

Panellists' comments and discussion

Mr Arthur Mariante, EMBRAPA Genetic Resources and Biotechnology, Brazil

A very interesting paper, which brings back the old question: *in situ* or *ex situ*, with a different approach! John and his co-authors brought some new ingredients to this subject. Some of their core messages are:

- Diversity “put in” limits diversity “taken out”!
- How many and which ones to include?
- Gene Banks pay no interest! You get out only what you put in!
- What the use of the stored material can or cannot achieve?
- Use of SCNT for emergency conservation actions.

I would like to demonstrate some aspects of animal genetic resources in Brazil.

Most livestock are not indigenous to Brazil; animals were brought in by the settlers, have been

submitted to natural selection, and supported animal production in the country for centuries. At the beginning of the twentieth century, exotic breeds were imported and gradually replaced these adapted breeds.

To avoid the loss of this genetic material, in 1983 Embrapa decided to include conservation of animal genetic resources among its priorities. At that time, we decided to conserve those old breeds both ways, as suggested by John: *in situ* and *ex situ*. We agree with the authors that there is no dichotomy, and these two methods complement each other.

In situ conservation is carried out in nucleus herds (conservation nuclei), maintained in the habitats where the breeds have been naturally selected.

When there are human and physical resources in the nucleus, the collection and freezing of genetic material are carried out *on farm*. When it is not

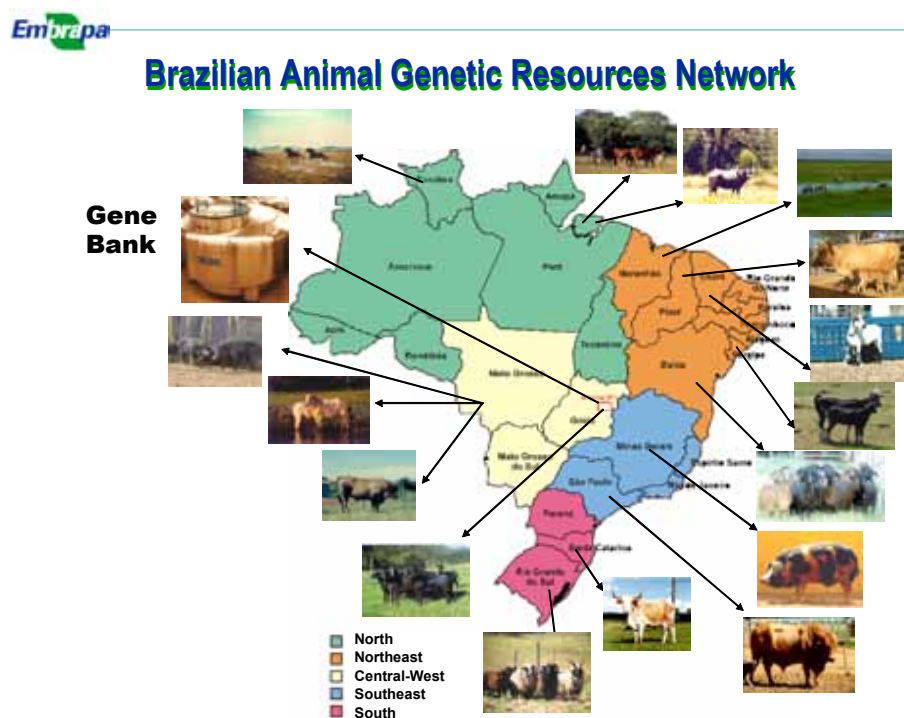


Figure 1. Ex situ conservation - Semen and embryos are stored at the Animal Germplasm Bank located at our Experimental Farm located in Brasília. 65 000 semen samples and 250 embryos are being stored at the Animal Gene Bank (AGB), located at the Experimental Farm. More than 8 000 DNA samples are being stored at the DNA Bank.

possible, some animals are temporarily transferred to the Experimental Farm for this collection.

We agree with the conclusions by the authors, when they list six major challenges that livestock production is facing nowadays. The mentioned unpredictability of these challenges should really be met by securing the animal genetic resources that are available to mankind.

This task should be shared by countries that have the facilities and human resources to do so, building capacities in regions where this is not yet being done.

The time may have arrived to establish regional gene banks, a huge project postponed by FAO in the early 1990s, due to different animal health legislation of countries within the same regions. The establishment of subregional gene banks could be the way to proceed in order to save endangered breeds of countries that are not yet prepared to do so. We are all responsible!

Ms Nitya S. Ghotge, ANTHRA, India

While on one hand the paper states that the position of global animal genetic resources is far from secure, it does not adequately address the relative merits and demerits of different approaches and technologies with reference to different nation states, which then brings one to the very crucial question of who will conserve the genetic material, where and how. The paper also does not touch on the very important aspect of the ownership of genes and genetic material.

Currently, the genetic diversity of domesticated livestock lies in the Southern, lesser-developed countries, often with farmers living in fragile and marginal livelihoods. Efforts to preserve this diversity must go in tandem with efforts to improve the livelihoods of these farmers, and this is where funds need to be channelled. The ownership of the genetic material must remain with the communities and not in the private hands of industries or institutes.

Our organization ANTHRA which is based in India works with small and marginal farmers – dalits, adivasis (indigenous communities), pastoralists and landless groups – especially with women from these marginalized communities. Our work focuses on production and farming systems, and within them the crops and fodder varieties, livestock and plant genetic resources, medicinal plants and health care traditions, land and water use, and the indigenous knowledge connected with these systems.

We support viable community-based livelihood-enriching interventions which use and strengthen peoples' knowledge systems in productive ways and make them less dependent on external forces. Towards this end we have been active in supporting local livestock production systems such as women and backyard poultry with a special focus on the Aseel, Nicobari and Kadaknath breeds; local goats – the Kanchu Meka breed; local cattle – the Dangi; and local pigs – the Nicobari for different adivasi (indigenous) communities, and the Deccani sheep for pastoral communities.

Mr Shakeel Bhatti, FAO International Treaty on Plant Genetic Resources for Food and Agriculture, Italy

Thank you, Mr Chairman.

As I am on this Panel, the only commentator from the plant genetic resource side and the only representative of an intergovernmental body, I would like to add some comments on the inter-relation between the important work that lies ahead for your Conference and the already existing work and intergovernmental processes in the field of plant genetic resources (PGR) – in particular, of course, the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).

Having heard the presentations by the authors, my basic observation is that plant and animal genetic resources are very distinct and cannot be forced into the same mould in legal and policy terms. And my basic argument would be that, in their distinctiveness, PGR and animal genetic resources (AnGR) policy *can* and *should* be complementary, mutually supportive and conceived and developed in a coordinated manner.

Conservation, which is addressed under Article 5 of the Treaty, is one of the basic objectives of the ITPGRFA. However, the ITPGRFA comes from the plant side and so what I am about to say has mostly elliptical value as a contribution to this debate.

Introduction to ITPGRFA

As the two areas are so different, let me, for those of you who are not familiar with the Treaty, recall some of the main features of the ITPGRFA. Historically, the work of the Global Plan of Action for Plant Genetic Resources was purely food crop-based. It was during the negotiations for the ITPGRFA that forages were brought in. The Treaty

establishes a multilateral system (MLS) for a fixed list of 64 crops and forages, established on the basis of the criteria of food security and interdependence. For these crops and forages the Treaty facilitates access and regulates benefit-sharing.

Farmers' Rights

As the paper mentions, there is a preference for *in situ* conservation recognized by the Commission on Genetic Resources for Food and Agriculture (CGRFA), the prime body for policy in agricultural genetic resources. As we heard this morning, that is where the rights of pastoralists and traditional livestock breeders, who are conserving AnGR diversity *in situ*, come in. You might be interested to know that in the context of the negotiations for the ITPGRFA, we had the same discussion on recognizing and incentivizing the enormous contribution of farmers to the *in situ* conservation of PGR. This discussion led to the adoption of Article 9 of the International Treaty, entitled "Farmers' Rights". So there has been a similar debate on the recognition of traditional communities in the conservation of PGR and the work on implementation of Farmers' Rights is still going on. There may be lessons to be learned there.

Linkages between PGR and AnGR

There may be a case to be made for working with ecosystemic approaches that integrate perspectives on PGR and AnGR to make overall production systems more effective. The linkages are, indeed, there in the production systems – AnGR production systems use crops and forages to produce. The coordination between PGR and AnGR policy may play a particularly important role in facilitating sustainable intensification in crop-based livestock production systems and for conservation in pastoralist production systems.

AnGR and PGR are very different: different biology, different production systems, different use and innovation patterns, etc. Thus, while recognizing that they are inter-related, the differences must be recognized. This is well reflected in the current policy and institutional framework of FAO, where – while they are both included in the Multi-year Programme of Work (MYPOW) – the process for plants is very different, being mostly contained in the framework of the ITPGRFA.

Lessons that can be learned

In light of rapid change and genetic erosion, there may be need for international regulation and cross-border controls to improve cooperation and development in the AnGR field. If you decide to go that way in this Conference, there are lessons which, I think, might be learned from the ITPGRFA and its negotiations. These lessons include the importance of multilateralism in designing appropriate policy and legal frameworks for genetic resources for food and agriculture. This is so important in agricultural genetic resources because of the millennia of open exchange of genetic resources in agriculture, both in both plant and animal kingdoms, which makes a bilateral approach very difficult to implement.

Another important consideration is the need for a Funding Strategy. The paper recommends that "an initial step" of a "conservation strategy to capture the diversity of breeds" could be for funding institutions to "require project proposals to identify conservation needs and to supply costed and timebound plans for such needs". I am pleased to inform you that an *Ad Hoc* Advisory Committee on the Funding Strategy of the Treaty has just identified some key priorities and eligibility for funding under the Funding Strategy of the Treaty. It has identified "on-farm conservation of PGRFA" in particular those listed in Annex I of the Treaty as one of the key priorities for funding of development projects. The Funding Strategy of the Treaty foresees all sorts of actors working together, including through other institutions.

Some concrete suggestions:

- The process following up from this Conference and the monitoring of the possible Global Plan of Action for Animal Genetic Resources can draw upon the Treaty process for support along the lines of the linkages outlined above. This would mean:
- Coordinating the processes of the Global Plan of Action for Animal Genetic Resources and the process of the ITPGRFA as far as their respective work on forages and pastures go.
- In a possible future revision of Annex I of the Treaty – which is done according to criteria of food security and interdependence – the needs of livestock production systems and their contribution to food security should be taken into account. This should take into account the importance of grasses and forages for livestock production systems and thereby for food security. This should apply especially to low- and medium-input livestock production systems.

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- One target for the priorities under the Funding Strategy could be fodders and feeds – grasses (Africa) and legumes (South America).

Summary of plenary discussion

The meeting was then opened for general discussion and interventions from the floor. Key issues raised during this discussion included:

- The need to identify forces that drive breeds to extinction.
 - The need for guidelines to ensure that inappropriate restocking measures are avoided in the aftermath of catastrophes.
 - The need to consider policy and legal frameworks for conservation programmes.
 - The need to identify priorities for immediate action in the field of conservation.
- Responses and final comments of the authors included the following points:
- In general, action is most urgently required where the livestock sector is undergoing rapid changes.
 - *In situ* and *ex situ* conservation measures are complementary, but need to be coordinated to ensure that they achieve their objectives effectively.
 - Cooperation with conservation organizations interested in specific animal genetic resources is required.