



# IDENTIFICATION, TRACEABILITY AND PERFORMANCE RECORDING TO BETTER SUPPORT THE MANAGEMENT OF AnGR IN AFRICA



## KEY MESSAGES

- *Identification, traceability and performance recording can significantly contribute to improved AnGR breeding, production and productivity and farm management*
- *For animal products assurance to be effective they must be reliably and uniquely identified*

## INTRODUCTION

In the context of the management of animal genetic resources (AnGR), especially in the area of conservation, there are areas of development and implementation where ethical issues and challenges emerge, or are deemed by the general public as needing resolution.

Modern breeding programmes have delivered animals that grow faster and yield more 'product', with obvious advantages for both farmers and consumers. However, the negative effects of increased productivity are becoming increasingly apparent. It is society's growing understanding of these effects on the animals that has raised questions about what is ethically acceptable. New genetic and reproductive technologies raise questions about what may and may not be done to animals and their genes, be that through traditional selective breeding or through the use of genomic techniques.

Similarly, questions have been raised about the fairness and ethics of postponing the current utilization of AnGR for the future in the name of conservation of these AnGR. Yet the loss of these indigenous breeds can quickly heighten to affect an entire ecosystem and thus a need to conserve them. Several institutions and organizations operating in Africa have engaged in extensive collection of AnGR material for research, commercial, and conservation purposes. Ethical arguments surrounding bioprospecting have often centered on the perceived exploitation of the AnGR of the African countries, primarily by large companies from the developed countries. Issues surrounding the fairness or equity of the sharing of benefits of exploitation of AnGR are at the core of that debate.

Ethical principles must be a core consideration in the development of access and benefit-sharing regimes that are often exclusively governed by a political and legal rationale. AnGR are an integral part of the cultural identity of the indigenous and local people that have generated and maintained them. Consequently, relevant ethical considerations and principles that should be considered while collecting or exploring genetic resources, as well as conducting research involving indigenous people, traditional societies, or local communities in such research activities have been identified.

These issues need to be considered by all stakeholders to ensure that all parties are aware of the ethical issues at stake and can make a valid contribution to the current debate regarding the conservation of AnGR. The management and use of indigenous AnGR generates ethical disagreements and dilemmas in which human needs, preferences, and interests, concern for the conservation is part of the discussion. While much of the discussion so far surrounding the conservation of AnGR in Africa has focused on its nature and scale, whether it should or should not be regulated, and if so how it should be regulated, there has been little consideration of the ethical implications of the conservation of AnGR in Africa. Increasing ethical issues related to the use of animals influence the use and development of farm AnGR in future, have an impact on the welfare of animals, on biodiversity or on the environment. In many countries, ethical concerns related to certain husbandry practices have aroused intense controversy and have resulted in legislation. Ethical codes of conduct and guidelines as adopted by international organizations deal with policy and legal aspects of agricultural biodiversity as well as with research, conservation, and use. Other issues surrounding ethical dimensions of AnGR management in Africa are presented and discussed in the paragraphs below.

## **POLICY RELATED ISSUES**

The primary ethical challenges we face in protecting and improving African indigenous AnGR are:

- There are signs that the biodiversity of the gene pool within breeds and species is being threatened by intensive selection pressures. For example, variation within breeds has decreased following widespread use of artificial insemination in Holstein dairy cattle, where the overriding purpose has been to make a healthy breed available to farmers. Many African countries are being caught up in this web by relying on importation of some of these heavily selected breeds.
- Programmes introducing improved exotic breeds into the indigenous population have invariably resulted in indiscriminate crossbreeding from uncontrolled mating. Structured crossbreeding programmes, mainly run by governments and/or development partners have collapsed and degenerated into indiscriminate crossbreeding after the programme life. This was due to the lack of funding and the absence of sustainable and realistic exit strategies. Many of these have been smallholder dairy development programmes. The occurrences of such situations raise the question of governments' adherence to simple code of conducts in terms of commitments.
- A first major challenge for the AnGR sector remains the balance between different policy objectives such as maintaining animal genetic diversity and environmental integrity, meeting the increasing demand for animal sourced food, responding to changing consumer requirements, ensuring food safety, and contributing to rural development, and the alleviation of hunger and poverty. The lack of clarity in objectives, and the

failure by policy makers in understanding the critical linkages in different policy objects leave room to be desired and cast doubts about governments' intentions and raises issues of ethical considerations.

- Generally the livestock industry has for decades made extensive use of genetic resources from Africa, and partly due to the absence of a continental legal regime/legislative framework on access and benefit-sharing (ABS). Paying lip service by some African countries to Treaties that they had signed by not creating local policy environments for their implementation raises questions on code of conduct and commitment.
- Identification of breeding goal is the first step in designing genetic improvement strategies. Breeding goals should match the expectations and values of the community. This is a cause of concern as there are a number of indigenous AnGR that have important traits that can be incorporated into genetic improvement programs. Traits of socio-economic relevance include those associated with adaptability, hardiness, cultural and market values. These traits are not normally evaluated under organized genetic improvement programs. Indigenous AnGR are used for multiple purposes, the benefits of including them in these programs are obvious in terms of genetic gains obtained as well as the wider socio-economic dimensions that come into play. The non-inclusion of local breeders' goals in breed improvement plans raises ethical issues.
- Breeding technologies used in addition to traditional mating range from established methods (e.g. artificial insemination), to newer, and more controversial undertakings (e.g. cloning). Concerns over reproductive and genetic technologies are numerous: they include anxieties about welfare consequences for animals, risks to the environment and human health, interference with aspects of life which are not for humans to tinker with and the violation of genetic integrity.
- Research has been undertaken in the past without the sanction or prior consent of indigenous and traditional peoples involved, and that such research has thoughtlessly resulted in wrongful expropriation of cultural and intellectual heritage rights of the affected peoples, causing harm and a violation of rights. There appears to be little recognition in terms of Intellectual Property Rights (IPR) of those livestock breeders who have dedicated so much of their time and energies in the development of these breeds.

## **LESSONS LEARNED ON ETHICAL ISSUES AND ANGR MANAGEMENT IN AFRICA**

There has been a significant evolution of the use of the legal concept of benefit sharing in the context of the Convention on Biological Diversity (CBD) and its contribution to indigenous and local communities' livelihoods. In particular, according to the text of the Convention and the decisions of its Conference of the Parties (COP), the concept of benefit sharing has been evolving not only in relation to the use of genetic resources,

but also, with remarkably different legal connotations, in relation to the conservation and sustainable use of biodiversity.

The initiatives leading to the Protocol on ABS does not only come from Indigenous Peoples organizations and a number of national governments but also from global companies, who are seeing the benefits from a regulated regime that will reduce biopiracy and outright theft of genetic resources. Also, increasing consumer awareness of fair trade conditions has translated into policies of responsible companies to include transparency in trade with genetic resources, hence creating a shared interest between the private sector and national government/local communities.

Given the predominant North-South gene flow, benefits potentially arising from the use of genetic resources accessed from the South may not be sufficient to encourage breed conservation in the South. Other measures may need to be explored to encourage these breeds' conservation and sustainable use. As intensive production based on few trans-boundary breeds continues to supply the bulk of global production, and the threat of extinction for local breeds increases particularly in regions of fast structural change, defensive measures to reduce gene flow related threats to genetic diversity may be more appropriate. The usefulness and applicability of market-based tools such as a levy on international movement of animal genetic material to support developing-country communities, breeding associations, and breeding and conservation programmes should be investigated. There is, a need to coordinate the implementation of the Nagoya Protocol in Africa through the development of appropriate guidelines on access, benefit sharing and IPR to assist African countries in the management of AnGR.

Countries have a responsibility to conserve their AnGR; however, most countries lack comprehensive policies. Such policies should serve to ensure the maintenance of AnGR with direct values for human use, including production, ecological, social and cultural values, as well as option values for future use and adaptation. Production and functional traits, and national capacity, should be taken into consideration in setting conservation priorities. The erosion of AnGR has complex drivers and cannot be halted by one simple solution. A combination of in situ and ex situ conservation measures is necessary.

## SETTING THE POLICY AGENDA

The Agenda setting for policy discussions, formulation and the eventual communication of the policies should consider:

### **Develop national policies and regulatory frameworks for access and benefit-sharing**

National legal instruments on ABS should be developed. These national instruments should

be simple, efficient, adapted to national and local circumstances and coherent with existing mechanisms in complementarity with other national or global ABS related instruments such as the Nagoya protocol and the CBD. Such instruments should include both legislative and regulatory components. The legislative component should refer to the drafting and/or the amendment of one or several laws being specific to or inclusive of ABS. The regulatory component should refer to ABS regulations that are sector specific reflecting on national priorities. The implementation of the basic measures of the Nagoya Protocol can unleash a wide range of monetary and non-monetary benefits for providers of AnGR. Some of these benefits could be reinvested in the conservation and sustainable use from where the AnGR were obtained. This will fulfil the three objectives of the Convention on Biological Diversity.

### **Target drivers influencing trends in sharing**

There are some key drivers which will influence trends in sharing, exchange and transfers of AnGR and these include globalization, biotechnology, climate change, emerging diseases and disasters. These drivers are already to a large extent, influencing the movement of AnGR across national, regional and international borders. The World Trade Organization's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) allows countries to exempt plants and animals from patentability. However, for plant varieties there is a requirement for an alternative "sui generis" system of IPR protection, but this is not stipulated for animals. This effectively means that the IPR of animal breeders are not as protected as those of their counterparts in plant breeding.

### **Promote conservation strategies**

The conservation and sustainable use of AnGR requires a mixed approach, and both in situ and ex situ efforts. There is an increasing recognition that, because of the rapid current erosion of AnGR, efficient and cost-effective ex situ conservation strategies need to be put in place in the near future, to complement in situ conservation. In situ and ex situ conservation strategies need to be better linked to ensure that a maximum amount of genetic diversity is conserved in the most appropriate way and that biological and cultural information is not lost inadvertently. There is a need to establish modalities to facilitate use of genetic material stored in ex situ gene banks under fair and equitable arrangements for storage, access and use of AnGR. Collaboration for in situ conservation is desirable for regional transboundary breeds and for transhumant livestock populations held by pastoralist communities that cross national boundaries.

### **Clarify purposes for which genetic composition are to be changed**

In considering the ethics of biodiversity, it is crucial to distinguish between the subjects for which we manage and the objects that we manage. The subjects for which we manage possess inherent values that we try to manage. The subjects for which we manage

possess inherent values that we try to increase or preserve. A major ethical problem is to determine which organisms have inherent values, what moral obligations are owed to them, and which can be treated strictly as instruments. To answer this question, we need to clarify the purposes for which it is acceptable to alter the genetic composition of animals (to a greater or lesser extent) in order to improve their utility and what kinds of concern should be considered in this connection. One way to meet these concerns would be to conserve all breeds, or at least breeds of special importance, using cryopreservation techniques. Priorities will have to be identified in anticipation of future needs.

### **Encourage participation of stakeholders**

By acknowledging the role of a wide range of actors such as the roles of indigenous peoples, traditional farmers, NGOs and other concerned groups the process of deciding upon the best conservation actions can be diversified and summarily approached from a broad range of angles, ideally those that best preserve both biodiversity and its locally derived socio-cultural values.

### **Develop and enforce a Code of conduct**

The principle of prior informed consent (PIC) is one of the key principles that underpins access to biodiversity and related information and knowledge in the Convention on Biological Diversity and has been reflected in important codes of conduct. In the absence of formal standards, the code of conduct could serve as a guide to the relevant stakeholders in the course of germplasm collection to ensure that the processes of accessing and collecting AnGR are ethical, fair, and equitable. It should also provide some of the basic elements and general principles that a country could take into account in designing a formal set of rules to regulate the collection of germplasm by gene banks, researchers, the private sector, and others, or in formulating bilateral agreements on the collection of germplasm.

### **Institute and promote incentives to support conservation**

Incentives for producers and consumers to support conservation of AnGR at risk, as evaluated by individual countries, should be provided and catalysed. Such incentives should be consistent with existing national/international agreements.

## **POLICY OPTIONS AND RECOMMENDATIONS**

Policy options to resolve some of the outstanding issues and overcoming some of the challenges associated with proper code of conduct and ethical practices the management of African AnGR, include:

- African Governments confronted with situations where livestock breeds are at risk of extinction should urgently identify cost-effective actions relative to monitoring

and conservation measures to ensure genetic diversity is maintained. Once identified the actions should be implemented to enable farmers to respond to ever changing consumer demands and environmental conditions.

- Governments Ministries and Agencies responsible for AnGR should consult with stakeholders to set conservation priorities and associated programmes for the valuation of indigenous AnGR, and to assist in policy and regulatory frameworks development and management decisions, including issues related to conservation and benefit sharing.
- African Governments should embark on measures that maintain genetic diversity in the different production systems, through monitoring, provision of appropriate incentives, conservation measures and awareness building.
- Policy-makers and the general public should be educated on the importance of AnGR, the need to safeguard them, and made aware of the ethics issues inherent in the management and exchange of AnGR.

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