



GLOBAL PLAN OF ACTION  
FOR ANIMAL GENETIC RESOURCES  
*and the* INTERLAKEN DECLARATION



COMMISSION ON  
GENETIC RESOURCES  
FOR FOOD AND  
AGRICULTURE





# GLOBAL PLAN OF ACTION FOR ANIMAL GENETIC RESOURCES *and the* INTERLAKEN DECLARATION

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adopted by the International Technical Conference on  
Animal Genetic Resources for Food and Agriculture  
Interlaken, Switzerland, 3–7 September 2007

COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE  
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS  
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# Foreword

The international community has, in September 2007, adopted the first ever *Global Plan of Action for Animal Genetic Resources*, comprising twenty-three Strategic Priorities aimed at combating the erosion of animal genetic diversity and at using animal genetic resources sustainably. The implementation of this *Global Plan of Action* will contribute significantly to achieving the Millennium Development Goals 1 (to eradicate extreme poverty and hunger) and 7 (to ensure environmental sustainability).

The *Global Plan of Action* is the culmination of an extended process involving the participation of 169 countries. It was adopted by 109 country delegations at the International Technical Conference on Animal Genetic Resources, held in Interlaken, Switzerland, from 3 to 7 September 2007. They also adopted the *Interlaken Declaration on Animal Genetic Resources*, by which they confirmed their common and individual responsibilities for the conservation, sustainable use and development of animal genetic resources for food and agriculture; for world food security; for improving human nutritional status; and for rural development. They committed themselves to facilitating access to these resources, and ensuring the fair and equitable sharing of the benefits from their use.

We have inherited the great wealth and diversity of animal genetic resources from the generations before us, throughout the world, and must pay homage to them, as Charles Darwin did, when in 1868 he wrote of the “wonderful skill and perseverance shown by the men who have left an enduring monument of their success in the present state of our domesticated animals”. These animals accompanied our forbears into the world’s wide range of climates and ecosystems, where they proved themselves immensely adaptable. Today, faced with the needs of a growing population, changes in consumer demand, and the enormous challenge posed by climate change and emerging diseases, we need to once again call on this adaptability and potential to face an uncertain future. To allow these resources to be lost through inaction would be disrespectful to both past and future generations. The *Interlaken Declaration on Animal Genetic Resources* calls for prompt action to prevent this from happening, and recommends the *Global Plan of Action* as the appropriate instrument to address this challenge.

Governments must now demonstrate sustained political will and mobilize the considerable resources needed to implement the *Global Plan of Action* successfully. This will require wide regional and international cooperation. FAO, other relevant international organizations, the countries, the scientific community, donors, civil society organizations and the private sector all have important roles to play. Moreover, there are both moral and practical imperatives to provide support to livestock keepers and breeders, who are the custodians of much the diversity of the world’s animal genetic resources, particularly in developing countries, and who depend on them for their livelihoods. Their roles and needs cannot be ignored, if the *Global Plan of Action* is to succeed.

The *Interlaken Declaration on Animal Genetic Resources* recognizes that there are significant gaps and weaknesses in national and international capacities to inventory, monitor, characterize, sustainably use, develop and conserve animal genetic resources, which need to be addressed urgently. It also calls for mobilization of substantial financial resources and long-term support for national and international animal genetic resources programmes.

After the historical breakthrough which the Interlaken Conference has brought about, we must maintain momentum, and move forward simultaneously on many fronts. Technical capacities, particularly in developing countries, will have to be reinforced; national programmes and policies for sustainable use and development, conservation and characterization of animal genetic resources will have to be established or strengthened; and an effective international policy framework for animal genetic resources must be incrementally built up in a way that reflects the specific characteristics of these resources, and the real needs of animal breeders and livestock keepers worldwide.

FAO is committed to the implementation of the *Global Plan of Action for Animal Genetic Resources*.  
FAO's Commission on Genetic Resources for Food and Agriculture will direct this work and monitor its progress.

I appeal to the international community to join forces in the stewardship of the world's heritage of animal genetic resources, and to thus ensure the success of the *Global Plan of Action for Animal Genetic Resources*.

A handwritten signature in black ink, consisting of a large, stylized 'D' followed by a vertical line and a horizontal stroke at the bottom.

Jacques Diouf  
Director General

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# Interlaken Declaration on Animal Genetic Resources

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- 1 In recognition of the essential roles and values of animal genetic resources for food and agriculture, in particular, their contribution to food security for present and future generations; aware of the threats to food security and to the sustainable livelihoods of rural communities posed by the loss and erosion of these resources; we, the representatives of one hundred and nine States, and the European Community and forty-two Organizations have gathered together in Interlaken, Switzerland, at the invitation of the Food and Agriculture Organization of the United Nations and hosted by the Government of Switzerland, at this first International Technical Conference for Animal Genetic Resources, aware of our responsibilities and the many challenges that must be addressed, but convinced and confident that progress can and should be made. This International Technical Conference on Animal Genetic Resources is a major contribution to establishing an effective international framework for the sustainable use, development and conservation of animal genetic resources for food and agriculture, and world food security.
- 2 We recognize that states have sovereign rights over their animal genetic resources for food and agriculture.
- 3 Confirming our common and individual responsibilities in respect of conservation, sustainable use and development of animal genetic resources for food and agriculture, we recognize the interdependence of countries, regions and peoples regarding these resources.
- 4 We commit ourselves to achieving the sustainable use, development and conservation of animal genetic resources for food and agriculture. We also commit ourselves to facilitating access to these resources and the fair and equitable sharing of the benefits arising from their use, consistent with relevant international obligations and national laws. Our objective is to enhance world food security, improve human nutritional status, and contribute to rural development.
- 5 We welcome *The State of the World's Animal Genetic Resources for Food and Agriculture*, which was developed in a country-driven process under the guidance of the Commission on Genetic Resources for Food and Agriculture of the FAO. It is the first comprehensive worldwide assessment of the state of animal genetic resources and provides the basis for the *Global Plan of Action for Animal Genetic Resources*.
- 6 We recognize that existing diversity in animal species is not used to the extent possible for increased food production, improved human nutrition, and to further sustain rural communities, or for more efficient production systems. We note with alarm the significant ongoing loss of livestock breeds. The continuing erosion and loss of animal genetic resources for food and agriculture would compromise efforts to achieve food security, improve human nutritional status and enhance rural development. We acknowledge that efforts to further conserve, develop, improve and sustainably use animal genetic resources should be enhanced.

- 7 We recognize that prompt action should be taken to conserve animal breeds at risk, due to the alarming rate of erosion in animal genetic resources.
- 8 We recognize the need to promote the development of knowledge, in particular through research, leading to improved sustainable use, development and conservation of animal genetic resources.
- 9 We recognize that the genetic resources of animal species most critical to food security, sustainable livelihoods and human well-being are the result of both natural selection, and directed selection by smallholders, farmers, pastoralists and breeders, throughout the world, over generations. The result is a wide variety of livestock breeds that provide a diverse stream of benefits to the environment, humanity and its cultural heritage. We are conscious that all countries will need to play their part in conserving these resources as a basis for livestock development, food security and the better nutrition of their rural and urban populations, as well as to sustain their rural communities.
- 10 We acknowledge that maintaining the diversity of animal genetic resources for food and agriculture is essential to enable farmers, pastoralists and animal breeders to meet current and future production challenges resulting from changes in the environment, including climate change; to enhance resistance to disease and parasites; and to respond to changes in consumer demand for animal products. We also recognize the intrinsic value of biological diversity and the environmental, genetic, social, economic, medicinal, scientific, educational, cultural and spiritual importance of breeds of livestock, and our ethical responsibility to ensure genetic resources are available to future human generations.
- 11 We are aware that the demand for meat, milk and other animal products is dramatically increasing. The sustainable use, development, and conservation of animal genetic resources for food and agriculture will make a vital contribution to achieving the goals of the Rome Declaration on World Food Security, the World Food Summit Plan of Action, as well as the Millennium Development Goals, in particular Goal 1: eradication of extreme poverty and hunger, and Goal 7: ensure environmental sustainability. The sustainable use, development and conservation of animal genetic resources for food and agriculture make an essential contribution to facilitating the implementation of Agenda 21 and the Convention on Biological Diversity.
- 12 We recognize the enormous contribution that the local and indigenous communities and farmers, pastoralists and animal breeders of all regions of the world have made, and will continue to make for the sustainable use, development and conservation of animal genetic resources for food and agriculture. We further recognize the historic and relevant contribution of all persons engaged in animal husbandry, who have moulded animal genetic resources to meet societal needs. It is their ownership and management of the genetic resources of their livestock that has enabled them to make important contributions in the past. It is this ownership and management that should be ensured for future societal benefits. We affirm that they should participate in the fair and equitable sharing of benefits arising from the utilization of animal genetic resources for food and agriculture. We affirm the desirability, as appropriate, subject to national legislation, of respecting, preserving and maintaining traditional knowledge relevant to animal breeding and production as a contribution to sustainable livelihoods, and the need for the participation of all stakeholders in making decisions, at the national level, on matters related to the sustainable use, development and conservation of animal genetic resources.

- 13 We are aware that future demand for animal products must be met within the context of sustainable agriculture and development, and that this will require integrated approaches to economic development and the pursuit of social, cultural and environmental objectives. We understand the need for adopting management approaches that combine the best of traditional and modern knowledge and technologies, and the need to apply the agro-ecosystem approach and integrated natural resource management practices.
- 14 We acknowledge that major gaps and weaknesses exist in national and international capacities to inventory, monitor, characterize, sustainably use, develop and conserve animal genetic resources. We recognize the need for substantial financial resources, long-term support for national and international animal genetic resources programmes, to increase world food security and contribute to sustainable rural development. We affirm the need to review institutional capacity, management structures, programmes and policies, to identify deficiencies and address them through strengthening national capabilities, particularly in developing countries. We call for enhanced partnerships among governments, scientists, farmers, pastoralists, breeders and consumers, to build upon ongoing efforts to manage animal genetic resources and overcome major gaps and weaknesses.
- 15 We recognize that the transfer of technologies relating to sustainable use, development and conservation of animal genetic resources is essential for world food security and the needs of the growing world population, and should be facilitated, consistent with relevant international obligations and relevant national laws. We recognize that the sustainable use, development and conservation of animal genetic resources for food and agriculture will require the support and participation of farmers, pastoralists and breeders; local and indigenous communities; organizations and institutions; the private sector; and civil society. We recognize the need to promote technical and financial cooperation at the regional and international levels among countries, intergovernmental organizations, non-governmental organizations, and the private sector.
- 16 At this first International Technical Conference on Animal Genetic Resources, we have adopted the *Global Plan of Action for Animal Genetic Resources*. We are convinced of the utmost importance of integrating it into national biological diversity and agriculture policies, plans and programmes, and indispensable national, regional and international cooperation. This *Global Plan of Action for Animal Genetic Resources* provides a comprehensive and coherent framework for enhancing management activities in relation to animal genetic resources for food and agriculture, including through strengthening policies, institutions and building capacity. Implementation of the *Global Plan of Action for Animal Genetic Resources* will contribute to creating synergies among ongoing activities, as well as facilitate the most efficient use of available financial and human resources, and more effort is required to maintain adequate financial resources for supporting developing countries.
- 17 We acknowledge that the provision of new and additional resources can make a substantial difference in the world's ability to address the sustainable use, development and conservation of animal genetic resources for food and agriculture. We therefore recommend that concrete steps be taken to ensure an adequate increase in financial resources to support the implementation of the *Global Plan of Action for Animal Genetic Resources* by developing countries and countries with economies in transition.

- 18 We recognize that the main responsibility for implementing the *Global Plan of Action for Animal Genetic Resources* rests with national governments. We undertake to honour our commitments to taking the necessary steps to implement the *Global Plan of Action for Animal Genetic Resources*, in accordance with our national capacities and resources. We invite all people and their communities and organizations to join us in the common cause.
- 19 We acknowledge the essential role of the Food and Agriculture Organization of the United Nations in supporting country-driven efforts in implementing the *Global Plan of Action for Animal Genetic Resources*. We invite the Commission on Genetic Resources for Food and Agriculture of the Food and Agriculture Organization of the United Nations to oversee, assess and report on progress in the implementation of the *Global Plan of Action for Animal Genetic Resources*.
- 20 We warmly express our gratitude to the Government of Switzerland for hosting the International Technical Conference on Animal Genetic Resources for Food and Agriculture; for the excellent arrangements that were provided, and the very generous hospitality that contributed to make the Conference a resounding success.

**Adopted this 7<sup>th</sup> day of September, 2007.**



# Global Plan of Action for Animal Genetic Resources

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- 1 Animal genetic resources for food and agriculture<sup>1</sup> are an essential part of the biological basis for world food security, and contribute to the livelihoods of over a thousand million people. A diverse resource base is critical for human survival and well-being, and a contribution to the eradication of hunger: animal genetic resources are crucial in adapting to changing socio-economic and environmental conditions, including climate change. They are the animal breeder's raw material and amongst the farmer's most essential inputs. They are essential for sustainable agricultural production. Properly managed, they need never be depleted, for there is no inherent incompatibility between utilization and conservation. The conservation and sustainable use of animal genetic resources, and the fair and equitable sharing of the benefits from their use, are an international concern and the *Global Plan of Action for Animal Genetic Resources* provides, for the first time, an agreed international framework for the sector. Promoting the broader use of livestock biodiversity can contribute to improved human health and nutrition, and expand opportunities for livelihood diversification and income generation.

## **Development of the *Global Plan of Action for Animal Genetic Resources***

- 2 In 1990, FAO initiated the preparation of a comprehensive programme for the sustainable management of animal genetic resources at the global level. In 1993, FAO launched the *Global Strategy for the Management of Farm Animal Genetic Resources* to guide national, regional and global efforts to strengthen the contribution of domesticated animals and their products to food security and rural development, and to prevent the erosion of animal genetic resources.
- 3 From 1997, FAO's intergovernmental Commission on Genetic Resources for Food and Agriculture has guided a country-driven process for the preparation of *The State of the World's Animal Genetic Resources for Food and Agriculture*. In 2001, FAO invited all countries to submit a Country Report on the status and trends of their animal genetic resources; the current and potential contributions of farm animals to food, agriculture and rural development; and the state of national capacity to manage these resources; and provide priority action lists.
- 4 The Country Reports demonstrate the significant and irreplaceable contribution that the diversity of farm animals makes to the food security and development of nations. They show that the full potential of animal genetic resources is far from being realized and confirm the serious erosion of genetic diversity in both developed and developing countries.
- 5 This erosion has many causes, including changes in production systems, mechanization, the loss of rangeland grazing resources, natural calamities, disease outbreaks, inappropriate breeding policies and practices, inappropriate introduction of exotic breeds, loss of animal keepers' security of tenure on land and access to other natural resources, changing cultural practices, the erosion of

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<sup>1</sup> The International Technical Conference used for the purpose of its discussions the following terminology.

Throughout the *Global Plan of Action for Animal Genetic Resources* the term *Animal Genetic Resources* refers specifically to animal genetic resources used in or potentially useful for food and agriculture. The term *Livestock* as used in the document encompasses all domesticated animals used for food and agriculture. The term thus includes both avian and mammalian species that contribute to food and agriculture. The Conference requested FAO to further develop these working definitions.

customary institutions and social relations, the influence of population growth and urbanization, and the failure to assess the impact of practices in terms of sustainability, and develop adequate policies and economic measures. Erosion of animal genetic resources threatens the ability of farmers and livestock keepers to respond to environmental and socio-economic changes, including changing diets and consumer preferences.

**Structure and organization of the *Global Plan of Action for Animal Genetic Resources***

- 6 The *Global Plan of Action for Animal Genetic Resources* consists of three parts: the Rationale for the *Global Plan of Action for Animal Genetic Resources*; Strategic Priorities for Action; and Implementation and Financing.

## Part I

# The rationale for the *Global Plan of Action for Animal Genetic Resources*

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- 7 The Strategic Priorities for Action, contained within this *Global Plan of Action for Animal Genetic Resources*, propose specific measures to reverse the ongoing trends of erosion and underutilization of animal genetic resources. The implementation of the Strategic Priorities for Action will make a significant contribution to international efforts to promote food security and sustainable development, and alleviate poverty, in line with the Millennium Development Goals and other international commitments.
- 8 For the first time ever, *The State of the World's Animal Genetic Resources* provides a comprehensive global assessment of the roles, values and status of animal genetic resources, which highlights the importance of the livestock sector within agriculture. Specific Strategic Priorities for Action for the sustainable use, development and conservation of animal genetic resources for food and agriculture, contained within this *Global Plan of Action for Animal Genetic Resources*, are warranted because of their great importance for global food security, and because of the specific features of domestic animal biodiversity as an integral part of agricultural ecosystems.
- 9 Livestock genetic diversity and options for its utilization are usually discussed in terms of breeds. "Breeds" are cultural concepts rather than physical entities, and the concept differs from country to country. This is a fact that makes characterization at the genetic level very difficult. For sustainable management, diversity needs to be considered and understood at the species level, between breeds, and within breeds themselves.
- 10 Key features of animal genetic resources include:
  - The diversity of animal genetic resources is essential to satisfy basic human needs for food and livelihood security. They contribute to human needs by providing meat, milk and dairy produce, eggs, fibre, clothes, resources for temporary and permanent shelter, manure for fertilizer and fuel, draught power, hunting assistance and marketable assets. Genetic diversity defines not only animal breeds' production and functional traits, but also the ability to adapt to different environments, including food and water availability, climate, pests and diseases. Diverse animal genetic resources – particularly in the developing world – are a key to economic development. Approximately 70 percent of the world's rural poor depend on livestock as an important component of their livelihoods. The diversity of these resources, and the consequent adaptability of species and breeds to extreme conditions of drought, humidity, cold and heat, makes possible human livelihoods in some of the most inhospitable areas on Earth, from Arctic and mountain regions to extreme hot and dry areas, where crop production cannot be exclusively depended upon.
  - More than 7 000 domestic animal breed populations have been developed by farmers and pastoralists in diverse environments in the 12 000 years since the first livestock species were domesticated. These breeds now represent unique combinations of genes. Thus all animal genetic resources for food and agriculture are the result of human intervention: they have been consciously selected and improved by pastoralists and farmers since the origins of agriculture, and have co-evolved with economies, cultures, knowledge systems

and societies. Unlike most wild biodiversity, domestic animal resources require continuous active human management, sensitive to their unique nature.

- In terms of their enormous potential contribution to reducing hunger and poverty, and to sustainable development, animal genetic resources for food and agriculture are underconserved and underutilized.
- Most countries are highly interdependent, with respect to animal genetic resources. Animal genes, genotypes and populations have spread all over the planet since ancient times, through the diffusion of agriculture and the prominent role of livestock in human migrations. Animals were means of transport and trade in many regions. Animal genetic resources have continued without interruption to be developed and improved by pastoralists and farmers, both inside and outside the historic centres of domestication. Moreover, animal genetic resources have been systematically exchanged intercontinentally and over the oceans for the last 500 years, deepening this interdependence. In global terms, most food and agricultural production systems worldwide depend on livestock originally domesticated elsewhere, and breeds developed in other countries and regions. These unique features of domestic animals need to be taken into account in ensuring the fair and equitable sharing of benefits deriving from them, and in tailoring the development of future policy and regulatory measures.
- Most animal genetic resources are currently maintained *in situ*, by farmers, pastoralists and their communities, as integral components of their agricultural ecosystems, economies and cultures. Domestic animals often play key roles in myths, cultures, religions, traditions and social practices. In addition to the animals themselves, foods of animal origin have strong socio-economic and cultural functions in many societies, in addition to playing important roles in nutrition and diets.
- Livestock resources continue to have this important social, cultural and structural role in indigenous and local communities today: the cultural importance of animals is frequently a key factor in *in situ* conservation. The important role of livestock keepers, pastoralists, and local communities in the use and development of livestock resources is recognized. In some countries, livestock keepers have specific rights, in accordance with their national legislation, or traditional rights, to these resources.
- Domestic animal breeds provide key agro-ecosystem functions, such as nutrient cycling, seed dispersal and habitat maintenance. Animal genetic resources and animal management systems are an integral part of ecosystems and productive landscapes throughout the world. By moving their herd seasonally, pastoralists connect different ecosystems. Land-based production systems that have both plant and animal components need co-management of the various components of biological diversity, including soils, crops, rangelands and pastures, fodder crops and wildlife.
- The extent and rate of animal genetic resource loss is still difficult to estimate, despite the clearer picture of animal genetic resources that has emerged in the country-driven preparation of *The State of the World's Animal Genetic Resources*. The lack of information hinders decision-making with regard to what to conserve and develop, and how to best use limited funds available for conservation. The baselines from which to measure change are still unclear, and methodologies for characterization, inventory and monitoring have not been harmonized for establishing standardized guidelines. Nonetheless, there are indications that numerous breeds have become extinct, and many more

will be lost if countries do not rapidly implement conservation measures. While some nations recognize the need to conserve their national animal genetic resources, the global response has so far been sporadic and inadequate. In particular, many local breeds, particularly those held by poor farmers in harsh environments in developing countries, have not yet been sufficiently characterized. These animal populations probably contain many valuable adaptive traits, and with their extinction before they are well understood, considerable value may be lost for ever.

- Traditional production systems required multipurpose animals, which, although less productive than high-output breeds, may contain valuable functional traits. Modern agriculture has developed specialized breeds, optimizing specific production traits. Modern animal breeders have achieved striking productivity increases in high external input production systems. Livestock currently contribute about 30 percent of agricultural gross domestic production in developing countries, with a projected increase to 39 percent by 2030. Only 14 of the more than 30 domesticated mammalian and bird species provide 90 percent of human food supply from animals. The five main livestock species: cattle, sheep, goats, pigs and chickens, provide the majority of food production, and among these, a small number of international transboundary breeds<sup>2</sup> account for an ever-increasing share of total production. This process leads to a narrowing genetic base, as breeds, and indeed species, are discarded in response to market forces. In commercial breeds, high selection pressure leads to a narrowing genetic base, with the potential risk for present and future food security. Breeding programmes and policies should include consideration of broad genetic variability within populations and breeds, which is essential for the development of livestock production to meet the future challenges. Long-term sustainability of selection programmes requires regular assessment of genetic changes and adjustments in selection goals.
  - Policy-makers in many countries, and internationally, are seldom aware of the diverse and significant contributions of animal genetic resources to food and agriculture and of traditional rights of livestock keepers, where they may exist at the national level. The sustainable use and conservation of animal genetic resources has been, and generally continues to be, a low priority in developing agricultural, environmental, trade, and human and animal health policies. The effect has been a failure to invest adequately in essential institutional development and capacity-building.
  - Managing animal genetic resources is a complex task because it is necessary to deal both with questions specific to the resources (such as selection, or the conservation of breeds) and with cross-sectorial matters affecting animal genetic resources, such as animal health measures, development and trade standards, and environmental management. Moreover, responsibilities are shared across sectors and institutions, nationally and internationally.
- 11 Strategically planned interventions for the conservation, use and development of animal genetic resources are essential, but countries face complex challenges in considering how best to formulate relevant national and international policies. Enhancing capacity at all levels is a key element of the *Global Plan of Action for Animal Genetic Resources*. The *Global Plan of Action for Animal Genetic Resources* aims to promote a pragmatic, systematic and efficient overall

<sup>2</sup> FAO has linked breed populations that may belong to a common genepool and may therefore be considered the same breed. These breeds have been termed “transboundary breeds”. Regional transboundary breeds are reported in several countries of one region, and international transboundary breeds are reported in more than one region. It is intended that the use of the term “transboundary breeds” does not affect the sovereign rights of countries within their national jurisdictions.

approach, which harmoniously addresses the development of institutions, human resources, cooperative frameworks, and resource mobilization.

- 12 Activities related to *in situ* conservation, to *ex situ* conservation, and to the utilization of animal genetic resources for food and agriculture, have to date been largely pursued without adequate linkages and coordination: the *Global Plan of Action for Animal Genetic Resources* aims at improving this situation. A certain loss of local breeds is inevitable, given ongoing changes in livestock production systems in developed and developing countries, and the limited availability of resources for conservation. However, to allow this to be a totally random and unsupervised process means accepting an unevaluated, but potentially important, risk of losing resources of major long-term value. Countries, and the international community, should be conscious of the losses that are likely to happen, and should debate and agree on which losses they are prepared to accept, and what investment is needed to maintain and conserve crucial animal genetic diversity. The international research community should provide scientific guidance for strategic decisions under conditions of imperfect information.
- 13 In most countries, the financial and human resource base for *in situ* conservation, *ex situ* conservation, and the better utilization of animal genetic resources for food and agriculture is insufficient, and there are many gaps and inefficiencies. In addition, the capacities and activities of countries and regions to address animal genetic resources are at very different stages of development. The *Global Plan of Action for Animal Genetic Resources* will provide a framework agreed by the international community, to support and increase the overall effectiveness of national, regional and global efforts for the sustainable use, development and conservation of animal genetic resources, and to facilitate mobilization of resources, including adequate financial resources.

#### **Aims and strategies of the *Global Plan of Action for Animal Genetic Resources***

- 14 The *Global Plan of Action for Animal Genetic Resources* is intended as a rolling plan, with an initial time horizon of ten years, with provisions for the sustainable use, development and conservation of animal genetic resources, at national, regional and global levels.
- 15 The main aims of the *Global Plan of Action for Animal Genetic Resources* are:
  - to promote the sustainable use and development of animal genetic resources, for food security, sustainable agriculture, and human well-being in all countries;
  - to ensure the conservation of the important animal genetic resource diversity, for present and future generations, and to halt the random loss of these crucial resources;
  - to promote a fair and equitable sharing of the benefits arising from the use of animal genetic resources for food and agriculture, and recognize the role of traditional knowledge, innovations and practices relevant to the conservation of animal genetic resources and their sustainable use, and, where appropriate, put in place effective policies and legislative measures;
  - to meet the needs of pastoralists and farmers, individually and collectively, within the framework of national law, to have non-discriminatory access to genetic material, information, technologies, financial resources, research results, marketing systems, and natural resources, so that they may continue to manage and improve animal genetic resources, and benefit from economic development;

- to promote agro-ecosystems approaches for the sustainable use, development and conservation of animal genetic resources;
  - to assist countries and institutions responsible for the management of animal genetic resources to establish, implement and regularly review national priorities for the sustainable use, development and conservation of animal genetic resources;
  - to strengthen national programmes and enhance institutional capacity – in particular, in developing countries and countries with economies in transition – and develop relevant regional and international programmes; such programmes should include education, research and training to address the characterization, inventory, monitoring, conservation, development and sustainable use of animal genetic resources;
  - to promote activities aimed at raising public awareness and bringing the needs of sustainable use and conservation of animal genetic resources to the attention of concerned governments and international organizations.
- 16 The *Global Plan of Action for Animal Genetic Resources* is based on the assumption that countries are fundamentally interdependent with respect to animal genetic resources for food and agriculture, and that substantial international cooperation is necessary. In this context, the *Global Plan of Action for Animal Genetic Resources* has been developed on the basis of the following parameters and conditions:
- A diversity of animal genetic resources will ensure the ability of the livestock sector to meet changing market demands and environmental circumstances, including climate change and emerging diseases. Farmers and pastoralists require animal breeds that meet local needs and provide employment within rural communities, and that are resilient to a variety of biotic and abiotic factors, including extreme climatic conditions, feed availability, parasites and other disease factors. Furthermore, livestock provide a direct food source in times of crop failure.
  - Because of interdependence, the conservation of a diverse range of animal genetic resources in countries throughout the world reduces risks on a global basis and strengthens global food security.
  - The baseline characterization and inventory of animal genetic resources, and routine monitoring of populations for variability, are fundamental to breed improvement strategies and programmes, for conservation programmes, and for contingency planning to protect valuable resources at risk.
  - Animal identification and performance recording are essential for the continued improvement of animal genetic resources. Public and private breeders and breeding organizations, and market demand, play a crucial role in this endeavour. In many countries, very little has yet been done in this regard, except for certain breeds.
  - The conservation and sustainable use of animal genetic resources 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 animal genetic resources, efficient and cost-effective *ex situ* conservation strategies need to be put in place in the near future, to complement *in situ* conservation. A holistic planning approach to conservation and utilization strategies must seek strategic priorities at the farm, community, breeding organization,

national, regional and international levels, to achieve maximum effect, and be sustainable.

- Pastoralists, farmers and breeders, individually and collectively, and indigenous and local communities, play a crucial role in *in situ* conservation and development of animal genetic resources. It is important to better understand and support their roles in a context of rapid economic and social change, so that they can play an effective function in *in situ* management, and share fairly and equitably in the benefits arising from the utilization of these resources. A number of actors and stakeholders can assist livestock keepers and their communities in playing this role: researchers, extension agencies, the private sector, non-governmental organizations and local cooperatives.
- A wide variety of animal breeds supply important ecosystem services in specific landscapes, in particular grazed ecosystems, which is often a strong motivation for their maintenance *in situ*. Such productive links between breeds and landscapes need to be maintained and better managed, through appropriate land-use policies and strategies. Wild relatives of domestic animal species, and feral breeds, also require protection.
- The effective management of animal genetic resources, at all levels, depends on the inclusion and willing participation of all relevant stakeholders. Appropriate participatory processes that ensure that the interests of various stakeholders are respected and balanced, are required.

# The Strategic Priorities for Action

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- 17 The Strategic Priorities for Action contain the following four Strategic Priority Areas:

**Strategic Priority Area 1: Characterization, Inventory and Monitoring of Trends and Associated Risks**

The actions provide a consistent, efficient and effective approach to the classification of animal genetic resources, and to assess trends in and risks to animal genetic resources.

**Strategic Priority Area 2: Sustainable Use and Development**

The actions are to ensure sustainability in animal production systems, with a focus on food security and rural development.

**Strategic Priority Area 3: Conservation**

The actions focus on steps needed to preserve genetic diversity and integrity, for the benefit of current and future generations.

**Strategic Priority Area 4: Policies, Institutions and Capacity-building**

The actions directly address the key questions of practical implementation, through coherent and synergistic development of the necessary institutions and capacities.

- 18 The relative priority or importance of each Strategic Priority Area and associated actions may differ significantly for countries and regions. The relative weight applied will depend on the resources themselves (species and breeds), the production systems and environments involved, current management capacities, and programmes underway for the management of animal genetic resources.
- 19 There is a uniform presentation within each Strategic Priority Area:
- The *Introduction* outlines the needs, on the basis of Country Reports and other information generated in the preparatory process.
  - The *Long-term goal* states the final outcome to be reached by implementing the proposed actions. In implementing the *Global Plan of Action for Animal Genetic Resources*, measurable and time-bound goals may be developed, to help the international community to judge progress and successes.
- 20 Each Strategic Priority Area contains a set of Strategic Priorities. For each Strategic Priority:
- The *Rationale* draws upon the findings of the preparatory process, and summarizes the reasons why this is a priority.
  - The individual *Actions* propose logical steps to achieve the desired outcomes or improvements in current conditions.
- 21 Some of the actions will clearly need to involve specific institutions or constituencies. These are not always mentioned by name in the text. The lack of reference to such key partners does not imply their exclusion.

## Strategic Priority Area 1

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### Characterization, Inventory and Monitoring of Trends and Associated Risks

#### Introduction

- 22 The state of animal genetic resources characterization, inventory and monitoring of trends and associated risks activities varies significantly among countries. Some countries do not have data and information systems for animal genetic resources, and others have systems that require significant improvements. This complicates and hinders global monitoring of the trends and associated risks of these resources.
- 23 Understanding the diversity, distribution, basic characteristics, comparative performance and the current status of each country's animal genetic resources is essential for their efficient and sustainable use, development and conservation. Complete national inventories, supported by periodic monitoring of trends and associated risks, are a basic requirement for the effective management of animal genetic resources. Without such information, some breed populations and unique characteristics they contain may decline significantly, or be lost, before their value is recognized and measures taken to conserve them.
- 24 A good understanding of breed characteristics is necessary to guide decision-making in livestock development and breeding programmes. Information from inventories and monitoring of trends and associated risks is necessary for policy-makers to determine conservation activities, whereas the results of characterization enable farmers to determine which breed to use under prevailing production conditions. Comparative analysis of the performance of indigenous and exotic breeds – for both production and functional traits – is needed to inform strategic planning. In the absence of such analysis, local breed development may be ignored in favour of the introduction of exotic germplasm, or indiscriminate cross-breeding that will result in the erosion of local breeds.
- 25 A major difficulty in completing the world inventory of farm animal breeds results from the fact that most populations do not correspond to the notion of herd book breeds and are not pure breeds with identifiable and stable characteristics, but are the result of multiple crosses of diverse origins. Further research is needed to assess the optimum approaches to dealing with these mixed non-descript populations in inventories.
- 26 There is a clear need for inter-operative data and information systems, standards and protocols, to facilitate the sharing of data and information on the status of breeds among countries and regions. This is required to globally rationalize the status of breeds, and assist in setting conservation priorities beyond the national level. In many regions, gaps in data and information on the status of breeds, or obstacles to the effective sharing of data and information within and between countries, frustrate joint development of transboundary breeds.

#### Long-term goal

Improved understanding of the status, trends and associated risks, and characteristics of all aspects and components of animal genetic resources, to facilitate and enable decision-making for their sustainable use, development and conservation.

## Strategic Priority 1 **Inventory and characterize animal genetic resources, monitor trends and risks associated with them, and establish country-based early-warning and response systems**

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### Rationale

Genetic erosion is a problem of national and international concern, and a number of animal breeds are at risk of extinction. *The State of the World's Animal Genetic Resources* provides the first global overview of the diversity, status and trends of animal genetic resources, and capacity to manage these resources at national, regional and global levels. National data and information systems for animal genetic resources are often underdeveloped.

Inventory, monitoring of trends and associated risks, and characterization should be strengthened and maintained to assist in determining conservation priorities and strategic breeding programmes. In certain cases – such as in armed conflicts, epidemics, droughts and other environmental emergencies – threats to animal genetic resources may be sudden and require a short response time. Country-based risk monitoring will greatly assist in setting up early-warning systems and response mechanisms, at national, regional and global levels.

### Actions

- 1 Conduct or complete inventories of the location, population status, trends and characteristics of animal genetic resources.
- 2 Expand characterization and monitoring of trends in and risks to animal genetic resources.
- 3 Encourage the establishment of institutional responsibilities and infrastructure for monitoring of trends in animal genetic resources (for example population size and genetic diversity), including identification, registration and pedigree systems.
- 4 Promote participatory approaches to characterization, inventory and monitoring of trends and associated risks that foster collaboration among all stakeholders, including livestock keepers and researchers.
- 5 Undertake international cooperative monitoring of trends and associated risks, inventory and characterization activities among countries sharing transboundary breeds and similar production systems.
- 6 Strengthen global and regional information systems and networks for inventory, monitoring and characterization. *Inter alia*, the Domestic Animal Diversity Information System (DAD-IS) and the Global Databank for Animal Genetic Resources for Food and Agriculture should be strengthened to obtain, evaluate and condense information from national databases and monitoring systems, and distribute this information, highlighting threats and needs.
- 7 Establish or strengthen existing breed endangerment early-warning and response systems, through the further development of national, regional and global risk-monitoring mechanisms, and the inclusion of early-warning criteria in existing databases.

## Strategic Priority 2      **Develop international technical standards and protocols for characterization, inventory, and monitoring of trends and associated risks**

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### **Rationale**

Cross-national intercomparability of data is essential to be able to monitor trends in and risks to animal genetic resources at regional and global levels, in particular transboundary populations, and to set and revise conservation priorities, as well as identify key genetic resources for strategic breeding of such populations. This requires the development and use of standardized methods and protocols for characterization, inventory, and monitoring of trends and associated risks. This will facilitate coordinated national reporting in relevant international forums. There is also a need to collaborate in characterization research, to enhance coordination of existing research, and to improve the distribution of the results of characterization studies. The development of international standards for characterization, inventory and monitoring of animal genetic resources should take into account existing relevant processes.

### **Actions**

- 1    Develop agreement on a common set of minimum criteria and indicators for animal genetic diversity, including means for assessing endangerment status, and methods to assess environmental, socio-economic and cultural factors related to animal genetic resources management.
- 2    Develop technical standards and protocols for phenotypic and molecular characterization, including methods for the assessment of quantitative and qualitative production traits, nutrient utilization, functional traits and economic valuation. This makes possible the assessment of comparative breed performance in different production environments.
- 3    Develop protocols for participatory monitoring of trends and associated risks, and characterization of local breeds managed by indigenous and local communities and livestock keepers.
- 4    Strengthen research and development of methods for characterization, and breed evaluation, valuation and comparison. Develop inter-operability protocols for information systems.

## Strategic Priority Area 2

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### Sustainable Use and Development

#### Introduction

- 27 The challenge to achieve food security and sustainable development for all is greater now than it has ever been. More efficient use of available resources, along with appropriate technologies and improved management offer great scope for raising production and improving producers' income, while avoiding the depletion of natural resources (including genetic resources) and reducing wastes and environmental pollution.
- 28 In most developed countries, and some developing countries, there has been extremely rapid progress in the development of breeding and production techniques for major food-supplying livestock species and breeds, over the past 50 years. Intense selection, and husbandry improvement, have resulted in increased meat, milk or egg output in production systems where ample quantities of high-quality feeds and other inputs are provided to specialized breeds, and where production stressors (such as unfavourable climate and disease) are mitigated by capital investment. The rapid progress made – with an average of 2 percent production increase annually – is a strong indicator of the potential of animal genetic resources to further contribute to food security and rural development. However, current development efforts focus primarily on short-term production, without a strategic assessment of the long-term and collateral consequences. The wider environmental impact of intensive production systems, and the within- and between-breed reduction of genetic diversity, are often ignored.
- 29 In many cases, developing countries, facing highest priority needs to feed their populations, have focused investments and policies on high external input production systems using exotic breeds, rather than on establishing long-term genetic improvement schemes for local breeds. The use of exotic breeds is justified under proper management conditions in high external input production systems, especially near urban areas, where there is growing demand for animal products, and where input supply and services can be sustained. However, in rural contexts, farmers and livestock keepers often face difficulties in securing the additional feed and other inputs that exotic breeds require. Moreover, imported breeds have often not reproduced in or been as adapted to the local environment as local breeds. Increased attention must therefore be given to the sustainable use and development of local breeds in low and medium external input production systems. The option of maintaining or developing production systems in marginal environments, based on multiple-use animal genetic resources, needs to be addressed in depth.
- 30 Investment in developing local breeds of livestock will benefit small-scale, resource-poor pastoralists and farmers, and will often contribute to the sustainable development of the poorest regions of a country. However, a major obstacle to the further development of indigenous breeds is the lack of national strategies, programmes and institutional infrastructure to facilitate genetic and husbandry improvement programmes in low external input systems. Farmers' associations and breed societies do not exist in many developing countries, and pastoralists' and farmers' knowledge of modern breeding methods is often poor. National institutions and research facilities are needed to make animal husbandry and animal health care services, facilities and techniques available to all livestock keepers and also encourage private sector participation.

**Long-term goal**

Enhanced sustainable use and development of animal genetic resources in all relevant production systems, as a key contribution to achieving sustainable development, poverty eradication and adaptation to the effects of climate change.

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**Strategic Priority 3      Establish and strengthen national sustainable use policies**


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**Rationale**

Most countries lack comprehensive policies to support the maintenance and development of animal genetic resources held within their territories. Sustainable use policies should balance food-security goals and economic development with long-term sustainability and adaptation objectives. In addition, environmental and socio-economic changes, including demographic changes, climate change and desertification, require adaptive medium- and long-term policies and strategies for the management of animal genetic resources. These policies should also consider the contributions of livestock keepers, professional breeders and other actors to animal genetic diversity, respect the interests, rights and obligations of stakeholders, and take into account exchange, access, and the fair and equitable sharing of the benefits from animal genetic resources.

Sustainable use policies should also include consideration of broad genetic variability between and within breeds which is essential for present and future livestock production. One perspective is to maintain a broad diversity of breeds within economic production systems. Sustainable animal production should be responsive to differing domestic and export market demands, as appropriate, while matching genotypes to production systems. Most countries are aiming to satisfy domestic consumption, while others are also seeking to derive export income from animal production. These objectives should be considered when sustainable genetic improvement programmes are developed and evaluated. Flexible breeding strategies, including selection and also cross-breeding, where appropriate, should be utilized to promote the sustainable development and profitability of livestock sectors. The breeding strategies need to be adaptable to respond to production opportunities and technology.

**Actions**

- 1 Review existing national policies on sustainable use to assess their impacts on animal genetic resources management.
- 2 Develop, as necessary, national policies that incorporate the contribution of animal genetic resources to sustainable use, which may include setting strategic objectives for breeding and sustainable use; conducting economic and cultural valuation of animal genetic resources; and developing approaches, including mechanisms, to support wide access to, and the fair and equitable sharing of benefits arising from the use of animal genetic resources and associated traditional knowledge.

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**Strategic Priority 4      Establish national species and breed development strategies and programmes**


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**Rationale**

The development and implementation of breeding strategies and programmes to meet foreseeable economic needs of farming and herding communities and markets are required for all species and breeds. Breeding organizations and recording schemes are

highly beneficial in achieving breeding objectives and are crucial for breed development strategies, but are often lacking. Breeding goals should be regularly assessed and take into account the impacts of selection on genetic diversity.

#### **Actions**

- 1 Develop long-term planning and strategic breeding programmes and consider a number of elements, including: efforts to improve underutilized breeds, especially within low to medium external input production systems; assessments of the impact of exotic animal breeds and the development of measures for producers to realize positive impacts and prevent negative impacts; training and technical support for the breeding activities of pastoralist and farming communities; and the integration of improved husbandry practices in animal genetic resources development programmes. Whereas plans and programmes developed will be national, in some cases cooperation with other countries may be required.
- 2 Assess breed development programmes and revise, as appropriate, with the aim of meeting foreseeable economic and social needs and market demands, bearing in mind scientific and technological parameters. The information about breeds and production systems could be made available to consumers.
- 3 Establish and develop organizational structures of breeding programmes, especially breeders' organizations and breeding schemes, including recording systems.
- 4 Incorporate consideration of the impacts of selection on genetic diversity into breeding programmes and develop approaches to maintain the desired variability.
- 5 Establish or strengthen recording schemes to monitor changes in non-production traits (e.g. health, welfare) and adjust breeding goals accordingly.
- 6 Encourage the development of backup collections of frozen semen and embryos from current breeding schemes to ensure genetic variability.
- 7 Provide information to farmers and livestock keepers to assist in facilitating access to animal genetic resources from various sources.

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### **Strategic Priority 5 Promote agro-ecosystems approaches to the management of animal genetic resources**

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#### **Rationale**

Agro-ecosystems depend on human management practices, knowledge systems, cultural norms, values and beliefs, as well as social relationships and livelihood strategies. In some production systems the management of animal genetic resources, particularly by indigenous and local communities, takes place in close relationship with the management of crops, pastures, forests and other biological resources, and land and water management in productive landscapes. Rapid intensification of production is driven by a number of factors. Inadequate planning of intensive animal production can lead to negative ecological impacts, such as soil and vegetation degradation, water and marine pollution, and the unsustainable use and conversion of rangelands. Management decisions and policies on the sustainable use of animal genetic resources therefore should be based on an understanding of human environments and livelihoods, and efforts to achieve food security and environmental objectives.

**Actions**

- 1 Assess environmental and socio-economic trends that may require a medium- and long-term policy revision in animal genetic resources management.
- 2 Integrate agro-ecosystem approaches in national agricultural and environmental policies and programmes of relevance to animal genetic resources, where appropriate, particularly those directed towards pastoralist and rural smallholder communities, and fragile environments.
- 3 Establish networks to enhance interaction among the main stakeholders, scientific disciplines and sectors involved.

**Strategic Priority 6****Support indigenous and local production systems and associated knowledge systems of importance to the maintenance and sustainable use of animal genetic resources****Rationale**

Over millennia, animal species and breeds have been domesticated, developed and maintained for human use. These resources have co-evolved with the social, economic and cultural knowledge and management practices. The historic contribution of indigenous and local communities to animal genetic diversity, and the knowledge systems that manage these resources, needs to be recognized, and their continuity supported. Today, the adaptive animal genetic resources management strategies of these communities continue to have economic, social and cultural significance, and to be highly relevant to food security in many rural subsistence societies, particularly, though not exclusively, in dry lands and mountainous regions. Measures to support such systems should take their specific ecological and socio-economic and cultural features into consideration.

**Actions**

- 1 Assess the value and importance of indigenous and local production systems, and identify trends and drivers of change that may affect the genetic base, and the resilience and sustainability of the production systems.
- 2 Support indigenous and local livestock systems of importance to animal genetic resources, including through the removal of factors contributing to genetic erosion. Support may include the provision of veterinary and extension services, delivery of microcredit for women in rural areas, appropriate access to natural resources and to the market, resolving land tenure issues, the recognition of cultural practices and values, and adding value to their specialist products.
- 3 Promote and enable relevant exchange, interaction and dialogue among indigenous and rural communities and scientists and government officials and other stakeholders, in order to integrate traditional knowledge with scientific approaches.
- 4 Promote the development of niche markets for products derived from indigenous and local species and breeds, and strengthen processes to add value to their primary products.

## Strategic Priority Area 3

### Conservation

#### Introduction

- 31 The erosion of animal genetic resources is a long-term threat to ensuring food security and rural development. According to *The State of the World's Animal Genetic Resources*, 20 percent of all reported breeds are at risk of extinction; however, the population status of many breeds is still unknown, and the problem may thus be underestimated. Most developing countries and some developed countries do not currently have animal genetic resources conservation strategies or policies in place. Without strategically planned interventions, using both *in situ* and *ex situ* conservation, erosion will continue and may accelerate.
- 32 The main underlying factors that result in some cases in the loss of animal genetic resources are:
- The focus on a few high-output breeds;
  - The lack of adequate policies, leading to the marginalization of relevant stakeholders, such as pastoralists, socio-economic changes leading to transformation of production systems and livelihoods, and disasters (natural and human induced); and
  - The transformation of traditional systems into external input-oriented systems, often by using exotic animal genetic resources that displace local breeds. The indiscriminate cross-breeding with exotic breeds is also rapidly compromising the genetic integrity of local populations.
- 33 Loss of local breeds will cause cultural erosion and diminish the ability of communities to maintain their cultures and livelihoods. Structural changes in the livestock sector may result in a situation where the previous keepers of a breed are no longer in a position to maintain it: in such circumstances, other ways need to be identified to preserve the breed, as part of the global heritage of animal genetic resources.
- 34 Loss of animal genetic resources reduces opportunities to develop rural economies in some countries. It may also have negative social and cultural impacts, given the long history of domestication and the resulting incorporation of domestic animals into community culture. Replacement of indigenous breeds could result in the loss of products and services preferred by local people, and the conservation of local breeds must therefore be considered within the broader context of sustaining rural communities and their existing economic foundations. Moreover, such losses now may limit future development options, based on animal products and services from specific breeds, that otherwise could have added considerable economic value as consumer demands become more varied.
- 35 The loss of local breeds may have negative environmental impacts in some production environments, especially in dry lands and mountainous areas. Many Country Reports indicated the importance of local breeds in contributing to landscape management, vegetation control, and rangeland ecosystem sustainability, preventing the erosion of associated biodiversity.
- 36 Many breeds at risk are in developing countries, which have limited capacity and resources for designing and implementing conservation programmes. These

breeds often possess unique genetic traits that enable their survival in a diverse range of production environments with intense stresses, such as disease and drought.

- 37 Appropriate conservation measures should ensure that farmers and researchers have access to a diverse gene pool for further breeding and research. This genetic diversity provides an essential resource to cope with the impacts of climate change, pest and disease outbreaks, and new and growing consumer demands. Strategic and considered investment in the conservation of animal genetic resources is of critical importance and international collaboration is essential to halt the serious decline of these resources.
- 38 In most developing countries, *in situ* conservation is the preferred conservation approach. *In situ* conservation has the benefit of allowing continued co-evolution of the genetic resources within the prevailing environment. *Ex situ* conservation measures are complementary to *in situ* approaches and should be linked where appropriate. However, the capacity for *ex situ* conservation varies significantly among countries, but *ex situ* conservation efforts for animal genetic resources generally lag far behind similar efforts for plant genetic resources. The storage of genetic material for breeding purposes is common for some commercial breeds, but not in all species. However, for local breeds, the collection and storage of animal genetic material has not been adequate. In such cases, it is important to support planned and targeted collecting of animal genetic resources, and to expand *ex situ* conservation activities.
- 39 Emergency situations for farm animals are caused by a variety of factors such as disease, natural disaster, armed conflict and economic crises. There is significant variation in the preparedness of countries to respond to emergency situations. A lack of early-warning systems and financial resources are the main constraints to establishing effective and consistent monitoring and emergency-response mechanisms, and in assisting farmers and livestock keepers to restore agricultural systems after disaster situations.

#### Long-term goal

Secure the diversity and integrity of the genetic base of animal genetic resources by better implementing and harmonizing measures to conserve these resources, both *in situ* and *ex situ*, including in the context of emergencies and disasters.

## Strategic Priority 7

### Establish national conservation policies

#### Rationale

Countries have a responsibility to conserve their animal genetic resources; however, most countries lack comprehensive policies. Such policies should serve to ensure the maintenance of animal genetic resources 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 animal genetic resources has complex drivers and cannot be halted by one simple solution. A combination of *in situ* and *ex situ* conservation measures is necessary.

#### Actions

- 1 Set and regularly review conservation priorities and goals.
- 2 Assess factors leading to the erosion of animal genetic resources and formulate appropriate policy responses. Establish or strengthen information systems on

animal breeding approaches as well as on different gene banks, as they affect animal genetic diversity, in order to enable breeders and countries to make appropriate choices in their improvement programmes.

- 3 Establish institutional structures and policies, as appropriate, including specific measures to conserve breeds at risk of extinction, and to prevent breeds from becoming at risk. A combination of *in situ* and *ex situ* measures is necessary.
- 4 Provide and catalyse incentives for producers and consumers to support conservation of animal genetic resources at risk, as evaluated by individual countries, provided that such incentives are consistent with existing international agreements.

## Strategic Priority 8 Establish or strengthen *in situ* conservation programmes

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### Rationale

*In situ* conservation measures allow for the maintenance and adaptive management of animal genetic resources in productive landscapes. *In situ* measures facilitate continued co-evolution in diverse environments, and avoid stagnation of the genetic stock. *In situ* conservation measures are best based on agro-ecosystem approaches and, ideally, should be established through economically profitable and socially beneficial sustainable use. However, in some instances this can only be achieved after initial investments in creating markets and in product development. In cases where this is not possible, support for the *in situ* conservation of animal genetic resources may be necessary.

### Actions

- 1 Set and regularly review *in situ* conservation priorities and goals.
- 2 Encourage the development and implementation of national and regional *in situ* conservation programmes for breeds and populations that are at risk. This may include support, either directly for breeders of threatened breeds, or measures to support agricultural production systems that manage areas of importance to breeds at risk, the encouragement of breed organizations, community-based conservation organizations, non-governmental organizations and other actors to participate in conservation efforts provided that such support or such measures are consistent with existing international agreements.
- 3 Promote policies and means to achieve the sustainable use of a diversity of local breeds, without the need for support from public funds or extra funding, through *in situ* conservation.

## Strategic Priority 9 Establish or strengthen *ex situ* conservation programmes

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### Rationale

*Ex situ* conservation measures provide backup insurance against losses of animal genetic resources in the field, either through erosion or as a result of emergencies. *Ex situ* measures are complementary to *in situ* measures, and should be linked, where appropriate. *Ex situ* collections can also play an active role in strategic breeding programmes.

**Actions**

- 1 Set and regularly review *ex situ* conservation priorities and goals.
- 2 Establish or strengthen national and regional facilities for *ex situ* conservation, in particular cryogenic storage. Support the efforts of countries within a region that have opted to establish a regional facility.
- 3 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 animal genetic resources.
- 4 Develop and implement measures to secure *ex situ* collections from loss of genetic diversity resulting from disease outbreaks and other threats, in particular by establishing backup samples.
- 5 Identify and fill gaps in *ex situ* collections.
- 6 Develop procedures for replenishment of genetic material taken from gene banks, by systematically developing links with live populations, or establishing *in vivo* populations of breeds at risk at off-farm locations, such as zoos and parks.

**Strategic Priority 10****Develop and implement regional and global long-term conservation strategies****Rationale**

There are considerable numbers of regional and international transboundary breeds. Collaboration for *in situ* conservation is desirable for regional transboundary breeds and for transhumant livestock populations held by pastoralist communities that cross national boundaries. To ensure the highest efficiency and cost-saving in implementing *ex situ* conservation measures, regional and global strategies and facilities may be preferred over the duplication of national efforts, providing that modalities are developed for sharing facilities among countries and that conservation policies remain part of national sovereignty, and that such measures are consistent with existing international agreements. In the medium and long term, and taking into account likely environmental and socio-economic change, as well as disasters and emergencies, it is likely that international interdependence with regard to animal genetic resources will increase. This provides further cause to the international community to collaborate on conservation measures, for local, regional and international transboundary breeds, under fair and equitable arrangements for storage, access and use of animal genetic resources. Regional and global cooperation should be based on national efforts, but should not replace them.

**Actions**

- 1 Assist countries to develop and implement conservation plans for breeds and populations, particularly transboundary breeds and populations, combining *in situ* and *ex situ* measures.
- 2 Establish integrated support arrangements to protect breeds and populations at risk from emergency or other disaster scenarios, and to enable restocking after emergencies, in line with the national policy.
- 3 Establish regional and global networks of gene banks for animal genetic resources and harmonize approaches to conservation in gene banks and to facilitating exchange.

- 4 Facilitate the establishment of core collections of animal genetic diversity, at the appropriate regional or species level.

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**Strategic Priority 11      Develop approaches and technical standards for conservation**

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**Rationale**

*In situ* and *ex situ* conservation methods for animal genetic resources are still under development. Particularly in the area of *ex situ* conservation, there is a considerable need for standardized methods and technologies.

**Actions**

- 1 Undertake research, including participatory research, to develop *in situ* and *ex situ* methods and technologies, including for conservation breeding. Elaborate standardized methods and guidelines for their use, where necessary.
- 2 Document and disseminate knowledge, technologies and best practices.
- 3 Promote the use of appropriate genetic indicators to complement phenotypic characterization as a basis to make decisions on conserving animal genetic resources.
- 4 Review the impact of zoosanitary standards on the conservation of animal genetic resources, and in particular, their accessibility.

## Strategic Priority Area 4

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### Policies, Institutions and Capacity-building

#### Introduction

- 40 In many cases, national policies and regulatory frameworks for animal genetic resources are still partial and ineffective. Policy and legislative development is required to address the dynamics that are shaping the sector, and deal with increasingly complex emerging issues, such as an increasing focus on consumer affairs, food safety and food standards, response to diseases (animal diseases proper and animal diseases that can pass to humans), the humane treatment of animals, increasingly sophisticated biotechnology, as well as the assessment and mitigation of the environmental impacts of livestock operations. A further area that requires development is the framework for the exchange of animal genetic resources among countries. Policy development should take into account the increasing role of intellectual property rights in the sector, and the need to secure fair and equitable benefit-sharing, the rights of indigenous and local communities, particularly pastoralists, and the role of their knowledge systems.
- 41 In developing countries an increasing demand for animal production is driving rapid structural change in the livestock sector. Without proper management, including spatial and physical planning aspects as cities expand into previously agricultural lands, there will be major risks for human health and the sustainability of production. Social and economic policies need to aim at ensuring equity for rural populations in the process of change, so that they are enabled to build up, in a sustainable way, their productive capacity to supply goods and services of increasing quantity and quality to expanding national economies, and meet growing consumer demands. In a time of rapid change and growing privatization, national planning will also need to ensure the long-term supply of public goods, such as public health, biodiversity maintenance, and clean air and secure water supplies. There will inevitably be trade-offs between different national policy goals. The management of animal genetic resources will need to be balanced with the other goals, and short- and long-term policies are required for the sector, within the larger cross-sectorial planning framework.
- 42 In developing countries in particular, a lack of trained personnel – both in terms of numbers and in skills to address animal genetic resources management, in a time of rapid social and economic change – is a major impediment to developing and implementing animal genetic resources policies, strategies, programmes and projects. Education and training in order to build sustainable capacity in all priority areas is required.
- 43 Research at national and international levels in all aspects of animal genetic resources management needs to be strengthened. The role of the National Agricultural Research Systems (NARS) and their support by the Consultative Group on International Agricultural Research (CGIAR) system is crucial in this context.
- 44 Facing these major challenges will require the development of a strong and diverse skills base. In many developing countries in particular, a lack of human capacity and financial resources is a major obstacle to developing the necessary institutions, and planning and implementing a strategic approach to using, developing and conserving animal genetic resources. For this reason, and in order to achieve sustainable use, development and conservation of their animal genetic resources, many countries will need to devote particular attention to establishing and building up the relevant institutions, to adopting and

implementing appropriate policies and effective regulatory frameworks, and to building the human capacity they need.

- 45 National Focal Points for animal genetic resources – established in the context of the Global Strategy for the Management of Farm Animal Genetic Resources – are a key institutional element through which to build and maintain networks for the management of animal genetic resources. Most countries have established a National Focal Point for animal genetic resources. Serious human and financial resources constraints have made their establishment difficult, and still threaten their continuity. Cooperation between countries is needed to set up Regional Focal Points and develop regional networks.
- 46 Networks are important in linking stakeholders, and in supporting institutional development and capacity-building. In some countries, where networks are well developed, they draw upon the support of active non-governmental organizations, such as breeders' associations, which design, plan and implement animal genetic resources programmes and action plans.
- 47 In addition to developing national planning capacity, popular awareness of the importance of animal genetic resources needs to be developed, in order to promote investments in developing national animal genetic resources. In many instances to date, livestock development has focused on the deployment of exotic breeds, rather than the development and conservation of local breeds. Consumers will need to understand and support efforts to conserve and use local breeds, rather than over-reliance on transboundary breeds. In many developed countries, the share of high-value products, linking back to specific breeds, is contributing to the maintenance of animal diversity. Cultural identity in developing countries, often expressed in food preferences, can be the basis for a growing awareness of the value of diverse breeds, and underwrite long-term economic development, including for small farmers and currently marginal communities.
- 48 Awareness-building at the international level will also be a key factor in mobilizing popular support and international collaboration for the implementation of the *Global Plan of Action for Animal Genetic Resources*.

#### Long-term goal

Established cross-cutting policies and legal frameworks, and strong institutional and human capacities to achieve successful medium- and long-term planning for livestock sector development, and the implementation of national programmes for the long-term sustainable use, development and conservation of animal genetic resources.

## Strategic Priority 12

### Establish or strengthen national institutions, including National Focal Points, for planning and implementing animal genetic resources measures, for livestock sector development

#### Rationale

Increasingly complex issues are emerging within the livestock sector that require balancing the interests of a variety of stakeholders, and the active promotion of the generation of public goods that may otherwise cease to be produced in a time of rapid and unregulated change. Consumer affairs, human health matters and the management of new biotechnologies, as well as physical and spatial planning of animal production in the context of urban expansion and protected areas, need to be integrated into national planning in a holistic manner.

**Actions**

- 1 Analyse national institutional capacity in support of holistic planning of the livestock sector.
- 2 Establish or strengthen fully functional National Focal Points for animal genetic resources.
- 3 Develop strong national coordination between the National Focal Point and stakeholders involved in animal genetic resources, such as the breeding industry, government agencies, civil society organizations, and networks and advisory committees.
- 4 Develop and implement intervention tools, as appropriate, for national planners to shape the future development of the livestock sector in accordance with national priorities, including in relation to the deployment of animal genetic resources, and the effects of animal production systems on the environment.
- 5 Promote coordination and synergy between the different authorities dealing with various aspects of planning, within and across ministries, as well as with other stakeholders, and ensure their participation in the process.

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**Strategic Priority 13      Establish or strengthen national educational and research facilities**


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**Rationale**

Research and education needs strengthening in all areas of management of animal genetic resources. Establishing, strengthening and maintaining research and education institutions is key to building national capacities to plan and implement priority activities for the characterization, inventory and monitoring of risks and trends; sustainable use and development; and conservation of animal genetic resources.

**Actions**

- 1 Identify the short-term, medium-term and long-term needs for research and education, and promote the formation of the relevant cadres of experts, nationally or through international training.
- 2 Review national research and education capacities in relevant fields, and establish targets for training to build the national skill base.
- 3 Establish or strengthen, in partnership with other countries, as appropriate, relevant research, training and extension institutions, including national and regional agricultural research systems, to support efforts to characterize, inventory and monitor trends and associated risks, sustainably use and develop, and conserve animal genetic resources.
- 4 Review the national educational needs of livestock keepers, while respecting traditional knowledge and indigenous practices.

## Strategic Priority 14 **Strengthen national human capacity for characterization, inventory, and monitoring of trends and associated risks, for sustainable use and development, and for conservation**

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### Rationale

Many countries have inadequate human capacity to:

- undertake systematic characterization, inventory, and monitoring of trends and associated risks to underpin policy decisions;
- strategically plan, develop and implement policies and programmes for sustainable use and development; and
- strategically plan, develop and implement policies and programmes for the *in situ* and *ex situ* conservation of animal genetic resources.

Training, as well as exchange of information and experiences within and between countries and regions would be beneficial.

### Actions

- 1 Establish or strengthen training and technology transfer programmes, and information systems for the inventory, characterization and monitoring of trends and associated risks; sustainable use and development; and conservation, particularly in developing countries and countries with economies in transition.
- 2 Establish or strengthen collaborative networks of researchers, breeders and conservation organizations, and other public, civil and private actors, within and between countries, for information and knowledge exchange for sustainable use, breeding and conservation.
- 3 Establish or strengthen community-based organizations, networks and initiatives for sustainable use, breeding and conservation.

## Strategic Priority 15 **Establish or strengthen international information sharing, research and education**

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### Rationale

Established international research and education institutions, including in the CGIAR system, provide major public goods through research and capacity-building, as well as through information systems, of relevance to animal genetic resources. FAO, through its technical programmes, also contributes actively to this work.

### Actions

- 1 Establish or strengthen international research and education, in particular, to assist developing countries and countries with economies in transition to better use and develop animal genetic resources.
- 2 Continue to develop the FAO Domestic Animal Diversity Information System (DAD-IS), as a global communication tool and clearing-house mechanism for animal genetic resources.

- 3 Develop means for reporting on the status and trends of national animal genetic resources that may also assist governments in relevant reporting in other international forums, to reduce the overall reporting burden.
- 4 Establish and strengthen the development of national databases to enable information sharing among countries.

### Strategic Priority 16

#### Strengthen international cooperation to build capacities in developing countries and countries with economies in transition, for:

- characterization, inventory, and monitoring of trends and associated risks;
- sustainable use and development; and
- conservation of animal genetic resources

#### Rationale

There are significant differences within and between regions in national human, institutional, technological and research capacities for inventory, characterization and monitoring of trends and associated risks; sustainable use and development; and conservation – both *in situ* and *ex situ* – of animal genetic resources. Developing countries and countries with economies in transition will greatly benefit from information exchange and collaboration with countries with comparative advantages in these areas. International action is particularly required for endangered breeds and for transboundary breeds which may have a narrow genetic base.

#### Actions

- 1 Build or strengthen technical cooperation and establish facilities for technology transfer and exchange of experience, and enhance educational and other training opportunities, between countries, considering the particular interests of developing countries and countries with economies in transition.
- 2 Establish or strengthen international collaboration in the characterization, use and development, and conservation of transboundary breeds.

### Strategic Priority 17

#### Establish Regional Focal Points and strengthen international networks

#### Rationale

The management of transboundary breeds and populations, as well as specific regional socio-economic, cultural and environmental characteristics, provide a rationale for coordination and collaboration at the regional level. Investment in joint activities (such as gene banking) may often be more efficient and cost effective than the multiplication of overlapping national activities.

#### Actions

- 1 Support the establishment of country-driven Regional Focal Points for animal genetic resources, where appropriate.
- 2 Establish or strengthen and maintain regional networks, including regional databases, if required, for the use, development and conservation of animal genetic resources.
- 3 Link regional activities on animal genetic resources to regional organizations.

- 4 Maintain and strengthen the FAO Global Focal Point for animal genetic resources to promote international networking and collaboration.

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### Strategic Priority 18      **Raise national awareness of the roles and values of animal genetic resources**

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#### **Rationale**

Within the livestock sector and in other sectors impacting on the livestock sector, including environmental and broader agricultural and development policies and practices, there is a considerable need to raise awareness of the important roles and values of animal genetic resources. This includes their specific characteristics, the products and services derived from local breeds, and the factors impacting their maintenance and use. Such national awareness-building should draw attention to the specific features of the livestock sector, and should seek to mobilize support for public and private initiatives for the sustainable use, development and conservation of animal genetic resources.

#### **Action**

- 1 Provide targeted, effective information through media, public events and other means to raise awareness about the important roles and values of animal genetic resources. This should address their specific characteristics and the consequent special policy needs for their sustainable use, development and conservation, including livestock keepers' contributions, needs, and all relevant rights that may exist at national level. Target audiences include policy-makers, all major stakeholders within the livestock sector and related sectors, and the general public.

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### Strategic Priority 19      **Raise regional and international awareness of the roles and values of animal genetic resources**

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#### **Rationale**

There is a need to raise awareness – including within environmental and broader agricultural and development institutions and forums, and among other stakeholders, such as donors and civil society – of the important roles and values of animal genetic resources, their specific characteristics and the consequent needs for sustainable use, development and conservation.

#### **Action**

- 1 Support regional and international campaigns to raise awareness of the status of animal genetic resources for food and agriculture, and seek to develop wide support at the government and institutional levels, as well as among the general public.

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### Strategic Priority 20      **Review and develop national policies and legal frameworks for animal genetic resources**

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#### **Rationale**

A range of policies and legal instruments have direct or indirect effects on the use, development and conservation of animal genetic resources. These instruments often pursue different objectives, such as economic development, environmental protection,

animal health, food safety, consumer protection, intellectual property rights, genetic resources conservation, and access to and equitable sharing of benefits arising from the use of animal genetic resources. Enhanced coherence between these instruments and policies is needed, without compromising their objectives, or the key objective of food security, and taking into account the distinctive features of animal genetic resources that need distinctive solutions. Means for access and benefit-sharing need to be taken into account.

#### **Actions**

- 1 Periodically review existing national policies and regulatory frameworks, with a view to identifying any possible effects they may have on the use, development and conservation of animal genetic resources, especially with regard to the contribution and needs of local communities keeping livestock.
- 2 Consider measures to address any effects identified in reviews of policy and legal frameworks. Measures may include policy or legislative changes, or adjustments at the level of implementation, taking into account the need to balance the goals and objectives of the relevant legal instruments and policies, and the interests of different stakeholders.
- 3 Encourage consistency of national law and policies concerning animal genetic resources with relevant international agreements, as appropriate.
- 4 Ensure that relevant research results are taken into consideration in the development of national policies and regulations on animal genetic resources.

## **Strategic Priority 21**

### **Review and develop international policies and regulatory frameworks relevant to animal genetic resources**

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#### **Rationale**

International policies and regulatory agreements may directly or indirectly affect the use of animal genetic resources for food and agriculture. The dominant policies and frameworks that affect the development of the animal genetic resources sector are often general, and deal with such matters as economic development, trade standards, environmental protection, food safety, access and benefit-sharing and intellectual property. Sector-specific international agreements include animal health standards and food standards for animal products. It is important to ensure that international instruments to which countries are parties, which impact upon their ability to exchange, use and conserve animal genetic resources, and trade in animal products, are mutually supportive.

#### **Actions**

- 1 Review existing international agreements that impact upon the use, development and conservation of animal genetic resources, with a view to ensuring that international policies and regulatory frameworks take into account the special importance of animal genetic resources for food and agriculture for food security, the distinctive features of these resources needing distinctive solutions, the importance of science and innovation, and the need to balance the goals and objectives of the various agreements, as well as the interests of regions, countries and stakeholders, including livestock keepers.
- 2 Review the implications and impacts of international agreements and developments relevant to access to animal genetic resources and sharing the benefits of their use upon animal genetic resources stakeholders, especially livestock keepers.

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**Strategic Priority 22**      **Coordinate the Commission's efforts on animal genetic resources policy with other international forums**

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**Rationale**

The Commission on Genetic Resources for Food and Agriculture is FAO's standing intergovernmental forum where countries discuss policies and sectorial and cross-sectorial matters related to the conservation and sustainable use of genetic resources for food and agriculture. Other international organizations and forums regularly discuss issues and develop policy and regulatory measures that directly or indirectly affect the management of animal genetic resources and the roles and interests of the various stakeholders in the livestock sector. Such forums include the Convention on Biological Diversity, the World Intellectual Property Organization, the World Trade Organization, the World Organisation for Animal Health, and *Codex Alimentarius*. There is a need to enhance synergy and harmony between such processes.

**Action**

- 1    Develop cooperation with and strengthen the involvement and contributions of international organizations and forums in supporting the work of the Commission on Genetic Resources for Food and Agriculture on animal genetic resources.

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**Strategic Priority 23**      **Strengthen efforts to mobilize resources, including financial resources, for the conservation, sustainable use and development of animal genetic resources**

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**Rationale**

Global efforts to mobilize resources for the conservation, sustainable use and development of animal genetic resources, both nationally and internationally, fall far short of the needs. The success of the *Global Plan of Action for Animal Genetic Resources* will depend on mobilizing financial resources, and on providing a coherent framework for exchange of information, access to and transfer of technology and capacity-building.

**Actions**

- 1    Assist all stakeholders to strengthen capacity-building, including by exchange of experience, by enhancing research and educational activities, and by providing training opportunities, technology transfer and financial resources, at national, regional and international levels, as detailed in PART III below.
- 2    Develop a follow-up process to implement the *Global Plan of Action for Animal Genetic Resources*.
- 3    Strengthen cooperation and coordination of conservation, sustainable use and development of animal genetic resources at national, regional and international levels, including through *ex situ* backup systems for the protection against the risk of emergency or disaster scenarios.



## Implementation and financing of the *Global Plan of Action for Animal Genetic Resources*

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- 49 The *Global Plan of Action for Animal Genetic Resources* provides an important and effective international framework for advancing efforts to ensure the sustainable use, development and conservation of animal genetic resources for food and agriculture, and will contribute to efforts for achieving world food security and eradicating poverty.
- 50 Funding for animal genetic resources for food and agriculture is currently provided by some national governments and other domestic sources of funds, as well as from multilateral and bilateral organizations and regional sources. However, implementation of the *Global Plan of Action for Animal Genetic Resources* will require substantial and additional financial resources and long-term support for national, regional and international animal genetic resources programmes and priority activities, provided such incentives are consistent with relevant international agreements. The process should encourage and support the participation of governments and all relevant stakeholders. Regional and international collaboration will be crucial.
- 51 Overall progress in the implementation of the *Global Plan of Action for Animal Genetic Resources* would be assessed by national governments and Members of FAO, through the Commission on Genetic Resources for Food and Agriculture. In order to discharge this function, the Commission would need to address the priority areas of the *Global Plan of Action for Animal Genetic Resources* in an organized and focused manner, within the context of the Commission's Multi-year Programme of Work, without prejudice to national priorities.
- 52 The Commission on Genetic Resources for Food and Agriculture should agree on the modalities for the presentation of the progress reports, as well as the criteria and parameters for the evaluation of the progress in the implementation of the *Global Plan of Action for Animal Genetic Resources*.
- 53 It will be necessary to periodically assess the status and trends of animal genetic resources, especially in light of the large number of breeds that are at risk of being lost globally. The Commission on Genetic Resources for Food and Agriculture should regularly receive, from countries, status and trends reports on national animal genetic resources and factors influencing change, in order to review progress and further develop country-based early-warning and response systems for animal genetic resources.
- 54 The Conference requests the Commission on Genetic Resources for Food and Agriculture to develop a Funding Strategy for the implementation of the *Global Plan of Action for Animal Genetic Resources*.
- 55 In light of the findings of national reports on progress in implementation and on status and trends, the conclusions of the Commission should be brought to the attention of concerned governments and international institutions to fill gaps, rectify imbalances or lack of coordination, and to consider new initiatives or activities.

- 56 The main responsibility for implementing the *Global Plan of Action for Animal Genetic Resources* rests with national governments. The need for effective National Focal Points for animal genetic resources, and the importance of national networks to mobilize and engage stakeholders in the implementation of the *Global Plan of Action for Animal Genetic Resources* is recognized. Each country will determine its own priorities in light of those agreed in the *Global Plan of Action for Animal Genetic Resources*. As appropriate, countries will determine their priorities within the framework of their food and their agricultural development needs, and cooperate with other nations and international organizations.
- 57 The international networks for animal genetic resources should be encouraged and strengthened through implementation of the *Global Plan of Action for Animal Genetic Resources*, noting the important role of Regional Focal Points and regional networking to build collaborative partnerships, to coordinate regional management efforts in animal genetic resources, to further develop information sharing, and for technical cooperation, training and research.
- 58 The essential role of the FAO in supporting country-driven efforts to implement the *Global Plan of Action for Animal Genetic Resources*, especially to support developing countries and countries with economies in transition is recognized, in particular, in continuing to facilitate global and regional collaboration and networks, supporting the convening of intergovernmental meetings, maintaining and further developing DAD-IS, mobilizing donor resources for animal genetic resources, developing communications products, and coordinating future preparation of global status and trends reports on animal genetic resources.
- 59 The importance of developing and transferring environmentally sound technologies related to the inventory, characterization, sustainable use, development and conservation of animal genetic resources, and other aspects related to the management of these resources is recognized. The Strategic Priorities for Action underline the need for technical development and collaboration. Implementation of the four Priority Areas requires information exchange, collaborative involvement, and coordination among governments, international agencies, non-governmental organizations and others, to organize and conduct training and research initiatives throughout the world.
- 60 There is a need to promote the provision of technical assistance, especially to developing countries and countries with economies in transition, either bilaterally or through appropriate national and international organizations, with the objective of facilitating implementation of the *Global Plan of Action for Animal Genetic Resources*. There is also a need to promote the transfer of technologies relating to sustainable use, development and conservation of animal genetic resources, which should be facilitated, consistent with relevant international obligations and relevant national laws.
- 61 The technical guidelines and assistance, and coordinated training programmes prepared by FAO have been instrumental in advancing work on animal genetic resources. This essential role should continue in future to assist all countries to implement the *Global Plan of Action for Animal Genetic Resources*.
- 62 Despite efforts to increase public awareness through national governments, international organizations and agencies, the necessary financial resources for the implementation of the *Global Plan of Action for Animal Genetic Resources* by developing countries and countries with economies in transition are insufficient. Furthermore, fluctuations in the financial resources provided to developing countries and countries with economies in transition cause an intermittent level

of activity on the sustainable use, development and conservation of animal genetic resources for food and agriculture.

- 63 Countries should make every effort to provide, in accordance with their capacities, support with respect to national strategic priorities that are intended to achieve the objectives of the *Global Plan of Action for Animal Genetic Resources*. Countries should promote the implementation of the *Global Plan of Action for Animal Genetic Resources*, in particular through national actions and by international cooperation, in order to provide a coherent framework for exchange of information, access to and transfer of technology and capacity-building.
- 64 International cooperation should be strengthened to facilitate the implementation of the *Global Plan of Action for Animal Genetic Resources*, in particular, to support and complement the efforts of developing countries and countries with economies in transition. The major multilateral and bilateral funding and development institutions should be invited to examine ways and means of supporting the implementation of the *Global Plan of Action for Animal Genetic Resources*. Every effort should be made by all countries, in particular, developed countries, to, *inter alia*, leverage existing and available financial resources, including from sources that have not previously funded activities included in the *Global Plan of Action for Animal Genetic Resources*.
- 65 To this end, the FAO should ensure adequate regular programme support for the implementation of the *Global Plan of Action for Animal Genetic Resources*.
- 66 In addition, FAO should pursue within relevant international mechanisms, funds and bodies, means by which they might contribute to the implementation of the *Global Plan of Action for Animal Genetic Resources*. Presentation of the *Global Plan of Action for Animal Genetic Resources* within these institutions as well as regular mutual reporting on activities within the strategic priorities of the *Global Plan of Action for Animal Genetic Resources* will be appropriate instruments in this context.
- 67 Governments should, in support of the above-mentioned activities, take the necessary and appropriate measures within relevant international mechanisms, funds and bodies to ensure due priority and attention to the effective allocation of predictable and agreed resources for the implementation of activities within the Strategic Priority Areas of the *Global Plan of Action for Animal Genetic Resources*.
- 68 Furthermore, governments of developed countries should attach due attention, including funding, to the implementation of activities within the Strategic Priority Areas of the *Global Plan of Action for Animal Genetic Resources* through bilateral, regional and multilateral cooperation. The extent to which developing countries will effectively implement their commitments under this *Global Plan of Action for Animal Genetic Resources* will depend on the effective provision of funding. Governments of developing countries and countries with economies in transition should accord due priority in their own plans and programmes to building capacity in animal genetic resources. Voluntary contributions should also be encouraged, in particular from private sector and non-governmental organizations, for the implementation of the *Global Plan of Action for Animal Genetic Resources*. This might entail the establishment of an FAO Trust Account. Non-governmental organizations and the private sector should be encouraged to participate and support implementation of the *Global Plan of Action for Animal Genetic Resources*.





**S**ustainable use, development and conservation of the world's livestock genetic resources are of vital importance to agriculture, food production, rural development and the environment. In recognition of the need to develop an effective framework for the management of these resources and to address the threat of genetic erosion, 109 countries came together in September 2007 at the first International Technical Conference on Animal Genetic Resources for Food and Agriculture held in Interlaken, Switzerland. The Conference adopted the *Global Plan of Action for Animal Genetic Resources* – which includes 23 strategic priorities for action to promote the wise management of these vital resources.

*The Global Plan of Action* is the outcome of a country-driven process of reporting, analysis and discussion, which also resulted in the preparation of *The 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 remains available to future generations.

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