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**Community-based management of animal genetic resources**

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**Abstract**

Community Based Management of Animal Genetic Resources (CBMAnGR) is a new and innovative concept for the conservation of domestic animal diversity that recognizes the crucial role of farming and pastoral communities in the maintenance of agricultural biodiversity. Corresponding to the call of the Convention on Biological Diversity (CBD) to conserve biodiversity in its original habitats, it represents a dynamic alternative to conventional ex-situ and in-situ conservation approaches and essentially thrives to combine sustainable use of livestock breeds with empowerment and poverty alleviation for farming and pastoral communities. CBMAnGR builds on experiences made during community based NRM projects and recognizes participatory approaches, appropriate institutional support, integration of indigenous knowledge and values as well as skill and capacity building of stakeholders as critical success factors. Other cornerstones include supportive policy frameworks, marketing opportunities, IPR regimes and economic valuation of AnGR.

The concept of CBMAnGR was developed during an international workshop held in Swaziland in May 2001 that was organized by SADC, SACCAR, FAO, UNDP, GTZ and the MoA Kingdom of Swaziland. Participants recommended to bring the importance of CBMAnGR to the attention of FAO, to formulate policy frameworks that support research and implementation of CBMAnGR in the Southern African region and to develop policies on the rights of local communities, farmers and breeders and the regulation of access to and benefit sharing of AnGR.

**Introduction**

Unlike the situation with respect to plant genetic resources, truly participatory approaches to the conservation of animal genetic resources have not yet been developed and thinking is still dominated by conventional ex-situ and in-situ conservation (Almekinders and Köhler-Rollefson, 2001). In the developed countries there has been considerable success in stemming animal genetic resource erosion by conservation through hobby farmers who keep certain breeds even in the absence of economic returns. But there is very limited potential for transferring this approach to developing countries. In a review of traditional knowledge and institutions for managing animal genetic resources, it was observed that a

large number of threatened breeds is associated with marginal environments and marginalized communities (Köhler-Rollefson, 2000). This was seen as a chance for developing a new concept to animal genetic resource conservation which combines sustainable use of threatened breeds with socio-economic support and poverty for the communities who originally developed them. Community-based Management of Animal Genetic Resources (CBMAnGR) was conceived as an approach that integrates the livelihoods needs of local communities and the Call of the Convention on Biological Diversity to conserve biodiversity in its “natural habitat”.

### **Materials and Methods**

In order to brainstorm and elaborate on the concept of CBMAnGR, several organisations, including the SADC/FAO/UNDP project on “Management of Farm Animal Genetic Resources in the SADC Region”, the Southern Africa Centre for Cooperation in Agricultural Research and Training (SACCAR), the SADC Livestock Coordination in Botswana and the German Technical Cooperation (GTZ) through the project “Managing Agrobiodiversity in Rural Areas” jointly planned a workshop. This was hosted by the Department of Veterinary and Livestock Services of the Kingdom of Swaziland in Mbabane, Swaziland from 7 to 1 May, 2001 under the title “Community-Based Management of Animal Genetic Resources – A Tool for Rural Development”.

#### *Workshop Process*

The workshop was attended by 71 participants, mostly scientists, extensionists and NGO representatives from the SADC region, but who also included resource persons from other parts of the world. There was no rigorously set programme for the workshop, instead the agenda was intentionally left flexible to respond to the needs and concerns of all participants and leave room for group dynamics and momentum to develop. A provisional agenda for each day was discussed and agreed upon beforehand by the workshop process steering group and the facilitator. A documentation committee composed of volunteers was in charge of documenting and distributing all workshop outputs; in addition all group work sessions were summarized by Rapporteurs and the major themes were synthesized by Synthesizers.

To outline the present state of the art with regard to AnGr conservation within the context of rural development, the workshop started out with three key note presentations on the role of pastoralists in the conservation of animal genetic resources, on smallholders and CBMAnGr, and on defining livestock breeds.

#### *Definition of CBMAnGR and related terms*

The purpose of the first session was to clarify participants’ expectations of CBMAnGR and to work towards a clearer definition and understanding. This was facilitated by a presentation on experiences with natural resources management (NRM) in Botswana which described how earlier top-down conservation approaches had only served to alienate communities from their natural resources. A paradigm shift in conservation to community based management had yielded better results. Lessons learnt from NRM that are applicable to AnGr include the importance of an enabling environment, the need for positive effects on the livelihood and the creation of a legal entity or CBO (community-based organization) to implement management decisions. In the following discussion, participants agreed on the following definitions:

A **Community** is a group of people bound together by social, cultural and economic relations based on shared interests and living in a well-defined area.

A **Community-based organisation** is an entity formed or recognized by a community to represent its interests and to implement, on behalf of the community, agreed management decisions.

**Animal genetic resources** are all animal species, breeds/strains and populations used for food and agricultural production and their wild or semi-domesticated relatives.

**Management of AnGR** is the combined set of actions by which a sample, or the whole, of an animal population is subjected to processes of genetic and/or environmental manipulation with the aim of sustaining, utilizing, restoring, enhancing and understanding (characterizing) the quality and/or quantity of the AnGR and its products.

**Community-Based Management of ANGR** is the management of AnGr in which decisions on defining, prioritizing and implementing actions that affect the AnGR and the agro-ecosystem are made by the local communities who own these resources. The AnGR involved may include germplasm not traditionally owned by the communities, either maintained as purebreds, or in defined, purposeful crossbreeding with indigenous breeds.

#### *Advantages and Benefits of CBManGR*

The advantages of CBManGR were seen in the fact that communities have vested interests in all the natural resources on which their livelihoods depend, including the AnGR. As owners, they are best placed to manage these resources and over the years have developed a deep understanding of what it takes to utilize them in a sustainable manner. Also, as they have the most to lose, local communities have the commitment for the effective management of these resources so long as the proper support and incentives are made available to them.

In addition, CBManGr entails the following operational benefits as farmers organise themselves for collective actions:

- Economies of scale in, and effective mechanism for, procurement of inputs and marketing products.
- Collective responsibilities based on shared goals in the management of communally owned resources – e.g. grazing lands, water resources, etc.
- A large pool of (collective) herds/flocks allows greater opportunities for genetic manipulation (e.g. selection and sharing of superior genetic material) than is possible in single herds/flocks.
- An avenue by which marginalized groups can express themselves and be heard by the larger community and government structures and achieve equity in access to knowledge and resources.
- Opportunity to effectively involve more stakeholders in the management of AnGR

Other characteristics of Community-based management of AnGR include

- It is collectively run by members of the community through a participatory decision making process
- Day-to-day management is provided by elected community representatives
- It may include multiple conservation options (in-situ and ex-situ) and genetic enhancement approaches (e.g. selective breeding and crossbreeding systems)
- It is usually holistic by taking into account all system components and their interactions
- It is effective only for AnGr perceived by communities as contributing positively to their quality of life.

- It requires an enabling environment, but should not entail unsolicited external control or interference.

Five case studies from different parts of Africa (West Africa, Kenya, South Africa, Malawi and Lesotho) were presented to stimulate discussion on the critical factors for the success of CBMAAnGR, on hindering factors and on how to overcome these constraints. Based on the comments and questions relating to the presentations, five working groups were formed on the subject of Monitoring and Evaluation, Breeding Goals and Breed Improvement, Sustainability of CBMAAnGR, Incentives for Conservation and Marketing, Stakeholder Participation

#### *Economic Evaluation*

The second topic was Economic Evaluation for which three case study presentations were made. They focused on the importance, application and practice of economic valuation of AnGR, the role of AnGR in poverty alleviation (the case of the Box Keken pig in Southeast Mexico), and access and benefit sharing in the context of farm animal genetic resources. Working groups discussed the following subjects: economic valuation, defining poverty, approaches to poverty alleviation, intellectual property rights (IPR).

#### *IPR*

The working group noted that IPR with respect to AnGR is a topic that has barely received any attention, but that by making it theme of a working group it had become an issue. AnGr is a typical orphan commodity in which nobody is interested until something happens. The problem of establishing who is the rightful owner of an AnGR is even more difficult than with plant genetic resources. Although there are breeds which are associated with particular communities or ethnic groups, others, for instance the Nguni cattle, occur in several countries. It might therefore be more practical to speak of populations (at country level) rather than breeds.

#### *Institutional and Policy Framework*

Three papers were presented as introduction to the topic. They focused on the Intergovernmental mechanism in the global management of animal genetic resources, Legislation in South Africa in regards to access to biological resources and benefit-sharing, and the role of breed societies and breed conservation NGOs in community based farm animal genetic resources.

#### *Conceptual Framework for CBMAAnGR*

In order to outline a conceptual framework for CBMAAnGR, the success factors that had been identified during the discussions were clustered and defined as “cornerstones” for CBMAAnGR interventions. They should be regarded as fundamental conditions necessary for such projects to be effective. All of the cornerstones are equally important and are not positioned in any kind of hierarchy versus each other.

These cornerstones which together compose the conceptual framework for CBMAAnGR include

- Participatory Approach
- Economic Valuation of AnGR
- Enabling Policy Framework
- Intellectual Property Rights (IPR) and Access and Benefit Sharing (ABS)
- Institutional Support/Services

- Assessment of Potentials and Opportunities
- Appropriate Animal Genetic Resources
- Skills and Capabilities of Stakeholders
- Market Opportunities
- Integration of Indigenous Knowledge and Values
- Partnership and Communication
- Integration of AnGR and Ecosystems
- Monitoring Implementation and Feedback Mechanisms

For each cornerstone a group of participants volunteered to focus on the topic even after the workshop and develop it further. In each group, two facilitators/coordinators were chosen to put together an email list, circulate available documentation, keep members updated and set a goal and a strategy for the group.

### *Recommendations*

At the end of the workshop, a statement was issued which included the following recommendations for further action:

- Promote participatory AnGR management based on local knowledge and resources for enhancing capacity in animal breeding, development and conservation.
- Bring the importance of CBMAnGR to the attention of FAO during the next meeting of the Commission on Genetic Resources for Food and Agriculture (CGRFA)
- Formulate policies to support CBMAnGR in the region
- Develop policies on the rights of local communities, farmers and breeders and the regulation of access and benefit sharing to AnGR
- Ensure that proper mechanisms are put in place for research and development of CBMAnGR
- Conduct economic valuation surveys and investigate and develop markets for animals and animal products

### **Discussion**

The workshop was a successful experiment for fleshing out a new concept in rural development. Through collective brainstorming and skilled facilitation, many new aspects for successful maintenance of domestic animal diversity by communities were discovered and discussed for the first time. It resulted in new networks and has also given rise to a project which seeks to support the marketing of products from Nguni cattle in South Africa. Proposed activities include marketing of Nguni leather, analysing the possibility of labeling Nguni products, improving tanning and leather processing facilities and preparing proposals for benefit sharing at the community level.

The workshop statement will also be presented at the next meeting of the Commission on Genetic Resources for Food and Agriculture (CGRFA) at the FAO in Rome. Hopefully, interest in this new approach will also develop in other parts of the world.

### **Conclusions**

CBMAnGR is an attractive and promising concept for conserving domestic animal diversity since it can combine the achievement of two objectives: community welfare and empowerment on one hand, and sustainable use of a breed on the other. However, its

successful implementation is dependent on a wide range of factors which include an enabling environment, skills on the part of the mediating agency, a flexible time frame and sufficient funds. So far experiences are lacking and unless donors are willing to support CBMAAnGR, it will remain a concept rather than an actual tool for rural development.

### **References**

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