



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: Latvia

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).

Latvia have 6 native farm animal breeds: Latvian blue cow, Latvian brown cow, Latvian dark-headed sheep, Latvian native goat, Latvian white pig and Latvian horse breed.

The main attention in conservation of local breeds is paid to animal breeding in farms. For animals, which are included in conservation programme, animal owners receive state support. However, not all animals from these breeds are considered as local animals. Animal is considered as local animal and included in conservation programme, if animal meets criteria of breeding programme. The main criterion to choose animals for conservation programme, is origin of animals (it is important, that animal doesn't have ancestors from another breeds). To receive progenies from GR animals, only breeding animals of respective breed can be used, as much as possible restricting the inflow of foreign blood in the breed.

One of the major problems in conservation of local breeds, is the low productivity of animals, and therefore breeders don't choose these animals. As a result, the number of local animals is decreased, and it is difficult to prevent inbreeding, and selection and increasing of productivity is not possible too. As animals from local breeds are located mainly in small herds all over the country, it is not possible currently organize processing of production and consequently it is not possible to sell production under special label.

In order to allow processing of production from local animal breeds and creation of products with special labels, as well as to facilitate research, it is necessary to establish state farms. In such farms local animals of one breed are kept in larger groups. Such state farms must receive financial support. Presently we have founded nucleus herd for Latvian brown cows in Vecauce (by Latvia University of Agriculture) - 22 cows and heifers, but currently this farm does not receive supplementary funding for research in AnGR field.

Conservation of animal tissues is carried out by the Laboratory of Molecular Genetic Research (at Latvia University of Agriculture). Tissues from all native breeds are stored in this laboratory. To ensure activities of laboratory and to carry out

research, constant funding for laboratory is needed.

To better understand the needs of conservation of local breeds and activities to be done, it is planned to develop strategy for conservation of farm AnGR in Latvia.

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.

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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).

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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.

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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.

Import of animals and semen from Western Europe and North America has negative impact on local breeds. Female animals from native breeds are inseminated mostly with imported semen or imported animals, because imported animals

and semen have higher genetic value. Thus native breeds gradually lose their native blood percentage. Latvian dark-headed sheep is quite good as “mother” breed for crossing with meat breeds, and thus, import of animals from other breeds does not affect this breed significantly.

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)	none	low	-
Changing demand for livestock products (quality)	medium	medium	Latvian people are increasingly opting for healthier food. This trend affects the local breed - Latvian white pigs. Latvian white pig carcass quality does not meet the requirements of the market, so there is no sufficient demand and breeders do not choose to rear this breed.
Changes in marketing infrastructure and access	low	low	In general changes in marketing infrastructure and access has not significant impact on local breeds. Local breeds animals are spread all over Latvia.
Changes in retailing	low	low	-
Changes in international trade in animal products (imports)	medium	low	Changes in import of foodstuffs have not significant impact on local breeds. Import of animals and semen from Western Europe and North America has negative impact on local breeds.
Changes in international trade in animal products (exports)	low	low	Sheep farmers can export sheep and thus interest of the sheep breeding (and breeding of the local breed - Latvian Dark-headed sheep) is increasing. Changes in export have little impact on other local breeds.
Climatic changes	none	low	In recent years, there has not been significant climate change.
Degradation or improvement of grazing land	none	none	Some places can be affected by pasture degradation, but in most cases, however, pasture condition improves. Pasture condition has currently no impact on animal genetic resources, and supposedly there will be no significant impact in the near future.

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
Loss of, or loss of access to, grazing land and other natural resources	none	none	Access to resources is sufficient.
Economic, livelihood or lifestyle factors affecting the popularity of livestock keeping	medium	low	Lifestyle is changing. In order to earn more, people move to the cities, thus number of small farms decreases. Owners of large farms are usually not interested in breeding of native breeds.
Replacement of livestock functions	low	low	Draught horse power is replaced by mechanical power.
Changing cultural roles of livestock	low	low	Type of use of horses is changing - they are being used less for work and more - for sport and recreation. In addition to milk production, Latvian blue cow in recent serves also as attraction for tourists. Changes in livestock functions have not impact on other local breeds.
Changes in technology	low	low	Changes in technology has little impact on animal genetic resources. An exception could be only Latvian brown, which udder shape is less suitable for automatic milking systems.
Policy factors	medium	high	Current policy provides financial support to owners of genetic resources animals. The financial support is as extra motivation for owners and it will be important also in future to ensure that the owners receive at least part of the loss of revenue that could be obtained using conventional breeds.
Disease epidemics	medium	medium	Disease epidemics have negative impact on small populations, when animals are concentrated in few farms. During an outbreak of Swine brucellosis most of Latvian White sows were eliminated, as they were in the affected herd.

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)	2	12
Cattle (specialized beef)	0	9
Cattle (multipurpose)	0	7
Sheep	1	16
Goats	1	8

Species	Locally adapted breeds	Exotic breeds
Pigs	1	6
Chickens	0	30
Horses	1	47

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	high	low	high	none	medium	medium
Cattle (specialized beef)	0	0	none	none	none	none	none	none
Cattle (multipurpose)	0	0	none	none	none	none	none	none
Sheep	1	1	high	high	high	high	medium	medium
Goats	1	1	high	none	high	none	medium	medium
Pigs	1	1	high	none	high	none	medium	medium
Chickens	0	0	none	none	none	none	none	none
Horses	1	1	high	none	high	none	medium	medium

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

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	It is possible to get education related with animal breeding in vocational schools and universities. Additional information on various topics (including information on local breeds) you can get in different courses and seminars.
Research	Amount of research is relatively low, but calculating on the number of animals, amount of research is considered as medium. The main problem is small number of scientists, small number of young scientists in livestock sector (due to the lack of constant funding).
Knowledge	Experts in farm animal breeding organizations have quite good knowledge about local breeds.
Awareness	Awareness is different in various society groups. Animal breeding specialists have higher, other groups - lower awareness.
Infrastructure	Infrastructure for AnGR is developed quite satisfactory. As we have small number of native breeds and small number of animals, it is simple to manage monitoring of AnGR. There is still need for one organization which deals with all AnGR.
Stakeholder participation	interests of breeders are represented in breeders organizations. But there is only one organization which is founded for conservation of breed - breeders association "Blue cow".
Policies	In Rural development programme one of the axis in programme regards to improving the environment and the country side. Axis prescribes that one of the measures that is funded from state aid is "Conservation of farm animal genetic resources".
Policy implementation	In accordance with Rural development programme are adopted Cabinet Regulations No.295 (23.03.2010) (Support allocation for improvement of environment and rural landscape) - regulations prescribe for funding of local breeds. Animal breeding organizations develop breeding programmes. For animals, which meet criteria of breeding programmes, animal owners receive financial support.
Laws	Laws - Animal Breeding law includes following regarding animal genetic resources: 1) Definitions": Farm animal genetic resources - numerically small breeds and populations with heritage, scientific or economical value. 2) Responsibilities of animal breeding organizations: Farm animal breeding organizations develop, approve and implement breeding programs for farm animal breeds, including programs for conservation of genetic resources.

	Description
	3) Responsibility of the Ministry of Agriculture of Latvia: to coordinate conservation of AnGR.
Implementation of laws	All provisions defined in law are implemented.

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>).

Breeders of farm animals (inter alia, breeders of native breeds' animals) are united in farm animal breeding organizations. Farm animal breeding organizations carry out various projects to promote local breeds. These activities are not always sufficient to engage stakeholders in management of AnGR.

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	yes	no	yes	no
Cattle (specialized beef)	no	no	yes	no	no	yes	no

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

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

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)	2	12	2	12	2	12	2	12	2	12	0	0	2	12	2	12
Sheep	1	16	1	6	1	6	1	16	1	6	0	0	1	6	0	0
Goats	1	8	1	7	1	7	1	8	1	7	0	0	1	7	1	8
Pigs	1	6	1	5	1	5	1	6	1	5	0	0	1	5	1	5
Horses	1	47	1	1	1	1	1	47	1	1	0	0	1	1	1	1
Cattle (specialized beef)	0	9	0	9	0	9	0	9	0	9	0	0	0	9	0	9
Cattle (multipurpose)	0	7	0	2	0	2	0	7	0	2	0	0	0	2	0	2

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)	1	0	0	12
Sheep	1	6	0	0
Goats	1	7	0	0
Pigs	1	5	0	0
Horses	1	0	0	1
Cattle (specialized beef)	0	9	0	0
Cattle (multipurpose)	0	2	0	0

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

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

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

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	medium	low	high	medium	medium	low	low	none
Animal identification	high	low	medium	medium	none	low	low	none
Recording	high	medium	high	high	medium	none	medium	none
Provision of artificial insemination services	low	none	low	medium	high	high	low	none
Genetic evaluation	low	medium	high	low	low	medium	medium	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	medium	low	high	medium	low	low	low	none
Animal identification	high	low	medium	medium	none	low	low	none
Recording	high	medium	high	medium	none	low	low	none
Provision of artificial insemination services	low	none	low	low	medium	medium	low	none
Genetic evaluation	low	medium	high	low	low	low	low	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	medium	low	high	medium	low	low	low	none
Animal identification	high	low	medium	medium	none	low	low	none
Recording	high	medium	high	medium	none	low	low	none
Provision of artificial insemination services	low	none	low	low	medium	medium	low	none
Genetic evaluation	low	medium	high	low	low	low	low	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	medium	low	high	medium	none	none	low	none
Animal identification	high	low	medium	medium	none	low	low	none
Recording	high	medium	high	high	none	none	low	none
Provision of artificial insemination services	low	low	low	low	none	low	none	none
Genetic evaluation	low	medium	high	low	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	medium	low	high	medium	none	none	low	none
Animal identification	high	low	medium	medium	none	low	low	none
Recording	high	medium	high	high	none	none	low	none
Provision of artificial insemination services	low	low	medium	low	none	low	none	none
Genetic evaluation	low	medium	high	low	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	medium	low	high	medium	low	low	low	none
Animal identification	high	low	medium	medium	none	low	low	none
Recording	high	medium	high	high	none	none	low	none
Provision of artificial insemination services	low	low	medium	medium	low	low	low	none
Genetic evaluation	low	medium	high	low	low	low	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	medium	low	high	medium	low	low	low	none
Animal identification	high	low	medium	low	none	low	low	none
Recording	high	medium	high	high	none	none	low	none
Provision of artificial insemination services	low	low	none	low	low	low	none	none
Genetic evaluation	low	medium	high	low	none	none	none	none

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

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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.

Setting breeding goals - Animal breeding organizations set breeding goals in breeding programmes. As animal breeders are members of animal breeding organisations, they have relatively large impact on setting breeding goals. In some organisations as members are national commercial companies, too (for example, artificial insemination stations), they have a role in setting breeding goals, too. As developed breeding programmes are submitted to Agricultural data center (public authority), thus the government is involved in setting of breeding goals.

Animal identification - as EU have common rules for animal identification and in EU working groups are representatives from government institutions, the major impact on animal identification have government. However, breeding organizations (and thus animal breeders) are always informed about possible changes in animal identification and can participate in discussions to find the best option.

Recording - Recording requirements in Latvia are developed by ministry in collaboration with breeding organizations. Large part of recording is done by animal breeders. In milk recording participate also national commercial companies - milk laboratories.

Provision of artificial insemination services - The highest level of involvement have national commercial companies and external commerce

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
Pigs	yes
Chickens	no
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)	All animal species in Latvia have breeding programmes - for exotic breeds and for local breeds. In accordance with EU regulations animal breeders receive financial support for genetic evaluation of animals (both - for local and for exotic breeds). Animal breeders, who have animals of local breeds, can receive extra support for each animal in accordance with EU regulations, if animals meet criteria of breeding programmes. Animal breeders' organizations receive financial support for maintaining the herdbooks.
Cattle (specialized beef)	See above.
Cattle (multipurpose)	See above.
Sheep	See above.
Goats	See above.
Pigs	See above.
Chickens	No breeding programmes.

Species	Description of policies or programmes
Horses	See above.

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)	Despite the financial support, the number of the Latvian brown cow decrease (Productivity of the Latvian brown cows is too low and support is not sufficient to motivate farmers). To ensure the conservation of the population, nucleus herd by Latvian University of Agriculture is established. As a result of successful breeding program and breeders' interest, number of Latvian blue cows is stable.
Cattle (specialized beef)	As a result of breeding programme, number of breeding beef animals increases.
Cattle (multipurpose)	As a result of breeding programme, number of breeding multipurpose animals increases.
Sheep	Breeding programme of native breed - Latvian dark-headed sheep - is successful. Breed has good suitability for local conditions. Latvian Dark-headed sheep ewes are used as "mother" breed, because of fertility, milkiness, good maternal qualities, strong constitution, and resistance to diseases. All above-mentioned qualities are very important and can be used by breeders in the future. There is a growing interest in using of pure-bred rams in breeding, thus leading to genetically homogeneous herds, which is very important prerequisite for further production of meat lambs.
Goats	Small number of native animals doesn't allow increase productivity of goats, because possibility of selection is limited. On the other hand - due to low productivity of native goats breeders don't choose this breed.
Pigs	Despite advantages of Latvian White pigs (high resistance to stress, vitality, good maternal qualities, high milkiness, low aggression, high fertility, good ability for piglet retention, high feed conversion and excellent sensory qualities of meat), over the years the number of animals has changed showing a downward trend. Number of animals decreased rapidly in 2009, when the biggest herd of Latvian White pigs was liquidated. A negative feature of Latvian White pig is the tissue composition in the body uncomformable with consumer demands, so farmers don't choose this breed. Consequently, programme presently aims to conservation of animals, without possibility of selection.
Chickens	Chickens - Latvia have not native chicken breeds and in Latvia is not carried out chicken breeding - all breeding animals are imported.
Horses	Latvian horse breed have two types - draught and sport type. Draught type horses are considered to be genetic resources. Such characteristics of Latvian horse breed draught type - even temper, placability, trust to humans, and singles out this breed among other breeds. Draught type horses are universal - they can be used for driving, for riding sports and for tourism. Despite advantages of Latvian horse breed, demand for horses is low (economic situation don't allow people to by horses for hobby) and number of draught type number of horses is small.

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 constraint - the main constraint to implement breeding programmes is the small number of animals. Some breeds (for example, Latvian brown cow, Latvian blue cow, Latvian white pig) have low productivity. Thus, for animal breeders is not profitable to breed animals of genetic resources, and they have no interest in these breeds.
Native breeds have problems with sires - breeding of native sires is expensive, for example, artificial insemination

stations have no interest to keep bulls because of low semen demand.
Implementation of the programs is made difficult by the fact that breeding animals are related.

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)	As Latvian brown cow have relatively low productivity and its hair color is not specific, animal breeders have no interest in this breed and thus the primary goal is to conserve this breed. As number of animals dropped sharply, herd of Latvian brown cows is established by Latvia University of Agriculture. This is an opportunity to produce separately milk from this breed and try to create a product with special brand. Future objective of Latvian blue cows' conservation programme is to conserve the unique hair color of breed.
Cattle (specialized beef)	Latvia have not native beef cattle breeds.
Cattle (multipurpose)	Latvia have not native multipurpose cattle breeds.
Sheep	Breeding priorities of Latvian Dark-headed sheep is to improve productivity and to increase number of animals.
Goats	Objective of the Latvian Native goat conservation is to preserve part of Latvian Native breed animals as the gene reserve without crossing with other breeds.
Pigs	As carcass quality of Latvian white pig does not meet criteria of market demand, animal breeders have no interest in this breed and number of animals is very small at this moment. It is necessary to generate interest in breeders, so that they would engage in breeding of this breed. For this purpose it is necessary to build cooperation between breeders and meet processors to ensure for production a special brand.
Chickens	Chickens - Latvia have not native chicken breeds.
Horses	Latvian breed draught type horses can be used for carriage driving. Breeding of Latvian breed draught type horses will be directed to the selection for the character and driving traits of horses. Carriage driving is relatively new sport in Latvia and development of this sport can help to conserve and popularize Latvian breed draught type horses.

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)	high	medium	medium
Cattle (specialized beef)	none	none	none
Cattle (multipurpose)	none	none	none
Sheep	high	none	medium
Goats	high	none	medium

Species	In situ conservation	Ex situ in vivo conservation	Ex situ in vitro conservation
Pigs	high	none	medium
Chickens	none	none	none
Horses	high	none	medium

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	no
Genetic variation within the breed	yes
Production traits	no
Non-production traits	no
Cultural or historical importance	no
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	no	no	yes	no	no	yes	yes	no	no	no	yes	no
Private sector	no	no	yes	no	yes	yes	yes	yes	no	yes	yes	yes

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
Cattle (specialized dairy)	no	no	yes	no	yes	yes	yes	yes	no	yes	yes	yes
Cattle (specialized beef)	no	no	no	no	no	no	no	no	no	no	no	no
Cattle (multipurpose)	no	no	no	no	no	no	no	no	no	no	no	no
Sheep	no	no	yes	no	yes	yes	yes	no	no	yes	yes	no
Goats	no	no	yes	no	no	yes	yes	yes	no	no	yes	no
Pigs	no	no	yes	no	no	yes	yes	no	no	no	yes	no
Chickens	no	no	no	no	no	no	no	no	no	no	no	no
Horses	no	no	yes	no	yes	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.

Promotion of niche marketing - Latvia have programmes providing support for niche marketing, but we have not special programmes for supporting niche products from local breeds.
Subsidy payment schemes - Animal breeders, who have animals of local breeds, can receive support for each animal in accordance with EU regulations, if animals meet criteria of breeding programmes.
Award programmes = There are not permanent award programmes. Breed conservation association "Blue cow" includes in some projects awards for best animals.
Conservation breeding programmes and selection programmes - in Latvia breeding programmes for local breeds include both - conservation of breed and selection. However, the selection is limited in some cases due to the small number of animals.

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)	2	2	no	no	yes	yes	yes
Cattle (specialized beef)	0	0	no	no	no	no	no
Cattle (multipurpose)	0	0	no	no	no	no	no
Sheep	1	1	no	no	no	no	yes
Goats	1	1	no	no	no	no	yes
Pigs	1	1	no	no	no	no	yes
Chickens	0	0	no	no	no	no	no
Horses	1	1	no	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.

Semen of Latvian blue and Latvian brown bulls is used to introduce genetic variability of respective breeds.

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.

Number of Latvian dark-headed sheep was very low, but now we can say that breed has recovered. As breed has good "mother" qualities, it is interesting for breeders and popularity of breed grows.

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	none	none	none	none	none	none	low	none
Sheep	none	none	none	none	none	none	none	low	none
Goats	low	none	none	none	none	none	none	low	none
Pigs	medium	none	none	none	none	none	none	low	none
Horses	low	none	none	none	none	none	none	low	none

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

-

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	yes	yes	no	yes	yes
Embryo transfer	no	no	no	no	no	no
Molecular genetic information	no	no	yes	no	yes	yes

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.

-

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	no
Embryo transfer or MOET	no	no
Semen sexing	no	no
<i>In vitro</i> fertilization	no	no
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	no
Research on adaptedness based on molecular genetic or genomic information	yes	no

30.1. Please briefly describe the research.

Within the Latvia - Lithuania cross border cooperation programme, project "Development of cooperation network between scientists and practitioners of livestock sector in Zemgale region" is carried out. DNA of Latvian and Lithuanian pigs is extracted to determine the genetic diversity.
Other project - in collaboration with Lithuania genetic forms of cow milk protein has been studied.

Monitoring of scrapie gene in Latvian dark-headed sheep population, as well as monitoring of porcine stress gene in Latvia pig population is carried out.

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	low	n/a	low	low	low
Artificial insemination using nationally produced semen from exotic breeds	medium	n/a	medium	medium	medium
Artificial insemination using imported semen from exotic breeds	medium	n/a	medium	medium	medium
Natural mating	low	n/a	low	low	low
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	none	n/a	none	none	none
Artificial insemination using nationally produced semen from exotic breeds	none	n/a	none	none	none
Artificial insemination using imported semen from exotic breeds	low	n/a	low	low	low
Natural mating	high	n/a	high	high	high

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	none	n/a	none	none	none
Artificial insemination using nationally produced semen from exotic breeds	medium	n/a	medium	medium	medium
Artificial insemination using imported semen from exotic breeds	medium	n/a	medium	medium	medium
Natural mating	low	n/a	medium	low	low
Horses	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	low	n/a	low	low	low
Artificial insemination using nationally produced semen from exotic breeds	low	n/a	low	low	low
Artificial insemination using imported semen from exotic breeds	low	n/a	low	low	low
Natural mating	high	n/a	high	high	high

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.

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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	limited	In The National programme of biological diversity are listed all tasks regarding animal, plant, forestry and aquatic genetic resources.
Collaboration in the characterization, surveying or monitoring of genetic resources, production environments or ecosystems	limited	Some collaboration in the field of molecular characterization.
Collaboration related to genetic improvement	none	
Collaboration related to product development and/or marketing	none	
Collaboration in conservation strategies, programmes or projects	limited	Rural development programme foresees activities regarding all genetic resources.
Collaboration in awareness-raising on the roles and values of genetic resources	limited	
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	limited	Advisory committee for genetic resources is established by The Ministry of Agriculture of Latvia, committee is acting both in the field of AnGR and plant genetic resources. Committee is deciding on funding for genetic resources.

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

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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.

AnGR have not great influence on maintenance of ecosystems in Latvia. Thus, management of AnGR is carried out separately of management of ecosystems.

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.

-

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.

-

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.

In Rural development programme for Latvia one of the axis regards to improving of environment and country side. Axis contains financial promotion measures for the sustainable use of agricultural land (Payments for less favoured areas, NATURA 2000 payments, Agri-Environment payments). In addition to these measures in this axis of Rural development programme in mentioned measure „Preservation of genetic resources of farming animals”.

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:

All cattle, horses, sheep, goats and breeding pigs in Latvia are registered with the state agency "Agricultural data centre". Genetic resources of breeds in Latvia belong to cow, horse, sheep, goat and pig species and thus all genetic resource animals are registered too.

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:

In the last century, some local breeds have been widely used in production (Latvian Brown cow, Latvian White pig) and these breeds have been widely studied. But it is necessary to continue further studies of these and other local breeds to determine the best use of these breeds in current economic situation.

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:

For the benefit of AnGR in Latvia a specialized Molecular Genetic research laboratory was established in 2007 by the Latvia University of Agriculture. Laboratory saved more than 1000 DNA samples from all species of AnGR - cows, horses, sheep, goats and pigs.

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:

Responding to FAO call for participation in preparation of the first report of the state of world animal genetic resources, baseline survey of animal genetic resources of Latvia was carried out in 2002.

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:

Farm animal breeding organizations develop breeding programs for animal breeds, including local breeds. The Ministry of Agriculture of Latvia receives information from breeding organizations and Agricultural data centre, and coordinates conservation of genetic resources (develops policy and decides on funding for local breeds).

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:

Number of local breeds breeds in Latvia is low (6 breeds: Latvian Brown cow, Latvian Blue cow, Latvian White pig, Latvian dark-headed sheep, Latvian Native goat, Latvian horse draught type). All animals are registered in Agricultural data centre. There is no need for a monitoring program.

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:

Every year farm animal breeding organizations issue approvals for those breeding local breeds' animals, which meet requirements of the breeding program. Thus information about the number of breeding animals is available every year.

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:

Every year the Ministry of Agriculture of Latvia receives information from breeding organizations about changes in the number of animals.

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:

As all animals are registered, breeding organizations and The Ministry of Agriculture is informed about actual situation. If number of animals is dropping sharp, ministry together with breeding organizations decide on the possibilities of improving the situation.

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:

Research to develop methods for phenotypic characterization and breed evaluation is carried out. Molecular characterization is carried out using external methods and adjusting these methods to our breeds.

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:

Inventory, characterization and monitoring of AnGR are in place, but funding is necessary for molecular characterization of AnGR.

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:

- 1) There should be more collaboration between small countries, because there are measures which are not beneficial for small number of animals;
2) Provide more funding for AnGR;
3) Create state-funded farms, which would be responsible for improvement and conservation of local breeds, as well as for scientific studies.

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.

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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:

Farm animal breeding organizations develop breeding programs for animal breeds.
To promote the use of local breeds, state funding for animal owners is provided.

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 are reviewed and revised every 5 years.

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:

In Rural development program of Latvia is provided funding for breeders of local breeds' animals for next period till 2020.

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:

For sustainable use of AnGR a full utilization cycle must be created: breeding of animals, processing of production, realization of production. As number of local breeds' animals is small and productivity of animals in most cases is low, it is complicated to develop processing of production. Production of animals from local breeds is processed mostly together with production from other breeds.

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.

f. No

Please provide further details:

Assessment of the use of exotic breeds has not been carried out, but there is obvious economic, environmental and genetic impact. Exotic breeds have higher productivity, so they are more profitable, but intensive farming has negative impact on environment. Because of crossing with exotic breeds, native breeds have loosed their old genetic origin.

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: all animals are registered in Agricultural data centre, and all animals which are involved in conservation programme, are subjected to evaluation of exterior and productivity recording (horses - to performance recording). Organizational structures: Animal breeding organizations develop breeding programmes for animals. Most animal breeding organizations in Latvia are created to work with exotic breeds, but side occupation of these organizations is genetic resources. That is not the best way for conservation of breeds, because these organizations are not fully devoted for conservation activities. We have in Latvia only one organization, which is created for the conservation of native breed - alliance „Blue cow”.

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:

In some breeding organizations scientists are working as members of the board. In that way science comes closer to stakeholders. Scientists are informed about needs of sector and stakeholders can better use knowledge of scientists. About state funded research projects, discussions with stakeholders are organized at first to find out actuality of project.

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:

Farmers and livestock keepers can receive information in 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:

There is no need for such agreements, all interested persons have access to AnGR and associated knowledge.

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:

Various training and technical support measures for the breeding activities are mentioned in Rural development programme. Funding is provided from State subsidies or from EU.

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 adaptation 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:

Technical training is necessary in the field of molecular characterization.
Support is necessary for establishment of nucleus herds of local breeds, for breeding of sires, as well as for molecular characterization of local breeds.

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:

-

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:

Project was carried out to popularize meat from Latvian white pigs. It was confirmed, that meat from local pigs has better taste qualities.

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

For enhancing the sustainable use and development of AnGR, full utilization cycle must be created: breeding of animals, processing of production, realization of production.

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:

Assessment is done based on consultations with farm animal breeding organizations.

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:

Some native breeds have too low productivity (Latvian Brown cow, Latvian Blue cow, Latvian Native goat). Production from some breeds (Latvian White pig) does not meet criteria of present market demands.

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:

All animal species in Latvia have breeding programmes - for exotic breeds and for local breeds. In accordance with EU regulations animal breeders receive financial support for genetic evaluation of animals (both - for local and for exotic breeds). Animal breeders, who have animals of local breeds, can receive extra support for each animal in accordance with EU regulations, if animals meet criteria of breeding programmes.

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:

Breeding programs for all breeds are reviewed and revised every 5 years. Funding for native animals is revised every 7 years together with revision of Rural development programme. Funding for projects related with animal breeding is revised every year.

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:

Farm animal breeding organizations develop breeding programs for farm animal breeds, including local breeds.. To promote the use of local breeds, state funding for animal owners is provided (from 2004).

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:

Nucleus herd of Latvian brown cows is established by Latvia University of Agriculture.

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:

Semen from Latvian Brown and Latvian Blue bulls is kept in three artificial insemination centers in Latvia (since before the adoption of the GPA).
Laboratory of Molecular Genetic research saved more than 1000 DNA samples from all species of AnGR - cows, horses, sheep, goats and pigs (more info - item 3).

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:

For enhancing the conservation of AnGR a full utilization cycle must be created: breeding of animals, processing of production, realization of production. If such scheme will be created, it will be possible to sell production under special labels, in such way promoting marketing. Thus income of AnGR breeders will increase and breeders will have more interest to breed native breeds.

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:

Lack of constant funding for Laboratory of Molecular Genetic research for enlargement of the gene bank and for further molecular characterization.

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:

-

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:

Genetic material is stored in the form of sperm (for milk cow breeds) and DNA (for all breeds).

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:

As small country, we mostly adjust already developed methods to our circumstances, because conducting of new methods is expensive, time-consuming and requires additional capacity.

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:

Dissemination of knowledge and best practices is carried out through various projects but there is not one common programme for it.

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

The State funding for animal owners must be retained. In nucleus herd of Latvian brown cows (established by Latvia University of Agriculture) must be more used for research activities.
Nucleus herds for Latvian blue cow and Latvian white pig should be established.
Bull semen storage in artificial insemination centers must be continued.
Activities of the Laboratory of Molecular Genetic research must be continued.

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.

-

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:

The Ministry of Agriculture is responsible for policy development. All planned actions are discussed with animal breeding organizations and other NGO. If necessary, in planning are involved scientific institutions.
During planning various information about agriculture and livestock is available (from Central Statistical Bureau and Agricultural data centre).

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:

Currently animal breeding organizations develop breeding programmes for all animal breeds, including local animal breeds. In addition it is planned to develop one conservation programme for all local animal breeds, including the role of organizations, breeders, nucleus herds, artificial inseminations centres and scientific institutions (including Laboratory of Molecular Genetic research) and their tasks.

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:

In The National programme of biological diversity are listed 3 main tasks regarding AnGR:
 1) conservation of local animal breeds;
 2) developing of programme for the conservation of local animal breeds;
 3) popularization of qualities, role and breeding of local animals.

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:

There is not one programme for livestock sector, but genetic resources are included in Rural development programme.

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:

All GR animals are registered in Agricultural data centre. Information is sufficient, but database is not specially adapted to the needs of GR.

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:

In Latvia we have not such person, who works only with AnGR. As the National coordinator of AnGR have other responsibilities in livestock sector too, all working time can not be devoted to AnGR, and consequently, some tasks can't be done in time.

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:

There is not one committee especially for AnGR. Advisory committee for genetic resources is established by The Ministry of Agriculture of Latvia, but committee is acting both in the field of AnGR and plant genetic resources. Committee consists of the representatives from the ministry, breeding organizations and scientific institutions.

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:

As National Focal point in Latvia is The Ministry of Agriculture, which is working with policy, there is quite good collaboration between National Focal Point and stakeholders.

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:

With increasing of public awareness are working animal breeding organizations. As National Focal point in Latvia is The Ministry of Agriculture, National focal point decides on the allocation of funding for various activities.

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:

In accordance with Rural development programme are adopted Cabinet Regulations No.295 (23.03.2010) (Support allocation for improvement of environment and rural landscape) - regulations prescribe for funding of AnGR. Animal breeding organizations develop breeding programmes. For animals, which meet criteria of breeding programmes, animal owners receive financial support.

Laws - Animal Breeding law includes following regarding animal genetic resources:

- 1) Definitions: Farm animal genetic resources - numerically small breeds and populations with heritage, scientific or economical value.
- 2) Responsibilities of animal breeding organizations: Farm animal breeding organizations develop, approve and implement breeding programs for farm animal breeds, including programs for conservation of genetic resources.
- 3) Responsibility of the Ministry of Agriculture of Latvia: to coordinate conservation of AnGR.

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:

-

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:

Latvian goat breeders association, <http://www.latkaza.lv/>
Latvian sheep breeders association, <http://www.latvijasaita.lv>
Pig breeding centre, <http://www.ccc.lv/>
Latvian Breed horses association, <http://www.lszaa.lv/>
Animal breeders association of Latvia, <http://www.ciltsdarbs.lv/>
Breed conservation association „Blue cow”, <http://zilagovs.itf.ltu.lv/?pid=25>

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 and education is carried out in Latvia University of Agriculture and in Laboratory of Molecular Genetic Research. Research is carried out mostly through various projects, because of lack of constant funding.

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.

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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:

Collaboration with Estonia and Lithuania in the field of molecular characterization.

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:

Funding for animal breeders is unchanged since 2004. Funding for various projects (implemented by breeding organizations or Latvia University of agriculture) is not increased.

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:

-

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:

-

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:

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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:

-

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:

-

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:

Participation in project "Development of models assessing the breeds risk status by utilization of population and relevant georeferenced data", carried out by European regional focal point for animal genetic resources.

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:

-

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:

-

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:

-

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:

Work with EU regulations.

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
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