

Report of the International Technical Expert Workshop

Exploring the need for specific measures for Access and Benefit-Sharing (ABS) of Animal Genetic Resources for Food and Agriculture (AnGRFA)

For reasons of efficiency, this report is written by the organizers who take full responsibility for its contents. Whereas the authors have taken every effort to produce an accurate and objective report accommodating all views expressed, it cannot be assumed that all participants fully agree with the entire text of this report.

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Summary

The adoption and the subsequent need for implementation of the Nagoya Protocol on Access and Benefit-Sharing (ABS), which forms a major component of the international regime on ABS, provides options for specialized international agreements for specific genetic resources (see Article 3bis). Animal Genetic Resources for Food and Agriculture (AnGRFA) exhibit specific features and might thus qualify for a specialized international agreement. Such recognition raises the question *which* specific policies and measures might be developed for AnGRFA. Participants in an international technical expert workshop¹ evaluated specific characteristics and exchange patterns of AnGRFA, and discussed which type(s) of specialized international instrument(s) would be needed to support conservation and sustainable use of AnGRFA.

Globally, both within- and between-breed genetic variation is under threat, while this variation is important for (future) selection programs. Few wild relatives exist which are relevant for animal breeding. Conservation of AnGRFA is an expensive and complex operation. Therefore, conservation by utilization is considered to be an important strategy for AnGRFA.

AnGRFA are mainly under private control and ownership and currently the exchange of AnGRFA is mainly regulated by the transfer of private ownership (by contracts under private law and agreements under customary law) and is strictly controlled and often limited by zoo-sanitary regulations. Most exchanges take place between developed countries. Less frequent is the exchange between developing countries and from developed countries to developing countries. Exchanges from developing countries to developed countries are rare. This implies that the availability of benefit sharing funds, generated through access provided to developed countries, will not accrue substantial benefits to support conservation in developing countries.

Workshop participants considered the costs of developing a specialized, legally binding instrument for AnGRFA to be high in comparison with the expected benefits. Therefore, they recommended that the FAO Commission on Genetic Resources for Food and Agriculture should focus on: the implementation

¹ The International Technical Expert Workshop Exploring the Need for Specific Measures on Access and Benefit Sharing in Animal Genetic Resources for Food and Agriculture, held in Wageningen, 8 – 10 December, 2010

of the Global Plan of Action for AnGRFA to obtain substantial funds for capacity building and to support conservation of AnGRFA in developing countries and countries in transition. Within the framework of the Global Plan of Action it may be considered to develop specific international agreements, such as guidelines for international exchange (including genetic impact assessments) and model Material Transfer Agreements for AnGRFA, in the framework of the Nagoya Protocol, for implementation at the national level, in order to contribute to the conservation and to promote the utilization of AnGRFA.

Workshop background and objectives

In October 2010, a legally binding protocol on Access and Benefit-Sharing (ABS) was successfully negotiated by the 10th Conference of the Parties to the Convention on Biological Diversity (CBD), the Nagoya Protocol². This Protocol provides a framework for all types of genetic resources, including Animal Genetic Resources for Food and Agriculture (AnGRFA). At its 11th Regular Session, the FAO Commission on Genetic Resources for Food and Agriculture (CGRFA) agreed also on the importance of ABS in relation to all components of biodiversity for food and agriculture, and included work in this field in its Multi-Year Programme of Work (MYPoW). Accordingly, the CGRFA decided to consider arrangements and policies for ABS at its 12th Regular Session (October 2009). To facilitate discussions and debate on ABS at the 12th Regular Session, the Secretariat of the Commission had commissioned several background study papers on use and exchange patterns of genetic resources in the different sectors of food and agriculture and organised a Special Event to discuss these papers immediately prior to this session.

The participants in the Special Event made the observation that it is important not only to claim a special nature of genetic resources for food and agriculture (GRFA) but also to develop and suggest specialized measures warranted by such special nature, if appropriate. In discussing such measures it might be important to take into consideration similarities and differences between different types of GRFA. Compared to other types of GRFA, AnGRFA exhibit some specific characteristics that distinguish them from other GRFA. In the light of further development and implementation of the international regime on ABS and taking into account the Nagoya Protocol, the question was raised *which* specific policies and measures for AnGRFA would be needed to implement the ABS provisions of the CBD and contribute to the international regime that would also effectively support the conservation and sustainable use of AnGRFA.

In this context, the Centre for Genetic Resources, the Netherlands (CGN) of Wageningen University and Research Centre, organized an International Technical Expert Workshop. The workshop was sponsored by the Ministry of Economic Affairs, Agriculture and Innovation of the Netherlands, the Norwegian Ministry for Agriculture and Food, and the Federal Office for Agriculture of Switzerland. The workshop addressed the following main questions:

- What makes Animal Genetic Resources special?
- How does the exchange of Animal Genetic Resources work?
- Which measures on Access and Benefit Sharing are needed to conserve and promote the use of Animal Genetic Resources?

Workshop programme and participants

The Workshop was held in Wageningen, the Netherlands, from 8-10 December 2010. The 60 participants³ originated from all regions and reflected a wide

² The Nagoya Protocol on access to genetic resources and the fair and equitable sharing of benefits arising from their utilization to the convention on biological diversity.

³ The following persons participated in the workshop and were invited as experts: Teresa Aguero Teare, Paolo Ajmone Marsan, Johan van Arendonk, Workneh Ayalew Kebede, Frank Begemann, Susette Biber-Klemm, Harvey Blackburn, Elli Broxham, Uday Chandra Thakur, Leontine Crisson, Carlos Correa, Kusuma Diwyanto, Tashi Yangzome Dorji, Adam Drucker, Grethe-Helen Evjen, Jianlin Han, Sipke Joost Hiemstra, Irene Hoffmann, Sukhbaatar Jigiidpurev, Pieter Knap, Ilse Köhler-Rollefson, Vanida Khumnirdpetch, Catherine

geographic coverage. Furthermore, all sectors (policy, research, breeding, *in situ* and *ex situ* conservation) were represented. A large majority of participants had a direct professional involvement with AnGRFA. Participants were exclusively invited as experts in their field.

After the opening address by the rector of Wageningen University and Research Centre, the morning session of the first day dealt with "The context for the development of AnGR specific ABS measures". The afternoon of the first day discussed "The current international exchange of AnGR – facts and perspectives". The morning session of the second day explored the theme "Characteristics of specific measures: full and minimum approaches", followed by group discussions and reporting in the afternoon session. Conclusions were drawn during the last day in a plenary morning session.

Current international legal framework for the exchange of AnGRFA

Although also not designed specifically for AnGRFA, a number of international legally binding agreements bear on the exchange and conservation of AnGRFA. The Nagoya Protocol provides an international framework for ABS on genetic resources, including for AnGRFA. The workshop participants recognized that the Protocol allows for specialised international agreements for specific genetic resources. Workshop participants recognized other international agreements with a general scope that may also have an impact on the international exchange and conservation of AnGRFA, including the SPS and TRIPS agreements of the World Trade Organization WTO and various treaties under the World International Patent Organization.

Currently, the exchange of AnGRFA is mainly regulated by the transfer of private ownership (by contracts under private law and agreements under customary law) and is in particular influenced by zoo-sanitary regulations. As the implementation of regulations on intellectual property rights and on sanitary issues advance further, these may have an increasingly significant impact on AnGRFA exchange, use and conservation.

Characteristics of AnGRFA

Workshop participants identified the main characteristics distinguishing AnGRFA from other types of genetic resources and discussed these characteristics in detail. The discussions on these main characteristics are presented below.

Consensus existed that global AnGRFA diversity is under pressure. The participants noted that the existence of threats to AnGR is generally accepted, but that debate remains about the nature and severity of genetic erosion. The loss of breeds is only one indicator for the loss of farm animal genetic diversity, since a major part of genetic diversity is found within breeds and significant genetic overlap between breeds, nationally and internationally, occurs.

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The global livestock sector is an important contributor to economic development and food security. Whereas public investments in the livestock sector in developing countries are usually found to be inadequate and breeding programs may even be non-existent, globally the organization of poultry, pig and cattle breeding is increasingly concentrated in a few international breeding corporations.

Selection programs for farm animal improvement are incremental and make use of within and between breed variation. Many species have long generation intervals and low regeneration rates. Few wild relatives exist which are relevant for animal breeding, and – compared to Plant Genetic Resources for Food and Agriculture (PGRFA) – conservation is an expensive and complex operation. Conservation by utilization is considered as an important strategy for AnGRFA.

By focusing largely on direct output functions (e.g. production of milk, meat or eggs), the importance of AnGR conservation is likely to be consistently undervalued. Current economic decisions are largely based on *direct use values* of AnGRFA, although *indirect use values*, *options values*, *bequest values* and *existence values* may be of equal or greater importance in the context of biodiversity and genetic resources conservation. Not all *values* of AnGRFA are taken into account in market prices, and therefore accrued benefits do not address and support all these values of AnGRFA.

Although historical exchange patterns illustrate the interdependence between countries and regions, a characteristic that is similar to that of PGRFA, unlike for PGRFA there have been very limited flows of AnGRFA from South to North. However, exchange of improved breeding materials between OECD countries and from OECD countries to developing countries contributes substantially to global development of the livestock sector.

Individual animals embodying AnGRFA are in general privately owned, and individual breeding animals exhibit a high value. AnGRFA are mainly under private control and ownership, and cannot generally be considered to be in the public domain. Commercial breeders often protect their investments through 'staying ahead' of competitors and by physically controlling the use of their most valuable breeding animals. Exchange of AnGR between private parties occurs to a large extent under private law agreements. In communal systems, sharing breeding animals is regulated by communal rules. Ownership of an animal or germplasm includes in principle the license to use and sell. At the same time, implementation of the Nagoya protocol, and increasing use of IPR protection (e.g. patents) may have an increasing impact on the (future) exchange of AnGRFA.

Finally, AnGRFA can be characterized as being more closely related to human biology and culture compared to other genetic resources for food and agriculture. This notion in particular illustrates the need to take into account the '*total economic value*' of ANGRFA in further development of policies and regulations.

Recent, current and future exchanges of AnGR

The workshop revisited exchange patterns and this chapter presents some major features.

Substantial exchange of genetic material between developed countries (North to North) occurs, but moreover high performing breeding stock is

increasingly exported from North to South, driven by globalization. South to South exchanges have also been extensive and important for livestock development. However, such exchanges have generally been far less well documented than North-North exchanges. Movements of livestock germplasm from South to North have been rare in the past century, and in most cases the economic benefits of these exchanges to both North and South have been relatively small. This is in contrast to PGRFA, where South to North flows are more prominent.

At first sight, international exchange and use of AnGR might seem to occur relatively unhampered, and without strong government policy interference with the exception of veterinary protection measures. North-North and North-South exchange involves commercial breeds and transfer is rather open. Most international exchange consists of commercial transactions. Basic scientific research is largely carried out in the public domain, whereas companies protect their knowledge generated in more applied research and breeding.

Transfer of improved AnGRFA to the South may result in replacement of local breeds. Sometimes, commercial breeding material is used in environmental conditions to which the animals are not adapted. Farming systems in the South may not be adequate to accommodate the transferred animals with poor adaptation. Sustainability of introduced international breeds is often low. The main reasons for the promoted global use of poorly adapted high-external input breeds are exerted commercial pressure and flaws in decision-making processes at the national and/or breeder levels. Carrying out genetic impact assessments before introduction of improved or exotic genetic material can be considered useful, but so far this tool is not commonly used.

In the context of North-South transfers, information exchange, technology transfer and capacity building are often poorly addressed. As a result, an important reason for the productivity gap between commercial breeding material and local AnGRFA in the South is the lack of breeding capacity, resources, efforts and genetic improvement schemes for local AnGRFA.

South-South exchange is partially poorly documented, but is substantial and has been important in the past. Some limitations to exchanges based on export regulations have been reported.

There is little or no demand in the North for breeding animals or specific (adaptive) traits from the South. The few examples of introduction of breeds from the South into breeding programs in the North have illustrated the difficulty of (large-scale) commercialization of South-North transfer. Some workshop participants pointed at the low success rate of introduction of breeds from the South into breeding programs in the North, suggesting that such introductions had often not been cost-effective and had not generated revenues.

Stakeholder views on fair and equitable exchange

In the workshop views from the different sectors were highlighted.

Participants from the livestock breeding industry indicated that the majority of trade in breeding stock consists of exchange between developed countries. The interaction between genotype and environment is considered as a serious challenge in the case of export from developed countries to developing countries or countries in transition. In developed countries on the one hand, well-functioning recording schemes are present for most traits of economic importance, which is often lacking in developing countries on the other hand,

whereas this capacity can be considered as one of the critical factors for the commercial success of international breeds. Participants from the breeding industry emphasized that their breeding programs are not dependent on introduction of new genes from the South. Genetic improvement programs are largely based on selection within breeding populations. Breeding objectives continuously develop and the breeding industry stresses that existing stocks offer sufficient diversity to attain changing breeding objectives and to produce breeding stock for different production environments. They repeated that only a few examples of successful and commercially viable introductions of developing country germplasm into Northern breeding programs had occurred. Much faster and better results may be expected from 'genomic selection' making use of proper recording of relevant economic and functional traits in different environments.

For the global research community facilitated exchange of research material between countries appeared to be very important. For example, recent scientific research on global farm animal genetic diversity resulted in a much better understanding of the origin and routes of dispersal of biodiversity. Researchers made a plea for the establishment of clear exchange procedures for research materials, including through the use of a model or standard Material Transfer Agreement.

Non-governmental organizations stressed that the global AnGR community should not leave the interests of indigenous and local communities unattended. The need for implementation of 'livestock keepers' rights' was emphasized, and the concept of 'biocultural protocols' were promoted since these protect traditional patterns of AnGR management as well as the ecosystems in which they function.

Presentations on government perspectives illustrated that the potential development of specific ABS measures for AnGRFA often requires further consultation of various national stakeholders and an analysis of specific national needs. It was also mentioned that a very limited number of countries (if any) have implemented specific ABS-related regulations for AnGRFA.

Main issues and type of ABS measures desirable for AnGRFA

Issues associated with the development of AnGRFA-specific ABS measures were discussed during the workshop, taking into account the specific characteristics of AnGRFA and the need to further promote conservation, sustainable use, and fair and equitable benefit-sharing of AnGRFA. Below these issues are highlighted.

1. The limited options for generation of benefits from AnGRFA use, as opposed to the need to support conservation. The volume of South–North exchange of AnGRFA is low, in particular in comparison to other types of genetic resources for food and agriculture. This means that South-North exchange can only generate limited benefits for the purpose of conservation of local genetic diversity and for poor livestock keepers in developing countries. It seemed doubtful indeed that sufficient revenues could be acquired through "classical benefit-sharing mechanisms" to have any substantial impact on conservation, and to contribute substantially to the improvement of food security in the long run. On the contrary, most of the benefits are generated through North-North, North-South or South-South exchange, both on the user side and the provider side, in other words for seller and buyer.

However, negative impacts on genetic diversity as a result of hybridization or replacement have also been associated with current exchange practices, and it was argued that governments or other stakeholders should carry out 'genetic impact assessments' before introducing improved, exotic breeding material.

The limited options for benefit-sharing through direct use should justify alternative measures to raise funds to support conservation. Several suggestions were made by workshop participants to generate funding and human capacity to directly support conservation and breeding in developing countries and countries in transition. Options mentioned were i) 'public-private partnerships in establishing local breeding programs', ii) a 'tax on international exchange' and foreign introductions and iii) the development of regional and global strategies to also establish a multilateral pool of AnGRFA.

2. The need to use the *Global Plan of Action for AnGRFA* as a proper framework to deal with the main issues of AnGRFA conservation and use. The workshop participants stressed the importance of the Global Plan of Action. In recognition of the need to develop an effective framework for the management of AnGRFA, and to address the threat of genetic erosion, 109 countries came together in Interlaken, Switzerland in September 2007 for the first International Technical Conference on Animal Genetic Resources for Food and Agriculture. The Conference adopted the FAO Global Plan of Action for Animal Genetic Resources for Food and Agriculture, which includes 23 strategic priorities for action to promote the effective management of these vital resources. The Global Plan of Action is in turn based on the *FAO State of the World's Animal Genetic Resources for Food and Agriculture*, the first comprehensive global assessment of livestock diversity and its management. The Conference also adopted the *Interlaken Declaration on Animal Genetic Resources*, which affirms countries' commitment to the implementation of the Global Plan of Action and to ensuring that the world's livestock biodiversity is utilized to promote global food security and will remain available to future generations. Furthermore, the Commission on Genetic Resources for Food and Agriculture (CGRFA), at its 12th Regular Session, adopted the Funding Strategy for the implementation of the *Global Plan of Action* for Animal Genetic Resources and requested FAO to implement it and to establish a FAO Trust Account for this purpose. A first call for proposals to support the implementation of the Global Plan of Action in developing countries and countries in transition is expected after the 13th session of the CGRFA.

The workshop participants agreed that the *Global Plan of Action* offers a proper framework for conservation and breed development needs, as well as efforts to address food security, and the Funding Strategy may offer the necessary means to support the development of conservation and utilization activities financially. For the workshop participants, implementation of the Global Plan of Action seemed to be more (cost-)effective than the development of completely new (legally binding) instruments.

3. The advantages and drawbacks of negotiating a legally binding instrument for AnGRFA is not a first choice. After the successful negotiation of the Nagoya Protocol on ABS, countries will have to implement the Nagoya Protocol. Some participants considered that in order to avoid possible negative effects of the implementation of the Nagoya Protocol for AnGR exchange, conservation and sustainable use, some countries may promote the development of specific international legally binding ABS measures for the exchange of AnGRFA, comparable to the International Treaty for Plant Genetic Resources (PGRFA). However, the participants felt strongly that it might be better to promote conservation and sustainable use within the framework of the Global

Plan of Action, and to develop specific voluntary instruments for AnGRFA where felt necessary. This position was motivated by i) significant biological, technical and institutional differences between PGRFA and AnGRFA, ii) the relatively limited number of problems related to ABS, and iii) the large investments that would be needed to negotiate an international legally binding agreement. It was also argued that the need for specific ABS measures for AnGRFA did not justify the development of an “International Treaty on AnGRFA”, although promoting conservation and sustainable use of AnGRFA were regarded crucial issues to tackle.

4. The need to develop voluntary instruments. Three types of voluntary instruments were identified for ABS related to AnGRFA. First, it was suggested to develop guidelines which would be at the disposal of national governments in developing measures applying to the international exchange of AnGRFA at the national level. Such guidelines might provide suggestions to adapt national ABS legislation in such a way that these would serve the specific needs and characteristics of the different sectors. The FAO CGRFA may undertake the effort to develop guidelines for all GRFA in general or specific guidelines related to AnGRFA in particular. Second, there is a need for the harmonization of contracts overseeing international exchanges and for the further development of model Material Transfer Agreements or model contract clauses allowing the exchange of AnGRFA. Such efforts should build on existing instruments and practices (e.g. the Standard MTA of the International Treaty on PGRFA) and should facilitate and promote a fair and equitable exchange of AnGRFA. Third, it was suggested to carry out further work in developing and implementing Biocultural Community Protocols, where also Livestock Keepers’ Rights issues should be better addressed.

5. The need for measures to facilitate more North-South collaboration towards capacity building. As already reflected in Priority Area 4 of the FAO Global Plan of Action for AnGRFA, there is a strong need for capacity building, in particular in developing countries, for the purpose of conserving and utilizing AnGRFA. In this context it was recalled that the voluntary Bonn Guidelines on ABS already mentioned the options for both monetary and non-monetary benefit-sharing. Given the specific characteristics of AnGRFA, the interdependence between regions and countries, and the specific global exchange patterns, mechanisms should be developed to better facilitate capacity building in developing countries, as a non-monetary form of benefit-sharing.

Many different options for capacity building were mentioned, including joint research activities, training and education programs, and public-private partnerships with the simultaneous aims to increase livestock productivity and to better conserve livestock genetic diversity. Workshop participants generally felt that non-monetary benefits would probably be much more rewarding, but this would certainly require further coordination at global level.

Required next steps

Suggestions were made how to proceed after the Wageningen workshop. Workshop participants discussed options to proceed with the outcomes of the workshop. It was noted that a need existed to properly analyze the Nagoya Protocol on its possible consequences for the management of AnGRFA. It was also noted that the Nagoya Protocol provides options for development of sectoral measures and that the Protocol contains sufficient flexibility for developing AnGR

adapted solutions. Furthermore, it was noted that implementation of the Nagoya Protocol is a national responsibility of countries that ratify the Protocol. Participants noted that the Nagoya Protocol will also apply to the exchange of AnGRFA unless other more specific legally binding instruments would be adopted. Future monitoring of the implementation of the Nagoya Protocol would allow informed decision-making on the need to develop specific international instruments for AnGRFA, legally binding or not.

Participants decided that the conclusions of the Wageningen workshop would be submitted to the FAO CGRFA, including the advice to develop guidelines and other voluntary instruments under the guidance of the CGRFA, elaborated by the Commission's Intergovernmental Technical Working Group on Animal Genetic Resources. It was also considered that the CGRFA may wish to collaborate with the Intergovernmental Committee for the Nagoya Protocol, in which case the CGRFA might propose to this Intergovernmental Committee to recognize the guidelines or other instruments developed within the framework of FAO, so that these would become part of the international regime on Access and Benefit-Sharing. Finally, the workshop participants considered that adoption of such instrument by the Conference of the Parties to the Protocol would imply that the particular guideline or instrument involved would be recommended for use at the implementation of the Nagoya Protocol at the national level for the purpose of securing conservation, utilization and exchange of AnGRFA.

Bibliography

Detailed information on the contributions presented by the experts can be sourced at the website of the Centre for Genetic Resources, the Netherlands (CGN) under the following hyperlink: <http://www.cgn.wur.nl/UK/>.

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