRICAN BUREAU**  
**FOR ANIMAL RESOURCES**

Kenindia Business Park Building, Museum Hill, Westlands Road  
P. O. Box 30786, 00100-Nairobi, Kenya, Telephone: 254-20-  
3674000, Fax: 254-20-3674341 Email: [ibar.office@au-ibar.org](mailto:ibar.office@au-ibar.org),  
[www.au-ibar.org](http://www.au-ibar.org)



**AFRICAN UNION  
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FOR ANIMAL RESOURCES  
AU-IBAR**



**EUROPEAN COMMISSION**

# **Strengthening the Capacity of African Countries to Conservation and Sustainable Utilisation of African Animal Genetic Resources**

## **Report of Partners Roundtable Meeting for the Project Animal Genetics Project**

**Kabira Country Club, Kampala, Uganda  
6<sup>th</sup> March 2014**

**April 2014**

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## Acronyms

ABS:	Access and Benefit Sharing
AGIN:	African Goat Improvement Network
AnGR:	Animal Genetic Resources
ASARECA:	Association for Strengthening Agricultural Research in Eastern and Central Africa
AU:	African Union
AUC:	African Union Commission
AU-IBAR:	African Union-Interafrican Bureau for Animal Resources
BeCA:	Biosciences eastern and Central Africa
CAADP:	Comprehensive African Agriculture Development Programme
CBBP:	Community-based breeding programme
CCARDESA:	Center for Coordination of Agricultural Research and Development for Southern Africa
CEMAC:	Economic and Monetary Community of Central Africa
CGIAR:	Consultative Group on International Agricultural Research
CGRFA:	Commission for Genetic Resources for Food and Agriculture
CIAT:	International Centre for Tropical Agriculture
CIRDES:	Centre international de recherche-développement sur l'élevage en zone subhumide
CORAF:	Conseil ouest et centre africain pour la recherche et le développement agricoles
CRP:	CGIAR Reform Programmes
DAGRIS:	Domestic Animal Genetic Resources Information System
DGEA:	Dairy genetics in East Africa
EAAPP:	East Africa Agricultural Productivity Project
ECOWAS:	Economic Community of West African States
EMBRAPA:	Empresa Brasileira de Pesquisa Agropecuária (Brazilian Enterprise for Agricultural Research)
FAO:	Food and Agriculture Organization of the United Nations
ICARDA:	International Center for Agricultural Research in the Dry Areas
ILRI:	International Livestock Research Institute
IPR:	Intellectual Property Rights
ITC:	International Trypanosomiasis Centre
ONBS:	Open nucleus breeding scheme
RUFORUM:	Regional Universities Forum for Capacity Building in Agriculture
SIDA:	Swedish International Development Agency
WALIC:	West African Livestock Innovation Centre
WECARD:	West and Central African Council for Agricultural Research and Development

## **Acknowledgements**

AU-IBAR wishes to extend its sincere gratitude to the partners and stakeholders who participated in this very important meeting. AU-IBAR appreciates the sharing of knowledge and information as well as the constructive contribution by the partners and stakeholders to the deliberations of the meeting. This resulted in the meeting achieving its goals and will contribute immensely to the implementation of the Genetics Projects. Special gratitude to the European Union and the African Union Commission for providing the funding for the project.

## Executive Summary

It has become apparent that some of the initiatives on AnGR carried out globally have many similarities, complementarities and potential synergies among them. Therefore, it is important to take stock of the various initiatives that have been conducted by the project partners as well as other international institutions and organizations which may have some implications on the conduct of the present project. Hence, to prevent unnecessary duplication, identify potential gaps in information and knowledge and build synergies where appropriate, it is imperative to evaluate the status of current, planned and past initiatives on AnGR in order to identify any gaps and streamline the activities of the present project to enable it to generate and provide “new” information to fill in any gaps in the initiatives conducted on AnGR.

A meeting was therefore, organized by the AU-IBAR and the Genetics Project team to meet with partners and other stakeholders to discuss initiatives which have been conducted in the management of AnGR in Africa. The meeting was held at the Kabira Country Club, Kampala, Uganda on the 6<sup>th</sup> of March 2014. The meeting was attended by 15 representatives of FAO, ILRI, WALIC, CIRDES, RUFORUM, CORAF, ASARECA and AU-IBAR. The main objective of this meeting was to discuss and identify current and past initiatives on AnGR in Africa.

Partners and stakeholders presented the initiatives their organizations had undertaken in the management of animal genetic resources (AnGR) to inform others. These were discussed extensively in plenary and the outcomes and recommendations included the following. The participants agreed on the need to (i) establish an African Animal Genetic Resources Secretariat that will foster coordination, collaboration and coherence in the management of Animal genetic Resources in Africa. This Secretariat will among other tasks, facilitate knowledge sharing through creation of a network and strengthening existing networks on AnGR and joint planning; (ii) promote use of harmonized approaches, protocols and tools in the characterization of AnGR on the continent; (iii) strengthen National Advisory Committees in the Member States to spearhead initiatives on AnGR to create national synergies and prevent duplication of efforts; (iv) organize regular meetings for National Coordinators for them to network and discuss initiatives on AnGR; (v) there is need to define the roles and responsibilities of sub-regional research and development organizations in AnGR; (vi) there is need to establish back-up systems for gene-banking on the continent, preferably at ILRI; (vii) Africa needs to document initiatives conducted on AnGR on the continent and where possible, make a repository of post-graduate theses on AnGR; (viii) need to ensure that benefit sharing and Intellectual Property Rights (IPR) issues are considered when discussing AnGR.

The meeting resulted in cross-fertilization of ideas and knowledge of what other stakeholders were doing in terms of initiatives on AnGR. Potential areas of cooperation and collaboration, as well as gaps, were identified and noted.

## Background

Globally, there have been various initiatives on AnGR with different goals and objectives depending on the specific requirements and strategies of the implementers of the initiatives. It has become apparent that some of the initiatives on AnGR carried out globally have many similarities, complementarities and potential synergies among them. AU-IBAR, ILRI, FAO, CIRDES and WALIC have between them conducted and/or managed various projects and programmes on AnGR or related issues. It is therefore, important to take stock of the various initiatives that have been conducted by the project partners as well as other international institutions and organizations which may have some implications on the conduct of the present project. Moreover, to prevent unnecessary duplication, identify potential gaps in information and knowledge and build synergies where appropriate, it is imperative to evaluate the status of current, planned and past initiatives on AnGR in order to streamline the activities of the present project to enable it to generate and provide “new” information and/or lend support to initiatives on AnGR. It was therefore, proposed to conduct an extensive consultative workshop that brings together the various stakeholders involved in AnGR initiatives in other parts of the continent and the world beyond.

Apart from identifying the initiatives/projects/programmes on AnGR and their location and area of impact, the **Round-table Partners Meeting** was conducted to evaluate the capacities and potential contributions of these initiatives/projects/programmes to the sustainable utilization and conservation of AnGR and identify any gaps in knowledge and information as well as potential overlaps of the various continental and global initiatives.

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## Participants

Fifteen participants from FAO, ILRI, WALIC, CIRDES, ASARECA, CORAF, RUFORUM and AU-IBAR attended the meeting.

### Objectives

The **main objective** was:

- To identify current and past initiatives on AnGR in Africa which may impact on the Genetics Project

### Specific objectives

- To identify differences or similarities between initiatives conducted by various stakeholders on AnGR
- To identify any gaps in knowledge and key areas of concern in AnGR
- To strategize on what can be done to fill knowledge and information gaps

## Workshop Proceedings

## Opening Remarks - AU-IBAR

Dr Nouala welcomed the participants and outlined the objectives of the meetings. He highlighted that the first meeting was to discuss who among the partners and potential partners was doing what on AnGR and identify any gaps which the current Genetics Project may fill.

## Workshop Methodology and Proceedings

The workshop was organized in two plenary sessions. There was no formal agenda. Presentations by the partners were oral with no PowerPoint presentations and were captured by the Rapporteurs. Rapporteurs were from AU-IBAR and ILRI.

## Presentations

The presentations of partners are briefly described here:

### CIRDES

Mandate: Livestock Research in Sub-humid areas

Target areas: Eight countries (Burkina Faso, Benin, Mali, Togo, Niger, Guinea, Guinea Bissau, Côte d'Ivoire)

CIRDES collaborates with the West African Monetary Union

### Activities on AnGR

*Characterization in Cattle, sheep, goats, local poultry and fish*

- Transboundary breed characterization of cattle in various countries in West Africa
- Poultry and Sheep in Togo
- Fish in Burkina Faso, Benin, Ghana
- Use of FAO microsatellite markers for characterization.

*Conservation of Semen*

- Gene bank with semen from different cattle species: collected through a project which started in 2005
- Only one storage point for material collected. There are plans to establish back-up or alternative storage areas

*Improvement of animal breeding systems*

- This was mainly through the PROCADEL project

CIRDES budget comprises 40% from contributions by Member States; 7-8% from services offered by CIRDES; 52-53% from projects.

### WALIC (ITC)

WALIC (formerly ITC) have four thematic areas

- Genetic improvement, conservation and enhanced utilization
- Capacity building
- Knowledge management
- Advocacy and partnerships

WALIC is managing an Open nucleus breeding scheme (ONBS) in The Gambia

- The nucleus herds are at research stations (breeds in nucleus include N'Dama, Djallonke sheep and West African Dwarf goat) 44 bulls have been distributed to farmers as well as 80 rams and bucks
- A group of farmers is acting as multipliers and there are control checks to prevent inbreeding
- Trypano-tolerant animals are exposed to trypanosomosis for up to 36 months

Objective of the ONBS is to improve productivity of breeds kept.



Under the scheme, training is provided on animal management, mating is mainly natural. Conservation of identified good genetic material is conducted through collection and storage of semen from good quality bulls. Cross-breeding is practiced in peri-urban areas and AI is used. However, every effort is taken to prevent animals beyond F<sub>1</sub> level. Animals are back-crossed to the N'Dama in order to discourage greater than 50% of exotic genes in the farmers' herds.

WALIC is planning to develop of a multi-lingual AnGR database from farm level and this is a potential area of collaboration with the Genetics Project. There are also potential opportunities for collaboration with CIRDES on cryo-preservation to provide back-up.

## **CORAF**

CORAF (WECARD) is a council for agricultural research and development in West and Central Africa.

Its research programmes are focused on crops, livestock, socio-economics and coordination in the two regions.

Its projects include:

- Livestock, fisheries and aquaculture
- Natural resource management

CORAF also implements ECOWAS and CEMAC strategies and has programmes on pastoralism and conservation of biodiversity.

There has been integration of Zebu genes in trypano-tolerant cattle in West Africa (Burkina Faso, Mali and Benin) to evaluate the threats to Zebu in trypanosomiasis areas using *snp* markers and efforts on how to conserve biodiversity within the trypano-tolerant cattle. Investigations have been conducted on the impacts of introgression of Zebu genes in trypano-tolerant breeds. However, an ILRI project reported minimal rate of Zebu introgression. The Genetics Project could make use of the results of the ILRI study on Zebu introgression/crossbreeding activity. There could also be common monitoring systems, to identify the trigger points and map that. This could be a gap in Result 1 Activity 3 of the Genetics Project. CORAF is working in transhumance and extensive livestock management systems.

CORAF works with CIRDES and WALIC (ITC), the two specialized centres to undertake their research. CORAF also makes competitive calls with funds from different donors that national partners can apply for.

## **ASARECA**

ASARECA has a project on AnGR improvement and a 3-year project supporting breeding activities in East Africa. There has been an improvement in AI delivery services to smallholder farmers in Tanzania and Rwanda. Another project is on selection within indigenous cattle populations for improving milk production with focus on the Tanzania Shorthorn Zebu. ASARECA also works with agro-pastoralists in a project that involves selection of bulls for breeding.

ASARECA is the regional focal point for the East Africa Agricultural Productivity Project (EAAPP). On dairy improvement:

- The focus is on strengthening institutional capacity to support animal genetic resource improvement.
- Have had a key role in the installation of liquid nitrogen plants; supporting importation of improved dairy animals. Kenya is regional centre of excellence for dairy

There is a goat breed improvement programme in Rwanda for genetic improvement of goat populations in that country. ASARECA is working with EMBRAPA to select goats for improved productivity in Kigali. ASARECA is working in collaboration with USDA, ILRI on African Goat Improvement Network (AGIN). Funds have been secured to support community-based breeding programme (CBBP) in Uganda and Malawi and project will start in 2014. Samples (±500) have been collected from goats in six countries for genetic characterization. However, the results have not yet been analyzed. ASARECA is seeking funds to support genotypic studies.

**Issues raised:**

- Is the approach of ASARECA on AnGR programme or project-based? A long term strategic programme is under discussion
- Does ASARECA take a production systems approach in targeting breeding and improvement interventions? Generally, the choice of breeds and strategies for improvement is in response to needs in existing production environments
- What guides the phenotypic selection of animals used for breeding? Communities are involved in determining the traits of interest within animals

**RUFORUM**

RUFORUM is an affiliation currently comprising 32 universities from East, Central and Southern Africa and the number has risen from 14 in 2004. It was realized that there is a poor link between the research conducted by universities and the farmers especially when the research is supposed to be demand-driven. Therefore, there is need for sharing expertise and information between the universities and farmers. In war zones, farmers have to restock using breeds from other areas and using AI and embryo transfer and this is an area of interest to RUFORUM.

**Issues raised:**

- Is the information on restocking well-documented? There are both positive and negative impacts from the introduction of breeds into new environments. These case studies need to be documented in order to prevent repetitions of the same errors and it is also good to share and learn from failures.
- Can there be collaboration between BeCA and RUFORUM to support capacity development within the regions targeted? On the crops side, this collaboration is currently taking place. On livestock this needs to be strengthened.

RUFORUM may extend its coverage into West Africa and could use the BeCA/RUFORUM partnership to build the capacity of students especially on AnGR.

**ILRI**

ILRI has conducted many projects on AnGR but these have been largely short-lived. Currently, the thrust is to have “big” programmes through the CGIAR Reform Programmes (CRP) whose main objective is to have large longer term programmes such as the Livestock and Fish Research Programme with the collaboration of ICARDA, CIAT and World Fish. Issues of AnGR are addressed through the value chain approach with engagement with development partners from the design phase to the final uptake of outputs being essential.

Eight value chains have been targeted: Small ruminants: Ethiopia, Mali and Burkina Faso; community based breeding programmes for sheep and goats, including Kenya; dairy cattle: Tanzania, India; dual purpose cattle: Nicaragua; pig value chains in Uganda and Vietnam; fish value chain in Egypt Bangladesh and Ghana.

**Genetics component**

- Development of breed and system assessment tools
- Identification and support of delivery of improved and adapted breed strains
- Establishment of platforms for developing and adopting novel phenotyping and genotyping technologies

**Systems Research Programmes:**

There are several on-going projects including on dairy cattle in Senegal; Dairy genetics in East Africa (DGEA); AGIN, BeCA-SIDA Goat improvement (Ethiopia, Cameroon, Tanzania)

Support from South Korea has assisted in improving generation of information on African AnGR. Initial funds were used to help support the development of Country-DAGRIS, additionally funds were used to collect samples from 10 African cattle breeds for full gene sequencing as part of the African Cattle genomic platform.

ILRI regional offices (e.g. in West Africa, Southern Africa, Asia and South East Asia) are currently being re-vamped and strengthened to respond to priorities and needs of the different regions. ILRI is also currently collating and harmonizing information and data generated in the various regions and with different partners in order to avail it electronically for broader use.

A recent development has been the initiation of the Global Livestock Genetic Research Programme whose objective is to increase the productivity of targeted livestock systems through the increased use of improved genetics by livestock keepers.

The current Strategic research themes are:

- Genetics targeting: setting priorities on what to work on and where
- Gene discovery and characterization of breeds and their biological environment
- Breeding and delivery of improved genetics for priority species, traits, production systems and environments: design and implementation of breeding programmes. This includes collation of phenotypic information and providing feedback to related systems, integrated data management and development of a bio-repository.

### ***BeCA***

This is a regional platform for East and Central Africa based at ILRI and ILRI scientists are involved in backstopping and supporting capacity development in biosciences. Recent funding to support projects has been availed through the Bill and Melinda Gates Foundation, the Pearl programme to develop capacity of young scientists in developing countries.

#### **Issues raised:**

- The value chain on sheep in Burkina Faso could be the entry point for collaboration between CIRDES and ILRI
- How can the costs of use of BeCA facilities be reduced? There is current support to establish a center in West Africa more information on BeCA is available at: <http://hub.africabiosciences.org/>
- What are the linkages between ILRI and ASARECA programmes? The Director-General of ILRI is a board member of ASARECA. Teams strive to have alignment and synergies in activities under development. ILRI is re-vamping regional offices and these will foster collaboration with other sub-regional organizations such as CCARDESA.

### **FAO**

FAO has many regional and sub-regional offices as well as country offices in almost all African Member States. FAO prefers a programmatic approach and has created many partnerships. Worked with Africa in the development of CAADP and livestock issues are now an integral part of CAADP. FAO is engaged in many networks and partnerships e.g. with AU-IBAR, ILRI and other regional organizations.

FAO supports countries in:

- Developing National Strategies and Action Plans for Animal genetic resources
- Developing livestock policies e.g. in Burundi
- Establishing National Advisory Committees and encouraging participation by different actors in order to create the evidence base to feed larger databases such as DAD-IS and to support decision-making processes

FAO is also involved in various regional and country projects such as:

- Animal identification and performance recording in Swaziland
- Liaising with USDA on goat characterization

FAO liaises with other research consortia, for example, USDA for development of production of environment descriptor systems. The Commission on Genetic Resources for Food and Agriculture (CGRFA) commissioned FAO to identify ecosystem services provided by local breeds and support with evidence. This is an area that may

lead to policy discussions and requires follow-up action. FAO has also developed various guidelines that are available for use by different actors, e.g. one on animal identification that has been recently drafted and will soon be available.

## **Workshop outcomes**

- The roles of sub-regional research and development organizations was discussed after their presentations and it was agreed that they have an important role to play in the project
- Access and benefit sharing in terms of exchange and use of AnGR are of increasing importance and will influence the willingness of various states, agencies, institutions and the private sectors to invest in the conservation and further development of AnGR
- Issues of access and benefit sharing will also affect the ability of farmers and livestock keepers, individually and collectively, to continue to play their key roles as custodians of AnGR and innovators in the management of these resources
- There is also need for awareness-raising; cooperation in capacity-building, capacity development and strengthening of human resources and institutional capacities on access and benefit-sharing
- Every effort should be made to ensure that benefit sharing and Intellectual Property Rights (IPR) issues are considered when discussing AnGR and that all countries develop Access and Benefit Sharing (ABS) laws by end of 2014 and that the African Common Law was awaiting the Nagoya Protocol, once completed
- It was noted that there is an absence of freely sharing of research information and materials between countries, this lack of co-operation is driven by the fear in Africa concerning gene patenting by other countries
- With the release of the Nagoya protocol this situation should change as rules and regulations will be put in place.

### **Some collaboration entry points were identified during the discussions and these included:**

- An opportunity for partnership between CIRDES and WALIC on conservation of semen from superior bulls from the WALIC open nucleus selection scheme
- Results obtained by different partners on the introgression of different genes in trypano-tolerant breeds could be used to formulate future projects and avoid duplication of activities.
- There is need for continuous monitoring of the impacts of cross-breeding on trypano-tolerant breeds
- Agreement to develop tools for monitoring populations, socio-economic and environmental impacts of different breeding programmes
- It was suggested to establish a back-up system for gene banking of important African breeds, preferably at ILRI
- The value chain on sheep in Burkina Faso could be the entry point for collaboration between CIRDES and ILRI

## **Way forward**

- It was agreed to establish an African Animal Genetic Resources Secretariat that will foster coordination, collaboration and coherence in the management of Animal genetic Resources in Africa. This Secretariat will among other tasks, facilitate knowledge sharing through creation of a network and strengthening existing networks on AnGR and joint planning
- It was agreed to promote harmonized approaches, protocols and tools for the characterization of AnGR
- It was suggested that National Advisory Committees should be strengthened to spearhead initiatives on AnGR, and create synergies and prevent duplication of efforts.
- It was agreed to document and share lessons learnt from both success and failed attempts at breed improvement

- There is need to articulate the link of AnGR activities to food security, livelihoods, poverty alleviation. FAO is drafting a paper on this issue. However, obtaining evidence is a challenge due to lack of data.
- There is need to intensify collaboration in resource mobilization using ideas from the different partners
- There is need to document who is conducting what AnGR activities on the continent. This would involve the collection of post-graduate theses on AnGR.
- It is necessary to identify key external partners from other countries to contribute to discussions and plans for AnGR issues
- Where feasible , there is need to share and distribute improved livestock breeds

### **Closure of the Workshop:**

Dr Nouala closed the meeting. He thanked the partners for their active participation in the proceedings and wished them safe journeys back to their respective bases.

### **Appendices**

- a) List of participants

## List of Participants

	<b>Organization</b>	<b>Name</b>
1	FAO	Irene Hoffmann
2	FAO	Paul Boettcher
3	ILRI	Okeyo Mwai
4	ILRI	Julie Ojango
5	RUFORUM	Godfrey Bigirwa
6	ASARECA	Emmanuel Zziwa
7	CORAF/WECARD	Hamidou Tamboura
8	CIRDES	Dayo G. Kossigan
9	WALIC (ITC)	Arss Secka
10	AU-IBAR	Simplice Nouala
11	AU-IBAR	Mary Mbole-Kariuki
12	AU-IBAR	N'Guetta Bosso
13	AU-IBAR	Edward Nengomasha
14	AU-IBAR	Daniel Alifaki
15	AU-IBAR	Miriam Mulure