منظمة الأغذية والزراعة للأمم المتحدة | 联合国粮食及农业组织 | Food and Agriculture Organization of the United Nations | Organisation des Nations Unies pour l'alimentation et l'agriculture | Продовольственная и сельскохозяйственная организация Объединенных Наций | Organización de las Naciones Unidas para la Alimentación y la Agricultura

Country report

supporting the preparation of *The Second Report on the State of the World's Animal Genetic Resources for Food and Agriculture*, including sector-specific data contributing to *The State of the World's Biodiversity for Food and Agriculture* - 2013 -

Country: Slovenia

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).

Key trends affecting the AnGR are connected with gene-flow from the developed countries. Import of the genetic material (semen, breeding animals) often affects AnGR with increased productivity and decrease in longevity, robustness and health of widely used cattle and breeds. Many breeders relay on the imported genetic materials, while their trust to the domestic material is lower. Consumers are influenced by welfare concerns, dietary trends and their taste is changing. Demand for livestock products is consequently lower and not in favour to the domestic production in the supermarkets. On the other side, consumer demands animal and environmental friendly products, which are in accordance with the traditional processing.

Globalizing and opening of the markets towards EU contributed to strict policy regulation in relation to product quality, processing and general food production. Small and often unorganized producers are not capable of following requirements and thus excluded from the production. Better transport and access to market, information and opening the markets are causing confusion among the consumers.

Climatic changes are present in the Slovenia and they are causing the problems to the livestock keepers. In last few years drought conditions are affecting the grass-land and production of feed which cause the decrease in population number. Management costs increased and farmers are causing the lower number of animals. Often the main constrains to increase the population number is land tenure policies, which prevents integration of land. Farmers land is often too dispersed. On the other side breeders are aware of overgrowing and benefits of mountain grazing, so abandonment of mountain and other pastures is diminished.

Technological development in breeding equipment, nutrition and housing is developing rapidly and enable breeders easier management of AnGR, farm capacity is higher. Opposite, technological development is connected with higher investments, from where smaller farmer are excluded.

Social and cultural values of AnGR are not taken into account as well as their role in the agro-ecosystem. Non-market

outputs are not valued; other products such as wool, skin are remaining the undervalued.

There is still large knowledge and research gap concerning the adaptation of the breed adaptation and breed specific, which enables them being adapted to specific production environment and quality of the product.

All the regulatory frameworks for AnGR are in place. Payments for AnGR conservation is connected with payments for animal, instead of payments for other ecosystem function. In Slovenia ARK-farms are in the process of the establishment, ex situ in vivo conservation is performed at the capital city Zoo. Cryo-conservation is established for all critical and endangered breeds as well as tissue conservation. Well targeted conservation, measures to address threats to particular breeds are essential. There is an urgent need for the community - based programmes, which will integrate the touristic offer and traditional production and selling of products. Strategic investment in the conservation of animal genetic resources are necessary, strengthen the national and international collaboration, promotion of agroecosystem conservation, promotion of the animal products and services from specific breeds, and keeping the population numbers above the threatened threshold. More emphasis should be put on importance of local breeds in contributing to landscape management, vegetation control, and ecosystem sustainability, preventing the erosion of associated biodiversity.

Breeding programmes for economically important livestock are regulated by the law and founded by the government. Breeding programmes comprises rules regarding the herd book and performance recording, testing and characterization. There is a lack of breeding programmes for the low input systems and locally endangered breeds.

Constrain and challenge in the future will be how to transfer the knowledge for the researchers to farmers and how to gain more financial resources for founding the research. New products and niche marketing will be supported and promoted in the next rural development strategy and here is unlimited opportunity for local breeds as well.

II. DATA FOR UPDATING THE PARTS AND SECTIONS OF *THE STATE OF THE WORLD'S ANIMAL GENETIC RESOURCES FOR FOOD AND AGRICULTURE*

FLOWS OF ANIMAL GENETIC RESOURCES

1. Studies of gene flow in animal genetic resources have generally concluded that most gene flow occurs either between developed countries or from developed countries to developing countries. Does this correspond to the pattern of gene flow into and out of your country?

For developed countries, exceptions to the usual pattern would include significant imports of genetic resources from developing countries. For developing countries, exceptions would include significant exports of genetic resources to developed countries, and/or significant imports and/or exports of genetic resources to/from other developing countries.

- (●) yes
- ( ) no
- ( ) yes but with some significant exceptions

1.1. If you answer “no” or “yes but with some significant exceptions”, please provide further details. Please include information on: which species are exceptions and which regions of the world are the sources and/or destinations of the respective genetic material.

2. Have there been any significant changes in patterns of geneflow in and out of your country in the last ten years?

- (●) yes
- ( ) no

2.1. If yes, please indicate whether this view is based on quantified data (e.g. import and export statistics collected by the government).

- (●) yes
- ( ) no

2.2. If yes, please provide references (preferably including web links) (if relevant, indicate which types of animal genetic resources are covered).

Semen (cattle, pigs), embryo (cattle), breeding animals (cattle, goats, sheep, horses, pigs, chickens, rabbits)
Insemination center Ptuj (http://www.kgz-ptuj.si/osemenjevalni-center/)
Insemination center Preska (http://lj.kgzs.si/1/osemenjevalni-center-preska.aspx)

2.3. Please also describe the changes, indicating the species involved, the direction of the changes, and the regions of the world to and from which the patterns of imports and exports have changed.

Cattle "from" (Canada, USA, Netherlands, Germany, Italy, Switzerland, Austria, Denmark)
Cattle "to" (Bosnia and Herzegovina, Albania, Montenegro, Croatia, Italy)
Sheep "from" (Netherlands, France, Croatia)
Sheep "to" (Germany, Italy, Austria, Croatia)
Goat "from" (Austria, Germany, Switzerland, France)
Pigs "from" (Austria, Scandinavian countries)
Chickens: provenience Rose 308, provenience Lohmann Brown
Turkeys: provenience Hybrid Conventer
Horses "from" (from many developed countries)
Donkeys "from" (from many developing countries)

More changes over the last 10 years happened by pig breeding. This means that more genetic material is being imported than previously and import are now dominated. However, the imported pig breeds are the same as were in the past. In the recent years more pigs are imported from Austria. Other issue relevant with the changes in pig breeding are changed categories of imported animals: only boars were imported in the past but today sows are imported as well.

In other species have not happened major changes over the last ten years.

Poultry selection is based mainly on imported breeding animals. A very small part of Slovenian poultry selection covers needs of local market. However, this situation is more or less the same as was ten years ago.

3. Please describe how the patterns of geneflow described under Questions 1 and 2 affect animal genetic resources and their management in your country.

Note: Please answer this question even if the pattern of geneflow into and out of your country corresponds to the "usual" pattern described in the first sentence of Question 1 and/or has not changed significantly in the last ten years.

Gene flow of AnGR increased productivity and decreased longevity, robustness, health ... of widely used cattle and pig breeds. Consequently management of An GR became more exacting. The percentage of crossbred in some populations increased. In a smaller extent some new exotic breeds appeared.

LIVESTOCK SECTOR TRENDS

4. Please indicate the extent to which the following trends or drivers of change have affected or are predicted to affect animal genetic resources and their management in your country and describe these effects.

Note: Relevant impacts on animal genetic resources and their management might include, for example, changes in the type of animal genetic resources kept (e.g. different breeds or species), changes in the uses to which animal genetic resources are put, changes in the geographical distribution of different types of animal genetic resources, increases or decreases in the number of breeds at risk of extinction, changes in the objectives of breeding programmes, changes in the number or type of conservation programmes being implemented, etc. In the text sections, please briefly describe the changes. If possible, provide some concrete examples of the challenges or opportunities presented by the respective drivers and the actions taken to address these challenges or opportunities. If relevant, you may also indicate why a given driver is not affecting animal genetic resources and their management in your country. For a general discussion of drivers of change, please see The State of the World's Animal Genetic Resources for Food and Agriculture (Part 2, Section A) (http://www.fao.org/docrep/010/a1250e/a1250e00.htm).

Drivers of change	Impact on animal genetic resources and their management over last ten years	Future impact on animal genetic resources and their management (predicted for the next ten years)	Describe the effects on animal genetic resources and their management
Changing demand for livestock products (quantity)	medium	medium	Production of beef meat, in addition to milk production is the most important production of the Slovenian agriculture. The self-sufficiency rate in Slovenia is much higher for animal products than for crop products. On average the rate of self-sufficiency in the balance sheets for meat and eggs is over 80%.Indigenous production exceed domestic use only for milk, beef and poultry meat. In the 2003-2012 period, the number of farms rearing animals decreased for 14,2 %. Over the last ten years the biggest changes happened by pig breeding. The self-sufficiency rate of pig meat today is 30 % while 10 years ago was 80 %.
Changing demand for livestock products (quality)	medium	high	Increasing demand for livestock products produced in organic farms …animal welfare friendly products, environmentally friendly products, traditional products … More emphasis is being given to the autochthonous breeds.
Changes in marketing infrastructure and access	high	high	Better transport, better access to market information … Drivers are not having major impacts on animal genetic resources.
Changes in retailing	high	high	Selling of local products in markets is increased ... Buying of locally grown food is increasing - Consumers are aware of local production and value of the fresh food. Drivers are not having major impacts on animal genetic resources.
Changes in international trade in animal products (imports)	high	high	Import is mostly focused on processed products. Drivers are not having major impacts on animal genetic resources.
Changes in international trade in animal products (exports)	medium	high	Export is mostly focused on “raw” material (e.g. raw milk, live animals …). Population size of exotic breed named Black White cattle increased.
Climatic changes	none	none	
Degradation or improvement of grazing land	low	low	Breeders are aware of benefits of grazing and as a consequence grazing management on mountain pastures and marginal areas increased. Drivers are not having major impacts on animal genetic resources.
Loss of, or loss of access to, grazing land and other natural resources	low	low	Drivers are not having major impacts on animal genetic resources.
Economic, livelihood or lifestyle factors affecting the popularity of livestock keeping	low	medium	Popularity of livestock keeping of young owners is increasing due to the economic reasons. Drivers are not having major impacts on animal genetic resources.

Drivers of change	Impact on animal genetic resources and their management over last ten years	Future impact on animal genetic resources and their management (predicted for the next ten years)	Describe the effects on animal genetic resources and their management
Replacement of livestock functions	low	low	
Changing cultural roles of livestock	medium	medium	Traditional events from the past (livestock exhibitions, festivals …) are becoming more attractive to the wider public. Autochthonous breeds are becoming more recognized and population size of some breeds increased (Krškopolje pig, Cika cattle, Posavje horse).
Changes in technology	medium	medium	Development of milking and feeding technologies is making management of AnGR easier. Drivers are not having major impacts on animal genetic resources.
Policy factors	high	high	Subsidies increased population size of locally adapted breeds.
Disease epidemics	high	high	Laws and regulation on the veterinary become very strict and management of AnGR changed. Drivers are not having major impacts on animal genetic resources.

OVERVIEW OF ANIMAL GENETIC RESOURCES

5. Please provide the number of locally adapted and exotic breeds kept in your country.

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. In line with the request of the Commission on Genetic Resources for Food and Agriculture at its Fourteenth Regular Session (CGRFA-14/13/Report, paragraph 31), FAO will implement the "locally adapted" vs. "exotic breed" classification system in the Domestic Animal Diversity Information System (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.

Species	Locally adapted breeds	Exotic breeds
Cattle (specialized dairy)	0	2
Cattle (specialized beef)	0	7
Cattle (multipurpose)	3	1
Sheep	5	1
Goats	3	1
Pigs	4	2
Chickens	5	95
Horses	5	6
Rabbits	0	2
Asses	1	1
Ducks	0	22
Geese	0	14
Turkeys	0	4

CHARACTERIZATION

To provide further details of your country's activities in the field of characterization, surveying and monitoring, please go to Strategic Priority Area 1 of the "Progress report on the implementation of the Global Plan of Action for Animal Genetic Resources 2007–2013" (below).

6. Please provide an overview of the current state of characterization in your country by indicating the extent to which the activities shown in the following table have been carried out.

Note: Please focus on characterization studies that have been conducted within the last ten years (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. For the first two columns, please insert the number of breeds; for columns 3 to 8 please choose one of the following categories: none; low (approximately <33%); medium (approximately 33–67%); high (approximately >67%).

Species	Baseline survey of population size	Regular monitoring of population size	Phenotypic characterization	Molecular genetic diversity studies – within breed	Genetic diversity studies based on pedigree	Molecular genetic diversity studies – between breed	Genetic variance component estimation	Molecular genetic evaluation
Cattle (specialized dairy)	2	2	medium	low	low	low	high	none
Cattle (specialized beef)	7	7	high	low	low	low	low	none
Cattle (multipurpose)	4	4	high	medium	medium	medium	high	low
Sheep	5	5	high	low	medium	medium	medium	none
Goats	4	4	high	none	medium	low	medium	none
Pigs	6	6	high	none	high	none	none	none
Chickens	5	5	low	none	none	none	none	none
Horses	11	11	high	low	medium	low	low	none
Rabbits	2	2	medium	none	none	none	none	none

INSTITUTIONS AND STAKEHOLDERS

To provide further details of your country's activities in the field of institutions and stakeholders, please go to Strategic Priority Area 4 of the "Progress report on the implementation of the Global Plan of Action for Animal Genetic Resources 2007–2013" (below).

7. Please indicate the state of your country's capacities and provisions in the following areas of animal genetic resources management.

	Score
Education	high
Research	medium
Knowledge	low
Awareness	low
Infrastructure	low
Stakeholder participation	medium
Policies	high
Policy implementation	high
Laws	high
Implementation of laws	medium

8. Please provide further information regarding your country's capacities in each of the above-mentioned areas of management. If relevant, please indicate what obstacles 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 achieved in your country in any of these areas and on the reasons for these successes.

	Description
Education	AnGR management knowledge is included into education system on different level (University level, secondary school, high professional study, different courses ...). Constraint at the University level are facing lack of practical capacities (modern technology, buildings etc).
Research	Most of research is carried out at the Universities and agricultural institutes (laboratories, experimental farms, research slaughter house). The main obstacle is very low level of funding into the research capacities and projects.
Knowledge	Transfer of knowledge from experts and researches to the stakeholders is very low. The main goal of agriculture policy in the next period is transfer of knowledge among them.
Awareness	Awareness is provided through the exhibitions, fairs, festivals, agricultural journals, TV and radio emissions and other media actions. The main constrains and issues are negative media actions against farming.
Infrastructure	Lack of infrastructure for animal auctions and exhibitions. Lack of "city" and educational farms.
Stakeholder participation	Breeding organizations, associations and Agricultural chamber, farmers syndicate, cooperatives.
Policies	Important role in formulating policies and implementing the agriculture and all connected policies on the field of AnGR: Ministry for agriculture and environment and cooperation with Universities and institutes, Breeding organizations.
Policy implementation	Policy initiatives, strategies, programmes and plans promoting the sustainable use, development and conservation of AnGR are being successfully implemented in relatively high extent.
Laws	Overall management of animal genetic resources the country has put in place with a legal framework that is conducive to the sustainable use, development and conservation of animal genetic resources ant that protect livestock breeders. Measures which enable the protection and conservation of the species, breeds and strains of domestic animals and includes all the necessary direct and indirect measures to protect autochthonous and traditional breeds are included in the following legislative documents: Livestock breeding act, Biodiversity Strategy in Slovenia, Rural Development Programme. Conversation of the AnGR, Act Ratifying the Convention on Biological Diversity, Long term National Program for livestock biodiversity conservation in Slovenia.

	Description
Implementation of laws	Country´s laws favourable to the sustainable use, development and conservation of AnGR are being successfully implemented in relatively high extent.

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 community protocols)?

Note: Biocultural community 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. For a discussion of the potential role of biocultural community protocols in the conservation of animal genetic resources, please see the guidelines In vivo conservation of animal genetic resources (http://www.fao.org/docrep/018/i3327e/i3327e.pdf).

Based on the accepted laws structure of organizations in the field of AnGR was established (Breeding organizations, test stations, inseminations centres, recording organizations), which are functioning at the satisfied level.

BREEDING PROGRAMMES

Note: 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. Breeding programmes are usually operated either by a group of livestock breeders organized in a breeders' association, community-based entity or other collective body; by a large commercial breeding company; or by the government.

To provide further details of your country's activities in the field of breeding programmes, please go to Strategic Priority Area 2 of the "Progress report on the implementation of the Global Plan of Action for Animal Genetic Resources 2007–2013" (below).

10. Who operates breeding programmes in your country?

Note: the objective of this question is to identify which stakeholders lead or organize the breeding programmes that exist in your country. Stakeholder participation in the implementation of the various elements of breeding programmes is covered under Question 15. If you wish to provide further information on the activities of the various stakeholder groups (including collaborative activities on an international scale), please provide it in the text section of Question 15.

Species	Government	Livestock keepers organized at community level	Breeders' associations or cooperatives	National commercial companies	External commercial companies	Non-governmental organizations	Others
Cattle (specialized dairy)	no	no	yes	no	no	no	no
Cattle (specialized beef)	no	no	yes	no	no	no	no
Cattle (multipurpose)	no	no	yes	no	no	no	no
Sheep	no	no	yes	no	no	no	no

Species	Government	Livestock keepers organized at community level	Breeders' associations or cooperatives	National commercial companies	External commercial companies	Non-governmental organizations	Others
Goats	no	no	yes	no	no	no	no
Pigs	no	no	yes	no	no	no	no
Chickens	no	no	yes	yes	yes	no	no
Horses	no	no	yes	no	no	no	no
Rabbits	no	no	no	no	no	no	yes

10.1. If you choose the option "others", please indicate what kind of operator(s) this refers to.

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11. For how many breeds in your country are the following activities undertaken?

Note: Please do not include activities that are only undertaken for experimental purposes, i.e. include only activities that directly serve or involve livestock keepers. However, please include activities even if they do not at present form part of a breeding programme. The intention is to obtain an indication of whether the "building blocks" of a breeding programme are available or being developed in your country. Loc = Locally adapted breeds; Ex = Exotic breeds.

Species	Tools															
	Animal identification		Breeding goal defined		Performance recording		Pedigree recording		Genetic evaluation (classic approach)		Genetic evaluation including genomic information		Management of genetic variation (by maximizing effective population size or minimizing rate of inbreeding)		Artificial insemination	
	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex
Cattle (specialized dairy)	0	0	0	1	0	1	0	1	0	1	0	0	0	0	0	0
Cattle (specialized beef)	0	0	0	2	0	2	0	2	0	2	0	0	0	0	0	0
Cattle (multipurpose)	0	0	3	0	3	0	3	0	2	0	1	0	1	0	0	0
Sheep	5	1	5	0	5	1	5	1	5	0	0	0	0	0	0	0
Goats	3	1	3	1	3	1	3	1	3	1	0	0	0	0	0	0
Pigs	4	2	4	2	4	2	4	2	4	2	0	0	1	0	4	2
Horses	5	6	5	6	5	6	5	6	0	0	0	0	0	0	0	0

12. Please indicate how many of the breeds in your country are subject to breeding programmes applying the following breeding methods.

Note: Loc = Locally adapted breeds; Ex = Exotic breeds.

Species	Breeding method			
	Straight/pure-breeding only		Straight/pure-breeding and cross-breeding	
	Loc	Ex	Loc	Ex
Cattle (specialized dairy)	0	0	0	1
Cattle (specialized beef)	0	0	0	2
Cattle (multipurpose)	1	0	0	2
Sheep	3	0	2	0
Goats	1	0	2	1
Horses	4	0	0	0
Pigs	1	0	4	1

13. Please indicate the state of research and training in the field of animal breeding in your country.

Species	Training	Research
Cattle (specialized dairy)	high	high
Cattle (specialized beef)	medium	medium
Cattle (multipurpose)	high	medium

Species	Training	Research
Sheep	medium	low
Goats	medium	low
Pigs	medium	medium
Chickens	low	high
Horses	medium	low

14. Please indicate the extent to which livestock keepers in your country are organized for the purposes of animal breeding.

Species	Organization of livestock keepers
Cattle (specialized dairy)	high
Cattle (specialized beef)	high
Cattle (multipurpose)	high
Sheep	high
Goats	high
Pigs	low
Chickens	low
Horses	medium

15. Please indicate the level of stakeholder involvement in the various elements of breeding programmes in your country.

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.

Cattle (specialized dairy)	Government	Research organizations	Breeders' associations or cooperatives	Individual breeders/livestock keepers	National commercial companies	External commercial companies	Non-governmental organizations	Others
Setting breeding goals	none	medium	high	medium	none	none	none	none
Animal identification	high	none	none	medium	none	none	none	medium
Recording	low	low	low	medium	none	none	none	medium
Provision of artificial insemination services	none	none	none	medium	none	none	none	none
Genetic evaluation	none	high	none	none	none	none	none	none

Cattle (specialized beef)	Government	Research organizations	Breeders' associations or cooperatives	Individual breeders/livestock keepers	National commercial companies	External commercial companies	Non-governmental organizations	Others
Setting breeding goals	none	medium	high	medium	none	none	none	none
Animal identification	high	none	none	medium	none	none	none	medium
Recording	low	low	low	medium	none	none	none	medium
Provision of artificial insemination services	none	none	none	medium	none	none	none	none
Genetic evaluation	none	high	none	none	none	none	none	none

Cattle (multipurpose)	Government	Research organizations	Breeders' associations or cooperatives	Individual breeders/livestock keepers	National commercial companies	External commercial companies	Non-governmental organizations	Others
Setting breeding goals	none	medium	high	medium	none	none	none	none
Animal identification	high	none	none	medium	none	none	none	medium
Recording	low	low	low	medium	none	none	none	medium
Provision of artificial insemination services	none	none	none	medium	none	none	none	none
Genetic evaluation	none	high	none	none	none	none	none	none

Sheep	Government	Research organizations	Breeders' associations or cooperatives	Individual breeders/livestock keepers	National commercial companies	External commercial companies	Non-governmental organizations	Others
Setting breeding goals	none	medium	high	medium	none	none	none	none
Animal identification	high	none	none	medium	none	none	none	medium
Recording	low	low	low	medium	none	none	none	medium
Provision of artificial insemination services	none	none	none	medium	none	none	none	none
Genetic evaluation	none	high	none	none	none	none	none	none

Goats	Government	Research organizations	Breeders' associations or cooperatives	Individual breeders/livestock keepers	National commercial companies	External commercial companies	Non-governmental organizations	Others
Setting breeding goals	none	medium	high	medium	none	none	none	none
Animal identification	high	none	none	medium	none	none	none	medium
Recording	none	low	low	medium	none	none	none	medium
Provision of artificial insemination services	none	none	none	medium	none	none	none	none
Genetic evaluation	none	high	none	none	none	none	none	none

Pigs	Government	Research organizations	Breeders' associations or cooperatives	Individual breeders/livestock keepers	National commercial companies	External commercial companies	Non-governmental organizations	Others
Setting breeding goals	none	medium	high	none	none	none	none	none
Animal identification	high	none	medium	none	none	none	none	high
Recording	low	none	medium	medium	none	none	none	high
Provision of artificial insemination services	none	none	none	none	none	none	none	high
Genetic evaluation	none	high	none	none	none	none	none	none

Chickens	Government	Research organizations	Breeders' associations or cooperatives	Individual breeders/livestock keepers	National commercial companies	External commercial companies	Non-governmental organizations	Others
Setting breeding goals	none	none	none	none	none	none	none	none
Animal identification	none	none	none	none	none	none	none	none
Recording	none	none	none	none	none	none	none	none
Provision of artificial insemination services	none	none	none	none	none	none	none	none
Genetic evaluation	none	none	none	none	none	none	none	none

Horses	Government	Research organizations	Breeders' associations or cooperatives	Individual breeders/livestock keepers	National commercial companies	External commercial companies	Non-governmental organizations	Others
Setting breeding goals	none	medium	high	none	none	none	none	none
Animal identification	high	none	medium	none	none	none	none	none
Recording	low	low	medium	medium	none	none	none	none
Provision of artificial insemination services	none	none	none	none	none	none	none	none
Genetic evaluation	none	high	none	none	none	none	none	none

15.1. If you choose the option "others", please indicate what kind of operator(s) this refers to.

Agriculture Chamber. The level of involvement of various stakeholders is the same for all breeding programmes, since all breeding programmes are included in the "Joint basic breed programme", which is financed by the government. "Joint basic breed programme" is regulated by the Livestock breeding act: "With a view to ensuring the genetic variability and general improvement of livestock breeding and with a view to preserving the required number of breeding animals and other breeding materials, the Republic of Slovenia shall have a joint basic breed programme, laying down the certified breed programmes which shall be implemented as the public service for technical tasks in livestock breeding, as well as the funds for the implementation of those programmes."

15.2. Please provide further information on the roles that the stakeholders identified in the table play in the implementation of the various activities. If relevant, please also provide further information on the organizational roles played by the stakeholders identified in Question 10.

For ensuring genetic variation and the overall progress of livestock sector and in order to maintain the required number of breeding animals and other breeding material, Slovenia establish basic common breeding program for all livestock species, which are carried out as a public service and financed by the Ministry.
Minister on the basis of the expert opinion will confirm breeding programs in basic common breeding programmes. Breeding organizations in cooperation with research institutions are responsible for breeding programs. Breeders are included and participate in the breeding program. One part of the tasks from the breeding programme is carried out by the Agriculture chamber.

16. Does your country implement any policies or programmes aimed at supporting breeding programmes or influencing their objectives?

Species	Policies or programmes
Cattle (specialized dairy)	yes
Cattle (specialized beef)	yes
Cattle (multipurpose)	yes
Sheep	yes
Goats	yes

Species	Policies or programmes
Pigs	yes
Chickens	yes
Horses	yes

16.1. Please describe these policies or programmes, indicating whether or not they include any measures specifically aimed at supporting breeding programmes for locally adapted breeds or any measures specifically aimed at supporting breeding programmes for exotic breeds (including breed-replacement programmes). Please indicate whether different types of programme are promoted in different production systems (and describe the differences).

Species	Description of policies or programmes
Cattle (specialized dairy)	The following tasks are specified in the breeding programmes: traceability is ensured, breeding methods and selection programmes, different traits recording, calculation of genetic value, exchanging the genetic material, development and research tasks, effectiveness of the programme implementation, efficient breeding, genetic improvement and quality of animal products, planed reproduction and preventing of inbreeding.
Cattle (specialized beef)	The following tasks are specified in the breeding programmes: traceability is ensured, breeding methods and selection programmes, different traits recording, calculation of genetic value, exchanging the genetic material, development and research tasks, effectiveness of the programme implementation, efficient breeding, genetic improvement and quality of animal products, planed reproduction and preventing of inbreeding.
Cattle (multipurpose)	The following tasks are specified in the breeding programmes: traceability is ensured, breeding methods and selection programmes, different traits recording, calculation of genetic value, exchanging the genetic material, development and research tasks, effectiveness of the programme implementation, efficient breeding, genetic improvement and quality of animal products, planed reproduction and preventing of inbreeding.
Sheep	The following tasks are specified in the breeding programmes: traceability is ensured, breeding methods and selection programmes, different traits recording, calculation of genetic value, exchanging the genetic material, development and research tasks, effectiveness of the programme implementation, efficient breeding, genetic improvement and quality of animal products, planed reproduction and preventing of inbreeding.
Goats	The following tasks are specified in the breeding programmes: traceability is ensured, breeding methods and selection programmes, different traits recording, calculation of genetic value, exchanging the genetic material, development and research tasks, effectiveness of the programme implementation, efficient breeding, genetic improvement and quality of animal products, planed reproduction and preventing of inbreeding.
Pigs	The following tasks are specified in the breeding programmes: traceability is ensured, breeding methods and selection programmes, different traits recording, calculation of genetic value, exchanging the genetic material, development and research tasks, effectiveness of the programme implementation, efficient breeding, genetic improvement and quality of animal products, planed reproduction and preventing of inbreeding.
Chickens	The following tasks are specified in the breeding programmes: traceability is ensured, breeding methods and selection programmes, different traits recording, calculation of genetic value, exchanging the genetic material, development and research tasks, effectiveness of the programme implementation, efficient breeding, genetic improvement and quality of animal products, planed reproduction and preventing of inbreeding.
Horses	The following tasks are specified in the breeding programmes: traceability is ensured, breeding methods and selection programmes, different traits recording, calculation of genetic value, exchanging the genetic material, development and research tasks, effectiveness of the programme implementation, efficient breeding, genetic improvement and quality of animal products, planed reproduction and preventing of inbreeding.

17. Please describe the consequences of your country's breeding policies and programmes, or lack of breeding policies and programmes, for your country's animal genetic resources and their management.

Species	Description of consequences
Cattle (specialized dairy)	
Cattle (specialized beef)	
Cattle (multipurpose)	These programmes help to manage breeds as self sustaining populations whilst maintaining genetic diversity. This is important for breeds that are endangered and provides an "insurance" population. Breeding programs maintain breed specific traits and limit inbreeding. Due to the lack of funding all tasks are not carried out.
Sheep	These programmes help to manage breeds as self sustaining populations whilst maintaining genetic diversity. This is important for breeds that are endangered and provides an "insurance" population. Breeding programs maintain breed specific traits and limit inbreeding.
Goats	These programmes help to manage breeds as self sustaining populations whilst maintaining genetic diversity. This is important for breeds that are endangered and provides an "insurance" population. Breeding programs maintain breed specific traits and limit inbreeding.
Pigs	These programmes help to manage breeds as self sustaining populations whilst maintaining genetic diversity. This is important for breeds that are endangered and provides an "insurance" population. Breeding programs maintain breed specific traits and limit inbreeding.
Chickens	These programmes help to manage breeds as self sustaining populations whilst maintaining genetic diversity. This is important for breeds that are endangered and provides an "insurance" population. Breeding programs maintain breed specific traits and limit inbreeding.
Horses	These programmes help to manage breeds as self sustaining populations whilst maintaining genetic diversity. This is important for breeds that are endangered and provides an "insurance" population. Breeding programs maintain breed specific traits and limit inbreeding.

18. Please describe the main constraints to the implementation of breeding programmes in your country and what needs to be done to address these constraints. You may also provide information on any particular successes achieved in your country with respect to the establishment and operation of breeding programmes and on the factors that have contributed to these successes.

Main constraints to the implementation of breeding programmes are as follows: population size of some breeds is too low, lack of breeding awareness, low level of knowledge (breeders) … According to the natural conditions in Slovenia more emphasis should be given to the organic animal husbandry.

19. Please describe future objectives, priorities and plans for the establishment or further development of breeding programmes in your country.

Species	Description of future objectives, priorities and plans
Cattle (specialized dairy)	Use of genomics data for different purposes (pedigree, inbriding, production data ...)
Cattle (specialized beef)	Use of genomics data for different purposes (pedigree, inbriding, production data ...)
Cattle (multipurpose)	Use of genomics data for different purposes (pedigree, inbriding, production data ...)
Sheep	Use of genomics data for different purposes (pedigree, inbriding, production data ...)
Goats	Use of genomics data for different purposes (pedigree, inbriding, production data ...)
Pigs	Use of genomics data for different purposes (pedigree, inbriding, production data ...)
Chickens	-

Species	Description of future objectives, priorities and plans
Horses	Use of genomics data for different purposes (pedigree, inbriding, production data ...)

CONSERVATION

To provide further details of your country's activities in the field of conservation, please go to Strategic Priority Area 3 of the "Progress report on the implementation of the Global Plan of Action for Animal Genetic Resources 2007–2013" (below).

20. Please provide an indication of the extent to which your country's breeds are covered by conservation programmes.

Please focus on at-risk breeds and breeds for which there are serious grounds for concern about their potential to fall into the at-risk category in the near future. Countries should not reduce their scores because of a lack of conservation programmes for breeds that are clearly not at risk. The main purpose of this question is to obtain an indication of the extent to which your country's conservation programmes meet the objective of protecting breeds from extinction. If your country has no official national criteria for classifying breed risk status or lacks the relevant data for identifying which breeds are at risk, please base your answers on estimations. Please also note that Question 8 of the "Progress report on the implementation of the Global Plan of Action for Animal Genetic Resources – 2007 to 2013" (below) requests countries to provide information on the criteria they use to assess the risk status of animal genetic resources.

Note: n/a = no programmes implemented because all breeds of this species present in the country are secure.

Species	In situ conservation	Ex situ in vivo conservation	Ex situ in vitro conservation
Cattle (specialized dairy)	none	none	none
Cattle (specialized beef)	none	none	none
Cattle (multipurpose)	medium	medium	medium
Sheep	high	high	high
Goats	low	low	low
Pigs	low	low	low
Chickens	low	low	low
Horses	high	medium	low

21. Does your country use formal approaches to prioritize breeds for conservation?

- (•) yes
- ( ) no

21.1. If so, which of the following factors are considered?

Note: See Sections 2 and 3 of the FAO guidelines In vivo conservation of animal genetic resources (http://www.fao.org/docrep/018/i3327e/i3327e.pdf).

	Considered in formal prioritization approaches
Risk of extinction	yes
Genetic uniqueness	yes
Genetic variation within the breed	yes
Production traits	yes
Non-production traits	yes
Cultural or historical importance	yes
Probability of success	no

22. Please indicate which of the following methods are used as elements of in situ conservation programmes in your country and which operators are managing them.

Note: Operators: the sector(s) that initiate(s) and manage(s) the respective activities. If both sectors undertake the respective activity, please answer "yes" in both rows. Please answer "yes" if the respective sector only works with some of the species targeted. If necessary, details of which sector addresses which species can be provided in the textual response. Information on what kinds of public- or private-sector organizations undertake the activities can also be provided, if necessary, in the textual response. Species targeted: Please answer "yes" if there are any such activities targeting the respective species, whether they are undertaken by the public sector, private sector or both.

Operators / Species targeted	Promotion of niche marketing or other market differentiation	Community-based conservation programmes	Incentive or subsidy payment schemes for keeping at-risk breeds	Development of biocultural community protocols	Recognition/award programmes for breeders	Conservation breeding programmes	Selection programmes for increased production or productivity in at-risk breeds	Promotion of at-risk breeds as tourist attractions	Use of at-risk breeds in the management of wildlife habitats and landscapes	Promotion of breed-related cultural activities	Extension programmes to improve the management of at-risk breeds	Awareness-raising activities providing information on the potential of specific at-risk breeds
Public sector	yes	yes	yes	no	no	yes	yes	yes	yes	yes	yes	yes
Private sector	yes	yes	no	no	no	no	no	yes	no	yes	no	yes
Cattle (specialized dairy)	yes	no	no	no	no	yes	no	yes	no	no	no	no
Cattle (specialized beef)	no	no	no	no	no	yes	no	no	no	no	no	no
Cattle (multipurpose)	yes	yes	yes	no	no	yes	no	yes	no	yes	yes	yes
Sheep	yes	yes	yes	no	no	yes	yes	yes	yes	yes	yes	yes
Goats	yes	yes	yes	no	no	yes	yes	yes	no	yes	yes	yes
Pigs	yes	yes	yes	no	no	yes	yes	yes	no	yes	yes	yes
Chickens	yes	no	yes	no	no	yes	yes	yes	no	yes	yes	yes
Horses	yes	yes	yes	no	no	yes	yes	yes	no	yes	yes	yes

22.1. Please provide further details of the activities recorded in the table and any other in situ conservation activities or programmes being implemented in your country.

Slovenia is a country of a great biodiversity as much for its tradition and customs which is also reflected in the variety of local and traditional agricultural products and foodstuffs. Promotion of niche marketing is increased by autochthonous breeds (local markets ...). In Slovenia there are four quality schemes which enable the protection of agricultural products and foodstuffs: Protected designation of origin, Protected geographical indication, Traditional speciality guaranteed and Designation of higher quality. Up today there are 19 Slovenian products protected on the level of EU. Further activities for enhancing value through ties to geographical origin or cultural significance are necessary. Population size of Slovenian autochthonous breeds of individual species is relatively small. Therefore, only by using of small numerous breeds can be reach their sustainable development. One factor that can be important for marketing is the uniqueness of the product, particularly with respect to its place of origin (regional foods with strong historical identities).
Subsidy payment schemes under livestock keepers receive payment from government are in the framework of rural programs and in the framework of the "de minimise" (payment for breeding males and their mothers). Breeding programmes put special emphasis on conservation and substantial use of small numerous autochthonous breeds.

23. Does your country have an operational in vitro gene bank for animal genetic resources?

In vitro gene bank: a collection of documented cryoconserved genetic material, primarily stored for the purpose of medium- to long-term conservation, with agreed protocols and procedures for acquisition and use of the genetic material.

- (●) yes
- ( ) no

23.1. If your country has no in vitro gene bank for animal genetic resources, does it have plans to develop one?

- ( ) yes
- ( ) no

23.2. If yes, please describe the plans.

24. If your country has an in vitro gene bank for animal genetic resources, please indicate what kind of material is stored there.

	Stored in national genebank
Semen	yes
Embryos	no
Oocytes	no
Somatic cells (tissue or cultured cells)	yes
Isolated DNA	yes

25. If your country has an in vitro gene bank for animal genetic resources, please complete the following table.

Species	Number of breeds for which material is stored	Number of breeds for which sufficient material is stored	Does the collection include material from not-at-risk breeds?	Have any extinct populations been reconstituted using material from the gene bank?	Have the gene bank collections been used to introduce genetic variability into an in situ population?	Have the gene bank collections been used to introduce genetic variability into an ex situ population?	Do livestock keepers or breeders' associations participate in the planning of the gene banking activities?
Cattle (specialized dairy)	0	0	no	no	no	no	no
Cattle (specialized beef)	0	0	no	no	no	no	no
Cattle (multipurpose)	3	0	yes	no	no	no	yes
Sheep	4	0	yes	no	no	no	yes
Goats	1	0	no	no	no	no	yes

Species	Number of breeds for which material is stored	Number of breeds for which sufficient material is stored	Does the collection include material from not-at-risk breeds?	Have any extinct populations been reconstituted using material from the gene bank?	Have the gene bank collections been used to introduce genetic variability into an in situ population?	Have the gene bank collections been used to introduce genetic variability into an ex situ population?	Do livestock keepers or breeders' associations participate in the planning of the gene banking activities?
Pigs	5	0	yes	no	no	no	no
Chickens	1	0	no	no	no	no	no
Horses	6	0	yes	no	no	no	yes

25.1. Please provide further details of the activities recorded in the table (including any examples of the use of gene bank material to reconstitute populations or introduce genetic variability) and any other in vitro conservation activities or programmes being implemented in your country.

Extension programme to *in vitro* conservation; gene bank should be also included the following stored material: emryos, oocytes, somatic cells …. For breed reconstitution, embryos take precedence over semen so that they allow the recovery of the entire genome - the reconstitution can be accomplished in a single generation.

26. Does your country have plans to enter into collaboration with other countries to set up a regional or subregional in vitro gene bank for animal genetic resources?

- ○ yes
- ◉ no

26.1. If yes, please describe the plans, including a list of the countries involved.

27. If there have been any cases in your country in which breeds that were formerly classified as at risk of extinction have recovered to a position in which they are no longer at risk, please list the breeds and describe how the recovery was achieved.

Krškopolje pig - in 2003 population number was very low - 320, with the help of Sattelschwein breed population was recovered and the population number today is 1124 and still classified as endangered breed.
Bela Krajina Pramenka sheep breed - in the past breed was prohibited, rams were hidden from official inspectors. Thanks to the small breeders, who were hiding the animals in remaining animals were found. Today, breed is still classified as endangered breed.
Drežnica goat - in the past, breeding of goats was prohibited. Today the breed is still very endangered.
Cika cattle - in the past Cika cattle was cross-bred with other breeds. When the conservation programme was establish, the first registered population in 2003 was 1350 while in 2013 population raised up to 3097.

REPRODUCTIVE AND MOLECULAR BIOTECHNOLOGIES

28. Please indicate the level of availability of reproductive and molecular biotechnologies for use in livestock production in your country.

Note: low = at experimental level only; medium = available to livestock keepers in some locations or production systems; high = widely available to livestock keepers.

Species	Biotechnologies								
	Artificial insemination	Embryo transfer	Multiple ovulation and embryo transfer	Semen sexing	In vitro fertilization	Cloning	Genetic modification	Molecular genetic or genomic information	Transplantation of gonadal tissue
Cattle (specialized dairy)	high	low	none	none	none	none	none	low	none
Cattle (specialized beef)	high	none	none	none	none	none	none	none	none
Cattle (multipurpose)	high	none	none	none	none	none	none	low	none
Sheep	none	none	none	none	none	none	none	none	none
Goats	low	none	none	none	none	none	none	none	none
Pigs	medium	none	none	none	none	none	none	none	none
Horses	low	none	none	none	none	none	none	none	none

28.1. Please provide additional information on the use of these biotechnologies in your country.

Only use cattle insemination

29. If the reproductive and/or molecular technologies are available for use by livestock keepers in your country, please indicate which stakeholders are involved in providing the respective services to the livestock keepers.

	Stakeholders					
	Public sector	Breeders' associations or cooperatives	National non-governmental organizations	Donors and development agencies	National commercial companies	External commercial companies
Artificial insemination	no	no	no	no	yes	yes
Embryo transfer	no	no	no	no	no	no

29.1. Please provide additional information on the roles that the providers identified in the table play in the provision of biotechnology services in your country.

Artificial insemination is regulated by the Livestock breeding Act and provided by the Insemination centres, approved by the Ministry. AI centres are part of the Agriculture chamber, which is financed by the public sector, breeders fees and services performed at the market (Artificial insemination).

30. Please indicate which biotechnologies your country is undertaking research on.

Biotechnologies	Public or private research at national level	Research undertaken as part of international collaboration
Artificial insemination	yes	yes
Embryo transfer or MOET	no	yes
Semen sexing	no	no
In vitro fertilization	no	yes
Cloning	no	no
Genetic modification	no	no
Use of molecular genetic or genomic information for estimation of genetic diversity	yes	yes
Use of molecular genetic or genomic information for prediction of breeding values	yes	yes
Research on adaptedness based on molecular genetic or genomic information	yes	yes

30.1. Please briefly describe the research.

Veterinary Faculty is performing the research in the field of artificial insemination and included into international research and studies in the field of cattle, horse, pigs and sheep breeding.

31. Please estimate the extent to which artificial insemination (using semen from exotic and/or locally adapted breeds) and/or natural mating is used in your country's various production systems.

Note: low = approximately <33% of matings; medium = approximately 33–67% of matings; high = approximately >67% of mating; n/a = production system not present in this country.

Cattle (specialized dairy)	Ranching or similar grassland -based production systems	Pastoralist systems	Mixed farming systems (rural areas)	Industrial systems	Small-scale urban or peri-urban systems
Artificial insemination using semen from locally adapted breeds	n/a	n/a	high	high	high
Artificial insemination using nationally produced semen from exotic breeds	n/a	n/a	low	low	none
Artificial insemination using imported semen from exotic breeds	n/a	n/a	low	low	none
Natural mating	n/a	n/a	low	low	low

Cattle (specialized beef)	Ranching or similar grassland -based production systems	Pastoralist systems	Mixed farming systems (rural areas)	Industrial systems	Small-scale urban or peri-urban systems
Artificial insemination using semen from locally adapted breeds	n/a	n/a	medium	none	medium
Artificial insemination using nationally produced semen from exotic breeds	n/a	n/a	medium	none	none
Artificial insemination using imported semen from exotic breeds	n/a	n/a	low	none	none
Natural mating	n/a	n/a	low	none	high

Cattle (multipurpose)	Ranching or similar grassland -based production systems	Pastoralist systems	Mixed farming systems (rural areas)	Industrial systems	Small-scale urban or peri-urban systems
Artificial insemination using semen from locally adapted breeds	n/a	n/a	high	high	high
Artificial insemination using nationally produced semen from exotic breeds	n/a	n/a	low	low	low
Artificial insemination using imported semen from exotic breeds	n/a	n/a	low	low	low
Natural mating	n/a	n/a	low	low	low

Sheep	Ranching or similar grassland -based production systems	Pastoralist systems	Mixed farming systems (rural areas)	Industrial systems	Small-scale urban or peri-urban systems
Artificial insemination using semen from locally adapted breeds	n/a	n/a	n/a	n/a	none
Artificial insemination using nationally produced semen from exotic breeds	n/a	n/a	n/a	n/a	none
Artificial insemination using imported semen from exotic breeds	n/a	n/a	n/a	n/a	none
Natural mating	n/a	n/a	high	n/a	none

Goats	Ranching or similar grassland -based production systems	Pastoralist systems	Mixed farming systems (rural areas)	Industrial systems	Small-scale urban or peri-urban systems
Artificial insemination using semen from locally adapted breeds	n/a	n/a	n/a	n/a	n/a
Artificial insemination using nationally produced semen from exotic breeds	n/a	n/a	n/a	n/a	n/a
Artificial insemination using imported semen from exotic breeds	n/a	n/a	n/a	n/a	n/a
Natural mating	n/a	n/a	high	n/a	n/a

Pigs	Ranching or similar grassland -based production systems	Pastoralist systems	Mixed farming systems (rural areas)	Industrial systems	Small-scale urban or peri-urban systems
Artificial insemination using semen from locally adapted breeds	n/a	n/a	n/a	high	medium
Artificial insemination using nationally produced semen from exotic breeds	n/a	n/a	n/a	medium	medium
Artificial insemination using imported semen from exotic breeds	n/a	n/a	n/a	low	n/a
Natural mating	n/a	n/a	n/a	n/a	medium

32. 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. You may also provide information on any particular successes achieved in your country in the use of biotechnologies in animal genetic resources management and on the factors that have contributed to these successes.

Usually constrains for implementing those activities are connected financial constrains, no research has been done on

the success of the artificial insemination, problems are connected with the providing of the unrelated sires for all dams in the herd.

III. DATA CONTRIBUTING TO THE PREPARATION OF *THE STATE OF THE WORLD'S BIODIVERSITY FOR FOOD AND AGRICULTURE*

INTEGRATION OF THE MANAGEMENT OF ANIMAL GENETIC RESOURCES WITH THE MANAGEMENT OF PLANT, FORESTRY AND AQUATIC GENETIC RESOURCES

1. Please indicate the extent to which the management of animal genetic resources in your country is integrated with the management of plant, forestry and aquatic genetic resources. Please describe the collaboration, including, if relevant, a description of the benefits gained by pursuing a collaborative approach.

	Extent of collaboration	Description
Development of joint national strategies or action plans	none	
Collaboration in the characterization, surveying or monitoring of genetic resources, production environments or ecosystems	none	
Collaboration related to genetic improvement	none	
Collaboration related to product development and/or marketing	none	
Collaboration in conservation strategies, programmes or projects	none	
Collaboration in awareness-raising on the roles and values of genetic resources	none	
Training activities and/or educational curricula that address genetic resources in an integrated manner	none	
Collaboration in the mobilization of resources for the management of genetic resources	none	

2. Please describe any other types of collaboration.

3. If relevant, please describe the benefits that could be achieved by strengthening collaboration in the management of genetic resources in the animal, plant, forest and aquatic sectors in your country. If specific plans to increase collaboration are in place, please describe them and the benefits foreseen

4. Please describe any factors that facilitate or constrain collaborative approaches to the management of genetic resources in your country.

5. If there are constraints, please indicate what needs to be done to overcome them.

ANIMAL GENETIC RESOURCES MANAGEMENT AND THE PROVISION OF REGULATING AND SUPPORTING ECOSYSTEM SERVICES

6. Do your country's policies, plans or strategies for animal genetic resources management include measures specifically addressing the roles of livestock in the provision of regulating ecosystem services and/or supporting ecosystem services?

Regulating ecosystem services: "Benefits obtained from the regulation of ecosystem processes" – Millennium Ecosystem Assessment. 2005. Ecosystems and human well-being: synthesis. Washington D.C., Island Press (available at http://millenniumassessment.org/documents/document.356.aspx.pdf), page 40. Supporting ecosystem services: "Services necessary for the production of all other ecosystem services" – Millennium Ecosystem Assessment. 2005. Ecosystems and human well-being: synthesis. Washington D.C., Island Press (available at http://millenniumassessment.org/documents/document.356.aspx.pdf), page 40.

- ○ yes
- ◉ no

6.1. If yes, please describe these measures and indicate which supporting and/or regulating ecosystem services are targeted, and in which production systems.

Examples of supporting and regulatory ecosystem services provided by livestock might include the following: provision or maintenance of wildlife habitats (e.g. via grazing); seed dispersal (e.g. in dung or on animals' coats); promoting plant growth (e.g. stimulating growth via grazing or browsing); soil formation (e.g. via the supply of manure); soil nutrient cycling (e.g. via supply of manure); soil quality regulation (e.g. affecting soil structure and water-holding capacity via trampling or dunging); control of weeds and invasive species (e.g. via grazing or browsing invasive plants); climate regulation (e.g. by promoting carbon sequestration through dunging); enhancing pollination levels (e.g. by creating habitats for pollinators); fire control (e.g. by removal of biomass that may fuel fires); avalanche control (e.g. grazing to keep vegetation short to reduce the probability that snow will slide); erosion regulation (e.g. indirect via fire control services); maintenance of water quality and quantity (e.g. indirect effect via erosion control); management of crop residues (e.g. consumption of unwanted crop residues by animals); pest regulation (e.g. by destruction of pests or pest habitats); disease regulation (e.g. by destruction of disease vectors or their habitats); buffering of water quantities – flood regulation (e.g. indirect effect via fire and erosion control).

6.1.1 Please describe what the outcome of these measures has been in terms of the supply of the respective ecosystem services (including an indication of the scale on which these outcomes have been obtained).

6.1.2 Please describe what the outcome of these measures has been in terms of the state of animal genetic resources and their management (including an indication of the scale on which these outcomes have been obtained).

7. Do your country's policies, plans or strategies for animal genetic resources management include measures specifically addressing environmental problems associated with livestock production?

Examples might include choosing to use particular species or breeds because they are less environmentally damaging in a given ecosystem or adapting breeding goals to produce animals that have some characteristic that makes them more environmentally friendly.

- ○ yes
- ◉ no

7.1. If yes, please describe these measures and indicate the environmental problems that are targeted, and in which production systems.

7.1.1 Please describe what the outcome of these measures has been in terms of the reduction of the respective environmental problem (including an indication of the scale on which these outcomes have been obtained).

7.1.2 Please describe what the outcome of these measures has been in terms of the state of animal genetic resources and their management (including an indication of the scale on which these outcomes have been obtained).

8. Please describe any constraints or problems encountered or foreseen in the implementation of measures in your country aimed at promoting the provision of regulating and supporting ecosystem services or reducing environmental problems.

9. Please provide examples of cases in which the role of livestock or specific animal genetic resources is particularly important in the provision of regulating and/or supporting ecosystem services in your country. Please also describe any examples in which diverse animal genetic resources are important in terms of reducing the adverse environmental effects of livestock production.

Case of Bela Krajina Pramenka sheep - the region of Bela Krajina has 5544 ha of land in the process of overgrowing and this represents 36.6% among the agricultural land in the region. From the ecological point of view, vulnerability of environment is increasing with land abandonment, which can be easily affected with fires. Grazing the sheep in the region is preventing overgrowing, soil erosion and vulnerability of agroecosystem.
The second example is Istrian Pramenka sheep, which is grazing in the Karst Plateau, which is limestone borderline plateau region extending in southwestern Slovenia. References from different authors, when analyze the influence of sheep grazing on calcareous grasslands in Slovenia showed, that grazing on the herbaceous and even woody vegetation showed, to be effective tool in preventing bush encroachment, controlling the grassland and forest fires as they remove the excess of dry herbaceous biomass.
The grazing area for Cika cattle is mostly located on Bohinj mountains and mountains above Kamnik. Grazing activities on the mountain pastures characterize landscapes of particular beauty and rich of biodiversity, prevent mountains from overgrowing and abandonment, however little scientific evidences are published and almost no research has been done in Slovenia.

10. Please describe the potential steps that could be taken in your country to further expand or strengthen positive links between animal genetic resources management and the provision of regulating and/or supporting ecosystem services or the reduction of environmental problems. If your country has specific plans to take further action in this field, please describe them.

Policies and programmes of the conservation should include the agro-ecosystem approach for conservation.

11. Please provide any further information on the links between animal genetic resources management in your country and the provision of supporting and/or regulating ecosystem services and/or the reduction of environmental problems.

IV. PROGRESS REPORT ON THE IMPLEMENTATION OF THE *GLOBAL PLAN OF ACTION FOR ANIMAL GENETIC RESOURCES* – 2007 TO 2013

Note: Please provide further details in the text boxes below each question, including, if relevant, information on why no action has been taken.

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:

As directed in the Regulation of conservation of farm animal genetic resources characterization, inventory and monitoring of trends are regular task of work on AnGR. On the yearly basis data regarding the population size, location, risk status, phenotypic characteristics, geographical distribution within the country, in situ and ex situ conservation (number of pure breed animals), inclusion in the breeding programme, genetic and zootechnical assessment and necessary actions are monitored. For all the breeds included in the breeding programmes the monitoring can be done through the herd book data.

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:

Phenotypic characterization studies covering morphology and performance are part of the breeding programme, recognized for all breeds.

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:

Some research has been done on molecular characterization of Cika cattle, Carniolan honey bee and few sheep breeds. Constrains are lack of financial support due to the expensive technology and laboratory work and comparable population of the same species.

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:

Baseline survey for the livestock is done by the statistical office of Slovenia every 10 years. Characterization, inventory and monitoring of trends in Slovenia AnGR are included in the “Register of breeds with zootechnical assessment”. The data from the register are used to monitor trends in population numbers and therefore to took all necessary steps for determine conservation activities.

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:

Institutional responsibilities are laid down in Livestock Breeding Act and Rules on preserving biodiversity in livestock breeding.

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:

As directed in the Regulation of conservation of farm animal genetic resources characterization, inventory and monitoring of trends are regular task of work on AnGR. On the yearly basis data regarding the population size, location, risk status, phenotypic characteristics, geographical distribution within the country, in situ and ex situ conservation (number of pure breed animals), inclusion in the breeding programme, genetic and zootechnical assessment and

necessary actions are monitored. For all the breeds included in the breeding programmes the monitoring can be done through the herd book data.

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:

Register with zootechnical assessment is completed once per year on regular basis for all species of economic importance. Population trends are therefore assessed on regular basis.

8. Which criteria does 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

Please provide further details. If applicable, please describe (or provide a link to a web site that describes) your national criteria or those of the respective international body:

Criteria for assessing the risk status of the breed are based on the number of pure-breed females included in the Herd book (http://www.uradni-list.si/files/RS_-2004-090-04111-OB~P002-0000.PDF#!/pdf).

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:

National monitoring and early warning and response system for breeds of livestock are included in the framework of Rules on preserving biodiversity in livestock breeding which provides measures in the case of the rapid erosion and loss of animal genetic resources for food and agriculture.

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:

Phenotypic characterization is prescribed in the breeding programmes for all economic important breeds. Research on molecular characterization is in progress.

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.

Please provide further details. If barriers and obstacles have been identified, please list them:

Barriers exist for the farmers, who has less than 10 animals. Those farmers are not included in the national inventory, however they are custodian of keeping autochthonous breeds.

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

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)

Note: It is not necessary to duplicate information provided in previous sections. Where relevant, please provide cross-references.

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 further details. If available, please provide the text of the policies or a web link to the text:

In the resolution of agriculture development one of the main goals of the development is protection of biodiversity and other relevant policies for sustainable development. Within those policies working goal is to maintain production of

indigenous and traditional varieties of crops and breeding of indigenous and traditional breeds of farm animals and strengthening the marketing of products derived from them.
Documents: Resolution on the strategic direction of the development of Slovenian agriculture and food industry in 2020 - "Securing the food for tomorrow" (http://www.uradni-list.si/1/objava.jsp?urlid=201125&stevilka=1096, 4.4.2011), Rural development programme 2007-2013; 2014-2020 (link above)

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 breeding programmes exist in your country for all major species and breeds, 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, since before the adoption of the GPA
- ○ b. Yes, 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 details:

Breeding programs for all breeds of farms animals are officially adopted by ministry of agriculture. Breeding programmes are reviewed every year by the Ministry of agriculture and every 5 year new breeding programmes are prepared.

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 details:

Long term sustainable use and breeding programmes are in placed for all major livestock species for 5 years, after that period the new breeding programme has to be establish and reviewed.

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.

Please provide further details. If barriers and obstacles have been identified, please list them:

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.

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

Please provide further details:

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

Please provide further details:

Recording systems and organizational structures of the breeding programs has been established with the Livestock Breeding Act and recognition of breeding programmes.

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

Please provide further details:

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)
- ( ) 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:

Access to AnGR has been regulated by the Livestock breeding act and establishment of the Breeding organizations.

23. Has your country developed a national policy or entered specific contractual agreements for access to and the equitable sharing of benefits resulting from the use and development of animal genetic resources and associated traditional knowledge (SP3, Action 2)?

- ( ) a. Yes, sufficient measures (policy and/or agreements) have been in place since before the adoption of the GPA
- ( ) b. Yes, sufficient measures (policy and/or agreements) are in place because of progress made since the adoption of the GPA
- ( ) c. Yes, some measures (policy and/or agreements) are in place (progress has been made since the adoption of the GPA)
- ( ) d. Yes, some measures (policy and/or agreements) are in place (but no progress has been made since the adoption of the GPA)
- ( ) e. No, but a policy and/or agreements are in preparation
- (●) f. No, but a policy and/or agreements are planned
- ( ) g. No

Please provide further details:

Development of the national strategies that incorporate the issues of Access and benefit sharing in the field of Animal genetic resources, their contribution to the sustainable use, including mechanisms to support wide access to and the fair and equitable sharing of benefits arising from the use of animal genetic resources is fundamental tasks of the agricultural policy next few years.

24. Have training and technical support programmes for the breeding activities of livestock-keepers 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

Please provide further details:

Training and technical support programmes for breeders are established and performed on the regular basis by the different institutions: national extension service, different institutions and universities.

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

Please provide further details:

By the Livestock breeding act education and training to meet the needs of livestock farming are carried out at:

- Agricultural vocational schools;
- Agricultural secondary schools;
- Agricultural colleges;
- Higher education institutions in the field of agriculture;
- Research organizations in the field of agriculture;
- Public Agricultural Extension Service;
- Other organizations for education and training programs which include topics from the fields of animal husbandry;
- Practical work can be carried out in the framework of recognized and approved organizations in livestock or agricultural holdings.

Providers of education and training are required to take into account new knowledge and achievements in research activities relevant to the development of livestock keeping and farming, the prescribed conditions for breeding.

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

Please provide further details:

Some efforts has been done by the responsible Ministry of agriculture.

27. Have efforts been made in your country to promote products derived from indigenous and local species and locally adapted 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

Please provide further details:

Measures within the Rural Development Programme are adding value to agricultural and forestry products. Supports are granted for investments in processing and marketing of agricultural and food products and the marketing of wood. Aim is to encourage the introduction of new products and effective marketing of products as well as modernization of production processes and improving environmental protection, hygiene and safety, stabilization of income in the processing and marketing. Promotion of the agricultural products is regulated within the Act on the promotion of agricultural and food products.

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

Measures within the Rural Development Programme are adding value to agricultural and forestry products. Supports are granted for investments in processing and marketing of agricultural and food products.

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)

Note: It is not necessary to duplicate information provided in previous sections. Where relevant, please provide cross-references.

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

Please provide further details:

The data from the Register of breeds with zootechnical assessment are used to monitor trends in population numbers and therefore to took all necessary steps for determine conservation activities. Factors leading to the erosion are assessed every few years.

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:

Cattle breeding - over the past decade conducted fairly intensive structural changes - reducing the number of farms and increasing the average number of animals per farms. Breeding of exotic breed named Black white cattle is increased while the number of traditional cattle breeds decreased as follows:
Brown cattle - in the period 2002-2013 the number of animals decreased for more than 50 %
Simmental cattle - in the period 2002-2013 the number of animals decreased about 30 %
The second driver of erosion of animal genetic resources by cattle is increasing of specialised breeds in the last ten years (HF) and increasing of crossbreed animals for meat production.
All purebreds populations decreased in the last ten years.

Pig breeding - during the years 2000 - 2007 the number of farms decreased for all size classes of less than 100 pigs, following the intensification of the economic situation in 2007 was a strong fall in the number of farms even in the larger size classes of pigs.
The number of population size of three traditional breeds extremely decreased as follows:
Slovenian large white pig: 4650 purebred animals in 2004 decreased on 484 purebred animals in 2013
Slovenian landrace 55: 550 purebred animals in 2004 decreased on 52 purebred animals in 2013
Slovenian landrace 11: 14000 purebred animals in 2004 decreased on 5022 purebred animals in 2013
Weaners for fattening and pig meat products are coming from the import.

32. Does your country have conservation policies and programmes in place to protect locally adapted breeds at risk in all important livestock species (SP 7, SP 8 and SP 9)?

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. Country requires no policies and programmes because all locally adapted breeds are secure
- ◉ b. Yes, comprehensive policies and programmes have been in place since before the adoption of the GPA
- ○ c. Yes, comprehensive policies and programmes exist because of progress made since the adoption of the GPA
- ○ d. For some species and breeds (coverage expanded since the adoption of the GPA)
- ○ e. For some species and breeds (coverage not expanded since the adoption of the GPA)
- ○ f. No, but action is planned and funding identified
- ○ g. No, but action is planned and funding is sought
- ○ h. No

Please provide further details:

Slovenia adapted Long term National Program for livestock biodiversity conservation valid from the 2010-2016, annual tasks are described in Yearly programme for farm animal genetic resources preservation.

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

Please provide further details:

The conservation programme for AnGR is evaluated and work reviewed on the yearly basis by the Council of Public service for AnGR. The Council gives its opinion to the annual program of protection and probably to the annual report on the results of the work performed and the major professional issues in the field of public service gene banks. The responsibilities of the Council are prescribed in The Regulation on method and conditions of implementing public services in animal husbandry.

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)?

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. Country requires no in situ conservation measures because all locally adapted breeds are secure
- ◉ b. Yes for all breeds
- ○ c. For some breeds (coverage expanded since the adoption of the GPA)
- ○ d. For some 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:

In situ conservation measures in the Regulation of conservation of farm animal genetic resources. Regulation provides

the range of individual conservation of indigenous and other breeds in the gene bank - in situ conservation. The basic criterion for determining the extent of gene banks (in situ conservation) and *in vivo*, is the number of females by type of class threat level "at risk ".

35. 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)?

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. Country requires no ex situ in vivo conservation measures because all locally adapted breeds are secure
- ○ b. Yes for all breeds
- ◉ c. For some breeds (coverage expanded since the adoption of the GPA)
- ○ d. For some 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:

Some Slovenian autochthonous breeds are not geographical limited only on one specific area (on origin area of their development - as was in the past) but they are distributed all over the country. Furthermore, all Slovenian autochthonous breeds are also kept in the ZOO, located in Ljubljana.

36. 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)?

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. Country requires no ex situ in vitro conservation measures because all locally adapted breeds are secure
- ○ b. Yes for all breeds
- ◉ c. For some breeds (coverage expanded since the adoption of the GPA)
- ○ d. For some 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:

As regulated by the rules Slovenian Gene Bank (*ex situ* conservation) and in vitro has been established for individual indigenous and other breeds that have a rating level of threat "endangered" or "critical" and in accordance Regulation of conservation of farm animal genetic resources. Cryoconserved material (semen) is by the contract stored in the IA centre and Veterinary faculty, as well at the Biotechnical faculty. Tissues (blood, hair) has been collected and stored at the Biotechnical faculty, Department for animal science.

37. 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:

38. If your country has not established any conservation programmes, is this a future priority?

- ○ a. Yes
- ◉ b. No

Please provide further details:

39. Has your country identified the major barriers and obstacles to enhancing the conservation of its animal genetic resources?

- ○ a. Country requires no conservation programmes because all animal genetic resources are secure
- ○ b. Yes
- ○ c. No
- ◉ d. No major barriers and obstacles exist. Comprehensive conservation programmes are in place

Please provide further details. If barriers and obstacles have been identified, please list them:

The conservation programme for AnGR is regulated by the Livestock breeding act and Regulation of conservation of farm animal genetic resources. Conservation programme is adopted by the Minister of agriculture for a period of 7 years. The programme includes the assessment of the facts and define the objectives and policies for conservation of all breeds of domestic animals bred in the territory of the Republic of Slovenia, with special emphasis being laid on the autochthonous breeds in the autochthonous environment, *in-situ* and *ex-situ* conservation of each breed of domestic animals, establishment and operation of gene banks in livestock breeding, fulfilment of international obligations, education and training in the field of conservation of biological diversity in livestock breeding, promotion of public awareness concerning the importance of conservation of biological diversity in livestock breeding, connection with other programmes in the field of agriculture.
The major gaps in the *ex situ* collections are that fair and equitable arrangements for storage, access and use of animal genetic resources are not agreed between all the stakeholders, procedures for replenishment of genetic material taken from gene banks are not specified.

40. 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?

- ○ a. Yes
- ○ b. No, but action is planned and funding identified
- ◉ c. No, but action is planned and funding is sought
- ○ d. No

Please provide further details:

Establishment an in vitro gene bank for animal genetic resources for material which is not yet included is planned.

41. 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

Please provide further details:

Livestock breeding act regulates the emergency management in the case of natural disaster. The act refered to: "In an emergency case or state of war, natural or other disasters that threaten the conservation of breeding material, which is necessary for providing the minimum reproduction of domestic animals, or there are threats on larger scale to the biodiversity of domestic animals in Slovenia, the Minister may impose breeders' organizations and breeders and and other recognized organizations authorized under this Act specific professional and other tasks to avoid such threats.

42. 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

Please provide further details:

The Republic of Slovenia provides and maintains genetic reserves for individual species, breeds and strains of domestic animals in the form of a minimum number of domestic animals, doses of semen, ova or embryos.
In order to preserve breeds or lines, in order to ensure sufficient production of animal products, breeding programs have to provide genetic variability of domestic animals. The responsible Minister therefore prescribe the extent of genetic reserves and the manner and procedure for the provision and maintenance of genetic reserves.
Use of genetic reserves (conserved genetic materials) of AnGR important for agriculture are constantly monitored and controlled by the Public service for Animal Genetic Preservation. Decision regarding extraction and use of genetic reserves is made by Council for animal genetic resources (established by the Regulation on Public service), which proposes the Minister of agriculture, which brings all necessary measures.

43. 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

Please provide further details. If yes, please briefly describe the research:

The area of ex situ conservation for some breeds is in progress while for some breeds needs research. In Slovenia methods and technologies are not standardized. Further research needs to be done and standardized methods and guidelines for their use, where necessary.

44. 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

Please provide further details:

Documentation and dissemination of knowledge, technologies and best practice are included in the Long term conservation programme for AnGR. National Focal Point is Public service for AnGR, which is promoting the values of AnGR and conservation at the different events. Yearly exhibition of the AnGR has been organized, data published on the web site, promotion of AnGR in various different media, organizing annual workshop on Biodiversity, different exhibitions and traditional events connected with the AnGR.

45. What are your country's priority requirements for enhancing conservation measures for animal genetic resources? Please list and describe them:

Strategic investment in the conservation of animal genetic resources, strengthen the national and international collaboration , promotion of agroecosystem conservation, promotion of the animal products and services from specific breeds, and keeping the population numbers above the threatened threshold. More emphasis should be put on

importance of local breeds in contributing to landscape management, vegetation control, and ecosystem sustainability, preventing the erosion of associated biodiversity.

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

Note: It is not necessary to duplicate information provided in previous sections. Where relevant, please provide cross-references.

Slovenia developed animal genetic resources conservation strategies and policies. All the actions and strategic plans includes the in *situ* and *ex situ* conservation.

STRATEGIC PRIORITY AREA 4: POLICIES, INSTITUTIONS AND CAPACITY-BUILDING IMPLEMENTATION AND FINANCING OF THE GLOBAL PLAN OF ACTION FOR ANIMAL GENETIC RESOURCES

- 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

47. Does your country have sufficient institutional capacity to support holistic planning of the livestock sector (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

Please provide further details:

48. 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 further details. If available, please provide a copy of your country's national strategy and action plan as a separate document or as a web link:

Long term National Program for livestock biodiversity conservation in Slovenia is valid from the 2010-2016 (http://www.genska-banka.si/strokovni-svet-jsngbz/program-varstva-biotske-raznovrstnosti-v-zivinoreji-2010-2016/), Yearly programme for farm animal genetic resources preservation is prepared and reviewed on yearly basis, Rural Development Programme is in the ending phase and new one is in the process of adoption.

49. 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

Please provide further details:

AnGR are integrated in the agricultural policies through the Livestock Breeding Act, Biodiversity Strategy in Slovenia, National Environmental Action Programme, Rural Development Programme. Conservation of the AnGR is responsibility of the state and responsible ministry. Biodiversity Strategy in Slovenia (http://www.dlib.si/details/URN:NBN:SI:DOC-MW620QKU/5.4.2001).

50. 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

Please provide further details. If available, please provide the text of the strategy, plan or policy or a web link to the text:

Biodiversity Strategy in Slovenia (http://www.dlib.si/details/URN:NBN:SI:DOC-MW620QKU/5.4.2001),
Rural Development Programme (http://www.arhiv.mkgp.gov.si/si/delovna_podrocja/program_razvoja_podezelja_2007_2013/vsebina_programa_razvoja_podezelja/program_razvoja_podezelja_prp_2007_2013rural_development_programme_rdp_2007_2013/).

51. 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

Please provide further details:

Characterization, inventory and monitoring of trends in Slovenia are performed with running the "Register of breeds with zootechnical assessment" and herdbooks. Register includes the following information about each breed by species: basic data (population size, location, risk status, phenotypic characteristics, geographical distribution within the country); in situ and ex situ conservation (number of pure breed animals); whereas data about breed is included in international database; breeding program (breeding goal, herd book, production characteristics, biological characteristics, breeding value), assessing genetic value of the breed; zootechnical assessment and actions (short-term and long-term actions). The data from the register are used to monitor trends in population numbers, and helps to perform all necessary steps for determine conservation activities. Once per year risk status of the breed is assessed.

52. 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

Please provide further details:

National data has been regularly updated by the Public service for AnGR, which is responsible for international collaboration.

53. 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

Please provide further details. If a National Advisory Committee has been established, please list its main functions:

Slovenia established a National Advisory Committee - Council for livestock production and Council for Animal genetic resources after 2008, when Regulation on method and conditions of implementing public services in animal husbandry was adopted.

54. 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

Please provide further details:

National Focal Point (Public service for AnGR) and other involved stakeholders are increasing strong collaboration between all the involved stakeholders in animal genetic resources, such as government agencies, networks and advisory committees.

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

- (●) 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

Please provide further details:

Activities carried out to promote awareness are included in the Long term conservation programme for AnGR. National Focal Point is Public service for AnGR, which is promoting the values of AnGR at the different events. Yearly exhibition of the AnGR has been organized, data published on the web site, promotion of AnGR in various different media, organizing annual workshop on Biodiversity, different exhibitions and traditional events connected with the AnGR.

56. Does your country have national policies and legal frameworks for animal genetic resources management (SP 20)?

- (●) a. Yes, comprehensive national policies and legal frameworks were in place before the adoption of the GPA and are kept up to date
- ( ) b. Yes, comprehensive and up-to-date national policies and legal frameworks in place because of progress made since the adoption of the GPA
- ( ) c. Yes, some national policies and legislation in place (strengthened since the adoption of the GPA)
- ( ) d. Yes, some national policies and legislation in place (not strengthened 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:

National policies and legal frameworks are in place for AnGR management with the following: Livestock breeding act, Program for livestock biodiversity conservation in Slovenia, Regulation of conservation of farm animal genetic resources. AnGR managment are performed with the breeding organizations and breeding programmes which are regulated in the Livestock breeding act which provides objectives of livestock breeding, conditions and manner of breeding, methods of livestock breeding and the forage base, the breed programmes and breeding organizations, modification and preservation of the traits of domestic animals, the transfer of selection results into breeding, preservation of genetic variability, genetic reserves and autochthonous breeds, technical tasks and services in the field of livestock breeding and the gene bank in livestock breeding, livestock breeding organizations, educational and research work in the field of livestock breeding, trade in and marketing of breeding materials.

57. 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:

58. 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

Please provide further details:

The partnership between various community-based organizations and other initiatives and public service, responsible for AnGR conservation is being strengthened in last few years.

59. 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:

Breeders Association for small ruminants in Slovenia
Cika cattle breeders association
Krško Polje pig breeders association
Posavje horse breeders association
Slovenian Cold-Blooded horse breeders association

60. 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

Please provide further details:

Research, education and training is performed at the agricultural secondary school, institutions of higher education, colleges, undergraduate or postgraduate studies at the University level - either as a special course or directly as a part of other subjects within the zootechnical curriculum.

61. Please provide further comments describing your country's activities related to Strategic Priority Area 4: Policies, Institutions and Capacity-building (including regional and international cooperation)

Note: It is not necessary to duplicate information provided in previous sections. Where relevant, please provide cross-references.

Slovenia took an active part in cooperation with the following international organizations: FAO, ERFP, EAAP, DAGENE, SAVE regarding exchange of information's, seminars, and technical conferences. In order to promote awareness and early warning of the public, yearly data on significance and the state of conservation farm animal genetic resources is published on the web site, various media channels, for the wider public annual workshop on Biodiversity is organized, and various AnGR exhibitions and cultural events. On National level policies and legal frameworks for AnGR are adopted and implemented.

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

62. 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

Please provide further details:

Slovenia actively collaborate with various international organizations and international projects in the field of characterization, sustainable use and conservation of breed at risk.

63. 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:

64. Has national funding for animal genetic resources programmes increased since the adoption of the GPA?

- ( ) a. Yes
- (•) b. No

Please provide further details:

National funding for AnGR decreased every year, in last three years founding decreased approximately for a quarter.

65. 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

Please provide further details:

66. Has your country supported or participated in international research and education programmes 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 before the adoption of the GPA and strengthened since
- ○ b. Yes, support or participation in place before the adoption of the GPA but not strengthened since
- ◉ c. Yes, support or participation in place 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 provide further details:

Reporting on the status and trends of national animal genetic resources to assist government is provided regularly. Constant work is done on strengthening and development of national databases. Slovenia is continuously working on strengthening technical cooperation, exchange of experience with neighbouring countries, enhance educational and other training opportunities, between countries, support and encourage international collaboration in the characterization, use and development, and conservation of transboundary breeds.

67. Has your country supported or participated in programmes aimed at 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 before the adoption of the GPA and strengthened since
- ○ b. Yes, support or participation commenced before the adoption of the GPA but not strengthened since
- ◉ c. Yes, support or participation 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

Please provide further details:

Slovenia contributed with experiance in various international research collaboration and research projects regarding training and developing technologies to assist countries with economies in transition (Montenegro, Macedonia, Srbia, Bosnia and Herzegovina) to better manage animal genetic resources.

68. 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

Please provide further details. If relevant, specify whether funding was bilateral or multilateral; research cooperation or aid; and to whom and for what it was given:

69. 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

Please provide further details:

Slovenia is working in cooperation with neighboring countries to monitor trends and associated risks, inventory and characterization for few transboundary breeds (Istrian Pramenka, Istrian cattle, Istrian donkey, Bovec sheep).

70. 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

Please provide further details:

Slovenia contributed to the strengthening the global and regional information systems and networks for inventory, monitoring and characterization with collaboration in the Domestic Animal Diversity Information System (DAD-IS) and EFABIS. Information and national data are regularly updated in those information systems.

71. 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

Please provide further details:

72. 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

Please provide further details:

Policy and long term programme was developed and implemented on national and regional level, which includes in situ conservation programme for breeds and populations that are at risk. Endangered breeds are receiving the support, which are intended directly for breeders of threatened breeds. Measures for the In vivo conservation are regulated in the Livestock breeding act, Regulation of conservation of farm animal genetic resources and Long term National Program for the livestock Biodiversity conservation in Slovenia. Measures includes the maintaining of populations of live animals in their natural (original) environment, traditional rearing technologies in accordance with sustainable development, maintaining the population of sufficient size to allow implementation of rearing and selection measures. Mentioned activities for endangered autochthonous breeds are carried out only on the territory of Republic Slovenia (Slovenia is not split in countries).

73. 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

Please provide further details:

Building the national and regional facilities for *ex situ* conservation, in particular cryogenic storage. The collection and storage of genetic material for the local breeds, has been established by the national rules. Planned and targeted collecting of animal genetic resources has been supported on national level. The Conservation Programme includes ex-situ conservation of each breed of domestic animals. The amount of preserved material is prescribed in the annual Program for livestock biodiversity conservation and of majority of autochthonous breeds material has been stored. Inside the ERFP working groups, the of available technologies and urgent needs of legislation was done in collaboration across the countries, developing and work in the group on ERFP cryo-guidelines.

74. 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
- ( ) b. No, but action is planned and funding identified
- ( ) c. No, but action is planned and funding is sought
- (●) d. No

Please provide further details:

75. Has your country participated in regional or international campaigns to raise awareness of the status of animal genetic resources (SP19)?

- (●) a. Yes
- ( ) b. No, but action is planned and funding identified
- ( ) c. No, but action is planned and funding is sought
- ( ) d. No

Please provide further details:

Slovenia participated in the regional and international campaigns to raise awareness of the status of AnGR between various stakeholders, public, schools and breeders on regional and national. Different data and information regarding the promotion of AnGR are added to the web site on national level. Education and training in the field of AnGR conservation is performed at the agricultural secondary schools, institutions of higher education, colleges, undergraduate or postgraduate studies at the departments of the Biotechnical Faculty - either as a special course or directly as a part of other subjects within the zootechnical curriculum.
In order to promote awareness and early warning of the public, yearly data on significance and the state of conservation farm animal genetic resources was published on the web site, various articles are published in the different media, and

Workshop organized every year. On the international level raising awareness was done on the smaller scale through the international collaboration and projects.

76. 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

Please provide further details:

National coordinator is included in the work of ERFP and various projects where reviewing of the international policies and regulatory frameworks has been done, collaboration with the FAO commission in the field of AnGR.

EMERGING ISSUES

77. In view of the possibility that at some point countries may wish to update the GPA, please list any aspects of animal genetic resources management that are not addressed in the current GPA 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

Issues to be addressed in future (next ten years)	Reasons	Actions required
Agroecosystem approach in conservation	Agroecosystem conservation is not included in the conservation policy	Inclusion of the agroecosystem conservation approach into the policy
Research on value of local breeds and local products	No researches has been done	Funding for the research and establishing the value of local breeds, transfer to the policy makers
Traditional knowledge	No support for preserving traditional knowledge	Policy and inclusion of traditional knowledge and technologies into the support system

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