

# Global plan of action of FAO for animal genetic resources and its application in Latin America and the Caribbean<sup>1</sup>

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This paper has as main objectives to: a) explain the inclusion of the animal genetic resources in the scope of the Commission of Genetic Resources for Food and Agriculture; b) describe the way countries act together with FAO in taking decisions on animal genetic resources; c) submit the strategic priorities of action adopted at the International Technical Conference on Animal Genetic Resources, that took place in Interlaken in 2007; d) give details of the structure of the Network of Animal Genetic Resources of FAO, where the Regional Focal Point of AnGR for Latin America and the Caribbean is included; e) inform on the Financing Strategy, whose first call was in 2012.

Key words: *conservation, breeds locally adapted, sustainable utilization*

## Introduction

Animal genetic resources (AnGR) are a main component of the livestock production systems, since they determine, to a large extent, the amount and quality of the products generated. The diversity of AGR is essential as it constitutes the basis for directional selection and to animal adaptation. The Commission of Genetic Resources for Food and Agriculture of FAO has included in its field of work, since 1995, the animal genetic resources. With the expert advice of the Intergovernmental Technical Working Group has advanced and supported the definition of strategies and policies for the organization and sustainable management of the animal genetic resources.

In 2007, FAO published the Report on the Situation of the Global Animal Sources for Food and Agriculture (FAO 2010a), which shows the first global evaluation on the situation and tendencies of the animal genetic resources and on the state of the institutional and technological capacity for the organization of these resources. This global report was prepared based on 169 national reports, 9 reports of international organizations and 13 subject studies. According to the information compiled in the global report, presently many of these animal genetic resources are becoming extinct at an increasing speed, what made FAO prepare the Global Plan of Action on Animal Genetic Resources that will be presented in this document.

*1. Commission on Genetic Resources for Food and Agriculture and the Intergovernmental Technical Working Group on Animal Genetic Resources.*

One of the most important commissions existing at FAO is the Commission on Genetic Resources for Food and Agriculture that meets once every two years. At first, the Commission only worked with phylogenetic resources, but in its seventh meeting, held

in May, 1997, approved the inclusion of animal genetic resources, when it was decided the establishment of the Intergovernmental Technical Working Group on Animal Genetic Resources for Food and Agriculture (ITWG-AnGR in their English abbreviation, subsidiary organ of the Commission of Genetic Resources of FAO).

In its 14th Ordinary Meeting, held in April, 2013, the Commission of Genetic Resources for Food and Agriculture received with satisfaction the Report of the Seventh Meeting of the Intergovernmental Technical Working Group on Animal Genetic Resources for Food and Agriculture and made the following recommendations:

- Countries must periodically update national data and information in the DAD-IS, for facilitating the taking of well supported decisions on the management of the animal genetic resources.

- Countries must compile data and introduce them in the module “production environment describer” of DAD-IS. FAO must offer technical support for facilitating the gathering and introduction of data on the part of developing countries.

- FAO must prepare the Second Report on the Global Situation of Animal Genetic Resources for Food and Agriculture (from now on, the second report), focusing on the changes obtained since drawing up the first report, with a view to its presentation to the Commission in its 15th Ordinary Meeting.

- The Commission approved the project of questionnaire for registering national data, as support to the preparation of the second report on the global situation of animal genetic resources for food and agriculture and asked from FAO the submission into the consideration of the Working Group on animal genetic resources, in its eighth meeting, of a draft of the second report for facilitating their deliberations on the possible need of updating the Global Action Plan.

<sup>1</sup>Adapted from the Global Plan of Action on Genetic Resources

- Countries members of the working group, elected at the 14th Ordinary Meeting of the Commission held in Rome in April 2013 are the following:

Africa: Cameroon, Eritrea, Morocco, Namibia, Togo

North America: Canada and United States of America

Asia: Bhutan, India, Malaysia, Mongolia and Thailand

Near East: Iraq, Qatar and Sudan

Europe: Germany, Slovenia, France, Sweden and Switzerland

Latin America and the Caribbean: Argentina, Brazil, Chile, Costa Rica and Suriname

Southwest Pacific: Cook islands and Fiji

2. *Global Action Plan of FAO on Animal Genetic Resources.*

The international community adopted, in September, 2007, the first Global Action Plan on Animal Genetic Resources (FAO 2007), including 23 strategic priorities directed to fight the erosion of the animal genetic diversity and the utilization, in a sustainable way, of the animal genetic resources.

The Global Action Plan represents the fulfillment of a comprehensive process in which 169 countries participated. It was approved by delegations of 109 countries at the International Technical Conference on Animal Genetic Resources, held in Interlaken, Switzerland, September 3-7, 2007.

It was also approved the Interlaken Declaration on Animal Genetic Resources, through which the common and individual responsibilities were confirmed regarding the conservation, sustainable utilization and development of the animal genetic resources for food and agriculture; the global food security; the improvement of the nutritional state of the people; and the rural development. They also committed to make possible the access to the resources and to guarantee just and fair distribution of the benefits derived from their use.

*Structure and organization of the Global Plan of Action on Animal Genetic Resources.* The Global Plan of Action on Animal Genetic Resources comprises three parts:

- Basis of the Global Plan of Action on Animal Genetic Resources

- Strategic Priorities for the Action.

- Application and Financing of the Global Plan of Action on Animal Genetic Resources.

2.1 *Basis for the Global Plan of Action on Animal Genetic Resources.* For the first time, the situation of the global animal genetic resources provides a large world evaluation of the functions, values and situation of the animal genetic resources, outstanding the importance of the livestock sector within agriculture. Some of the strategic priorities for the action, having a specific effect on the sustainable utilization, the development and conservation of the animal genetic resources for food and agriculture, that appear in the Global Plan

of Action on Animal Genetic Resources, are justified by the great importance of these resources for global food security, and by the specific traits of domestic animal biodiversity, as integral part of the agricultural ecosystems.

The cattle genetic diversity and the different utilization options are usually discussed in terms of breeds. The "breeds" are cultural concepts, more than physical entities and the concept varies from one country to another. In order to make possible to carry out a sustainable organization, it is necessary to consider and understand the diversity in the species areas, among breeds and within them. The animal genetic resources are characterized by:

- The diversity of the animal genetic resources is essential for covering the basic human requirements of foods and life means, since they contribute to human needs on supplying meat, milk and dairy products, eggs, fibers, clothes, resources for housing, labor force as well as feces used as fertilizer and fuel.

- In the 12,000 years elapsed since the domestication of the first cattle species, more than 7,000 domestic animal breeds have been developed. These breeds represent now unique gene combinations.

- In terms of its large potential contribution to hunger and poverty reduction, as well as to sustainable development, the animal genetic resources for food and agriculture are infra-conserved and infra-utilized.

- The highest part of the countries has a high degree of interdependency regarding their animal genetic resources.

- Farmers, shepherds and their communities are presently maintaining the highest part of the animal genetic resources on the land, as components of their ecosystems, economies and agricultural cultures.

- Cattle resources still continues to have presently this important social, cultural and structural function in today's indigenous and local communities. The cultural importance of the animals is frequently an essential factor for *in situ* conservation.

- Domestic animal breeds assume essential functions of the agro-ecosystems, such as nutrient circulation, seed dispersion and habitat maintenance.

- The implications and loss rhythm of animal genetic resources still continues difficult of being calculated, in spite of the more clear image of the animal genetic resources that has resulted from the preparation of the First Global Report on the Situation of Animal Genetic Resources, promoted by the countries. The lack of information hinders the taking of decisions regarding what to conserve and develop and on how utilizing better the limited available funds for conservation.

- Traditional production systems required animals with different purposes that, although less productive that breeds of high profitability, can show valuable functional characteristics. Modern agriculture has developed specialized breeds, known as commercial

breeds that have optimized certain production characteristics. In commercial breeds, the high pressure for selection leads to a reduction of the genetic basis, with the possible risks than that involves for present and future food security.

- Responsible authorities from many countries and the international ones are not usually conscious of the multiple and important contributions neither of the animal genetic resources to food and agriculture nor of the traditional rights of cattle breeders in domestic areas, wherever they exist.

- The sustainable utilization and the conservation of the animal genetic resources have been and, generally, continue to be a little priority in the development of agricultural, environmental, commercial and human and animal health policies.

- The organization of the animal genetic resources is a complex task since it is necessary to deal with specific aspects of the resources (such as selection or conservation of breeds) as intersectorial matters affecting the animal genetic resources, such as the animal health measures, the development and the commercial regulations and also the organization of the environment.

Interventions strategically planned for conservation, utilization and development of animal genetic resources are essential, but countries are facing complex challenges on studying the best way of formulating the appropriate national and international policies. The increase of the capability at all levels is a key element of the Plan of Action on Animal Genetic Resources. In a general way, activities related to *in situ* conservation, *ex situ* conservation and the use of animal genetic resources for food and agriculture have been carried out without adequate links or coordination. With the Plan of Action on Animal Genetic Resources this situation is intended to be improved. A certain loss of local breeds is inevitable, if taken into account the changes that are taking place in the livestock production systems of developed and developing countries and the limited availability of resources for conservation. However, allowing a totally random process without supervision means accepting a potentially important and not evaluated risk of resource losses of great value at long term. Countries and the international community should be conscious of the losses that will possible occur and should debate and reach an agreement on which are those willing to accept and what investment is necessary for maintaining and conserving the most important animal genetic diversity.

In the majority of the countries, the basis of finance and human resources for *in situ* conservation, *ex situ* conservation and the best utilization of animal genetic resources for food and agriculture are insufficient and there are many dearth and lack of efficiency. Also, the capabilities and the activities of the countries and regions for tackling the topic of animal genetic

resources are in very different developing stages. The Plan of Action on Animal Genetic Resources is a framework agreed by the international community, destined to support and increase the general efficacy of the national, regional and global efforts for the sustainable utilization, the development and the conservation of the animal genetic resources, so as to facilitate the mobilization of resources, among them, the appropriate financial resources.

*2.2 Strategic priorities for the action.* Strategic priorities for the action propose concrete measures in order to reverse present tendencies of erosion and infra-utilization of animal genetic resources. The execution of the strategic priorities for the action will suppose an important contribution to the international efforts for promoting food security and sustainable development, to mitigate poverty in line with the millennium development objectives and other international commitments.

The strategic priorities for the action include four prioritized strategic areas:

- Area 1: Characterization, inventory and monitoring of associated risks and tendencies.

- Area 2: Sustainable utilization and development.

- Area 3: Conservation

- Area 4: Policies, institutions and capability creation.

*2.2.1. Description of prioritized areas. Area 1. Characterization, inventory and monitoring of associated risks and tendencies.* These measures provide a coherent, efficient and effective approach for the classification of animal genetic resources, as well as the evaluation of the tendencies and risks, on the subject of animal genetic resources.

Long- term objective: A better understanding of the situation, tendencies and associated risks, as well as the characteristics of all aspects and components of the animal genetic resources, for facilitating and allowing the taking of decisions for its sustainable utilization, development and conservation.

√ Strategic priority 1. To establish an inventory and a characterization of the animal genetic resources, to carry out a monitoring of the tendencies and associated risks with them and to create alert systems and early response on a national scale.

√ Strategic priority 2. To prepare technical regulations and international protocols for the characterization, the inventory and the monitoring of the tendencies and associated risks.

*2.2.2 Strategic prioritized area 2. Sustainable utilization and development.* These measures are destined to guarantee the sustainability in the animal production systems, with special attention in food security and rural development.

Long-term objective: Larger sustainable utilization and development of the animal genetic resources in all the appropriate production systems, as key contribution to attain sustainable development, poverty eradication,

as well as the adaptation to the effects of climate change.

√ Strategic priority 3. To establish and strengthen national policies of sustainable exploitation

√ Strategic priority 4. To establish strategies and development programs of species and national breeds

√ Strategic priority 5. To promote agro-ecosystemic approaches of the organization of animal genetic resources

√ Strategic priority 6. To support the indigenous and local production systems and the connecting systems of information of importance for the maintenance and sustainable utilization of animal genetic resources.

2.2.3. *Strategic prioritized area 3. Conservation.* It includes the necessary measures for preserving the diversity and genetic integrity, in the interests of present and future generations.

Long-term objective: To guarantee the diversity and the integrity of the genetic background of the animal genetic resources, reinforcing the application and harmonization of the steps destined to conserve, both *in situ* as *ex situ*, such resources among others in the context of emergency and catastrophic situations.

√ Strategic priority 7. To establish national policies of conservation

√ Strategic priority 8. To create and potentiate the *in situ* conservation programs.

√ Strategic priority 9. To create and potentiate the *ex situ* conservation programs.

√ Strategic priority 10. To prepare and apply long-term global and regional conservation strategies.

√ Strategic priority 11. To prepare approaches and technical regulations for conservation.

2.2.4. *Strategic prioritized area 4. Policies, institutions and creation of capability.* They directly deal with key questions on the practical execution through the coherent promotion and in synergy of the institutions and necessary capabilities.

Long-term objective: Intersectorial policies and solid legal frameworks, as well as strong institutional and human capabilities to attain a successful planning at medium and long-term, for the development of the livestock sector and the execution of national programs destined to the sustainable utilization at long-term, the development and the conservation of the animal genetic resources.

√ Strategic priority 12. To create or strengthen national institutions, including national coordination centers, for planning and applying measures on animal genetic resources for the development of the livestock sector.

√ Strategic priority 13. To create or potentiate national services for education and research.

√ Strategic priority 14. To strengthen the national human capability for the characterization, inventory

Cuban Journal of Agricultural Science, Volume 48, Number 1, 2014 and monitoring of the tendencies and associated risks, for the sustainable utilization and development as well as for conservation.

√ Strategic priority 15. To establish or potentiate the common implementation of information, research and education at international level.

√ Strategic priority 16. To reinforce international cooperation for creating capability in developing countries and in countries with economies going through a transition period, for the characterization, inventory and sustainable utilization and development and the conservation of animal genetic resources.

√ Strategic priority 17. To create regional focal points and to potentiate international networks.

√ Strategic priority 18. To increase the awareness at national scale on the functions and values of the animal genetic resources.

√ Strategic priority 19. To increase the awareness at regional and international scale on the functions and values of the animal genetic resources.

√ Strategic priority 20. To examine and prepare legal frameworks for the national policies regarding the animal genetic resources.

√ Strategic priority 21. To examine and prepare policies international regulation frameworks related with the animal genetic resources.

√ Strategic priority 22. To coordinate the activities of the Commission on policy matters, concerning animal genetic resources with other international forums.

√ Strategic priority 23. To potentiate activities for mobilizing resources, including the financial resources, for the conservation, sustainable utilization and development of the animal genetic resources.

2.3 *Application and financing of the Global Plan of Action on Animal Genetic Resources.* The session on the application and financing was the most discussed in September, 2007 in Interlaken in order that the Global Plan of Action on Genetic Resources could be adopted.

Financing for animal genetic resources for food and agriculture is supplied by some national governments and other local financing sources, as well as multilateral and bilateral organizations. However, the application of the Global Plan of Action on Genetic Resources demands substantial financial resources, as well as the long-term support to the national, regional and international programs on genetic resources and to the prioritized activities, with the condition that such incentives are in consonance with the appropriate international agreements. The process will encourage and support the participation of governments, as well as of all direct interested. Regional and international collaboration will have a crucial importance.

The main responsibility of applying the Global Plan of Action on Animal Genetic Resources corresponds to the national governments. It is acknowledge the need of establishing effective National Focal Points

for the coordination of the animal genetic resources, as well as de importance of the national networks for mobilizing the interested parts and attaining their participation in the application of the Global Plan of Action on Animal Genetic Resources. Each country must determine their own priorities, taking into account those agreed in the Global Plan of Action on Animal Genetic Resources.

In spite of the efforts for increasing public sensitivity on the topic through national governments and of the associations and international organizations, it is evident that the financial resources for the implementation of the Global Plan of Action on Animal Genetic Resources in developing countries and in countries of economies going through a transitional period are insufficient. All countries, especially the developed, should carry out the actions at their reach for, among other objectives, multiply the present and available financial resources, including those coming from sources that have not previously financed activities included in the Global Plan of Action on Animal Genetic Resources.

In Interlaken, the countries acknowledge the decisive function played by FAO on supporting the efforts promoted by the countries for applying the Global Plan of Action on Animal Genetic Resources and, especially, for helping the developing countries and countries of economies going through a transitional period and suggested the establishment of a fiduciary account of FAO. With this purpose, FAO created a Financing Strategy (FAO 2010b) for the application of the Global Plan of Action on Animal Genetic Resources which had its first project call in 2012. The Financing Strategy has been evaluated for the first time by the Commission of Genetic Resources in its 14th Ordinary Meeting carried out in April, 2013 with the following comments:

- The Commission expressed its gratitude to the governments that had contributed to the fiduciary account of FAO and urged the governments and other potential donors to supply resources to that account and to other funds for the application of the Global Plan of Action on Animal Genetic Resources or to increase its amount.

- The Commission thanked the Working Group on Animal Genetic Resources, to the Regional Focal Points of Animal Genetic Resources, to the Group of Experts for their work at the first cycle of projects. Also, demanded from FAO that it continues supplying funds charged to its ordinary program, as well as technical advice to support the application of the Global Plan of Action on Animal Genetic Resources in the countries. It also insisted in continuing with the promotion of associations and alliances with other mechanisms and international organizations for improving the mobilization of financial and in species resources.

- The Commission entrusted the Secretariat of the Working Group on Animal Genetic Resources to set in motion, at the interval between meetings of the Commission, a second call of proposals once 1 million USD are available in the fiduciary account. Also, it was indicated the observance of the procedures and priorities applied during the first cycle of the project, and at the same time encouraged all the regions to submit high quality proposals.

- The Commission decided, regarding future calls, that countries can present their proposals, and join also, to those prepared by multiple countries.

- The Commission acknowledged the function of the Regional Focal Points, to guarantee the quality during the preparation and previous examination of the proposals. It asked that, for the following call, these same Focal Points prepare a list of the adequate and of quality documents presented by their respective regions.

At the first call of proposals have been approved 13 projects. From these, four are from Latin America. Two of them regional (Bolivia and Chile for llamas; and Argentina, Brazil and Bolivia for goats) and two national (Chile and Uruguay, both for sheep), what means 31 % of the projects approved.

### *3. Interlaken Declaration on Animal Genetic Resources.*

On September 7, 2007, when the Global Plan of Action on Animal Genetic Resources was adopted, the 109 countries present, the European Community and 42 Organizations, signed the Interlaken Declaration. From the 20 points of the Declaration, one of the last ones says: "We recognize that the main responsibility of applying the Global Plan of Action on Animal Genetic Resources corresponds to the national governments. We are going to fulfill our commitments of adopting the necessary measures for applying the Global Plan of Action on Animal Genetic Resources, in accordance with our national and resource capabilities". This paragraph shows the responsibility assumed by the countries on the conservation and exploitation of their animal genetic resources. The Interlaken Declaration is available on: <http://www.fao.org/docrep/010/a1404s/a1404s00.HTM>

### *4. Network of Animal Genetic Resources of FAO for Latin America and the Caribbean.*

The Network of Animal Genetic Resources of FAO is constituted by a Global Focal Point, Regional Focal Points and National Focal Points. The Global Focal Point is located at FAO headquarters in Rome and it is responsible for the coordination of the animal conservation policy, where are included the organization of meetings of the Intergovernmental Working Group on Animal Genetic Resources and of Workshops for National Coordinators, as well as for the development, maintenance and updating of the information System of the Domestic Animal Diversity (DAD-IS).

On creating the Regional Focal Points, which creation has been highlighted in the strategic priority 17, is quoted: "To create Regional Focal Points and potentiate the international network."

The first measure to be adopted in this same priority is: "To support the creation of Regional Focal Points impelled by the countries for the animal genetic resources, where appropriate". Until now, the two only Focal Points established are that of Europe and that of Latin America and the Caribbean. This latter, until now, is located in Brazil.

From the National Focal Points, whose creation or strengthening has been also highlighted among the strategic priorities, the strategic priority 12 said: To create or strengthen national institutions, included the "National Focal Points", for planning and applying measurements on animal genetic resources for the development of the livestock production sector. The second measure to be adopted in this same Priority is: "To create or potentiate fully operative National Focal Points for the animal genetic resources". Before the approval of the Global Plan of Action, each one of the countries members of FAO has been asked to indicate a National Coordinator of Animal Genetic Resources that, in general, works at the National Focal Point of Animal Genetic Resources. The majority of Latin America and Caribbean countries already did it. It can be consulted on: <http://dad.fao.org> – access to network and Latin America and the Caribbean.

##### *5. Situation of the Animal Genetic Resources in Latin America and the Caribbean.*

Americas' colonization by the Europeans provoked the introduction of bovines, sheep, goats, pigs, horses and hens in the New World. In the case of bovines, there are genetic signs of some African ancestors that could be a legacy of the slave commerce between both continents. The breeds introduced have been distributed among Americas' countries where they originated locally adapted breeds, today known as domestic. More recently introductions have displaced domestic breeds, bringing them in its majority to extinction menace.

The activities on Animal Genetic Resources in Latin America and the Caribbean for avoiding the loss of domestic breeds started in a dissimilar and uncoordinated way, governed by initiatives at national level and only of some countries, in the eighties. While certain countries exhibited conservation and characterization activities, others still did not show activity or this was hardly incipient. However, in 2003 and 2004, a good number of countries sent their Report on the Situation of the Animal Genetic Resources at national level to FAO, what allowed carrying out a chart of the diagnostic situation at Regional level. The countries evidence in their Reports that the AnGR are an important and irreplaceable contribution to food security and to rural development. However, they

also are still far from realizing the potential of these resources and a serious erosion of the genetic diversity is appearing. Among the main causes of genetic erosion that identified the reports of the countries, are changes in the production systems, the mechanization, the loss of lands for cattle rearing, natural disasters, disease outbreaks, inadequate policies and practices of genetic improvement, the inappropriate introduction of exotic breeds, the change of the cultural practices and the lack of evaluation of the genetic breeding effect, in terms of sustainability at long-term (FAO 2009). Although a number of countries acted within the area of FAO sending representations to the meetings of the Commission of Animal Genetic Resources and to those of the Intergovernmental Technical Working Group on Animal Genetic Resources, it was just recently at the middle of the last decade (in 2006) at the 4th Meeting of the Working Group) when Latin America as region started to act more coordinate, from the creation of the Regional Focal Point.

Today the outlook is more similar, although three groups of countries can be distinguished: those starting their activities much earlier than the adoption of the Global Plan of Action; a second group formed by countries that have initiated activities for a limited number of animal species, and a third group, and more numerous, constituted by those countries acknowledging the need of starting actions, but do not have the necessary financial means and created capability for that.

Recent data show that the Global Database of FAO on Animal Genetic Resources for Agriculture and Food (DAD-IS) contains information on a total of 7,616 breeds. From this total, 1,491 breeds, or approximately a 20 % are classified as "at risk". The true figure is still higher, since there are no data of available population for 36 % of the paths, since there is ignorance of the state of danger of a large number of breeds. It is important to mention that in our region is not known the state of danger of 68 % of the mammals and of 81 % of the birds. This makes that in Latin America and Caribbean countries emphasis must be made on livestock censuses together with activities of conservation and utilization of the AnGR. In this way is eliminated the loss of such important genetic material.

### **Conclusions**

- There are no doubts on the importance of the implementation of the Global Plan of Action on Animal Genetic Resources.

- Unfortunately, for the majority of developing countries, the success of the adoption of the strategic priorities directly depends on acquiring the financial resources for its implementation.

- In this sense, countries should pay attention to the calls of the Financing Strategy, as it occurred in 2012.

- In our region it is of extreme importance international cooperation and the search for bilateral agreements that could accelerate the training process of researchers involved in the conservation of Animal Genetic Resources.

- It is important that countries carry out livestock censuses allowing the identification of breeds at extinction risk.

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**Received: September 2013**