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

Country report

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

Country: Poland

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).

The key **trends and underlying driving forces** affecting animal genetic resources management in Poland include:

- Implementation of the EU regulations on animal breeding and reproduction
- Increased access to and availability for farmers of genetics from international breeding industry
- High milk prices resulting in concentration of commercial dairy production and further development of Polish Holstein-Friesian population; substantial improvement of milk performance in active population
- Fast growing poultry production for domestic market and for export - growing demand for imported genetics
- Low profitability of pig sector and low reproductive performance of national sow herd - increased imports of breeding stock and stock for fattening
- Implementation of agri-environmental measures within Rural Development Programme to support conservation of animal genetic resources

The strengths, weaknesses and gaps in capacity to manage animal genetic resources in Poland:

Strengths:

- The government policy: the Strategy for sustainable development of rural areas, agriculture and fisheries for 2012-2020 supports multifunctional and sustainable agriculture that underlines cultural and environmental roles and functions of agriculture. Such policy in general supports conservation of ago-biodiversity and animal genetic resources
- A substantial share of farms applying traditional mixed production systems: high potential for organic agriculture and development of traditional products based on local resources
- Well developed network to support AnGR conservation, species coordinators, working groups and advisory board
- Strong *in-situ* conservation programmes, covering all breeds requiring intervention of various species
- Wide participation of farmers in *in-situ* conservation programmes

Weaknesses:

- Small farm size (at average 8.6 ha in 2005 and 10.4 ha in 2012) and fragmented livestock production
- Pig sector: dispersed production, small active population, difficulties to compete with international breeding industry
- Sheep sector: low profitability, rather low domestic demand for lamb, no sufficient recognition of sheep role in provision of environmental services
- Goat sector: very limited breeding activities
- Dairy cattle: substantial part of population kept in 1-2 cow herds; still not sufficient but slowly growing active population;
- Beef sector: low profitability, low consumption of beef, production dedicated for export, low demand for breeding stock
- Poultry sector: majority of stock in commercial production from import; gradual replacement of domestic genetic material of laying hens, only 3 pedigree farms left

Gaps:

- No sufficient cooperation between livestock sector and relevant nature conservation authorities
- No collection of genetic material for gene-bank on routine basis (only cattle)

The key constraints and challenges with respect to animal genetic resources management in your country;

Constrains:

- Small average farm size and structure, high share of subsistence farms
- Relatively low soil quality, high share of farms in LFA
- Growing problems with water availability
- Relatively small share of farms involved in market production

Challenges:

- Implementation of the National Strategy for Sustainable Use and Conservation of Farm Animal Genetic Resources with Action Plan (NSAP)
- Implementation of the Rural Development Programme for 2014-2020, and especially AnGR related packages
- Maintaining high participation of farmers in the *in-situ* conservation programmes
- Maintaining profitability of livestock sector
- Development of regional products based on raw materials obtained from native breeds
- Public perception of livestock production (undertaking a dialogue with organizations involved in so called “eco-terrorism”)

The priorities and strategic directions for future action were agreed in 2013 within the process of preparation of the **National Strategy for Sustainable Use and Conservation of Farm Animal Genetic Resources with Action Plan**.

Overall objective of the NSAP is: Effective utilisation of animal genetic resources of farm animals and their conservation as a contribution to sustainable agriculture

The NASP consists of 15 Strategic priorities in four Priority Areas and each priority includes a number of actions. They are as follows:

1. Monitoring of breeds structure of the population of key farm animal species (2)
2. Establishment and development of central data bases for relevant farm animal species (4)
3. Establishment of the cooperative procedure regarding exchange of information on animal genetic resources (2)
4. Enhancement of phenotypic and genetic characterisation of breeds/varieties/lines of farm animals (2)

5. Performance recording and breeding value evaluation and publication of results (4)
6. Review and updating of breeding programmes (4)
7. Enhancement of profitability of livestock production and broader utilisation of species of lower economic importance
8. Utilisation of farm animal, including native breeds in nature conservation and landscape management (2)

9. Continuation, improvement and enhancement of *in-situ* conservation measures (5)
10. Initiation and implementation of *ex-situ* conservation activities at routine basis (5)
11. Monitoring of trends and risk for animal genetic resources and establishment of early warning system (2)

12. Development of cooperation between breeders, producers and consumers (3)
13. Development of a human capital involved in livestock production (3)
14. Building public awareness on roles and importance of livestock production (5)
15. Assessment and improvement of legislation in the area of livestock breeding (4)

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

FLOWS OF ANIMAL GENETIC RESOURCES

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

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

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

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

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

- (●) yes
- ( ) no

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

- ( ) yes
- (●) no

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

Main source: Background studies (at the species level) prepared in 2013 by teams of experts within the process of the preparation of the National Strategy for Sustainable Use and Conservation of Farm Animal Genetic Resources with Action Plan.

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.

Significant increase in utilisation of genetic material from international companies was observed in the last 10 years:

- In poultry sector: continuous increase of imports of poultry genetic material. In case of meat chicken and turkey commercial sector is using only imported genetics, in laying hens, majority of industrial farms are based on imports, in ducks, about 60% of genetic material comes from import);
- In dairy sector: increased uptake of dairy bulls' semen from international breeding programmes (probably about 30% of all demand); majority of international breeding companies are marketing their semen in Poland;
- In pig sector: not only breeding stock but in the last few years also stock for fattening has been imported; in 2013 probably 3.5 million weaners were imported from Denmark and Germany to be fattened in Poland.

For other species: beef cattle and horses import is on small and rather stable level. For sheep and goats import is meaningless. Geese genetic material comes only from the national breeding programme.

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.

Enhanced import of pig breeding stock and weaners for fattening operations in the open systems further contributed to the decrease of the national sow stock and the overall pig number.

The dispersed pig sector is facing a difficult period due to the lack of profitability and difficulties to compete with better structured pig sectors in other EU countries. The insufficient concentration of the commercial production and a lack of herds specialising in piglet production are the key obstacles.

In dairy sector, enhanced import of semen, mainly from Holstein but also from some other highly performing dairy /dual purpose breeds, contributed to the substantial improvement of genetic value of the national cow population and increased milk production. In the same time an uptake of semen from dairy bulls from the national breeding programme was reduced. The traditional dual purpose cattle are being gradually replaced by specialised dairy breeds or their backcrosses in commercial production and mass population.

In the poultry sector, increased import of genetic material contributed to the further rapid development of the commercial sector and increased meat and egg production.

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)	low	low	Low impact. The consumption of meat and pluck (kg per capita) in Poland is already on a relatively high level and seems to be stable now (2000: 66,1; 2002: 69,5; 2005: 71,2; 2009: 75,0; 2010: 73,7 and 2011: 73,4 kg). Similar situation regards milk, with consumption per capita: 193, 182, 173, 187, 189 and 194 kg respectively.
Changing demand for livestock products (quality)	low	medium	The growing demand for organic/ high quality products may result in enhanced interest in dual purpose cattle breeds that are more suitable for organic production. Moreover, the population size of breeds that are providing high quality regional niche products may grow.
Changes in marketing infrastructure and access	none	none	The substantial changes in marketing infrastructure have already took place, this factor has no impact.

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
Changes in retailing	low	low	The expansion of supermarkets has already happened in Poland, this factor at present has got a low impact.
Changes in international trade in animal products (imports)	medium	medium	Access to cheap imported animal products has a substantial impact on the demand for domestic products and therefore may affect utilisation of animal genetic resources and generally livestock production. It mainly concerns mainstream breeds that are used in commercial production. There were periods that cheap imported eggs, pork or fish (carp) affected domestic production. However, it is not a permanent factor in Polish conditions.
Changes in international trade in animal products (exports)	medium	high	In the recent years opportunities to export Polish animal origin products have increased. The export surplus in 2012 in the international trade of animals and animal origin products was over 9 billion Polish zloty (GUS, 2013). It had an impact on utilisation of breeding/ commercial stock and resulted in a higher demand for relevant genetic resources, also from import (e.g. poultry genetic resources). This factor supports development of mainstream breeds and has got a relatively low impact on local breeds. In export oriented animal production the occasional closure of borders (due to various factors) have a negative impact on the sector.
Climatic changes	low	low	Taking into account that a prevailing production system in Poland is a sustainable mixed semi-intensive system and a majority of livestock production is carried out indoors, the vulnerability of animal genetic resources to the climate change (mainly increased temperature) in the nearest future should be rather low. The other climate change related problems are associated with rapid and unexpected weather changes, heavy rains or prolonged draughts which will affect agriculture in general, including fodder production and may primarily affect animals kept in extensive and extremely extensive production systems.

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
Degradation or improvement of grazing land	low	low	Degradation due to overgrazing is not an important issue in Poland and does not affect utilisation of AnGR. However, in some areas the problem of land degradation due to the succession and landscape change is getting importance. Abandoning grazing or utilisation of meadows imposes substantial problems especially in river valleys; it affects agricultural lands at the edge of forested areas, and marginal lands. Lack of ecosystem services provided by livestock results in change of landscapes, ecosystems and associated biodiversity.
Loss of, or loss of access to, grazing land and other natural resources	none	none	It is not a relevant issue in Poland.
Economic, livelihood or lifestyle factors affecting the popularity of livestock keeping	medium	high	Farming is not a profession that attracts young people; as a result we already observe substantial aging of farmers' communities. This process will affect native breeds of livestock as they are kept mainly by traditional farmers that are used to old ways of farming and have experience in utilisation as well as emotional attachments to certain local breeds.
Replacement of livestock functions	low	low	In general, it is not a very important factor in Poland, however in specific cases it is relevant. Examples include decreasing use of coldblooded horses for draft power or abandoning back-yard production of poultry species (e.g. waterfowl, guinea fowl but also turkeys and chickens).
Changing cultural roles of livestock	none	none	It is not an important issue in Poland, such changes were not occurring in the last 10 years.
Changes in technology	medium	medium	There is a growing group of commercial producers that are using very advanced technologies as regards feeding (e.g. Total Mixed Ration and technological feeding groups in dairy cattle), milking (fully computerized systems), husbandry conditions, prophylactics and so on. In the future, further advancement in various areas of technology will facilitate concentration of production at commercial farms that are utilising international highly performing breeds. It may result in further decline in population size of native breeds.

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
Policy factors	high	high	Policy factors are crucial, as they determine the scope of measures and the level of support available for domestic animal breeding sector (e.g. support for herdbook keeping, performance recording and breeding value evaluation) as well as animal genetic resources conservation programmes. In Poland, due to relatively dispersed livestock production, and the transformation process of organization of animal breeding and reproduction, the breeders' associations still do require a substantial state support. If the current support system was withdrawn, it might have a tremendous negative impact on pig, sheep, cattle and horses breeding, in lower level on poultry, where commercial production is based (with exception of geese and partly ducks) on imported genetics. There is ongoing discussion in the EU about the scope and level of state aid, and the outcome of this discussion may affect domestic animal breeding.
Disease epidemics	low	medium	Fortunately in the last 10 years there was no major disease outbreak in Poland, but if such an outbreak occurs it may have a substantial impact on animal genetic resources state and utilisation as utilisation of some breeds have a regional dimension.
Introduction and enhancement of agri-environmental measures	high	high	The introduction of broad agri-environmental measures within the Rural Development Programme 2007-2013 (RDP) enhanced participation of farmers in *in-situ* conservation programmes and resulted in increase of population size of endangered native breeds. In the recent years the RDP also facilitated introduction of additional endangered breeds into the conservation programmes (e.g. Wielkopolski, Sokolski and Sztumski horses, Polish Black and White and Red and White cattle, old type Polish Merino Sheep, old type Polish Mountain sheep, the Carpathian goat).
Trade in live animals and biological material	high	medium	Membership in the EU led to the implementation of the EU animal breeding regulations and the open market principle. This proved to be very relevant and enhanced trade in animal genetic resources. The access to improved genetics was much easier, and encouraged trade in livestock and its genetic material.

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
Fashion and promotion	medium	medium	In certain cases, a promotion of a given breed (e.g. eggs obtained from Green-legged Partridge chicken) led to creation of some sort of fashion and resulted in a wider utilisation of these animal genetic resources.
Abolishment of milk quota in the EU	none	high	This is extremely difficult to predict, but whatever direction it turns the impact will be high. As Poland has got a high potential to increase dairy production, the concentration of the sector might be very rapid and bred replacement substantial. Also, native dual-purpose breeds usually kept in small herds might be turned into the suckling system, as there will be no interest and economic justification to collect limited quantity of milk from such small farms.

OVERVIEW OF ANIMAL GENETIC RESOURCES

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

Data on the number of breeds is needed in order to calculate the percentage of breeds subject to the various management activities that are covered in this questionnaire. In line with the request of the Commission on Genetic Resources for Food and Agriculture at its Fourteenth Regular Session (CGRFA-14/13/Report, paragraph 31), FAO will implement the "locally adapted" vs. "exotic breed" classification system in the Domestic Animal Diversity Information System (DAD-IS). Once countries have fully updated their breed lists and classified all breeds in DAD-IS, it will be possible to use these data to obtain the numbers of breeds in each category.

Species	Locally adapted breeds	Exotic breeds
Cattle (specialized dairy)	0	5
Cattle (specialized beef)	0	13
Cattle (multipurpose)	5	1
Sheep	25	8
Goats	3	4
Pigs	6	3
Chickens	20	11
Horses	12	4
Ducks	11	2
Geese	16	0
Rabbits	1	24

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)	5	5	high	medium	high	medium	low	medium
Cattle (specialized beef)	13	13	medium	low	medium	low	low	low
Cattle (multipurpose)	6	6	high	medium	high	medium	low	medium
Sheep	33	33	high	medium	medium	medium	low	low
Goats	7	7	high	low	low	low	low	low
Pigs	9	9	high	medium	low	low	low	medium
Chickens	31	31	high	low	low	low	low	low
Horses	16	16	high	low	medium	high	low	low

INSTITUTIONS AND STAKEHOLDERS

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

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

	Score
Education	high
Research	medium
Knowledge	high
Awareness	low

	Score
Infrastructure	medium
Stakeholder participation	high
Policies	high
Policy implementation	medium
Laws	high
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	The vocational and higher education related to agriculture, livestock sector and all aspects of animal genetic resources management is widely available in Poland. We have got 11 public Agriculture/Life Sciences Universities that are providing a higher education in agriculture production and animal science.
Research	The human resources to carry our research related to animal genetic resources and in general livestock science are available but funds are rather limited.
Knowledge	The knowledge level is high in case of policy makers, technical experts and staff of breeders' societies. The knowledge of farmers / breeders sill require some improvement.
Awareness	There are a lot of activities undertaken to build awareness about importance and specific roles and values of animal genetic resources, but it is still not sufficient.
Infrastructure	Organizational and physical infrastructure to support management of animal genetic resources is sufficient.
Stakeholder participation	Stakeholders' organizations, especially breeders' societies are fully involved in the development of policies and strategies and can influence various collaborative animal genetic resources management activities.
Policies	The Strategy for sustainable development of rural areas, agriculture and fisheries for 2012-2020 supports multifunctional and sustainable agriculture and underlines cultural and environmental roles and functions of agriculture. This policy in general supports biodiversity in agriculture. The National Strategy for Sustainable Use and Conservation of Farm Animal Genetic Resources with Action Plan developed in 2013 has been accepted by the Ministry of Agriculture and Rural Development, at present the document is in the process of publication.
Policy implementation	The current Rural Development Programme 2007-2013 provides provisions for in-situ conservation of animal genetic resources and is fully implemented. Endorsement of the National Strategy for Sustainable Use and Conservation of Farm Animal Genetic Resources with Action Plan is pending, so its implementation was not formally initiated yet. However, some activities identified within strategic priorities are already undertaken.
Laws	The Law on organization of breeding and reproduction of farm animals (Ustawa o organizacji hodowli i rozrodzie zwierząt gospodarskich z dnia 29 czerwca 2007 r. (Dz.U. Nr 133, poz. 921)) provides provisions for overal management of animal breeding and reproduction, defines roles and responsibilities of stakeholders involved and sets control measures. The Article 28 (Conservation of genetic resources) provides provisions for management of endangered native breeds.

	Description
Implementation of laws	The Law on organization of breeding and reproduction of farm animals is fully implemented through a regulations and decisions provided by the Minister of Agriculture and Rural Development. The Article 28 is fully implemented as well.

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).

Stakeholders in animal genetic resources management are involved in consultation of policies and strategies for agriculture and livestock sector that are developed by the Ministry of Agriculture and Rural Development.
Breeders' organisations and other organizations authorized by the Ministry play a major role in the implementation of animal breeding law, being responsible for key steps in the breeding process - herd book keeping and performance recording. In key livestock species breeding value estimation is entrusted by the Minister of Agriculture and Rural Development to the National Research Institute of Animal Production.
Biocultural community protocols are not that relevant in Poland.

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	yes	no	no
Cattle (specialized beef)	no	no	yes	no	no	no	no
Cattle (multipurpose)	yes	no	yes	no	no	no	no
Sheep	no	no	yes	no	no	no	no
Goats	yes	no	yes	no	no	no	no
Pigs	yes	no	yes	no	yes	no	no
Chickens	yes	no	yes	no	yes	no	no
Horses	yes	no	yes	no	yes	no	no
Turkeys	no	no	no	no	yes	no	no
Ducks	yes	no	yes	no	yes	no	no
Geese	yes	no	yes	no	no	no	no
Rabbits	yes	no	no	no	no	no	no

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

Government - means public sector institutions. See explanation in a file "Additional information POLAND" for further details, if needed.
External commercial companies in some cases are only providing commercial stock for fattening (e.g. turkeys) or semen from their own breeding programmes operated outside Poland. In other cases (e.g. pigs, laying hens) they carry out some breeding activities in our country.

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

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

Species	Tools															
	Animal identification		Breeding goal defined		Performance recording		Pedigree recording		Genetic evaluation (classic approach)		Genetic evaluation including genomic information		Management of genetic variation (by maximizing effective population size or minimizing rate of inbreeding)		Artificial insemination	
	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex
Cattle (specialized dairy)	0	5	0	5	0	5	0	5	0	5	0	2	0	5	0	5
Cattle (specialized beef)	0	13	0	13	0	13	0	13	0	13	0	0	0	13	0	13
Cattle (multipurpose)	5	1	5	1	5	1	5	1	1	0	0	0	5	1	5	1
Pigs	6	3	6	3	6	3	6	3	6	3	0	0	6	3	3	3
Sheep	25	8	25	8	25	8	25	8	25	8	0	0	25	8	0	0
Goats	3	4	3	4	3	4	3	4	0	0	0	0	3	4	0	0
Chickens	20	11	20	11	20	11	20	11	0	11	0	0	20	11	0	6
Horses	12	4	12	4	12	4	12	4	1	1	0	0	12	4	6	2
Geese	16	0	16	0	16	0	16	0	2	0	0	0	16	0	0	0
Ducks	11	2	11	2	11	2	11	2	0	2	0	0	11	2	0	0
Rabbits	1	24	1	24	1	21	1	21	0	0	0	0	1	21	0	0

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

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

Species	Breeding method			
	Straight/pure-breeding only		Straight/pure-breeding and cross-breeding	
	Loc	Ex	Loc	Ex
Cattle (specialized dairy)	0	5	0	0
Cattle (specialized beef)	0	13	0	0
Cattle (multipurpose)	5	1	0	0
Sheep	25	8	0	0
Goats	3	4	0	0
Pigs	4	0	2	3
Chickens	20	11	0	0
Horses	7	4	5	0
Geese	16	0	0	0
Ducks	11	2	0	0
Rabbits	1	24	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)	high	high
Cattle (specialized beef)	medium	medium
Cattle (multipurpose)	medium	medium
Sheep	medium	medium
Goats	low	low
Pigs	high	high
Chickens	high	high
Horses	medium	medium
Ducks	low	medium
Geese	high	high
Rabbits	medium	medium

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

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

Species	Organization of livestock keepers
Horses	high
Ducks	medium
Geese	high
Rabbits	low

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

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

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

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

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

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

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.

In majority of species the stakeholder involvement in the various elements of breeding programmes is well reflected in the table 15. In case of fur animals all breeding work is still carried out by the National Animal Breeding Centre as there were no breeders' associations willing to take over these responsibilities.
Animal identification and registration is carried out on the basis of provisions set in the dedicated legislation (Ustawa z dnia 2 kwietnia 2004 roku o systemie identyfikacji i rejestracji zwierząt (Dz. U. z 2008 r. Nr 204, poz. 1281 oraz 2012 r. poz. 1529). In case of cattle, sheep, goats and pigs, the governmental Agency for Restructuring and Modernisation of Agriculture (ARMA) is responsible for maintaining the Animal Identification and Registration System and monitoring movement of animals. In case of equine species, the responsibility to issue animal passport lies with breeder's societies / other organizations responsible for stud book keeping.

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	yes
Horses	yes
Geese	yes
Ducks	yes
Rabbits	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)	For all breeds: state support for authorised breeders' organizations for herd book keeping and performance recording and for the National Research Institute of Animal Production for breeding value estimation.
Cattle (specialized beef)	For all exotic breeds: state support for breeders' society for herd book keeping and performance recording and for the National Research Institute of Animal Production for breeding value estimation.
Cattle (multipurpose)	For all breeds: state support for authorised organizations for herd book keeping and performance recording For four local (native) breeds: support for breeders participating in *in-situ* conservation programme.
Sheep	For all breeds: state support for breeders' organizations for flock book keeping and performance recording and for the National Research Institute of Animal Production for breeding value estimation. For all local (native) breeds: support for breeders participating in in-situ conservation programme.

Species	Description of policies or programmes
Goats	For two exotic dairy breeds only: state support for breeders' organizations for herd book keeping and performance recording (very limited). For the native Carpathian goat - support for undertaking a breed restitution programme.
Pigs	For all breeds: state support for breeders' organizations for herd book keeping and performance recording and breeding value estimation. For three local (native) breeds: support for breeders participating in in-situ conservation programme.
Chickens	Some state support for remaining three laying hens pedigree flocks, carrying out breeding work. Support for breeders participating in *in-situ* conservation programme. No support for meat chicken; the sector is solely based on imported genetics.
Horses	For all breeds: state support for breeders' organizations for herd book keeping and performance recording for relevant breeds also support for breeding value estimation. For seven native breeds: support for breeders participating in *in-situ* conservation programme.
Geese	State support for pedigree flocks. Support for breeders participating in *in-situ* conservation programme.
Ducks	State support for pedigree flocks. Support for breeders participating in *in-situ* conservation programme.
Turkeys	No domestic breeding activities; the sector is solely based on imported genetics.
Rabbits	Governmental agency is responsible for the breeding work. For one local (native) breed: support for breeders participating in *in-situ* conservation programme.

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)	Continuous improvement of genetic value and production potential in the active dairy population due to the successful national breeding programme and imported genetics. In 2007, the average milk yield of 526 889 cows under recording scheme was 6688 kg while in 2012, 653 249 cows were producing at average 7396kg. The total fat production per lactation increased from 282 to 307kg as well as protein production (223kg and 249 kg respectively). The breeding programme has provisions on pedigree verification and management of inbreeding, what had a positive impact on maintaining within breed diversity.
Cattle (specialized beef)	Increase of the size of purebred population.
Cattle (multipurpose)	A growing interest in utilisation of dual purpose cattle breeds due to the better adaptation and wider scope of environmental conditions/production systems.
Sheep	Maintaining interest in sheep breeding when the sector is lacking any profitability.
Goats	Declining goat production and population size due to the very limited performance recording.
Pigs	The breeding stock from the national programme was not competitive with genetic material from international companies. Due to very low profitability of the pig sector the demand for domestic breeding stock is declining. National breeding programme requires substantial support to continue.

Species	Description of consequences
Chickens	The breeding stock for intensive egg production from national scheme was not competitive with genetic material from international companies. Only three pedigree farm carrying out breeding work are left in the country and they produce mainly material for organic farms/free range production systems. There is no domestic breeding programme for meat chicken. Flocks under conservation are maintained thanks to the state support.
Horses	Maintaining interest in keeping coldblooded horses.
Ducks	The demand for and consumption of duck meat is gradually growing; however the domestic breeding stock provides material for only 40% of commercial broiler production. Flocks under conservation are maintained only thanks to the state support.
Geese	The breeding work to develop a Polish oat fed geese - Koluda geese was very successful. National breeding scheme fulfils demand for commercial stock for domestic geese production. Flocks under conservation are maintained only thanks to the state support.
Turkeys	There is no any longer a domestic breeding programme for turkey; the Polish material was not competitive.
Rabbits	The breeding work in rabbits is continuing thanks to the state support. A native breed under *in-situ* conservation is supported from the state aid.

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.

Constrains related to the implementation of the breeding programme are species and even breed specific. In case of dairy cattle a substantial obstacle is a small share of active population (only 28% in 2013; data from the Polish Federation of Dairy Cattle Breeders and Milk Producers). In beef cattle sector very low domestic consumption (less than 2kg/capita, data from the Polish Society of Beef Cattle Breeders and Producers) limits the further development of beef cattle population that produces mainly for export market. The fact that beef population consists of many breeds, some of them of a very small population size, makes implementation of the breeding programmes more difficult.

In pig sector implementation of breeding programme is difficult due to a dispersed population (many pig herds with a small number of animals). Lack of profitability makes it difficult to invest in pig breeding.
Turkey and chicken sectors rely on imported genetics.

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)	Introduction of genomic enhancement in the breeding value estimation in the population of Polish Holstein-Friesian cattle.
Cattle (specialized beef)	Close cooperation with countries of origin of the breeding stock (mainly France and UK). Establishment of a testing station and introduction of performance recording to identify best bulls for AI. Improvement of breeding and extension services provided by the Association. Organization of joined marketing of breeding material and exploring opportunities of export.

Species	Description of future objectives, priorities and plans
Cattle (multipurpose)	Further development of performance recording and breeding value estimation, incorporation of additional traits into the breeding goal in commercial dual-purpose cattle population (Simmental: functional traits, herd-life, fertility, somatic cell count as already included in specialized dairy breeds). Modification of meat index, to be based on EUROP system and carcass conformation. Meat index will be the part of overall selection index. In dual-purpose native breeds included in in-situ conservation programme (Polish Red, Whitebacked cattle, Polish Black and White and Polish Red and White) the goal is to maintain genetic diversity and typical traits that are specific for those breeds.
Sheep	Further implementation of the breeding programmes and increase of the total sheep number (extremely low now). Improvement of prolificacy in maternal breeds. In native breeds included in in-situ conservation programmes the goal is to maintain genetic diversity and typical traits that are specific for those breeds.
Goats	Enhancement of the active population: wider implementation of the performance recording services and implementation of breeding programmes.
Pigs	Decrease of a difference in genetic value and performance level between elite breeding stock and commercial population, improvement of dissemination of the genetic progress. Improvement of reproduction performance of sows. In native breeds included in in-situ conservation programme the goal is to maintain genetic diversity and typical traits that are specific for those breeds.
Chickens	Maintaining three remaining breeding enterprises producing genetic material of laying hens for niche market (backyard chicken production, organic production, free range systems, special products for niche markets). In native breeds included in *in-situ* conservation programme the goal is to maintain genetic diversity and typical traits that are specific for those breeds.
Horses	In warm blooded horses - improvement of sport performance. In cold blooded horses - improvement of meat performance. In cold blooded horses under conservation - utilisation for draft power and landscape management.
Ducks	Further selection towards enhancing meat performance. In native breeds included in *in-situ* conservation programme the goal is to maintain genetic diversity and typical traits that are specific for those breeds.
Geese	Further selection towards enhancing meat performance. In native breeds included in *in-situ* conservation programme the goal is to maintain genetic diversity and typical traits that are specific for those breeds.
Turkeys	No domestic breeding programme for turkey.
Rabbits	Improvement of reproduction and further increase of meat performance.

CONSERVATION

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

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

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

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

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

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	
Genetic uniqueness	
Genetic variation within the breed	
Production traits	
Non-production traits	
Cultural or historical importance	
Probability of success	

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

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

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

In-situ conservation programmes have a wide implementation in Poland. The programmes are financially supported by agri-environmental scheme within the Rural Development Programme 2007-2013 (conservation of cattle, horses, sheep and pig breeds) and by the state aid (remaining species: goats, poultry, fur animals and bees). The extend of the implementation of *in-situ* conservation activities is summarised in the annex at the end of this document.
Table. Number of breeds, herds/flocks and number of females within species included in animal genetic resources conservation programmes in 2013. (see annex at the end of this document)

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.

The current collection of *ex-situ* material stored in the Bank of Genetic Material in Balice was established within a number of research projects carried out in the National Research Institute of Animal Production. As for the end of 2013, the sheep breed semen was stored in the bank (Szczęśniak-Fabijańczyk, 2013). Find the exact numbers in the annex at the end of this document.

In the last few years, a systematic collection of semen of native cattle breeds has been carried out. The stored material, together with historical material includes over 52 thousand semen doses. The current status of the collection is presented in the annex (Szczęśniak-Fabijańczyk, 2013).

In the last couple of years, the National Research Institute of Animal Production invested in establishment of the National Bank of Biological Materials (Krajowy Bank Materiałów Biologicznych) to support implementation of the breed conservation programmes and provide facility for a regular storage of biological material. It is planned that the bank will store biological material from native cattle, sheep, goat, pig and horse breeds. It is assumed that 200 doses will be stored for each bull accepted for breeding; in case of pigs, sheep and goats the routine collection of semen and embryos should be performed for all breeds included in the *in-situ* conservation programmes. In the future, horse biological material of animals belonging to most rare and valuable lines and families will be collected and stored.
In the future, a routine collection of biological material from commercial breeds is also planned.

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	yes
Oocytes	no
Somatic cells (tissue or cultured cells)	no
Isolated DNA	no

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

Species	Number of breeds for which material is stored	Number of breeds for which sufficient material is stored	Does the collection include material from not-at-risk breeds?	Have any extinct populations been reconstituted using material from the gene bank?	Have the gene bank collections been used to introduce genetic variability into an in situ population?	Have the gene bank collections been used to introduce genetic variability into an ex situ population?	Do livestock keepers or breeders' associations participate in the planning of the gene banking activities?
Cattle (specialized dairy)	0	0	no	no	no	no	no
Cattle (specialized beef)	0	0	no	no	no	no	no
Cattle (multipurpose)	4	2	no	no	yes	yes	yes
Sheep	5	1	no	no	no	no	yes
Goats	0	0					
Pigs	0	0					
Chickens	0	0					

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.

Breeders' associations participate in the planning of the gene banking activities though their contribution to the activities of the Working Groups on genetic resources conservation of various species.
The major utilisation of the semen stored in the bank is to support *in-situ* conservation programme. It was especially important in the case of the Polish Red cattle, when the semen from historical collection from 1980s was used for insemination, until new bulls with limited share of foreign blood were selected for breeding.

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.

The example is not fully relevant to the question above. However, we initiated programmes of restitution of two horse breeds (Sokolski horse and Sztumski horse) that were initially recognized as individual breeds with separate stud books and later were incorporated into a bigger population of Polish coldblooded horse.
Another example is the Carpathian goat that used to be kept in the Carpathian mountains and considered as extinct. A survey undertaken in the area of origin resulted in finding some animals with typical phenotype of the breed. This material provided basis for initiation of the restitution programme of the breed.

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.

	Biotechnologies								
Species	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	medium	medium	medium	low	low	none	medium	none
Cattle (specialized beef)	medium	medium	medium	medium	low	low	none	low	none
Cattle (multipurpose)	high	medium	medium	medium	low	low	none	medium	none
Sheep	medium	low	low	none	none	low	none	medium	none
Goats	low	low	low	none	low	low	low	low	none
Pigs	high	medium	medium	none	low	low	low	medium	none
Chickens	low	none	none	none	none	none	none	low	none
Horses	medium	low	none	none	none	none	none	medium	none
Ducks	low	none	none	none	none	none	none	low	none
Geese	low	none	none	none	none	none	none	low	none
Rabbits	low	low	low	none	none	low	low	none	none

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

The availability of biotechnology is much higher than its actual uptake by the practice. Low application of biotechnology is related to the low profitability of livestock production and lack of capacity to invest.
There are no technical constrains or obstacles in implementation of biotechnology but rather financial constrains resulting in the low uptake. The costs would decrease if demand and biotechnology application in husbandry practices would be higher.

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	yes	no	no	no	yes	yes
Embryo transfer	yes	no	no	no	yes	yes
Semen sexing	yes	no	no	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.

Implementation of the specific methods in the public research sector is wider, but their availability is only at experimental level or low implementation level. Practical implementation of some of theses methods is carried out by domestic and external commercial companies.

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

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

30.1. Please briefly describe the research.

The key research areas are: in vitro production of embryos, embryo cryopreservation, animal transgenesis, cloning, cytometric semen sexing and evaluation. Research has been focused on the *in vitro* production of animal embryos, including the development of complex methods for oocyte maturation, fertilization and embryo culture. Moreover, experiments on long-term culturing of late preantral and early antral bovine ovarian follicles have been developed. Studies on the cloning of genetically modified pigs with “humanized” immunological systems have been undertaken. A

cloned goat was produced from oocytes reconstructed with adult dermal fibroblast cells. The novel technique of rabbit chimeric cloning for the production of transgenic animals was applied; additionally, the recipient-donor-cell relationship in the pre-implantation developmental competences of feline nuclear transfer embryos has been studied.

Regarding transgenic animal projects, gene constructs containing growth hormone genes connected to the mMt promoter were used. Modifications of milk composition gene constructs with tissue-specific promoters were performed. Moreover, pigs for xenotransplantation and animal models of human vascular diseases have been produced. Over the last 15 years, our flow cytometry research group has focused its work on new methods for sperm quality assessment and sex regulation. In the 1970s, the National Research Institute of Animal Production initiated studies on embryo cryopreservation. As a result of vitrification experiments, the world's first rabbits and sheep produced via the transfer of vitrified embryos were born.

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

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

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

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.

The table above was filled with respect to cattle and pigs.
In cattle AI is used for less than 70% of cow population, in pigs about 50% of sows are inseminated. In other mammalian

species, the AI uptake is meaningless, and natural mating is mainly used.
The AI in cattle and pigs is used in industrial and mixed semi-intensive production systems.
The AI is also used in meat chicken (21 flocks, about 380.000 birds) and in turkeys (4 flocks, about 30.000 birds).

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	The key governmental document setting vision and priorities for agricultural sector is the Strategy for sustainable development of rural areas, agriculture and fisheries for 2012-2020. It addresses in a comprehensive way the strategic directions for development of agriculture and rural areas taking fully into account the multifunctional character of agriculture. In the past years there was an attempt to develop a dedicated Strategy for conservation and sustainable utilisation of biological diversity in the rural areas till 2020. Due to the current governmental policy, the number of sectorial strategies was limited, and the overall Strategy for sustainable development of rural areas, agriculture and fisheries for 2012-2020 is currently covering these issues. The national level programme that has been successfully implemented over last several years is the Rural Development Programme for 2007-2013 that includes Pilar II: Improvement of natural environment and rural areas (Poprawa środowiska naturalnego i obszarów wiejskich). Pillar II includes the following measures: • Support for management of mountainous areas and less favourite areas • Agri-environmental measures • Forestation of agricultural lands and other lands • Restitution of forestry potential after natural disasters and implementation of prevention measures Within Agri-environmental measures there were 9 packages: two of them directly related to conservation of GRFA (PGR and AnGR).
Collaboration in the characterization, surveying or monitoring of genetic resources, production environments or ecosystems	none	
Collaboration related to genetic improvement	none	

	Extent of collaboration	Description
Collaboration related to product development and/or marketing	limited	There is no system in place to support and facilitate such approach. Identification and registration of regional and traditional products, both of plant and animal origin, are regulated through special procedures, on case by case basis. However, such collaboration was implemented through some projects, carried out by NGOs, e.g. “The Kurpie Model of agricultural biodiversity - reintroduction and promotion of indigenous animal breeds and plant varieties for organic agriculture and sustainable development of the Nord-east region”, where both plant and animal origin products were developed simultaneously and they were promoted and marketed jointly in shops in Warsaw.
Collaboration in conservation strategies, programmes or projects	limited	The only collaboration is on the project basis. A number of projects including both plant (crops or fruit trees) and livestock component were carried out by a number of NGOs (e.g. Barka Foundation for Mutual Help, Association Solidarity "PLUS" EKO "School of Life", Social Ecological Institute (SIE), Society of Friends of the Upper Vistula River. The Society for Traditional Breeds and Varieties in its statutes covers both components of agro-biodiversity (http://www.ddoir.org.pl/site/).
Collaboration in awareness-raising on the roles and values of genetic resources	limited	The awareness raising activities are carried out by NGOs, as they are listed in the III Part of the Country Report. In many circumstances these activities cover all components of agrobiodiversity (e.g. 30 min documentary on Kurpie agrobiodiversity; produced by the SIE and widely distributed; various publications). To some extent, the implementation of the Rural Development Programme 2007-2013, especially the Package 6 (traditional plant varieties and fruit trees) and the Package 7 (local endangered livestock breeds) contributed to awareness rising. In the research sector such awareness raising activities have sectoral dimension: the National Research Institute of Animal Production is responsible for promotion of native livestock breeds while the Institute of Plant Breeding and Acclimatisation is engaged in such activities related to PGRFA.
Training activities and/or educational curricula that address genetic resources in an integrated manner	extensive	Training activities related to the implementation of the Rural Development Programme 2007-2013, especially the Package 6 (traditional plant varieties and fruit trees) and the Package 7 (local endangered livestock breeds) were initially carried out by the Ministry of Agriculture and Rural Development and later by extension services. The training included usually all measures available within agri-environmental programme (9 packages). Majority of Universities of Life Sciences offer courses for BSc. and MSc. students on agricultural biological diversity or general biological diversity that cover both plant and animal components.

	Extent of collaboration	Description
Collaboration in the mobilization of resources for the management of genetic resources	none	

2. Please describe any other types of collaboration.

There are additional examples of collaboration on the policy level, especially on the international forum. They include participation in the work of:

- the Commission on Genetic Resources for Food and Agriculture (CGRFA),
- the European Council Working Party on International Biodiversity Issues (WIPEI-Biodiversity).

At the national level some collaboration took place during preparation and implementation of the National Strategy on Conservation and Sustainable Use of Biological Diversity with the Action Plan for 2007-2013 (NBSAP) (Krajowa strategia ochrony i zrównoważonego użytkowania różnorodności biologicznej oraz Program działań na lata 2007-2013) that contains nine operational priorities identified for the sector “Agriculture and rural development” (39-47).

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

Strengthening collaboration in the management of genetic resources in the animal, plant, forest and aquatic sectors would facilitate cooperation and collaboration between sectors of GRFA and would enhance opportunities for undertaking joint activities, especially in the capacity building area - education, training, promotion and awareness building. It would enhance application of ecosystem approach and facilitate holistic perception of agricultural biological diversity. It will also be cost effective and may have a better perception by the public, when agrobiodiversity is promoted in a holistic way that will allow understanding and appreciation of relationships and linkages between various sectors and components of GRFA.

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

The key constrains to the implementation of collaborative approaches include:

- No entity at the national level that would oversee overall management of GRFA
- Different budget lines for each department in charge of sectoral GR, no common undertakings
- Forest genetic resources are in the domain of the Ministry of Environment
- No separate financing for implementation of the NBSAP

The factors that will facilitate improved management of GRFA:

- Enhanced collaboration towards management of GRFA at the national level
- Higher financing for the activities related to GRFA
- Improved information flow on initiatives and activities related to GRFA between relevant stakeholders

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

Hopefully, the implementation of the Strategy for sustainable development of rural areas, agriculture and fisheries for 2012-2020 will result in stronger collaboration within the Ministry and enhance collaborative approaches towards the GRFA.

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).

Within the Rural Development Programme for 2007-2013, in the Pilar II: "Improvement of natural environment and rural areas" two measures, in a various extend, are promoting ecosystem approach:

- Support for agricultural activities on less favourite areas (Wspieranie działalności rolniczej na obszarach o niekorzystnych warunkach gospodarowania (ONW))
- Agri-environmental measures (Wspieranie przedsięwzięć rolnośrodowiskowych i poprawy dobrostanu zwierząt)

Moreover, the National Strategy on Conservation and Sustainable Use of Biological Diversity with the Action Plan for 2007-2013 (NBSAP) contains one operational priority in the sector "Agriculture and rural development" directly addressing ecosystem approach:
Operational Priority 40. "Implementation of ecosystem approach in agriculture". This priority should be implemented through enhancement and dissemination of good practices in agriculture, that respect the need for conservation and sustainable use of biological diversity.

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).

So far, there is no formal legal basis acknowledging an importance of livestock in provision of ecosystem services and setting a payment system. Nevertheless, there is a growing interest in utilisation of grazing services provided by herbivore species (mainly sheep but also cattle and horses) in the active nature conservation. In the recent years a number of National Parks decided to initiate grazing to control vegetation and combat succession.

The cultural grazing/landscape management grazing was reintroduced to the National Parks located in the Carpathian mountains (Babiogórski National Park, Bieszczadzki National Park, Gorczański National Park, Magurski National Park, Pieniński National Park and Tatrzański National Park), the Sudety mountains (Karkonoski National Park and National Park of Góry Stołowe) as well as in Świetokrzyskie Mountains (Świetokrzyski Mountain National Park).
Grazing was also introduced to other National Parks, mainly located in river valleys, that are prone to succession. Examples include Biebrza National Park and the National Park of the Mouth of Warta river. The nature reserves and landscape parks are also using grazing as vegetation control measures.

In the recent years a number of projects were undertaken at various administrative level (eg.Voivodeships, such as podkarpackie and slaskie, or local administrative level as powiat). A very good example is provided by Sheep Plus (Owca Plus) project implemented in 2007-2014 in the Silesia region (http://www.slaskie.pl/strona_n.php?jezyk=pl&grupa=3&dzi=1245743116&id_menu=171)
The programme aims on preservation of the most valuable kserotermic grass communities in Jura Krakowsko-Częstochowska, through introduction of grazing to combat forest succession. In the same time, the programme promotes cultural role of grazing, its contribution to cultural identity and provision of speciality of sheep and goat products.

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).

First para belongs to the box above:
In Podkarpacie region the „Programme on economic-touristic mobilisation of the Podkarpackie voivodeships through promotion of valuable nature-rich landscapes, based on biodiversity conservation of meadows and pastures through enhanced grazing" („Programu aktywizacji gospodarczo - turystycznej województwa podkarpackiego poprzez promocję cennych przyrodniczo i krajobrazowo wskazanych terenów łąkowo - pastwiskowych z zachowaniem bioróżnorodności w oparciu o naturalny wypas"), was initiated in 2012. The project is carried out at Natura 2000 sites and landscape parks.

The total budget in 2012 was 1.8 million PLN and included over 6.000 animals; in 2013 the budget has grown to 2.3 million and stock to 9.000 animals, and the area dedicated for grazing increased by 45% (http://www.parkikrosno.pl/strona,glowna/konferencja,w,boguchwale;27194.html).

Utilisation of grazing in provision of environmental services has a very positive impact on habitats and ecosystems. In the same time it leads to acknowledgment of importance of supporting and regulating services provided by livestock. In Polish context it also helps to maintain population of sheep, the species that is lacking any profitability. It also has impact on the breed structure of sheep stock, with growing share of breeds adopted to grazing in mountainous areas.

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.

There is a legislative framework on place that addresses potential environmental problems caused by various human activities, including farming and animal production. The key legislative acts include:

- The Law Protection of Environment of 27th April 2001(with unified amendments, Dz. U. of 23rd October,2013, poz. 1232) that addresses the conditions on which environment and biological resources can be used and how they have to be protected;
- The Law on making the information on environment, its protection, participation of the civil society in protection of environment and environmental impact assessment available of the 3rd October 2008;
- The Regulation by the Council of Ministers of 9th November 2010 (with further amendments) Dz.U.2010.213.1397 z późn. zm.) on enterprises that may have a substantial impact on environment . This regulation provides provisions on the scale of livestock production that is considered as having a substantial impact on environment and on enterprises processing livestock products;
- The Law on fertilizers and fertilisation of 10th July 2007 (Dz. U. of 14th August 2007) that regulates application of fertilizers and other means supporting crop production. This law specifically sets rules on handling of animal manure and slurry.

Moreover, the participation of farmers in the measures included in the Rural Development Programme, 2014-2020 will require to fulfil obligations of cross-compliance.

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).

The legislation to reduce potential environmental problems associated with livestock production is in place, all aspects are fully regulated, and the implementation of this legislation is monitored.

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).

Taking into account the small average farm size and the fact that traditional mixed farming system, most beneficial for agro-ecosystems is a prevailing production system in Poland, the environmental constraints have so far a very limited impact on the state of animal genetic resources utilisation.

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.

There is no substantial constrains - however, in cases of small subsistence farms implementation of cross compliance measures will require some investments what might prove to be difficult in case of economically weak farms. Any future measures to limit green house emission in these small farms will be also challenging.

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.

There are certain links between species or even a given breed and provision of specific environmental services. One example include utilisation of Polish Koniks in vegetation control in the Biebrza National Park. It is impossible to use other species to perform this service, such as sheep due to the presence of wolves. Only horses adapted to free range grazing can manage to do well in these circumstances.
Another example include Swiniarka sheep, the breed that is used to graze xerothermic grasslands in the south of Poland. These very fragile grasslands can be only grazed by animals of a light body weight that require very little care.

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.

One strategic priority in the SPA 2 identified in the National Strategy for Sustainable Use and Conservation of the Farm Animal Genetic Resources with Action Plan addresses this issue:
SP 8. Utilisation of farm animal, including native breeds in nature conservation and landscape management:
Actions 8.1 Initiation of action to promote grazing on agricultural lands and utilisation of livestock in landscape management.
Action 8.2 Utilisation of native breeds in the active nature conservation.

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

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

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

STRATEGIC PRIORITY AREA 1: CHARACTERIZATION, INVENTORY AND MONITORING OF TRENDS AND ASSOCIATED RISKS

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

1. Which of the following options best describes your country's progress in building an inventory of its animal genetic resources covering all livestock species of economic importance (SP 1, Action 1)?
Glossary: An inventory is a complete list of all the different breeds present in a country.

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

Please provide further details:

The inventory of AnGR kept in Poland was completed a long time ago. However, some inventory-type activities have been undertaken in the last several years.

Two native Polish breeds, the White-backed cattle and the Carpathian goat have been considered as already extinct. The initial inventory in the region of origin of the White-backed cattle conducted in 2000-2002 resulted in finding individuals with phenotype typical for this breed. The molecular characterisation confirmed a genetic diversity of the Whitebacked cattle in comparison with other dairy breeds kept in Poland. The breed restoration process is progressing well. In 2004 we had 2 herds with 33 cows only, in 2008 26 herds with 172 cows, in 2010, 38 herds with 265 cows and in 2013 37 herds with 366 cows participating in the conservation programme. The inventory of the Carpathian goats was undertaken by the National Research Institute of Animal Production in 2006/2007; since then the breed is under restitution and the population is increasing.

In the case of two native sheep breeds, the Polish Merino old type and the Cakiel sheep, an assessment and selection of ewes to be initially included in the conservation programme has been conducted in 2007 on many private sheep farms. This work was performed by a specially established team of experts including: representing the Polish Union of Sheep-Farmers, the National Research Institute of Animal Production and members of the Working Group on sheep genetic resources. The initial population of Polish Merino old type sheep from 2716 sheep in 44 flocks in 2008 increased to 5586 ewes in 55 flocks in 2013; in the case of Cakiel sheep the population grew from 2699 (99 flocks) in 2008 till 5837 (113 flocks) in 2013. At present, two other breeds: Pogorze sheep and Black headed sheep are considered to be included into the conservation programme, and inventory of their populations is carried out.

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:

There were many studies focussing on the phenotypic and performance characterisation of breeds kept in Poland. Some of them had objectives directly related to performance and profitability improvement, others had more general objectives to generate new knowledge, e.g. better understanding of the inheritance of a coat colour. Such studies are being continued after the GPA adoption.

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:

A number of molecular characterization studies have been undertaken over time to characterise native breeds of key livestock species (e.g. the Polish Red cattle, Zlotniki pigs, Olkuska sheep, Green-legged partridge chicken and so on). There was some progress in the recent years, related to e.g. identification of major genes in sheep breeds. However, the

current level of understanding of the molecular characterisation of our AnGR and especially native breeds is still not sufficient.

4. Has your country conducted a baseline survey of the population status of its animal genetic resources for all livestock species of economic importance (SP 1, Action 1)?

Glossary: A baseline provides a reference point for monitoring population trends. Population status refers to the total size of a national breed population (ideally, also the proportion that is actively used for breeding and the number of male and female breeding animals).

- ○ a. Yes, a baseline survey was undertaken before the adoption of the GPA
- ○ b. Yes, a baseline survey has been undertaken or has commenced after the adoption of the GPA
- ○ c. Yes, a baseline survey has been undertaken for some species (coverage increased since the adoption of the GPA)
- ◉ d. Yes, a baseline survey has been undertaken for some species (coverage not increased since the adoption of the GPA)
- ○ e. No, but action is planned and funding identified
- ○ f. No, but action is planned and funding is sought
- ○ g. No

Please provide further details:

Baseline surveys are conducted regularly on species level by the Central Statistical Office of Poland (GUS). The annual survey covers only key species and is based on the sample. The Statistical Yearbook of Agriculture is issued every year, the last one available on line (http://www.stat.gov.pl/gus/5840_4127_PLK_HTML.htm) presents results of year 2012; the full census is performed about every 10 years, the last one was conducted in 2010.

Within each species only the age structure of the population but not a breed structure is estimated (e.g. total cattle, cattle less than 1 year old, between 1-2 years, over 2 years old, total cows and dairy cows). The Central Statistical Office of Poland is conducting surveys only for livestock species of the highest importance for agricultural production. The information on population size of under-utilized species is limited.

Moreover, the Animal Identification and Registration system managed by the Agency for Restructuring and Modernisation of Agriculture (ARMA) provides information on size of commercial populations of those species (cattle, sheep and goats and pigs) that are under obligatory individual identification and registration. In case of horses identification and registration is under responsibility of breeders' society.

In the case of the active populations (pedigree animals, under recording scheme), a systematic monitoring of population size of each breed is in place, as a by-product of performance recording and herd books keeping. This activity is conducted by breeders' societies. In case of commercial populations only limited information is available as regards the breed structure and trends in population size.

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:

Monitoring of commercial populations, on species level:

- The Central Statistical Office of Poland: census and monitoring of livestock populations
- The Agency for Restructuring and Modernisation of Agriculture (ARMA): the Animal Identification and Registration system for cattle, sheep and goats and pigs;
- Authorised breeder's societies - identification and registration for horses

No monitoring of trends in a total population size of individual breeds has been carried out, except for species where breed information is included in animal passport of a given individual.

The monitoring of active populations, under performance recording is conducted by respective breeders' societies or other organizations (e.g. Agricultural Universities, the Chamber of Agriculture, the National Animal Breeding Centre) that were entrusted by the Ministry of Agriculture and Rural Development with herd books management for respective species or breeds.

The monitoring of populations under conservation programme is conducted by the National Research Institute of Animal Production in cooperation with breeders.

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:

The procedures were established by the Ministry of Agriculture and Rural Development as a requirement coming with authorisation to conduct breeding activities. The breeders' societies (as well as other subjects entrusted by the Ministry with breeding activities) are responsible for reporting on annual basis on the status of populations under performance recording they carry out and number of females and males registered in herd books within each breed.

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:

The Central Statistical Office of Poland is conducting regular monitoring of total population size of key species, of highest importance for agricultural production. The age structure within each species is included in this monitoring.

The Agency for Restructuring and Modernisation of Agriculture (ARMA) is responsible for implementation of the Animal Identification and Registration system.

Since establishment of the National Focal Point, the monitoring of populations under conservation programme has been conducted by the National Research Institute of Animal Production in cooperation with breeders.

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:

The European Union criteria to support breeds that require intervention and undertaking some conservation measures have been applied in Poland in our AnGR conservation programmes.

The EU criteria are set in Annex IV (THRESHOLDS FOR ENDANGERED BREEDS (REFERRED TO IN ARTICLE 27(4)) of the EC regulation 1974/2006 of 15 December 2006, laying down detailed rules for the application of Council Regulation (EC) No 1698/2005 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD)(http://www.agriculture.gov.ie/farmerschemespayments/crosscompliance/legislation/).

The criteria developed by FAO to identify acute risk situation such as critical and endangered populations are also used to highlight the most endangered AnGR.

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:

There is no option seems to describe precisely our situation. In Poland, since the initiation of the formal conservation programme in 1999, every breeder participating in the conservation programme and receiving financial support from the state has been obliged to give the National Focal Point for AnGR a notice, 3-6 months ahead, if he would like to sell his herd/flock. It gave us an opportunity to look for potential new location of the herd.

The lesson learnt from the FMD in UK resulted in introduction of the obligatory measure to inform the Poviat (local administrative unit) veterinary service on the location of conservation herds within the area of their responsibility, in case of disease outbreaks.

So far, there is no specific emergency response system for AnGR to address natural disaster situations. The general national emergency response system includes preparedness measures for saving human and animal life in case of natural disasters.

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:

To some extent such research was undertaken and methods have been developed, especially in the area of performance characterisation.

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:

The major obstacles for a successful monitoring of commercial populations include:

- A limitation of the current monitoring system carried out by the Central Statistical Office of Poland, which reports only on the age structure of the population of a given species and does not allow gathering information on breed structure within given population;
- Limited access to database on Animal Identification and Registration managed by the Agency for Restructuring and Modernisation of Agriculture due to the legislation that imposes restrictions on access to personal data (breeders' personal data, including address and phone number);
- Small size and dispersion of farms;
- Limited financial resources to undertake additional monitoring focused on AnGR
- Limited resources to carry out molecular characterisation

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:

The strategic priorities relevant to the GPA were identified in the National Strategy for Sustainable Use and Conservation of the Farm Animal Genetic Resources with Action Plan and they include:

1. Monitoring of breeds structure of the population of key farm animal species (2 actions)
2. Establishment and development of central data bases for relevant farm animal species (4 actions)
3. Establishment of the cooperative procedure regarding exchange of information on animal genetic resources (2 actions)
4. Enhancement of phenotypic and genetic characterisation of breeds/varieties/lines of farm animals (2 actions)

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

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

STRATEGIC PRIORITY AREA 2: SUSTAINABLE USE AND DEVELOPMENT

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

14. Does your country have adequate national policies in place to promote the sustainable use of animal genetic resources (see also questions 46 and 54)?

- ◉ a. Yes, since before the adoption of the GPA
- ○ b. Yes, policies put in place or updated after the adoption of the GPA
- ○ c. No, but action is planned and funding identified
- ○ d. No, but action is planned and funding is sought
- ○ e. No

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

- Strategy for sustainable development of rural areas, agriculture and fisheries for 2012-2020 adopted in 2013
- The National Strategy for Sustainable Use and Conservation of the Farm Animal Genetic Resources with Action Plan was developed in 2013 and has been accepted by the Ministry early 2014.
- National Strategic Plan for 2007-2013 Rural Development and Rural Development Programme for 2007-2013 (Both documents available at http://www.minrol.gov.pl/eng/content/view/full/18575)

- The National Biodiversity Strategy and Action Plan that addresses the agricultural biological diversity (http://www.cbd.int/doc/world/pl/pl-nbsap-v2-en.pdf targets 39 - 47)

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:

Please provide further details:
The National Biodiversity Strategy and Action Plan 2007-2013 takes into account the agro-ecosystem approach. (http://www.cbd.int/doc/world/pl/pl-nbsap-v2-en.pdf)
Operational target: 40.
The implementation of the ecosystem approach in farming
Action:
95. Improvement and dissemination of good practices in agriculture that support conservation and sustainable use of biological diversity

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:

According to the Animal breeding law of 29th June, 2007, organizations that apply to be authorised by Minister to carry out breeding activities have to meet a number of requirements, including development of a breeding programme.
The breeders' societies that are in charge of carrying out breeding activities (define breeding objectives, carry out performance recording and herd book keeping) evaluate results of implementation of breeding programmes on a regular basis. The revision and update of breeding programmes takes place, as required.

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:

Breeding programmes are in place for all major livestock species and breeds within these species. The only species

where breeding activities are not sufficient (limited and decreasing performance recording) are goats.

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:

The major barriers and obstacles to enhance sustainable use and development of AnGR include:

- Low profitability of livestock production, which is most visible in the pig and sheep sector As a result, the willingness of farmers to invest in breeding is rather limited. Such situation creates difficult conditions for sustainable use and further development of animal genetic resources and in general livestock production.
- High share of small farms in farm structure that due to the small scale of production have difficulties to sell their products (especially milk) to processing plants.
- Very high veterinary requirements (higher than in the other EU member states) to enable on-farm processing and selling animal origin food products at local markets.

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.

b. Yes, assessment were introduced before the adoption of the GPA

Please provide further details:

The key example of using exotic genetic material on local breed populations is backcrossing of the native lowland black and white cattle with Holstein-Friesian. As a result of this long-term continuous backcrossing, an active black and white cattle population was completely replaced with Holstein genotype. This process led in 2005 to recognition of a new breed, the Polish Holstein-Friesian cattle and to the opening of herd books for this breed. In the same time it was necessary to include in the conservation programme the remaining animals representing traditional dual purpose type: the Polish Black and White and the Polish Red and White cattle.

There were many positive experience in using exotic breeds, some of them include:

- Development of beef cattle sector initiated in 1994, based on a number of imported European beef breeds (there is no single native beef cattle breed in Poland);
- Using exotic breeds for upgrading local populations back in 60thies (development of the Polish lowland and long-wool sheep breeds with contribution of the English long-wool breeds, upgrading the Polish Red cattle with Angler, upgrading the Polish landrace and yorkshire pigs with imported genetics);
- Development of the Polish heavy coldblooded horses using Arden end Belgian horses;
- Crossing local populations (eg commercial crossbreeding with imported meat sheep breeds in prime lamb production)

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:

Poland has a long history in recording performance of the livestock. The first performance recording on Polish territory (during partition of the country) was officially introduced in 1906, and the herd books for Polish Red cattle established already in 1913. Performance recording was in place long before the GPA.
An organizational structure was changing as a result of the overall changes in animal breeding after 1990, but it was always in place to support breeding.

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:

The interaction among stakeholders, scientific disciplines and sectors is facilitated by the Ministry of Agriculture and Rural Development and implemented through information sharing, as well as consultative and participatory processes. Moreover, breeders' societies have direct contact with research sector establishing so called: “Scientific Councils” to provide the management with recommendations related to breeding.

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:

Breeders' societies have the major role to play in this respect, to some extent they are supported by extension services. Representatives of international breeding companies have a well operating marketing system for their breeding stock and commercial stock for intensive production systems (mainly poultry, pigs and dairy cattle).
For local breeds, especially included in *in-situ* conservation programme, beyound breeding organizations also species Coordinators of the National Research Institute of Animal Production provide some support for breeders in this respect. The Society for Traditional Breeds and Varieties (http://www.ddoir.org.pl/site/) facilitates contacts between breeders keeping native breeds.

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:

The exchange of animal genetic resources is generally based on private contracts; the price of animal reflects its genetic/commercial value. No additional arrangements were in place on a broad scale.
Gradually some more specific arrangements are being developed. For instance, the owner of a young bull that is born by a bull mother and sold to the AI center for testing may agree to sell it on a price of slaughter animal. If the bull will get a high breeding value and will be approved for breeding, the original owner will have a share of the profit from the sale of semen of this bull.

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:

Over a few decades, a lot of training and technical programmes to support breeders and farmers were implemented. Additionally such activities were undertaken in the context of the implementation of the Rural Development Programme 2004-2006 and 2007-2013; they also covered AnGR management. The National Research Institute of Animal Production provides training for breeders especially those involved in conservation programmes.

25. Have priorities for future technical training and support programmes to enhance the use and development of animal genetic resources in your country been identified (SP 4, paragraph 42)?

- ◉ a. Yes, priorities have been identified or updated since the adoption of the GPA
- ○ b. Yes, priorities were identified before the adaption of the GPA but have not been updated
- ○ c. No, but action is planned and funding identified
- ○ d. No, but action is planned and funding is sought
- ○ e. No

Please provide further details:

The NSAP, includes the Strategic Priority 13. Development of a human capital involved in livestock production. This SP includes three actions, two of them relevant in this context:
13.1 Provision of specialized training for breeders, producers and extension services
13.2 Support for local initiatives focused on sustainable use and conservation of AnGR.

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:

The Strategic Priority 13. Development of a human capital involved in livestock production includes the third action, that is relevant here: 13.3 Support for initiatives of local communities that cultivate/maintain local tradition and development of regional products.

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:

12. Development of cooperation between breeders, producers and consumers
12.1 Support for establishment of sectoral trade associations, breed societies and producers' groups.
12.2 Promotion of the Polish trade mark for animal origin products

14. Building public awareness on roles and importance of livestock production
14.5 Promotion of speciality products from native breeds

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

The strategic priority measures in the SPA 2 were identified in the National Strategy for Sustainable Use and Conservation of the Farm Animal Genetic Resources with Action Plan and they include:
5. Performance recording and breeding value evaluation and publication of results (4 actions)
6. Review and updating of breeding programmes (4 actions)
7. Enhancement of profitability of livestock production and broader utilisation of species of lower economic importance (3 actions)
8. Utilisation of farm animal, including native breeds in nature conservation and landscape management (2 actions)

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.

In Poland, indigenous production systems and associated traditional knowledge and practices related to animal genetic resources have a relatively low importance. The prevailing production system is conventional, based on relatively small family farms, operating in sustainable, traditional way. On the other end of the scale are intensive, even industrial farm. Generally, local rural communities are practising traditional husbandry practices.
The mechanism to facilitate interactions among stakeholders, scientific disciplines and sectors is supported by:

- establishment of Breeding Councils by relevant breeders' societies
- conducting, on regular basis, consultations between the Ministry of Agriculture and Rural Development, breeders' societies and NGOs.

Farmers and livestock keepers are provided with information on results of performance recording carried out by breeders' societies and other relevant organizations. The results of breeding value estimation in key livestock species both in the form of publications and on the website is provided by the National Research Institute of Animal Production that is in charge of this work.

The extensive training for framers is provided by a number of entities: advisory service, breeders' societies, the National Research Institute of Animal Production, the Ministry of Agriculture and Rural Development, and within various projects carried out by local/regional authorities and NGOs. Some efforts have been made to promote traditional food products, also derived from native breeds through a registration system of regional products, established by the Ministry. (http://www.minrol.gov.pl/pol/Jakosc-zywnosci/Produkty-regionalne-i-tradycyjne/Lista-produktow-tradycyjnych/ in Polish) The National Research Institute of Animal Production in cooperation with the Slow Food initiated promotion and popularisation of products derived from native breeds. There are opportunities to develop more speciality products from native breeds.

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:

There is generally no erosion on a breed level; we have not lost any breed since establishment of the NFP. Some exotic breeds were not utilized any more (e.g. Belgian landrace) but it cannot be considered as erosion or extinction, simply the imported breed lost popularity.

The population size of almost all breeds included in the in-situ conservation programme is systematically increasing, with exception of native pig breeds, due to the lack of profitability of a pig sector. Financial constrains and small size of goat population resulted in decision to restrict the performance recording service in 2007, with exception of Saanen goats. This will affect management of goat genetic resources in the country.

There are activities to increase awareness about importance of within breed diversity in commercial populations. They are focused on provision of knowledge and tools to avoid inbreeding through optimisation of matings.
The potential erosion of within-breed diversity requires better assessment; this work is only initiated and so far undertaken for a limited number of breeds. The National Research Institute of Animal Production is developing databases for all populations under conservation programmes that will enable evaluation of their inbreeding level.

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:

In fact, since mid 1980s there was no extinction of any native breed in Poland. However, some imported breeds brought to the country for specific purposes to upgrade local breeds or synthetic lines that were developed in the country are not popular any more. In such few cases the utilisation of these resources was terminated, but in our understanding it is not considered as erosion of animal genetic resources.

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:

The activities to conserve endangered wildlife species as well as native rare breeds have been undertaken in Poland for over a century. The best examples in wildlife area include the conservation programme to restore the European bison population, and a programme to re-establish Polish Koniks to their natural habitats in the wild. In the livestock sector, although a number of breeds have become extinct in the 1960s and 1970s, restitution programmes undertaken since the mid 1970s reduced erosion of populations and resulted in the restoration of a number of native breeds.

The efforts to conserve endangered native breeds in Poland can be divided into three main phases. The first one covers a period from initiation of conservation activities undertaken mainly by the scientific community with gradual support provided by the government until the official establishment of the National Focal Point for Animal Genetic Resources (NFP-AnGR) in August 1996. In the second phase, conservation activities became coordinated at the national level; this phase continues till 2004, when Poland became a member of the European Community. The last and current phase is marked by the implementation of European Union rural development policy and agri-environmental measures at the national level and implementation of the GPA for AnGR.

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:

This is one of the tasks of the Working Groups (review of the breed conservation programmes) and the Advisory Board (review of the policy, direct involvement and overseeing of the process to develop the National Strategy for Sustainable Use and Conservation of Farm Animal Genetic Resources with Action Plan and then monitor its implementation).

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

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

- ○ a. Country requires no in situ conservation measures because all locally adapted breeds are secure
- ◉ b. Yes for all breeds
- ○ c. For some breeds (coverage expanded since the adoption of the GPA)
- ○ d. For some breeds (coverage not expanded since the adoption of the GPA)
- ○ e. No, but action is planned and funding identified
- ○ f. No, but action is planned and funding is sought
- ○ g. No

Please provide further details:

In situ conservation is the most important conservation measure implemented in Poland. It is based on a broad participation of farmers and financed either from the agri-environmental measures within the Rural Development Programme (breeds of cattle, horses, sheep and pigs, since 2014 also goats) or by the state aid (poultry, fur animals, fish and bees).

In 2005, Poland became a member of the European Union and therefore eligible for incentive measures available to EU farmers within the rural development programme (EC 1978/92, 1257/1999 1698/2005). Both political awareness and well documented needs for conservation led to inclusion of the Package G01 within the 2005-2006 agri-environmental scheme to support breeders maintaining local endangered breeds of horse, cattle and sheep. In the Rural Development Programme for 2007-2013, measures for in-situ conservation of genetic resources for food and agriculture were broadened, with Package 6 supporting crop conservation activities, and Package 7 extended to cover also native pig breeds. In the post 2005 period, a rapid increase of the number of females in most of breeds has been observed. Breeders are very interested in joining the scheme and the number of farms participating in the conservation programme was growing rapidly.

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:

Ex situ in vivo conservation measures are also applied in Poland thanks to the initiatives of the public sector, agricultural universities, research institutes and also NGOs that decided to establish herds /flocks of native breeds sometimes outside of the region of origin of these breeds. Sometimes such initiatives were undertaken long time ago, to ensure survival of a given breed (e.g. Olkuska sheep flock established in the central Poland at the Warsaw University of Life Sciences experimental farm in Żelazna in1992).

Recently a number of herds of native breeds were established outside of the region of origin - due to implementation of the RDP and enhanced interest to participate in the Package 7. Another example, is the project undertaken in 2005-2009 in the Krupie region by the NGO, the Social Ecological Institute (SIE) „*The Kurpie Model of agricultural biodiversity - reintroduction and promotion of indigenous animal breeds and plant varieties for organic agriculture and sustainable development of the Nord-east region*" financed by GEF/SGP/UNDP and Ecofund (Priwieziencew, 2010).

A majority of poultry breeds collections are also kept at experimental farms, outside of the traditional production system, so can be considered as *ex-situ in vivo*.

However, there is no national level coordination for implementation of *ex-situ in vivo* conservation method.

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:

The *ex-situ in vitro* conservation measures are important components of the overall AnGR conservation efforts. At present there is no a comprehensive *ex-situ in vitro* conservation programme in Poland.
Cryoconservation activities were included as strategic priorities the NSAP, with the aim to collect sufficient biological material that will allow the recovery of lost diversity within livestock breeds, if needed. To support *ex-situ* conservation activities, the National Research Institute of Animal Production has established the National Bank of Biological Material (*Krajowy Bank Materiałów Biologicznych, KBMB*). The National Bank of Biological Material is located in a separate building in the headquarters of the Institute, in Balice. Due to the veterinary requirements it consists of a complex of four independent divisions (gene banks for: cattle, horses, pigs, and sheep and goats - jointly). The National Bank will store biological material of breeds belonging to five major livestock species.
As for end of 2013, in the National Bank of Biological Material, with financial support from a number of research projects, a substantial quantity of sheep semen was already deposited: 680 semen samples of Swiniarka, 1217 of Polish Heath sheep, 3650 of Olkuska sheep , 710 of Polish Mountain sheep and 640 of Romanov sheep, in total samples from 48 donors belonging to 5 breeds.

Since a few years, a systematic collection of semen of native cattle breeds is carried out. The stored material, together with historical material includes over 51 thousand of semen doses..
The bull semen collection includes both a historical and a working collection, the semen is actively used to support the current conservation programme.

There are also some dispersed collections of genetic material of native breeds, and local lines of fish (carp and rainbow trout) usually acquired within research projects by carried out by Agricultural Universities and research institutions.

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:

- The historical sheep and cattle collection was established in the 80thies within research projects
- The utilisation of stored semen to support in vivo programme started in 1999 in the case of the Polish Red cattle and later for other breeds, as they were introduced into in-situ conservation programmes
- The limited regular collection of bull semen (4 native breeds) was initiated for most of them after the adoption of the GPA

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:

Although we have a wide coverage in case of *in-situ* conservation programme, the key future priority is establishment of *ex-situ in vitro* programme.
The major obstacles to enhance the conservation animal genetic resources include:

- Insufficient financial resources for *ex-situ in vitro* conservation programme including systematic collection of genetic material;
- Insufficient financial resources for conservation of breeds financed by state aid (fur animals, poultry, fish and bees)

- what restrict enhancement of conserved populations;
- Lack of agreement to support males within the in-situ conservation measures in RDP;
- Occasional difficulties in ensuring collaboration between many various stakeholders involved in AnGR conservation (AI organizations, ARMA, breeders' societies).

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:

The Strategic Priority 10**. Initiation and implementation of ex-situ conservation activities at routine basis** includes five actions to be implemented**:**

10.1 To determine the scope of ex-situ conservation measures in breeding programmes and conservation programmes
10.2 To determine the scope of cryoconservation in breed conservation programmes
10.3 To develop procedures for selection of donors of biological material in cryoconservation programmes
10.4 To develop procedure for exchange of biological material between other institutions and the National Bank of Biological Material
10.5 To implement innovative biotchnological procedures in ex-situ conservation

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:

So far we were not challenged with such severe disasters.

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:

So far there was no need for such interventions.

43. Is your country conducting research to adapt existing, or develop new, methods and technologies for in situ and ex situ conservation of animal genetic resources (SP 11, Action 1)?

- (●) a. Yes, research commenced before the adoption of the GPA
- ( ) b. Yes, research commenced since the adoption of the GPA
- ( ) c. No, but action is planned and funding identified
- ( ) d. No, but action is planned and funding is sought
- ( ) e. No

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

The National Research Institute of Animal Production in Balice and some other research teams are working on methods to improve efficiency of *in vitro* conservation of animal biological material. The studies are focused on development of best semen diluters and conditions to conduct freezing process, especially in case of pigs and rabbits and also European bison. Recently a similar work on chicken was undertaken in Bydgoszcz University.

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:

The key dissemination tools include:

- Regular contacts with breeders participating in the conservation programmes by species Coordinators;
- Seminars and workshops for breeders participating in the conservation programme
- Organization of native breeds shows and exhibitions.
- Webpage of the institute with all relevant information, literature and news
- Visits and inspections in herds/flocks participating in the conservation programme
- Various types of publications

Many of these activities were strengthened after adoption of the GPA.

Regional cooperation:
Active participation in activities of the European Regional Focal Point

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

The strategic priority measures in the SPA 3 were identified in the National Strategy for Sustainable Use and Conservation of the Farm Animal Genetic Resources with Action Plan and they include:

9. Continuation, improvement and enhancement of in-situ conservation measures (5actions)
10. Initiation and implementation of *ex-situ c*onservation activities at routine basis (5 actions)
11. Monitoring of trends and risk for animal genetic resources and establishment of early warning system (2 actions)

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.

As regards Q41 there are no specific arrangements in place to protect breeds and populations that are at risk from natural or human induced disasters, except the overall national emergency response system. However, with dispersed conservation flocks/herds and also double collections of the poultry in *ex-situ in vivo* condition, certain level security of our AnGR is maintained.

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:

Poland has got a strong research community, already strengthened breeding societies and competent civil service to enable holistic planning in the livestock sector.

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:

The National Strategy for Sustainable Use and Conservation of Farm Animal Genetic Resources with Action Plan developed over 2012-2013 is considered as a major tool for implementation of the GPA-AnGR. The preparatory process was following the FAO guidelines and was implemented with a very broad participation of wide range of stakeholders. The structure of the NSAP includes four SPA and in total 15 strategic priorities and actions.

SPA		
I. Characterisation	4 Strategic Priorities	(2 + 4 + 2 + 2 = 10 actions)
II. Sustainable use	4 Strategic Priorities	(4 + 4 + 5 + 2 = 15 actions)
III. Conservation	3 Strategic Priorities	(5 + 5 + 2 = 12 actions)
IV. Capacity	4 Strategic Priorities	(3 + 3 + 5 + 4 = 15 actions)
Total	15 Strategic Priorities	52 actions

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:

National Strategy on Conservation and Sustainable Use of Biological Diversity with the Action Plan for 2007-2013 (NBSAP) contains nine operational priorities identified for the sector "Agriculture and rural development" (39-47). http://www.cbd.int/doc/world/pl/pl-nbsap-v2-en.pdf

SECTORS OF AGRICULTURE AND RURAL DEVELOPMENT

39. The intensification of actions to implement the ways of farming contributing to the conservation and sustainable use of biodiversity.
40. The implementation of the ecosystem approach in farming.
41. The development of the favourable conditions for the restoration of ecological corridors and the enlargement of the areas of tree and shrub clusters in farmland.
42. The intensification of actions to minimise environmental pollution, particularly the pollutants which affect eutrophication and acidification of terrestrial and aquatic ecosystems.
43. The development of the favourable conditions for the transfer of farmland for nature conservation purposes.
44. The supporting of actions to preserve *ex-situ* genetic resources for food and agriculture.
45. The intensification of actions for *in-situ* conservation of biodiversity, particularly the genetic resources of local crop plant varieties and native livestock breeds.
46. The ensuring of the economic viability of the growing and breeding of traditional, native crop plant varieties and livestock breeds.
47. The intensification of actions to raise the awareness and knowledge of farmers concerning the conservation and sustainable use of biodiversity.

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:

In 2012 a new governmental "Strategy for sustainable development of rural areas, agriculture and fisheries for 2012-2020" was adopted. The Strategy supports multifunctional and sustainable agriculture that underlines cultural and environmental roles and functions of agriculture.

[**„Strategia zrównoważonego rozwoju wsi, rolnictwa i rybactwa" na lata 2012 -2020.** Załącznik do uchwały nr 163 Rady Ministrów z dnia 25 kwietnia 2012 r. (poz. 839), http://www.minrol.gov.pl/pol/Informacje-branzowe/Strategia-zrownowazonego-rozwoju-wsi-rolnictwa-i-rybactwa-na-lata-2012-2020/Dokumenty-analizy (in Polish)]

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:

A national database (covering all species) has been in place since before the adoption of the GPA. The database was later upgraded to be compatible with the EFABIS database. After adoption of the GPA the database was strengthened. Moreover, in the National Research Institute of Animal Production species specific databases were developed to collect information on individual animals included in the conservation programmes. Such databases are available for cattle, pigs, sheep and goats, and horses.

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:

Poland regularly updates EFABIS; the transfer of data to DAD-IS should occur on monthly basis.

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:

The National Focal Point for AnGR was established in 1996 and was operating within the framework of the Global Strategy for the Management of Farm Animal Genetic Resources (FAO, 1999). Following the suggestions of the Primary guidelines...., a formal national network for AnGR was established. The network included the Advisory Board and the eight Working Groups that oversee the conservation of horse, cattle, sheep and goat, pig, poultry, fur animals, fish and bees genetic resources. The scope of Polish programme is broader than the FAO programme, to meet the country needs. The participation in the work of national network was voluntary, involving representatives from breeders' organizations, universities and research institutions.

The main functions of the National Advisory Board for AnGR include:

- developing a vision for AnGR conservation and sustainable use in Poland;
- supervision of overall AnGR conservation activities in Poland;
- undertaking and approving various initiatives related to AnGR management;
- analysing and addressing potential conflicts in implementation of the conservation programmes;
- providing guidance on the process of preparing the NSAP;
- overseeing and evaluating progress in preparing the NSAP;
- mobilizing support for development and implementation of the NSAP;
- establishing criteria for evaluating progress in the implementation NSAP;
- evaluating the performance of the National Focal Point.

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:

Stakeholders mentioned above, especially representatives of breeders' organizations, research sector, relevant Ministry departments, and to some extent national breeding industry are either members or observers invited to contribute to the work of the Working groups on species genetic resources.

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

- ◉ a. Yes, activities commenced before the adoption of the GPA
- ○ b. Yes, activities commenced after the adoption of the GPA
- ○ c. No, but activities are planned and funding identified
- ○ d. No, but activities are planned and funding is sought
- ○ e. No

Please provide further details:

Activities to increase public awareness were undertaken after establishment of the National Focal Pointon AnGR, but they were strengthened after adoption of the GPA. They include:

- Organization of annual Exhibition of native breeds during the National Animal Show;
- Organizations of regional animal shows;
- Organization of seminars, lectures and presentations of native breeds;
- Promotion/information materials;
- Preparation of book on native breeds;
- Preparation of various gadgets for the public: T-shirts, clips for fridge etc;
- Interaction with media - mainly Polish radio and press and TV;
- Promotion of products derived from native breeds;
- Organization of lessons for school children, demonstration of native breeds;
- Visits on conservation farms.

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:

Legal framework guiding animal breeding and animal genetic resources management is provided in a number of the EU regulations and at the national level through the Law on animal breeding and reproduction (Ustawa z dnia 29 czerwca 2007 roku o organizacji hodowli i rozrodzie zwierząt gospodarskich (Dz. U. Nr 133, poz. 921, z późn. zm.) (http://bip.msp.gov.pl/bip/prawo/prawo-obowiazujace/ustawy/3560,dok.html, in Polish).
The animal breeding law, since its amendment in 2004, includes special provisions related to AnGR conservation; the new law on organization of animal breeding and reproduction, of 29th June 2007, includes Article 28 addressing AnGR conservation.

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:

Poland used to have a relatively well develop extension services; moreover in the period before and after accession to the EU there was a lot of initiatives, stimulated mainly by the Ministry of Agriculture and Rural Development aiming at providing training and technology transfer for breeders and farmers. The agricultural/life sciences universities and research institutions were involved in providing such training.

58. Have organizations (including where relevant community-based organizations), networks and initiatives for sustainable use, breeding and conservation been established or strengthened (SP 14, Action 3)?

- ◉ a. Yes, comprehensive organizations, networks and initiatives have existed since before the adoption of the GPA
- ○ b. Yes, comprehensive organizations, networks and initiatives exist because of progress made since the adoption of the GPA
- ○ c. Yes, some organizations, networks and initiatives exist (established or strengthened since adoption of the GPA)
- ○ d. Yes, some organizations, networks and initiatives exist (but no progress made since adoption of the GPA)
- ○ e. No, but action is planned and funding identified
- ○ f. No, but action is planned and funding is sought
- ○ g. No

Please provide further details:

The breeders' organizations (especially dairy cattle) were substantially strengthened after the adoption of the GPA, mainly due to development of the active population, broader membership and gathering experience.
Since 2007, the internal network within the structure of the National Research Institute of Animal Production was strengthened, with a special AnGR Unit being established and species Coordinators nominated to coordinate conservation activities and cooperate with breeders. Please view the annex at the end of this document for more information.

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:

Some of the NGOs identified below are involved in agrobiodiversity and AnGR conservation and sustainable use or promotion of organic agriculture. Others have objectives related to the protection of nature/birds or social development and poverty eradication.

However, all of them have been implementing AnGR projects, taking into account various roles and values of livestock, and especially native breeds.

- Society for Traditional Breeds and Varieties http://www.ddoir.org.pl/site/
- Polish Association of Users and Friends of Working Horses: http://www.konierobocze.pl/

- Social Ecological Institute: http://sie.org.pl/english
- Foundation for Sustainable Development: Fundacja EcoRozwoju http://fer.org.pl/index.php?dzial=2&kat=8
- Association Solidarity "PLUS" EKO "School of Life »: http://www.ekosz.republika.pl/
- Barka Foundation for Mutual Help: http://barka.org.pl/taxonomy/term/28
- Society of Friends of the upper Vistula River: http://www.tpdw.pl/
- Polish Society for Birds Protection http://www.ptop.org.pl/
- Association Stork: http://www.bocian.org.pl/
- Agri-Natura Foundation: http://www.agrinatura.pl/

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:

The research and educational institutions are well established and have a substantial human capacity. The key problem is lack of sufficient resources to conduct research.
A number of agricultural/life sciences universities established courses on AnGR and/or biodiversity and textbooks were prepared for students.

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.

The strategic priority measures in the SPA 4 were identified in the National Strategy for Sustainable Use and Conservation of the Farm Animal Genetic Resources with Action Plan and they include:
12. Development of cooperation between breeders, producers and consumers (3 actions)
13. Development of a human capital involved in livestock production (3 actions)
14. Building public awareness on roles and importance of livestock production (5 actions)
15. Assessment and improvement of legislation in the area of livestock breeding (4 actions)

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:

The examples of international collaboration include:

- Participation in various activities of the ERFP, projects, working Group and Task Force activities;
- Participation in training workshops organized by ERFP;
- Participation in scientific conferences organized by European countries;
- Collaboration in management of Hutsul horses transboundary population - the studbooks of origin are kept in Poland;
- Bilateral cooperation with Ukraine - provision of breeding material of Hutsul horses and the Polish Red cattle as well as conducting training;
- Bilateral cooperation with Lithuania as regards Whitebacked cattle.

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:

SAVE Foundation: cooperation within the Arca-net project (http://www.arca-net.info/pages/frame.asp?sprache=en)
Heifer Project International: till 2013 was very active in Poland, also in promotion of native breeds.

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

- (●) a. Yes
- ( ) b. No

Please provide further details:

The State of the World process enhanced awareness of AnGR, and most of all led to the amendment of the animal breeding law in 2004 and an increase in funding for *in situ* conservation.

The total financing for AnGR conservation from the state budget in year 2004 was at the level of 2.7 million PLN (subsidies provided directly for breeders).

In the period of 2007-2013, the projected budget for conservation of cattle, horse, sheep and pig breeds was over 200

million PLN. Breeds under conservation within other species then mentioned above, are still financed from state aid at a slightly higher level than in 2004.

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:

Financial support for the conservation of native endangered breeds was partly supported by the EU, according to Article 39. Agri-environment payments, of the COUNCIL REGULATION (EC) No 1698/2005 of 20 September 2005 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD).

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:

Poland was not supporting such activities directly, but only as EU Member state through the European Commission.

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:

Through participation in EFABIS, and activities of the Working Group on Documentation ERFP.

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:

Through participation in the EFABIS.

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:

Through participation in EFABIS, and activities of the Working Group on Documentation ERFP.

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:

Through participation in the ERFP activities, especially SUBSIBREED project.

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:

Through participation in the ERFP activities, especially Ex -situ Working Group.

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:

Through participation in the ERFP activities, especially activities of the Task Force ABS.

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:

Through participation in the ERFP activities, and activities of the ITWG-AnGR and the CGRFA.

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:

Such activities were undertaken through:

- Contribution to activities of the ERFP Task Force on ABS;
- Contribution to the work of the Council Working Party on International Environmental Issues that is dealing with implementation of the Nagoya Protocol at the international level;
- Contribution to the work of the Council Working Party on Environment that is dealing with implementation of the Nagoya Protocol within the European Union.

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
ABS: development of the MTA for genetic material stored in *ex-situ* gene banks	Implementation of the Nagoya Protocol Enhanced *ex-situ in vitro* activities at national level	Preparation of MTA draft to be discussed at the ITWG-AnGR and the CGRFA forum

Submit by Email

Annex

Additional information to questions

Part II
OVERVIEW OF ANIMAL GENETIC RESOURCES

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

Species	Number of breeds	
	Locally adapted breeds	Exotic breeds
Cattle (specialized dairy)	0	5
Cattle (specialized beef)	0	13
Cattle (multipurpose)	5	1
Sheep	25 (3 - utilisation terminated)	8 (4 - utilisation terminated)
Goats	3	4 (1- utilisation terminated)
Pigs	6	3 (1- utilisation terminated
Chickens	20	11 (5- utilisation terminated)
Horses	12	4
Ducks	11	2 (12 - utilisation terminated)
Geese	16	0
Rabbits	1	24
Turkeys	0	0 (only imported material)
Chinchilla	3	
Nutria	8	
Fox common	4	
Fox polar	1	
Mink	9	
Polecat	1	
Raccoon dog	1	
Fish trout	2	
Fish carp	21	
Bees	58	

The classification of breeds as locally adapted or exotic sometimes created substantial difficulties. A number of exotic breeds were imported to Poland in mid 50thies or 60thies so these breeds can be already considered as locally adapted. In the same time they are international mainstream breeds, belonging to global or regional populations. It was difficult to decide which element of each definition (locally adapted/exotic) should be considered as a key one. We had a long discussion, on case by case basis, in the same time trying to use the same approach across breeds in all species. A good example is provided by horse breeds. We have decided to classify Arabian horses as locally adapted (as they represent a unique type of Polish Arabs) while Full-blooded horses were classified as exotic breed, due to the continuous imports and a strong influence of word population in this breed. The Polish HF was also considered as exotic, for the same reason, in spite of the fact that the population was developed as backcross of black and white lowland cattle with HF, and has “Polish” in the name.

As there was no opportunity to include information on species beyond the predefined list, in the table above, we have provided information on all species of economical importance and state of their resources.

Another issue was related to imported breeds/synthetic lines from research/genotypes that lost popularity and were not utilised any longer. Classification of such populations as “extinct” is not technically correct,

as they were not really well established native breeds that we have lost, so we used a term “utilisation terminated”. So for instance, at present we have 25 local sheep breeds and 8 exotic breeds. Additionally we used to have 3 synthetic lines that are not kept any longer and 4 exotic breeds which utilisation was terminated. This breeds are included in DAD-IS and we will have to indicate that heir utilization have been terminated.

CHARACTERIZATION

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.

It has to be underlined that monitoring of breed population size is carried out only in the active part of the population which is involved in the breeding activities such as performance recording, breeding value estimation and selection programme. Baseline survey of population size is conducted on species level and not on the breed level.

BREEDING PROGRAMMES

10. Who operates breeding programmes in your country?

Species	Government	Livestock keepers organized at community level	Breeders' associations or cooperatives	National commercial companies	External commercial companies	Non-governmental organizations	Others	**Explanation on public sector involvement**
Cattle (specialized dairy)			Y	Y	Y			
Cattle (specialized beef)			Y					
Cattle (multipurpose)	Y		Y					University of Life Sciences in Lublin: White backed cattle
Sheep			Y					
Goats	Y		Y					National Research Institute of Animal Production: the Carpathian goat
Pigs	Y		Y		Y			Poznań University of Life Sciences: Zlotniki white and Zlotniki spotted pigs
Chickens	Y		Y		Y			National Research Institute of Animal Production: 8 genotypes of chicken under in-situ conservation
Horses	Y		Y		Y			Full- and Pure-blooded horses: organization is in charge of horse races
Turkeys					Y			
Ducks	Y		Y		Y			National Research Institute of Animal Production: 6 genotypes of ducks under in-situ conservation
Geese	Y		Y					National Research Institute of Animal Production: 12 genotypes of geese under in-situ conservation
Fur animals	Y							National Animal Breeding Centre (so far no breeder's organization was interested in taking over this responsibility)
Bees	Y							National Animal Breeding Centre (so far no breeder's organization was interested in taking over this responsibility)
Fish	Y							Institute of Ichthyobiology and Agriculture of Polish Academy of Science in Gołysz, the Research Station of Inland Fisheries Institute in Zator, the Research Station of SGGW Łąki Jaktorowskie and Inland Fisheries Institute, Department of Salmonid Research in Rutki.

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

In majority of species, in the active part of breeds' population, the pure breeding is only applied and selection is taking place within the breed. In case of pigs, purebred animals are also used to produce F1 boars and F1 gilts for commercial reproductive/multiplication herds.
In commercial/mass population crossbreeding to upgrade the genetic value of the herd is widely used in dual purpose cattle (with dairy breeds) and in goats. It is also used in maternal sheep breeds to produce lambs for slaughter (crossing with terminal sires). Occasionally crossbreeding it is used in laying hens to increase fitness of chicks dedicated for back-yard production. In commercial pig and poultry production, hybrids from international breeding companies are widely used.

CONSERVATION

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

Table. Number of breeds, herds/flocks and number of females within species included in animal genetic resources conservation programmes in 2013.

Species	Number of breeeds/vatieties/lines	Number of herds/flocks	Number of females
Horses	7	1312	5347
Cattle	4	903	8681
Sheep	13	674	46014
Goats	1	2	29
Pigs	3	84	2072
Chicken (Laying hens)	19	19	18 778
Geese	14	14	5 158
Ducks	10	10	4 012
Rabbits	1	10	350
Other fur animals (foxes, chinchilla, polecats, nutria)	12	24	877
Total	84	3 058	91 318
Local honey-bee lines	4	-	1476 families
TOTAL	88	-	-

23.2. If yes, please describe the plans

The current collection of *ex-situ* material stored in the Bank of Genetic Material in Balice was established within a number of research projects carried out in the National Research Institute of Animal Production. As for the end of 2013, the following sheep breed semen was stored in the bank (Szczęśniak-Fabiańczyk, 2013).

Breed	Number of doses	Number of donors
Swiniarka sheep	680	6
Olkuska sheep	3 650	21
Polish Mountain Sheep	710	3
Romanowska sheep	640	6
Polish heath sheep	1 217	12

In the last few years, a systematic collection of semen of native cattle breeds has been carried out. The stored material, together with historical material includes over 52 thousand semen doses. The current status of the collection is presented below (Szczęśniak-Fabiańczyk, 2013).

Breed	Number of doses	Number of bulls	Number of embryos
Polish Red	41 456	134	1916
Polish White-backed cattle	1 050	12	
Polish Red and White	5 602	33	
Polish Black and White	4 444	17	
Total	52552	196	

PART IV

58. Please provide further details: