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COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Item 4 of the Provisional Agenda
Fourteenth Session
Rome, 15-19 April 2013
DRAFT QUESTIONNAIRE FOR COLLECTING NATIONAL DATA TO SUPPORT THE PREPARATION OF *THE SECOND REPORT ON THE STATE OF THE WORLD'S ANIMAL GENETIC RESOURCES FOR FOOD AND AGRICULTURE*

Table of Contents

I.   INTRODUCTION

1.   At its Seventh Session in October 2013, the Intergovernmental Technical Working Group on Animal Genetic Resources for Food and Agriculture (Working Group) recommended that the Commission on Genetic Resources for Food and Agriculture (Commission) invite FAO to present *The Second Report on the State of the World's Animal Genetic Resources for Food and Agriculture* (Second Report) to the Commission at its Fifteenth Regular Session (2015).[1] It also recommended that the Commission, at its Fourteenth Regular Session, review a questionnaire for collecting national data for use in the preparation of the Second Report.[2]

2.   At its Twelfth Regular Session in 2009, the Commission endorsed the use of a questionnaire prepared by FAO for collecting data on progress made by countries in the implementation of the Global Plan of Action for Animal Genetic Resources (Global Plan of Action).[3] The questionnaire was subsequently further revised in consultation with countries. In 2012, countries were invited to use the country progress report questionnaire to report on their implementation activities. The completed questionnaires were used to prepare the *Synthesis progress report on the implementation of the Global Plan of Action for Animal Genetic* (synthesis progress report),[4] which included a set of indicators of progress made in the implementation of the Global Plan of Action. The synthesis progress report noted that for some indicators the country progress report questionnaire did not allow countries to report on all relevant fields of activity and that the comprehensiveness of future rounds of reporting might be improved by adding some questions to the country progress report questionnaire.

3.   When it endorsed the use of the country progress report questionnaire, the Commission envisaged that a second round of reporting would take place in 2015 as part of the process of the Second Report (with presentation of the Second Report foreseen for the Commission's Sixteenth Regular Session). Should the Commission decide to request FAO to present the Second Report to its Fifteenth Regular Session, the preparation of a second round of country progress reports would have to be brought forward by approximately two years.

4.   As described in the document *Preparation of The Second Report on the State of the World's Animal Genetic Resources for Food and Agriculture*,[5] the Second Report is foreseen as an update of *The State of the World's Genetic Resources for Food and Agriculture* (First Report).[6] Several sections of the First Report were prepared using information drawn from the 169 country reports submitted to FAO during the reporting process. Preparing equivalent sections of the Second Report will require data of the same type. However, the intention is not to ask countries to prepare elaborate country reports of the type prepared for the First Report, but to ask them to answer a set of questions targeting the specific data required.

5.   The country report questionnaire presented in Appendix I to this document, includes both the revised version of the country progress report questionnaire and the questions targeting the additional data needed to prepare the Second Report. The completed questionnaires will be referred to as "country reports". It is proposed that the country reports should also include an executive summary.

6.   Subject to the availability of resources, FAO may prepare thematic studies on one or more specific aspects of animal genetic resources management at the national level (e.g. on legislative or institutional arrangements). Should such a study (or studies) be undertaken, the respective subsection(s) of the questionnaire might be presented to countries as standalone questionnaires.

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[1] CGRFA/WG-AnGR-7/12/Report, paragraph 23i.
[2] CGRFA/WG-AnGR-7/12/Report, paragraph 23ii.
[3] CGRFA-12/09/Report, paragraph 38.
[4] CGRFA/WG-AnGR-7/12/Inf.3.
[5] CGRFA-14/13/15.
[6] http://www.fao.org/docrep/010/a1250e/a1250e00.htm

II.   DATA REQUIREMENTS FOR THE PREPARATION OF THE SECOND REPORT

7.   In the case of the First Report, the element that depended most heavily on data obtained from the country reports was Part 3 (The state of capacities in animal genetic resources management), which included sections on institutions and stakeholders, breeding programmes, conservation programmes, the use of reproductive and molecular technologies, and legislation. Other elements of the First Report – Part 1 (The state of agricultural biodiversity in the livestock sector), Part 2 (Livestock sector trends), Part 4 (The state of the art in animal genetic resources management) and Part 5 (Needs and challenges in animal genetic resources managment) – were prepared largely on the basis of information obtained from sources other than the country reports (particuarly the scientific literature, commissioned thematic studies and the Domestic Animal Diversity Information System – DAD-IS).

8.   It is envisaged that Part 3 of the Second Report will also be based mainly on data obtained from countries and will include the sections on the same set of subjects as Part 3 of the First Report (see above). It is proposed that, in addition, Part 3 of the Second Report should include a section on the state of characterization, surveying and monitoring of animal genetic resources. A set of questions on this subject is included in the draft country report questionnaire.

9.   It envisaged that Part 4 of the Second Report will, as in the case of the First Report, be based on scientific literature and expert knowledge and that Part 5 will be based on the findings of the other parts of the report. No questions specifically addressing these parts of the Second Report are included in the draft questionnaire.

10.   Preparing Parts 1 and 2 of the Second Report will present a slightly different challenge from that involved in preparing the equivalent elements of the First Report. Because the Second Report is envisaged as an update of the First Report, the focus will be on describing recent developments in the animal genetic resources sector rather than providing background or scene-setting information of the type that made up much of Parts 1 and 2 of the First Report (exceptions included the section on the status and trends and trends of animal genetic resources, which was based on the latest data from DAD-IS). It is therefore proposed that countries be asked to provide some information on how the livestock sector trends identified in the First Report are now affecting animal genetic resources and their management at national level. This information would be used in preparing Part 2 of the Second Report and also in updating Sections D and F of Part 1 (uses and values of animal genetic resources and threats to animal genetic resources). Likewise, it is proposed that, to support the updating of Section C of Part 1 (Flows of animal genetic resources), countries be asked to provide some basic data on trends over the last ten years in the extent of geneflow inwards and outwards across their borders.

11.   At its current session, the Commission will consider the preparation of *The State of the World's Biodiversity for Food and Agriculture*[7]. To meet sector-specific data requirements, an additional section may have to be added to the country report questionnaire.

III. INSTITUTIONAL ARRANGEMENTS FOR THE PREPARATION OF COUNTRY REPORTS

12.   During the reporting process for the First Report, 145 countries established National Consultative Committees, which played a key role in the preparation of country reports. Many countries have maintained these bodies to serve as National Advisory Committees. To-date, 160 countries have nominated National Coordinators for the Management of Animal Genetic

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[7] CGRFA-14/13/3.

Resources. [8] Given the tight schedule for the preparation of the Second Report, it is important that countries that have not already done so, nominate a National Coordinator for the Management of Animal Genetic Resources and establish or re-activate a National Advisory Committee, as soon as possible, to support the preparation of country reports.

13.   Communications related to the preparation of the Second Report should be addressed by e-mail to: SoWAnGR2@fao.org. Country reports should be submitted by National Coordinators for the Management of Animal Genetic Resources.

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[8] http://dad.fao.org/cgi-bin/EfabisWeb.cgi?sid=-1,contacts

APPENDIX I

COUNTRY REPORT QUESTIONNAIRE

I.   EXECUTIVE SUMMARY

Please provide an executive summary (not more than two pages) that will allow national and international stakeholders to gain a quick overview of the content of the country report. The executive summary should contain information on:

- key trends and driving forces affecting animal genetic resources management in your country;
- strengths, weaknesses and gaps in capacity to manage animal genetic resources in your country;
- key constraints and challenges with respect to animal genetic resources management in your country;
- priorities and strategic directions for future action (focusing particularly on the next ten years).

II.   DATA FOR UPDATING THE PARTS AND SECTIONS OF THE STATE OF WORLD REPORT

FLOWS OF ANIMAL GENETIC RESOURCES

1. Please provide information on trends over the last ten years in the flows (imports and exports) of animal genetic resources into and out of your country (trend: increasing, stable, decreasing).

Species	Trends in flows of animal genetic resources[9][10]			
	Imported from North	Imported from South	Exported to North	Exported to South
Cattle				
Sheep				
Goats				
Pigs				
Chickens				
[species][11]				

2. Please provide further information on trends in the flow of animal genetic resources into and out of your country (text).

LIVESTOCK SECTOR TRENDS

3. Please indicate the extent to which the following trends have affected or are predicted to affect animal genetic resources management in your country and describe these effects (score: none, little, medium, high, text).

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[9] Flow of animal genetic resources: movement of genetic material such as live animals (for breeding), semen and embryos across borders.

[10] The terms "North" and "South" are used here to refer to developed countries and developing countries respectively.

[11] [species] indicates that respondents will be allowed to add species from a predefined list.

Trends	Last 10 years (score)	Future (predicted for the next 10 years) (score)	Describe the effects on animal genetic resources and their management (text)
Changing demand for livestock products (quantity)[12]			
Changing demand for livestock products (quality)[13]			
Changes in marketing infrastructure and access[14]			
Changes in retailing[15]			
Changes in international trade (imports)[16]			
Changes in international trade (exports)[17]			
Climate change[18]			
Degradation of grazing land[19]			
Loss of, or loss of access to, grazing land and other natural resources[20]			
Changes in the availability of alternative livelihood activities[21]			
Replacement of livestock functions[22]			
Changes in technology[23]			
Changes in policy[24]			
[insert any additional trend]			

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[12] Changing demand for livestock products (quantity): refers to change in the quantity of product demanded by the market. For example, population growth, urbanization and higher incomes may have increased demand for meat, eggs and milk. Increasing availability of alternative products may have reduced demand for some livestock products.

[13] Changing demand for livestock products (quality): refers to changes in the type of products demanded by consumers (e.g. greater or lower demand for convenience foods, healthier products, animal welfare friendly products, environmentally friendly products, traditional products or other niche-market products).

[14] Changes marketing infrastructure and access: refers to changes that improve or reduce livestock keepers' access to markets for their products (e.g. better transport, better access to market information).

[15] Changes in retailing: refers to changes in how animal products are retailed (e.g. expansion of supermarkets).

[16] Changes in international trade (imports): refers to increases or decreases in the importation of animal products into the country.

[17] Changes in international trade (exports): refers to increases or decreases in the extent to which the county's livestock sector is oriented towards production for export.

[18] Climate change: refers to the effects of climate change, including changes in average temperature and rainfall and to changes in the frequency of events such as droughts, floods and hurricanes.

[19] Degradation of grazing land: refers to the degradation (e.g. erosion) of land used for grazing livestock.

[20] Loss of, or loss of access to, grazing land and other natural resources: refers to situations in which grazing lands, or other resources such as water, are lost (e.g. because of urban or industrial development) or in which livestock keepers' access to such resources is restricted (e.g. due to changes in regulations pastoralists may not be permitted to use certain grazing lands).

[21] Changes in availability of alternative livelihood activities: refers changes in the availability of livelihood opportunities outside livestock keeping. For example, new employment opportunities may encourage livestock keepers to give up livestock keeping.

[22] Replacement of livestock functions: refers to situations in which particular livestock functions are replaced by alternatives. For example: draught animal power may have been replaced by mechanical power; animal fibres may have been replaced by synthetic fibres; livestock's savings and insurance functions may have been replaced by banks and insurance companies.

[23] Changes in technology: refers to technological developments and changes in access to technologies within the livestock sector (e.g. in the fields of animal health, feeding, housing, reproduction or genetics).

[24] Changes in policy: refers to changes in policies that affect the livestock sector.

OVERVIEW OF ANIMAL GENETIC RESOURCES

4. Please provide the number of locally adapted and exotic breeds kept in your country (number of breeeds).

Species	Number of breeds	
	Locally adapted breeds[25]	Exotic breeds[26]
Cattle		
Sheep		
Goats		
Pigs		
Chickens		
[species]		

Note: Data on the number of breeds is needed in order to calculate the percentage of breeds subject to the various management activities that are covered in this questionnaire. It is planned to implement the locally adapted vs. exotic breed classification system in DAD-IS. Once countries have fully updated their breed lists and classified all breeds in DAD-IS, it will be possible to use these data to obtain the numbers of breeds in each category. However, this may not have been done before the data collected using this questionnaire have to be analysed.

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[25] Locally adapted breeds: breeds that have been in the country for a sufficient time to be genetically adapted to one or more of traditional production systems or environments in the country. The phrase "sufficient time" refers to time present in one or more of the country's traditional production systems or environments. Taking cultural, social and genetic aspects into account, a period of 40 years and six generations of the respective species might be considered as a guiding value for "sufficient time", subject to specific national circumstances.

[26] Exotic breeds: breeds that are not locally adapted. Exotic breeds comprise both recently introduced breeds and continually imported breeds.

Recently introduced breeds: breeds whose importation was within the last 5 or so generations for the species concerned, and which were imported over a relatively short period of time. These would include breeds that were imported in the recent past but that have not been reintroduced since that time.

Continually imported breeds: breeds whose local gene pool is regularly replenished from one or more sources outside your country. Many of the breeds used in intensive production systems or marketed by international breeding companies would be in this category.

CHARACTERIZATION

5. Please provide an overview of the current state of characterization in your country by indicating the number of breeds for which the following activities have been carried out (number of breeds).

Species	Baseline survey of population size[27]	Regular monitoring of population size (programme in place)[28]	Phenotypic characterization[29]	Molecular genetic diversity[30] studies – within breed[31]	Genetic diversity studies based on pedigree[32]	Molecular genetic diversity studies – between breed[33]	Genetic evaluation based on pedigree and performance data[34]	Molecular genetic evaluation[35]
Cattle								
Sheep								
Goats								
Pigs								
Chickens								
[species]								

Note: Please focus on characterization studies that have been conducted within the last 10 years to ensure that the data is still valid (baseline surveys of population size may have been conducted in the more distant past). Recall that some types of characterization study on your country's breeds may have been conducted outside your country.

6. Please provide further details on characterization, surveying and monitoring activities in your country. Please note any particular constraints to implementing these activities and indicate what needs to be done to address these constraints (text).

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[27] Baseline survey of population size: a survey that provides data on a breed's national population status (total population size and, ideally, also the proportion that is actively used for breeding and the number of male and female breeding animals). It provides a reference point for monitoring population trends.

[28] Monitoring of population size: a systematic set of activities undertaken to document changes in the population size and structure over time. If the a baseline survey was conducted in the recent past, monitoring surveys may not yet have been necessary, but a programme for long-term monitoring need to be put in place.

[29] Phenotypic characterization: the process of identifying distinct breed populations and describing their morphological and production characteristics within given production environments; it includes the description of the breeds' production environments and recording of their geographical distributions.

[30] Genetic diversity: the heritable variation within and among populations that is created, enhanced or maintained by evolutionary or selective forces.

[31] Molecular genetic diversity studies – within breed: the genotyping of individual animals within a breed for a set of molecular markers for the purpose of evaluating diversity within the breed and genetic relationships between animals. On a breed level, heterozygosity will be the most important parameter to be measured and increased heterozygosity indicates increased diversity. Relationships between animals are measured based on the proportion of alleles in common across the markers genotyped.

[32] Genetic diversity studies based on pedigree: genetic relationships among animals are estimated based the probability of sharing alleles from common ancestors. At breed level, average coefficients of inbreeding and/or kinship and their trends over time will be the most commonly used measures.

[33] Molecular genetic diversity studies – between breeds: the genotyping of representative groups of animals from a group of breeds for the purpose of evaluating genetic similarity between the breeds. Genetic distance, a measure of the similarity of allele frequencies between breeds, is a commonly used parameter to measure relationships between breeds.

[34] Genetic evaluation based on pedigree and performance data: the estimation of breeding values, typically through the joint analysis of pedigrees and data from performance recording.

[35] Molecular genetic evaluation: the inclusion of molecular genetic information in the procedure for genetic evaluation, which includes both the consideration of genotypes for a few specific genes and prediction of "genomic breeding values" by using information from large panels of single nucleotide polymorphisms.

INSTITUTIONS AND STAKEHOLDERS

7. Please indicate the state of your country's capacities in the following areas of animal genetic resources management (score: none, low, medium, high).

Institutional assessment	Score
Education[36]	
Research[37]	
Knowledge[38]	
Awareness[39]	
Infrastructure[40]	
Stakeholder participation[41]	
Policies[42]	
Policy implementation[43]	
Laws[44]	
Implementation of laws[45]	

8. Please provide further information regarding your country's capacities in each of the above-mentioned areas of management. If relevant, please indicate what obstacle or constraints your country faces in each of these areas and what needs to be done to address these constraints. You may also provide information on any particular successes that your country has achieved in any of these areas (text).

Capacities	Description
Education	
Research	
Knowledge	
Awareness	
Infrastructure	
Stakeholder participation	
Policies	
Policy implementation	
Laws	
Implementation of laws	

9. What steps have been taken in your country to engage or empower the various stakeholders in animal genetic resources management (e.g. establishment of livestock keepers' organizations, development of biocultural protocols[46]) (text)?

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[36] Education: the state of tertiary education in all areas of animal genetic resources management.

[37] Research: the state of research in all areas of animal genetic resources management.

[38] Knowledge: the extent to which stakeholders in animal genetic resources management (livestock keepers, policy-makers, technical "experts", etc.) have access to the knowledge needed to perform their roles effectively.

[39] Awareness: the extent to which all stakeholders in agriculture, rural development and environmental management are aware of the roles and values of animal genetic resources.

[40] Infrastructure: the extent to which the organizational and physical infrastructure needed to deliver services related to animal genetic resources management is in place.

[41] Stakeholder participation: the extent to which individual stakeholders and stakeholder organizations, particularly livestock keepers and their organizations, are involved in and can influence collaborative animal genetic resources management activities at local and national levels.

[42] Policies: the extent to which the country (i.e. national or regional government) has established policy initiatives, strategies, programmes or plans that promote the sustainable use, development and conservation of animal genetic resources.

[43] Policy implementation: the extent to which the country's policy initiatives, strategies, programmes or plans promoting the sustainable use, development and conservation of animal genetic resources are successfully being implemented.

[44] Laws: the extent to which the country has put in place a legal framework favourable to the sustainable use, development and conservation of animal genetic resources.

[45] Implementation of laws: the extent to which the country's laws favourable to the sustainable use, development and conservation of animal genetic resources are successfully being implemented.

BREEDING PROGRAMMES[47]

10. For which of the following species are breeding programmes of high importance for your country (yes/no; single selection per species)?

Species	Operational	Being established	Future priority
Cattle			
Sheep			
Goats			
Pigs			
Chickens			
[species]			

11. Who operates breeding programmes in your country (yes/no; multiple selection)?

	Government	Livestock keepers at community level[48]	Breeders' associations	Commercial companies	Non-governmental organizations	Others
Cattle						
Sheep						
Goats						
Pigs						
Chickens						
[species]						

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[46] Biocultural protocol: a document that is developed after a community undertakes a consultative process to outline their core cultural and spiritual values and customary laws relating to their traditional knowledge and resources. In this they provide clear terms and conditions regulating access to their knowledge and resources.

[47] Breeding programmes: systematic and structured programmes for changing the genetic composition of a population towards a defined breeding goal (objective) to realize genetic gain (response to selection), based on objective performance criteria. Breeding programmes typically contain the following elements: definition of breeding goal, identification of animals, performance testing, estimation of breeding values, selection, mating, genetic gain and transfer of genetic gain.

[48] Breeding programmes operated by livestock keepers at community level may include community-based breeding programmes and those based on social breeding mechanisms. Community-based breeding programmes are programmes tha take into account livestock keepers' needs, views, decisions and ownership and are based on their active participation from inception through to implementation. Social breeding mechanisms traditionally exist in some ethnic groups and include elements such as mental record keeping of pedigrees and performance and rules regarding the selection and sale of breeding animals.

12. For how many breeds in your country are the following tools or activities in place (number of breeds)?

Tools	[species]	
	Locally adapted breeds	Exotic breeds
Animal identification[49]		
Breeding goal defined[50]		
Performance recording[51]		
Pedigree recording[52]		
Genetic evaluation[53]		
Artificial insemination[54]		

Note: Countries with very large numbers of breeds may provide an estimate. Please include activities even if they do not at present form part of a breeding programme. This will provide an indication of whether the "building blocks" of a breeding programme are in place in your country.

13. For how many breeds are breeding programme implemented in your country (number of breeds)?

Breeding method	[species]	
	Locally adapted breeds	Exotic breeds
Straight/pure-breeding programmes only[55]		
Cross-breeding programmes only[56]		
Straight/pure-breeding and cross-breeding programmes		

14. Please indicate the state of research and training in the field of animal breeding in your country and the extent to which livestock keepers are organized (score: none, low, medium, high).

Species	Training and research	Organization of livestock keepers[57]
[species]		

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[49] Animal identification: identification and registration of animals individually with a unique identifier or collectively (by their epidemiological units or groups) with a unique group identifier.

[50] Defining a breeding goal: specifying which traits should be improved by a breeding programme, in which direction, and the relative emphasis given to each trait.

[51] Performance recording: recording, for individual animals, of data on traits of economic importance, such as milk yield, growth, reproduction, health and longevity. The recorded data can be used for management and selection decisions.

[52] Pedigree recording: maintenance of a register recording the line of ancestors of individual animals. Usually the pedigrees of livestock are maintained by governmental or private record associations or by breed organizations.

[53] Genetic evaluation: the estimation of breeding values, typically through the joint analysis of pedigrees and data from performance recording.

[54] Artificial insemination: the process by which sperm is placed into a female's uterus (intrauterine), or cervix (intracervical) using artificial means and with the intention of impregnating the female, rather than by natural sexual intercourse.

[55] Straight/pure-breeding programmes: breeding programmes in which the animals are mated to animals of the same breed.

[56] Cross-breeding programmes: breeding programmes that involve animals being mated to animals of other breeds.

[57] Organization of livestock keepers: organization of livestock keepers in relation to all elements of breeding programmes (including if relevant community-based breeding programmes).

15. Please indicate the level of stakeholder involvement in [insert species] breeding programmes in your country (score: none, low, medium, high).

[species]	Government	Research organizations	Breeders' associations	Breeders/livestock keepers	Commercial companies	Non-governmental organizations	Others
Breeding goals							
Animal identification							
Recording[58]							
Artificial insemination							
Genetic evaluation							

Note: If your country has different types of breeding programme, the level of involvement of the various stakeholders may vary from one type of programme to another. In answering this question please try to indicate the overall degree of involvement of the various stakeholder groups.

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[58] Recording: measuring and documenting production and other relevant traits.

16. Please indicate the extent to which your country implements policies supporting breeding programmes for locally adapted and/or exotic breeds in the various production systems of your country (level of support: none, low, medium, high, not applicable).

Species	Breed type	Livestock production system[59]						
		Grassland-based systems		Mixed systems			Landless systems	
		Ranching	Pastoralist	Crop–livestock	Agro-pastoralist	Agroforestry–livestock	Industrial	Backyard/scavenger
Cattle	Locally adapted breeds							
	Exotic breeds							
Sheep	Locally adapted breeds							
	Exotic breeds							
Goats	Locally adapted breeds							
	Exotic breeds							
Pigs	Locally adapted breeds							
	Exotic breeds							
Chickens	Locally adapted breeds							
	Exotic breeds							
[species]	Locally adapted breeds							
	Exotic breeds							

Note: Some species and some production systems may be of no importance in your country, and some production systems may be irrelevant for some species. In such cases, please answer "not applicable" for both locally adapted and exotic breeds. Supporting cross-breeding programmes that involve maintaining both locally adapted and exotic breeds should be regarded as support for both categories of breed. Supporting breed replacement programmes should be regarded as support for the category of breed that is replacing the other.

17. Please provide further details on breeding programmes in your country. Please note any particular constraints to implementing these activities and indicate what needs to be done to address these constraints (text).

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[59] Livestock production systems are classified in terms of their relation to land, integration with crops, and the mode of production.

grassland-based systems: systems in which the animals obtain a large proportion of their forage intake by grazing natural or sown pastures.

ranching systems: grassland-based systems in which livestock is kept on privately owned rangeland.

pastoralist systems: grassland-based systems in which the livestock keepers move with their herds or flocks in an opportunistic way on communal land to find feed and water for their animals (either from or not from a fixed home base).

mixed systems: systems in which livestock keeping is integrated with other agricultural activities, together forming a whole.

crop–livestock systems: mixed systems in which livestock production is integrated with crop production.

agropastoralist systems: livestock-oriented systems that involve some crop production in addition to keeping grazing livestock on rangelands; they may involve migration with the livestock away from the cropland for part of the year; in some areas, agropastoral systems emerged from pastoral systems.

agroforestry–livestock systems: mixed system in which livestock production is integrated with the production of trees and shrubs.

landless systems: systems in which livestock production is separated from the land where the feed given to the animals is produced.

industrial systems: large-scale landless production systems in which the production environment is highly controlled by management interventions.

backyard/scavenger systems: small-scale landless production systems in which the animals are kept in backyards and fed on household waste and/or other feeds, or fend for themselves with little feeding from their keepers.

CONSERVATION

18. Please provide an indication of the extent to which the locally adapted breeds that your country considers to be at risk of extinction are covered by conservation programmes (coverage: none, low, medium, high, species is not present in the country)?

	In situ conservation[60]	*Ex situ in vivo* conservation[61]	*Ex situ in vitro* conservation[62]
Cattle			
Sheep			
Goats			
Pigs			
Chickens			
[species]			

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[60] *In situ* conservation: support for continued use by livestock keepers in the production system in which the livestock evolved or are now normally found and bred.

[61] *Ex situ in vivo* conservation: maintenance of live animal populations not kept under their normal management conditions – e.g. in zoological parks or governmental farms – and/or outside the area in which they evolved or are now normally found.

[62] *Ex situ in vitro* conservation: conservation, under cryogenic conditions including, *inter alia*, the cryoconservation of embryos, semen, oocytes, somatic cells or tissues having the potential to reconstitute live animals at a later date.

19. Please indicate which of the following tools are used as elements of *in situ* conservation programmes in your country (yes/no)?

	Cattle	Sheep	Goats	Pigs	Chickens	[species]
Promotion of niche marketing or other market differentiation (including association of breed products with geographical indications or other indicators of origin)[63]						
Community-based conservation programmes[64]						
Incentive payment schemes for keeping at-risk breeds[65]						
Development of biocultural protocols[66]						
Recognition/award programmes for breeders[67]						
Conservation breeding programme[68]						
Selection programme for increased production or productivity[69]						
Promotion of breeds as tourist attractions[70]						
Use of breeds in the management of wildlife habitats and landscapes[71]						
Extension programme to improve the management of breeds[72]						

20. Please provide further details of conservation programmes in your country. Please note any particular constraints to implementing conservation activities and indicate what needs to be done to address these constraints (text).

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[63] Promotion of niche marketing or other market differentiation (including association of breed products with geographical indications or other indicators of origin): efforts to promote the marketing of a breed's products to a subsector of consumers who have particular preferences regarding, for example, product quality, the type of production system (e.g. high animal welfare, organic) or the association of products with particular geographical regions or traditions. Geographical indications or other indicators of origin are schemes that protect (via regulation of labelling, etc.) the names of agricultural products and foods originating from a particular geographical area or that are produced in a particular way (e.g. using traditional methods and ingredients).

[64] Community-based conservation programme: a system in which the local people are the primary stakeholders responsible for the development and implementation of the programme to conserve their genetic resource(s).

[65] Incentive payment schemes for keeping at-risk breeds: schemes under which livestock keepers receive payment (e.g. from the government) for keeping at-risk breeds.

[66] Biocultural protocol: a document that is developed after a community undertakes a consultative process to outline their core cultural and spiritual values and customary laws relating to their traditional knowledge and resources. In this they provide clear terms and conditions regulating access to their knowledge and resources.

[67] Recognition/award programmes for breeders: schemes in which breeders who make a particular contribution to the conservation and sustainable use of a breed or breeds are honoured or recognized in some way (e.g. a programme of annual awards).

[68] Conservation breeding programmes: breeding programmes maintaining breed specific traits and limiting inbreeding.

[69] Selection programme for increased production/productivity: genetic improvement programmes for at-risk breeds that aim to increase their production and/or productivity and thereby promote their ongoing use by livestock keepers.

[70] Promotion of breeds as tourist attractions: the establishment of specific tourist attractions featuring at-risk breeds (e.g. farm parks) or efforts to promote the keeping of at-risk breeds as elements of attractive landscapes that appeal to tourists.

[71] Use of breeds in the management of wildlife habitats and landscapes: situations in which animals are used deliberately to alter the environment (usually the vegetation) to create habitats for wildlife or landscapes that are considered desirable by humans. Using at-risk breeds for this purpose can contribute to their conservation.

[72] Extension programme to improve management: programmes that target the keepers of at-risk breeds with advice on how to manage them.

REPRODUCTIVE AND MOLECULAR BIOTECHNOGIES

21. Please indicate the level of use of biotechnologies in livestock production in your country (score: none, low, medium, high).

		[species]
Artificial insemination[73]	Using semen from locally adapted breeds	
	Using semen from exotic breeds	
Embryo transfer[74]		
Semen sexing[75]		
In vitro fertilization[76]		
Cloning[77]		
Genetic modification[78]		
Molecular genetic or genomic information[79]		

22. Please indicate the extent to which different types of providers are involved in providing biotechnology services to livestock keepers in your country (score: none, low, medium, high).

	Artificial insemination	Embryo transfer	[insert technology]
Public sector[80]			
Breeders' associations			
National non-governmental organizations			
Donors and development agencies			
Transnational private companies			
National private companies			

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[73] Artificial insemination: the process by which sperm is placed into a female's uterus (intrauterine), or cervix (intracervical) using artificial means and with the intention of impregnating the female, rather than by natural sexual intercourse.

[74] Embryo transfer: a step in the process of assisted reproduction in which embryos are placed into the uterus of a female with the intent to establish a pregnancy. Often embryo transfer is combined with hormone treatment to induce multiple ovulation. This is referred to as multiple ovulation and embryo transfer (MOET). MOET: a technology by which a single female that usually produces only one or two offspring can produce a litter of offspring. It involves stimulation of a female to shed large numbers of ova, natural mating or artificial insemination, collection of fertilized ova (either surgically, or non-surgically through the cervix), and transfer (usually non-surgically through the cervix) of these fertilized ova to recipient females.

[75] Semen sexing: the separation of mammalian sperm into those bearing an X chromosome and those bearing a Y chromosome, in order to be able to produce, via artificial insemination or *in vitro* fertilization, animals of a specified sex.

[76] *In vitro* fertilization: a process whereby an egg is fertilized with sperm outside the body of the animal before being re-implanted into the uterus.

[77] Cloning: the process of creating genetically identical organisms by nuclear transplantation.

[78] Genetic modification: the direct manipulation of an organism's genome using biotechnology.

[79] Molecular genetic or genomic information: information contained in a nucleotide base sequence in chromosomal DNA or RNA, which may be used to estimate breeding values, in the selection of progeny, to detect carriers of diseases or for marker assisted introgression of genes.

[80] Public sector: all public-sector organizations including veterinary services, research organizations and universities.

23. Please indicate which biotechnologies your country is undertaking research on (yes, no).

	National research undertaken	Research undertaken as part of international collaboration
Artificial insemination		
Embryo transfer		
Semen sexing		
In vitro fertilization		
Cloning		
Genetic modification		
Use of molecular genetic or genomic information for estimation of genetic diversity		
Use of molecular genetic or genomic information for prediction of breeding values		
Research on adaptedness based on molecular genetic or genomic information		
[insert technology]		

24. Please indicate the level of use of semen for artificial insemination in your country's various production systems (score: none, low, medium, high, not applicable).

[species]	Ranching	Pastoralist	Mixed system	Industrial	Backyard/scavenge
Semen from locally adapted breeds					
Nationally produced semen from exotic breeds					
Imported semen from exotic breeds					

25. Please insert the level of use of semen for artificial insemination in peri-urban vs. rural locations (score: none, low, medium, high).

[species]	Peri-urban	Rural
Semen from locally adapted breeds		
Nationally produced semen from exotic breeds		
Imported semen from exotic breeds		

26. Please provide further details on the use of reproductive and molecular biotechnologies in animal genetic resources management in your country. Please note any particular constraints to implementing these activities and any problems associated with their use. Please indicate what needs to be done to address these constraints and/or problems (text).

LEGISLATION AND REGULATION[81]
Issues to be covered in this section of the questionnaire include legislation and policies targeting:

- livestock sector development
- management of biodiversity
- management of rangelands
- other aspects of environmental protection (issues such as pollution of land and water, deforestation, climate change, water use, flood protection)
- production and marketing of organic products
- production and marketing of products under protected designations of origin or similar labels
- food safety and quality
- consumer information
- animal welfare
- conservation programmes
- surveying and monitoring
- official recognition of breeds
- genetic improvement (including management of herd books, breeding strategies, animal identification and recording, establishment and operation of breeders' associations, use of reproductive biotechnologies, research and development)
- import of genetic material (including zoosanitary issues, suitability of imported material for use in local production environments)
- delivery of animal health services and control of animal diseases (including specific measures to protect at-risk breeds from the effects of culling or other disease control measures)
- access and benefit sharing
- patenting

It is envisaged that, for each of the above topics, a set of questions similar to the following (with minor variations to address particular points of interest in specific topic areas) will be asked:

- Has your country established a policy instrument (strategy, programme, plan, initiative, etc.) addressing [topic X] (yes/no)?
- Does your country have legislation in place regulating [topic X] (yes/no)?
- Please provide the name(s) of the policy instrument(s) and/or the law(s). If possible, provide a web link to the full text of the policy instrument(s) and/or law(s), or send a scanned version of the text(s) when you submit this questionnaire (text).
- Please describe how the policy instrument(s) and/or legislation affect(s) the management of animal genetic resources in your country (text).
- If your country lacks policy instruments and/or laws in this field, please describe whether and how this affects the management of animal genetic resources in your country (text).
- Are there any regional (i.e. supra-national) policy instrument(s) and/or the law(s) that affect [topic X] in your country (yes/no)?
- Please provide the name(s) of the regional policy instrument(s) and/or laws. If possible, provide a web link to the full text of the policy instrument(s) and/or law(s), or send a scanned version of the text(s) when you submit this questionnaire (text).
- Please describe how these regional policy instrument(s) and/or legislation affect(s) the management of animal genetic resources in your country (text).

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[81] Subject to the availability of resources, FAO may prepare a thematic study on the legislative and regulatory framework for the management of animal genetic resources. This study would be published as a standalone document and would be used as the basis for preparing the relevant section of the Second Report. The provisional timetable for the preparation of the Second Report foresees the preparation of thematic studies between May and December 2013, i.e. before the proposed deadline for submission of questionnaires. Preparing a thematic study would therefore require handling this section of the questionnaire separately from (earlier than) the other sections.

REVISED QUESTIONNAIRE FOR THE PREPARATION THE *PROGRESS REPORT ON THE IMPLEMENTATION OF THE GLOBAL PLAN OF ACTION FOR ANIMAL GENETIC RESOURCES - 2007 TO 2013*[82]

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

- The state of inventory and characterization of animal genetic resources
- The state of monitoring programmes and country-based early warning and response systems
- The state of international technical standards and protocols for characterization, inventory, and monitoring

1. Which of the following options best describes your country's progress in building an inventory of its animal genetic resources covering all livestock species of economic importance (SP 1, Action 1)?

Glossary: An inventory is a complete list of all the different breeds present in a country.

a. Completed before the adoption of the GPA
b. Completed after the adoption of the GPA
c. Partially completed (further progress since the adoption of the GPA)
d. Partially completed (no further progress since the adoption of the GPA)

Please provide further details:

2. Which of the following options best describes your country's progress in implementing phenotypic characterization studies covering morphology, performance, location, production environments and specific features in all livestock species of economic importance (SP 1, Actions 1 and 2)?

a. Comprehensive studies were undertaken before the adoption of the GPA
b. Sufficient information has been generated because of progress made since the adoption of the GPA
c. Some information has been generated (further progress since the adoption of the GPA)
d. Some information has been generated (no further progress since the adoption of the GPA)
e. None, but action is planned and funding identified
f. None, but action is planned and funding is sought
g. None

Please provide further details:

3. Which of the following options best describes your country's progress in molecular characterization of its animal genetic resources covering all livestock species of economic importance (SP 1)?

a. Comprehensive studies were undertaken before the adoption of the GPA
b. Sufficient information has been generated because of progress made since the adoption of the GPA
c. Some information has been generated (further progress since the adoption of the GPA)
d. Some information has been generated (no further progress since the adoption of the GPA)
e. None, but action is planned and funding identified
f. None, but action is planned and funding is sought
g. None

Please provide further details:

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[82] Additions are indicated in bold and underline and deletions with strikethrough. Explanatory notes related to the changes are provided in curly brackets ({}).
Overview of proposed changes:
Strategic Priority Area 1: no changes;
Strategic Priority Area 2: question 19;
Strategic Priority Area 3: question 32 and 34;
Strategic Priority Area 4: question 44, 45, 47, 52-55;
Implementation and financing: question 63-66 and 8 new questions; and additional section on emerging issues.

4. Has your country conducted a baseline survey of the population status of its animal genetic resources for all livestock species of economic importance (SP 1, Action 1)?
Glossary: A baseline provides a reference point for monitoring population trends. Population status refers to the total size of a national breed population (ideally, also the proportion that is actively used for breeding and the number of male and female breeding animals).
a. Yes, a baseline survey was undertaken before the adoption of the GPA
b. Yes, a baseline survey has been undertaken or has commenced after the adoption of the GPA
c. Yes, a baseline survey has been undertaken for some species (coverage increased since the adoption of the GPA)
d. Yes, a baseline survey has been undertaken for some species (coverage not increased since the adoption of the GPA)
e. No, but action is planned and funding identified
f. No, but action is planned and funding is sought
g. No
Please provide further details:

5. Have institutional responsibilities for monitoring the status of animal genetic resources in your country been established (SP 1, Action 3)?
Glossary: Monitoring is a systematic set of activities undertaken to document changes in the population size and structure of animal genetic resources over time.
a. Yes, responsibilities established before the adoption of the GPA
b. Yes, responsibilities established after the adoption of the GPA
c. No, but action is planned and funding identified
d. No, but action is planned and funding is sought
e. No
Please provide further details:

6. Have protocols (details of schedules, objectives and methods) been established for a programme to monitor the status of animal genetic resources in your country (SP 2)?
a. Yes, protocols established before the adoption of the GPA
b. Yes, protocols established after the adoption of the GPA
c. No, but action is planned and funding identified
d. No, but action is planned and funding is sought
e. No
Please provide further details:

7. Are the population status and trends of your country's animal genetic resources being monitored regularly for all livestock species of economic importance (SP 1, Action 2)?
a. Yes, regular monitoring commenced before the adoption of the GPA
b. Yes, regular monitoring commenced after the adoption of the GPA
c. Yes, regular monitoring is being undertaken for some species (coverage increased since the adoption of the GPA)
d. Yes, regular monitoring is being undertaken for some species (coverage not increased since the adoption of the GPA)
e. No, but action is planned and funding identified
f. No, but action is planned and funding is sought
g. No
Please provide further details:

8. Which criteria do your country use for assessing the risk status of its animal genetic resources (SP 1, Action 7)
Glossary: FAO has developed criteria that it uses to allocate breeds to risk-status categories based on the size and structure of their populations (http://www.fao.org/docrep/010/a1250e/a1250e00.htm).
a. FAO criteria
b. National criteria that differ from the FAO criteria

c.   Other criteria (e.g. defined by international body such as European Union)
d.   None
If applicable, please describe your national criteria or provide link to website describing criteria of international body:

9. Has your country established an operational emergency response system (http://www.fao.org/docrep/meeting/021/ K3812e.pdf) that provides for immediate action to safeguard breeds at risk in all important livestock species (SP 1, Action 7)?
a.   Yes, a comprehensive system was established before the adoption of the GPA
b.   Yes, a comprehensive system has been established since the adoption of the GPA
c.   For some species and breeds (coverage expanded since the adoption of the GPA)
d.   For some species and breeds (coverage not expanded since the adoption of the GPA)
e.   No, but action is planned and funding identified
f.   No, but action is planned and funding is sought
g.   No
Please provide further details:

10. Is your country conducting research to develop methods, technical standards or protocols for phenotypic or molecular characterization, or breed evaluation, valuation or comparison? (SP 2, Action 2)
a.   Yes, research commenced before the adoption of the GPA
b.   Yes, research commenced after the adoption of the GPA
c.   No, but action is planned and funding identified
d.   No, but action is planned and funding is sought
e.   No
Please provide further details:

11. Has your country identified the major barriers and obstacles to enhancing its inventory, characterization and monitoring programmes?
a.   Yes
b.   No
c.   No major barriers and obstacles exist. Comprehensive inventory, characterization and monitoring programmes are in place.
If yes, please list them, being as specific as possible:

12. If applicable, please list the priority measures that need to be taken to address these barriers and obstacles and to enhance your country's inventory, characterization and monitoring programmes - please be as specific as possible:

13. Please provide further comments on your country's activities related to Strategic Priority Area 1: Characterization, inventory and monitoring of trends and associated risks (including regional and international cooperation):

Strategic Priority Area 2: Sustainable Use and Development

- The state of national sustainable use policies for animal genetic resources
- The state of national species and breed development strategies and programmes
- The state of efforts to promote agro-ecosystem approaches

14. Does your country have adequate national policies in place to promote the sustainable use of animal genetic resources (see also questions 46 and 54)?
a.   Yes, since before the adoption of the GPA
b.   Yes, policies put in place or updated after the adoption of the GPA
c.   No, but action is planned and funding identified

d.   No, but action is planned and funding is sought
e.   No
Please provide the text of the policies or a web link to the document:

15. Do these policies address the integration of agro-ecosystem approaches into the management of animal genetic resources in your country (SP5) (see also questions 46 and 54)?
Glossary: The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way (for further information see http://www.cbd.int/ecosystem/ description.shtml).
a.   Yes
b.   No, but a policy update is planned and funding identified
c.   No, but action is planned and funding is sought
d.   No
Please provide further details:

16. Do ~~Are~~ breed~~ing~~ ~~development~~ programmes exist in your country ~~revised~~ for all major species and breeds ~~in your country~~, and are these programmes regularly reviewed, and if necessary revised, with the aim of meeting foreseeable economic and social needs and market demands (SP4, Action 2)?
a.   Yes, ~~regular revisions commenced~~ since before the adoption of the GPA
b.   Yes, ~~regular revisions commenced~~ put in place after the adoption of the GPA
c.   For some species and breeds (coverage has increased since the adoption of the GPA)
d.   For some species and breeds (coverage has not increased since the adoption of the GPA)
e.   No, but action is planned and funding identified
f.   No, but action is planned and funding is sought
g.   No
Please provide further information:
{Explanatory note: this question has been edited with the aim of improving its clarity.}

17. Is long-term sustainable use planning – including, if appropriate, strategic breeding programmes – in place for all major livestock species and breeds (SP4, Action 1)?
a.   Yes, since before the adoption of the GPA
b.   Yes, put in place after the adoption of the GPA
c.   For some species and breeds (further progress made since the adoption of the GPA)
d.   For some species and breeds (no further progress made since the adoption of the GPA)
e.   No, but action is planned and funding identified
f.   No, but action is planned and funding is sought
g.   No
Please provide further information:

18. Have the major barriers and obstacles to enhancing the sustainable use and development of animal genetic resources in your country been identified?
a.   Yes
b.   No
c.   No major barriers and obstacles exist. Comprehensive sustainable use and development measures are in place.
If yes, what are they?

19. Have the long-term impacts of the use of exotic breeds on locally adapted breeds (e.g. economic, environmental or genetic impacts) and on food security been assessed in your country (SP4, Action 1)?
Glossary:
Exotic breeds are breeds that are maintained in a different area from the one in which they were developed. Exotic breeds comprise both recently introduced breeds and continually imported breeds.

Locally adapted breeds are breeds that have been in the country for a sufficient time to be genetically adapted to one or more of traditional production systems or environments in the country. The phrase "sufficient time" refers to time present in one or more of the country's traditional production systems or environments. Taking cultural, social and genetic aspects into account, a period of 40 years and six generations of the respective species might be considered as a guiding value for "sufficient time", subject to specific national circumstances.

a. No exotic breeds are being used for agricultural production
b. Yes, assessments were introduced before the adoption of the GPA
c. Yes, assessments were introduced after the adoption of the GPA
d. No, but action is planned and funding identified
e. No, but action is planned and funding is sought
f. No

Please provide further information:

{Explanatory note: The question refers now more specifically to locally adapted breeds following the guidance suggested by the Working Group.}[83]

20. Have recording systems and organizational structures for breeding programmes been established or strengthened (SP4, Action 3)?

a. Yes, sufficient recording systems and organizational structures for breeding programmes have existed since before the adoption of the GPA
b. Yes, sufficient recording systems and organizational structures for breeding programmes exist because of progress made since the adoption of the GPA
c. Yes, recording systems and organizational structures for breeding programmes are partially in place (and were established or strengthened after the adoption of the GPA)
d. Yes, recording systems and organizational structures for breeding programmes are partially in place (but no progress has been made since the adoption of the GPA)
e. No, but action is planned and funding identified
f. No, but action is planned and funding is sought
g. No

21. Are mechanisms in place in your country to facilitate interactions among stakeholders, scientific disciplines and sectors as part of sustainable use development planning (SP5, Action 3)?

a. Yes, comprehensive mechanisms have existed since before the adoption of the GPA
b. Yes, comprehensive mechanisms exist because of progress made since the adoption of the GPA
c. Yes, mechanisms are partially in place (and were established or strengthened after the adoption of the GPA)
d. Yes, mechanisms are partially in place (but no progress has been made since the adoption of the GPA)
e. No, but action is planned and funding identified
f. No, but action is planned and funding is sought
g. No

22. Have measures been implemented in your country to provide farmers and livestock keepers with information that facilitates their access to animal genetic resources (SP 4, Action 7)?

a. Yes, comprehensive measures have existed since before the adoption of the GPA
b. Yes, comprehensive measures exist because of progress made since the adoption of the GPA
c. Yes, measures partially implemented (and were established or strengthened after the adoption of the GPA)
d. Yes, measures partially implemented (but no progress has been made since the adoption of the GPA)

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[83] CGRFA/WG-AnGR-7/12/Report, paragraph 26i, 27ii.

e. No, but action is planned and funding identified
f. No, but action is planned and funding is sought
g. No

23. Has your country developed agreements for equitable sharing of the benefits resulting from access to, and use and development of, animal genetic resources and associated traditional knowledge (SP3, Action 2)?
a. Yes, sufficient agreements have existed since before the adoption of the GPA
b. Yes, sufficient agreements exist because of progress made since the adoption of the GPA
c. Yes, some agreements exist (progress has been made since the adoption of the GPA)
d. Yes, some agreements exist (but no progress has been made since the adoption of the GPA)
e. No, but action is planned and funding identified
f. No, but action is planned and funding is sought
g. No
Please provide further information:

24. Have training and technical support programmes for the breeding activities of livestock-keeping communities been established or strengthened in your country (SP 4, Action 1)?
a. Yes, sufficient programmes have existed since before the adoption of the GPA
b. Yes, sufficient programmes exist because of progress made since the adoption of the GPA
c. Yes, some programmes exist (progress has been made since the adoption of the GPA)
d. Yes, some programmes exist (but no progress has been made since the adoption of the GPA)
e. No, but action is planned and funding identified
f. No, but action is planned and funding is sought
g. No

25. Have priorities for future technical training and support programmes to enhance the use and development of animal genetic resources in your country been identified (SP 4, paragraph 42)?
a. Yes, priorities have been identified or updated since the adoption of the GPA
b. Yes, priorities were identified before the adaption of the GPA but have not been updated
c. No, but action is planned and funding identified
d. No, but action is planned and funding is sought
e. No

26. Have efforts been made in your country to assess and support indigenous or local production systems and associated traditional knowledge and practices related to animal genetic resources (SP 6, Action 1, 2)?
a. Yes, sufficient measures have been in place since before the adoption of the GPA
b. Yes, sufficient measures are in place because of progress made since the adoption of the GPA
c. Yes, some measures are in place (and were established or strengthened after the adoption of the GPA)
d. Yes, some measures are in place (but no progress has been made since the adoption of the GPA)
e. No, but action is planned and funding identified
f. No, but action is planned and funding is sought
g. No

27. Have efforts been made in your country to promote products derived from indigenous and local species and breeds, and facilitate access to markets (SP 6, Action 2, 4)?
a. Yes, sufficient measures have been in place since before the adoption of the GPA
b. Yes, sufficient measures are in place because of progress made since the adoption of the GPA
c. Yes, some measures are in place (and were established or strengthened after the adoption of the GPA)
d. Yes, some measures are in place (but no progress has been made since the adoption of the GPA)

e. No, but action is planned and funding identified
f. No, but action is planned and funding is sought
g. No

28. If applicable, please list priority requirements for enhancing the sustainable use and development of animal genetic resources in your country – please be as specific as possible:

29. Please provide further comments on your country's activities related to Strategic Priority Area 2: Sustainable Use and Development (including regional and international cooperation):

Strategic Priority Area 3: Conservation

- The state of national conservation policies
- The state of in situ and ex situ conservation programmes
- The state of regional and global long-term conservation strategies and agreement on technical standards for conservation

30. Does your country regularly assess factors leading to the erosion of its animal genetic resources (SP 7, Action 2)?
a. Erosion not occurring
b. Yes, regular assessments have been implemented since before the adoption of the GPA
c. Yes, regular assessments have commenced since the adoption of the GPA
d. No, but action is planned and funding identified
e. No, but action is planned and funding is sought
f. No

31. What factors or drivers are leading to the erosion of animal genetic resources? Please describe the factors specifying which breeds or species are affected:

32. Does your country have conservation policies and programmes in place to protect <u>locally adapted</u> breeds at risk in all important livestock species (SP 7, SP 8 and SP 9)?
<u>Glossary: Locally adapted breeds are breeds that have been in the country for a sufficient time to be genetically adapted to one or more of traditional production systems or environments in the country. The phrase "sufficient time" refers to time present in one or more of the country's traditional production systems or environments. Taking cultural, social and genetic aspects into account, a period of 40 years and six generations of the respective species might be considered as a guiding value for "sufficient time", subject to specific national circumstances.</u>
a. Yes, comprehensive policies and programmes have been in place since before the adoption of the GPA
b. Yes, comprehensive policies and programmes exist because of progress made since the adoption of the GPA
c. For some species and breeds (coverage expanded since the adoption of the GPA)
d. For some species and breeds (coverage not expanded since the adoption of the GPA)
e. No, but action is planned and funding identified
f. No, but action is planned and funding is sought
g. No

33. If conservation policies and programmes are in place, are they regularly evaluated or reviewed (SP 7, Action 1; SP 8, Action 1; and SP 9, Action 1)?
a. Yes
b. No, but action is planned and funding identified
c. No, but action is planned and funding is sought
d. No

34. Does your country have *in situ* conservation measures in place for locally adapted breeds at risk of extinction and to prevent breeds from becoming at risk (SP 8 and SP 9)?
~~What measures are being used in your country to conserve breeds at risk of extinction and to prevent breeds from becoming at risk (SP 8 and SP 9)?~~
~~In situ~~

Glossary: In situ __conservation__ – support for continued use by livestock keepers in the production system in which the livestock evolved or are now normally found and bred.

__Glossary: Locally adapted breeds are breeds that have been in the country for a sufficient time to be genetically adapted to one or more of traditional production systems or environments in the country. The phrase "sufficient time" refers to time present in one or more of the country's traditional production systems or environments. Taking cultural, social and genetic aspects into account, a period of 40 years and six generations of the respective species might be considered as a guiding value for "sufficient time", subject to specific national circumstances.__

a.   Yes **for all breeds**
b.   **For some breeds (coverage expanded since the adoption of the GPA)**
c.   **For some breeds (coverage not expanded since the adoption of the GPA)**
d.   No, but action is planned and funding identified
e.   No, but action is planned and funding is sought
f.   No

~~Please describe the measures (indicating for each whether they were introduced before or after the adoption of the GPA) or provide a web link to a published document that provides further information:~~
Does your country have *ex situ in vivo* conservation measures in place for locally adapted breeds at risk of extinction and to prevent breeds from becoming at risk (SP 8 and SP 9)?
~~Ex situ in vivo~~

Glossary: Ex situ in vivo __conservation__ - maintenance of live animal populations not kept under their normal management conditions - e.g. in zoological parks or governmental farms - and/or outside the area in which they evolved or are now normally found.

a.   Yes **for all breeds**
b.   **For some breeds (coverage expanded since the adoption of the GPA)**
c.   **For some breeds (coverage not expanded since the adoption of the GPA)**
d.   No, but action is planned and funding identified
e.   No, but action is planned and funding is sought
f.   No

Does your country have *ex situ in vitro* conservation measures in place for locally adapted breeds at risk of extinction and to prevent breeds from becoming at risk (SP 8 and SP 9)?
~~Ex situ in vitro~~

Glossary: Ex situ in vitro - conservation, under cryogenic conditions including, inter alia, the cryoconservation of embryos, semen, oocytes, somatic cells or tissues having the potential to reconstitute live animals at a later date.

a.   Yes for all breeds
b.   For some breeds (coverage expanded since the adoption of the GPA)
c.   For some breeds (coverage not expanded since the adoption of the GPA)
d.   No, but action is planned and funding identified
e.   No, but action is planned and funding is sought
f.   No
{Explanatory note: questions and lists of options have been separated and edited so as to capture some more detail but still allow comparison with previous round of reporting.}

Please describe the measures (indicating for each whether they were introduced before or after the adoption of the GPA) or provide a web link to a published document that provides further information:

35. If your country has not established any conservation programmes, is this a future priority?
a. Yes
b. No

36. Has your country identified the major barriers and obstacles to enhancing the conservation of its animal genetic resources?
a. Yes
b. No
c. No major barriers and obstacles exist. Comprehensive conservation programmes are in place
If yes, please list them, being as specific as possible:

37. If your country has existing *ex situ* collections of animal genetic resources, are there major gaps in these collections (SP 9, Action 5)?
a. Yes
b. No
If yes, have priorities for filling the gaps been established?
c. Yes
d. No, but action is planned and funding identified
e. No, but action is planned and funding is sought
f. No

38. Are arrangements in place in your country to protect breeds and populations that are at risk from natural or human-induced disasters (SPA 3)?
a. Yes, arrangements have been in place since before the adoption of the GPA
b. Yes, arrangements put in place after the adoption of the GPA
c. No, but action is planned and funding identified
d. No, but action is planned and funding is sought
e. No

39. Are arrangements in place in your country for extraction and use of conserved genetic material following loss of animal genetic resources (e.g. through disasters), including arrangements to enable restocking (SP 9, Action 3)?
a. Yes, arrangements have been in place since before the adoption of the GPA
b. Yes, arrangements put in place after the adoption of the GPA
c. No, but action is planned and funding identified
d. No, but action is planned and funding is sought
e. No

40. Is your country conducting research to adapt existing, or develop new, methods and technologies for in situ and ex situ conservation of animal genetic resources (SP 11, Action 1)?
a. Yes, research commenced before the adoption of the GPA
b. Yes, research commenced since the adoption of the GPA
c. No, but action is planned and funding identified
d. No, but action is planned and funding is sought
e. No
If yes, briefly describe the research:

41. Does your country implement programmes to promote documentation and dissemination of knowledge, technologies and best practices for conservation (SP 11, Action 2)?
a. Yes, programmes commenced before the adoption of the GPA
b. Yes, programmes commenced since the adoption of the GPA
c. No, but action is planned and funding identified
d. No, but action is planned and funding is sought

e.   No

42. What are your country's priority requirements for enhancing conservation measures for animal genetic resources?
Please list them, being as specific as possible:

43. Please provide further comments describing your country's activities related to Strategic Priority Area 3: Conservation (including regional and international cooperation):

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

- The state of national institutions for planning and implementing animal genetic resources measures
- The state of information sharing
- The state of educational and research facilities capacity for characterization, inventory, and monitoring, sustainable use, development, and conservation
- The state of awareness of the roles and values of animal genetic resources
- The state of policies and legal frameworks for animal genetic resources

44. Does your country have sufficient institutional capacity to support holistic planning of the livestock sector (SP 12, Action1)?
~~Has your country assessed its national institutional capacity to support holistic planning of the livestock sector since the adoption of the GPA (SP 12, Action1)?~~
a.   Yes, sufficient capacity has been in place since before the adoption of the GPA
b.   Yes, sufficient capacity is in place because of progress made after the adoption of the GPA
c.   No, but action is planned and funding identified
d.   No, but action is planned and funding is sought
e.   No
{Explanatory note: This question has been reworded so as to better match the list of options.}
45. ~~**Have tools been developed for national planners to use in shaping the future development of the livestock sector in accordance with national priorities, including in relation to the deployment of animal genetic resources (SP 12, Action 4)?**~~
~~a. Yes, the development of tools commenced before the adoption of the GPA~~
~~b. Yes, the development of tools commenced after the adoption of the GPA~~
~~c. No, but action is planned and funding identified~~
~~d. No, but action is planned and funding is sought~~
~~e. No~~
~~**If yes, please describe the tools:**~~
{Explanatory note: This question has been deleted because such tools are part of the institutional capacity described in the previous question.}

46. What is the current status of your country's national strategy and action plan for animal genetic resources (SP 20)?
Glossary: National strategy and action plan for animal genetic resources: a strategy and plan, agreed by stakeholders and preferably government-endorsed, that translates the internationally agreed Global Plan of Action for Animal Genetic Resources into national actions, with the aim of ensuring a strategic and comprehensive approach to the sustainable use, development and conservation of animal genetic resources for food and agriculture.
a.   Previously endorsed national strategy and action plan is being updated (or new version has been endorsed)
b.   Completed and government-endorsed
c.   Completed and agreed by stakeholders
d.   In preparation
e.   Preparation is planned and funding identified

f. Future priority activity

g. Not planned

Please provide a copy of your country's national strategy and action plan as a separate document or a web link to the document: http://

47. Are animal genetic resources addressed in your country's National Biodiversity Strategy and Action Plan (http://www.cbd.int/nbsap/)?

a. Yes

b. No, but they will be addressed in forthcoming plan

c. No

Are animal genetic resources addressed in your country's national livestock sector strategy, plan or policy (or equivalent instrument)?

a. Yes

b. No, but they will be addressed in a forthcoming strategy, plan or policy

c. No, animal genetic resources are not addressed

d. No, the country does not have a national livestock sector strategy, plan or policy

If yes, please provide a link to the text of the strategy, plan or policy

{Explanatory note: This question has been added in order to capture a factor not included in the last round of reporting.}

48. Has your country established or strengthened a national database for animal genetic resources (independent from DAD-IS) (SP 15, Action 4)?

a. Yes, a national database has been in place since before the adoption of the GPA

b. Yes, a national database is in place because of progress made since the adoption of the GPA

c. Yes, a national database is in place but still requires strengthening (progress since adoption of the GPA)

d. Yes, a national database is in place but still requires strengthening (no progress since adoption of the GPA)

e. No, but action is planned and funding identified

f. No, but action is planned and funding is sought

g. No

{Explanatory note: a point of clarification has been added to this question.}

49. Have your country's national data on animal genetic resources been regularly updated in DAD-IS?

Note that the Commission on Genetic Resources for Food and Agriculture has requested FAO to produce global status and trends reports every two years.

a. Yes, regular updates have been occurring since before the adoption of the GPA

b. Yes, regular updates started after the adoption of the GPA

c. No, but it is a future priority

d. No

50. Has your country established a National Advisory Committee for Animal Genetic Resources (SP 12, Action 3)?

a. Yes, established before the adoption of the GPA

b. Yes, established after the adoption of the GPA

c. No, but action is planned and funding identified

d. No, but action is planned and funding is sought

e. No

If yes, list its main functions:

51. Is there strong coordination and interaction between the National Focal Point and stakeholders involved with animal genetic resources, such as the breeding industry, livestock keepers, government agencies, research institutes and civil society organizations (SP 12, Action 3)?

a. Yes, strong coordination has been in place since before the adoption of the GPA
b. Yes, strong coordination was established after the adoption of the GPA
c. No, but action is planned and funding identified
d. No, but action is planned and funding is sought
e. No

52. Does the National Focal Point <u>or other institutions</u> undertake activities to increase public awareness of the roles and values of animal genetic resources (SP 18)?

<u>Glossary: National Focal Point for the Management of Animal Genetic Resources: the National Coordinator for the Management of Animal Genetic Resources and his or her support staff within the institution responsible for coordinating activities concerning the management of AnGR (http://www.fao.org/docrep/014/ba0054e/ba0054e00.pdf).</u>
a. Yes, activities commenced before the adoption of the GPA
b. Yes, activities commenced after the adoption of the GPA
c. No, but activities are planned and funding identified
d. No, but activities are planned and funding is sought
e. No
If yes, briefly describe them:

53. Have national policies and legal frameworks for animal genetic resources been reviewed and appropriate changes made if necessary (SP 20)?
a. ~~Yes, frameworks were reviewed before the adoption of the GPA and appropriate changes made~~
b. ~~Yes, frameworks have been reviewed since the adoption of the GPA and appropriate changes made~~
c. ~~Yes, frameworks have been reviewed since the adoption of the GPA, but appropriate changes not yet made~~
d. ~~No, but action is planned and funding identified~~
e. ~~No, but action is planned and funding is sought~~
f. ~~No~~

53. <u>Does your country have national policies and legal frameworks for animal genetic resources (SP 20)?</u>
a. **<u>Yes, comprehensive national policies and legal frameworks in place since before the adoption of the GPA and are kept up to date</u>**
b. **<u>Yes, comprehensive and up-to-date national policies and legal frameworks in place because of progress made since the adoption of the GPA</u>**
c. **<u>Yes, some national policies and legislation in place (strengthened since the adoption of the GPA)</u>**
d. **<u>Yes, some national policies and legislation in place (not strengthened since the adoption of the GPA)</u>**
e. **<u>No, but action is planned and funding identified</u>**
f. **<u>No, but action is planned and funding is sought</u>**
g. **<u>No</u>**
{Explanatory note: this question has been reformulated to improve its clarity.}

54. Have your country's needs for research and education been reviewed in all areas of management of animal genetic resources since the adoption of the GPA (SP 13, Action 1)?
a. ~~Yes~~
b. ~~No, but action is planned and funding identified~~
c. ~~No, but action is planned and funding is sought~~
d. ~~No~~
~~If yes, briefly describe them:~~
{Explanatory note: This question has been deleted because the subject is covered by question 58.}

Which of the following options best describes the state of training and technology transfer programmes in your country related to inventory, characterization, monitoring, sustainable use, development and conservation of animal genetic resources (SP14, Action 1)?
a. **Comprehensive programmes have been in place since before the adoption of the GPA**
b. **Comprehensive programmes exist because of progress made since the adoption of the GPA**
c. **Some programmes exist (further progress since the adoption of the GPA)**
d. **Some programmes (no further progress since the adoption of the GPA)**
e. **None, but action is planned and funding identified**
f. **None, but action is planned and funding is sought**
g. **None**
Please provide further details:
{Explanatory note: This question has been added in order to provide more comprehensive coverage of potential activities under Strategic Priority 14.}

~~55. Have partnerships been established among research, training and extension institutions and networks of researchers, breeders and conservation organizations to support the implementation of the Global Plan of Action (SP 14, Action 2)?~~
~~a. Yes~~
~~b. No, but action is planned and funding identified~~
~~c. No, but action is planned and funding is sought~~
~~d. No~~
{Explanatory note: This question has been deleted because the subject is covered by question 56.}

56. Have organizations (including where relevant community-based organizations), networks and initiatives for sustainable use, breeding and conservation been established or strengthened (SP 14, Action 3)?
a. Yes, comprehensive organizations, networks and initiatives have existed since before the adoption of the GPA
b. Yes, comprehensive organizations, networks and initiatives exist because of progress made since the adoption of the GPA
c. Yes, some organizations, networks and initiatives exist (established or strengthened since adoption of the GPA)
d. Yes, some organizations, networks and initiatives exist (but no progress made since adoption of the GPA)
e. No, but action is planned and funding identified
f. No, but action is planned and funding is sought
g. No

57. Are there any national NGOs active in your country in the fields of: Characterization?
a. Yes
b. No
Sustainable use and development?
c. Yes
d. No
Conservation of breeds at risk?
e. Yes
f. No
If yes, please list the national NGOs and provide links to their web sites:

58. Has your country established or strengthened research or educational institutions in the field of animal genetic resources management (SP 13, Action 3)?
a. Yes, adequate research and education institutions have existed since before the adoption of the GPA
b. Yes, adequate research and education institutions exist because of progress made since the adoption of the GPA

c. Yes, research and education institutions exist but still require strengthening (progress made since the adoption of the GPA)
d. Yes, research and education institutions exist but still require strengthening (no progress made since the adoption of the GPA)
e. No, but action is planned and funding identified
f. No, but action is planned and funding is sought
g. No

59. Please provide further comments describing specific activities related to Strategic Priority Area 4: Policies, Institutions and Capacity-building (including regional and international cooperation):

Implementation and financing of the Global Plan of Action for Animal Genetic Resources
- The state of international collaboration for planning and implementing animal genetic resources measures
- The state of financial resources for the conservation, sustainable use and development of animal genetic resources

60. Has your country established or strengthened international collaboration in (SP 16): Characterization?
a. Yes
b. No, but action is planned and funding identified
c. No, but action is planned and funding is sought
d. No
Sustainable use and development?
e. Yes
f. No, but action is planned and funding identified
g. No, but action is planned and funding is sought
h. No
Conservation of breeds at risk?
i. Yes
j. No, but action is planned and funding identified
k. No, but action is planned and funding is sought
l. No
If yes, briefly describe the collaboration:

61. Are there any international NGOs active in your country in the fields of: Characterization?
a. Yes
b. No
Sustainable use and development?
c. Yes
d. No
Conservation of breeds at risk?
e. Yes
f. No
If yes, please list the international NGOs:

62. Has national funding for animal genetic resources programmes increased since the adoption of the GPA?
a. Yes
b. No
If yes, provide brief details:

63. Has your country received external funding for implementation of the GPA?
a.   Yes
b.   No
c.   No, because country generally does not receive external funding
If yes, provide brief details (from whom, for what, how much):
{Explanatory note: an additional option has been added to account for the fact that some countries generally do not receive external funding in any field.}

64. Has your country supported or participated in ~~established or strengthened~~ international research and education programmes ~~to~~ assisting developing countries and countries with economies in transition to better manage animal genetic resources (SP 15 and 16)?
a.   Yes, **support or participation in place** ~~established~~ ~~programmes~~ before the adoption of the GPA and strengthened since
b.   Yes, **support or participation in place** ~~programmes~~ ~~established~~ before the adoption of the GPA but not strengthened since
c.   Yes, **support or participation in place** ~~programmes~~ ~~established~~ since the adoption of the GPA
d.   No, but action is planned and funding identified
e.   No, but action is planned and funding is sought
f.   No
If yes, briefly describe them:

{Explanatory note: This question has been reworded so as to account for cases in which countries participate in collaborative activities rather than providing external support.}
65. Has your country supported or participated in programmes aimed at ~~established or strengthened international support~~ ~~to~~ assisting developing countries and countries with economies in transition to obtain training and technologies and to build their information systems (SP 15 and 16)?
a.   Yes, **support or participation commenced** ~~programmes established~~ before the adoption of the GPA and strengthened since
b.   Yes, , **support or participation commenced** ~~programmes established~~ before the adoption of the GPA but not strengthened since
c.   Yes, , **support or participation commenced** ~~programmes established~~ since the adoption of the GPA
d.   No, but action is planned and funding identified
e.   No, but action is planned and funding is sought
f.   No
If yes, provide brief details:
{Explanatory note: This question has been reworded so as to account for cases in which countries participate in collaborative activities rather than providing external support.}

66. Has your country provided funding to other countries for implementation of the Global Plan of Action?
a.   Yes
b.   No, but action is planned and funding identified
c.   No, but action is planned and funding is sought
d.   No
e.   No, because country is generally not a donor country
If yes, provide brief details and specify whether it was bilateral or multilateral; research cooperation or aid; and to whom and for what it was given:
{Explanatory note: An additional question has been added to account for the fact that some countries are generally not donor countries in any field of activity.)

{Explanatory note: the following questions have been added to provide better coverage of collaborative activities.}

Has your country contributed to international cooperative inventory, characterization and monitoring activities involving countries sharing transboundary breeds and similar production systems (SP 1, Action 5)?
a. **Yes**
b. **No, but action is planned and funding identified**
c. **No, but action is planned and funding is sought**
d. **No**

Has your country contributed to establishing or strengthening global or regional information systems or networks related to inventory, monitoring and characterization of animal genetic resources (SP 1, Action 6)?
a. **Yes**
b. **No, but action is planned and funding identified**
c. **No, but action is planned and funding is sought**
d. **No**

Has your country contributed to the development of international technical standards and protocols for characterization, inventory and monitoring of animal genetic resources (SP2)?
a. **Yes**
b. **No, but action is planned and funding identified**
c. **No, but action is planned and funding is sought**
d. **No**

Has your country contributed to the development and implementation of regional *in situ* conservation programmes for breeds that are at risk (SP 8, Action 2; SP 10, Action 1)?
a. **Yes**
b. **No, but action is planned and funding identified**
c. **No, but action is planned and funding is sought**
d. **No**

Has your country contributed to the development and implementation of regional *ex situ* conservation programmes for breeds that are at risk (SP 9, Action 2; SP 10, Action 3; SP 10, Action 4)?
a. **Yes**
b. **No, but action is planned and funding identified**
c. **No, but action is planned and funding is sought**
d. **No**

Has your country contributed to the establishment of fair and equitable arrangements for the storage, access and use of genetic material stored in supra-national *ex situ* gene banks (SP9, Action 3)?
a. **Yes**
a. **No, but action is planned and funding identified**
b. **No, but action is planned and funding is sought**
c. **No**

Has your country participated in regional or international campaigns to raise awareness of the status of animal genetic resources (SP19)?
a. **Yes**
a. **No, but action is planned and funding identified**
b. **No, but action is planned and funding is sought**
c. **No**

Has your country participated in reviewing or developing international policies and regulatory frameworks relevant to animal genetic resources (SP 21)?
a. **Yes**

b. No, but action is planned and funding identified
c. No, but action is planned and funding is sought
d. No

Emerging issues
In view of the possibility that at some point in the future countries may wish to update the Global Plan of Action, please list any aspects of animal genetic resources management that are not addressed in the current Global Plan of Action but will be important to address in the future (approximately the next ten years). Please also describe why these issues are important and indicate what needs to be done to address them.

Issues to be addressed in future (next ten years)	Reasons	Actions requireds
[text]	[text]	[text]