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: Egypt

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).

1. Key trends and driving forces affecting AnGR management in Egypt:
Official census for animal wealth in Egypt is carried out considering total number of each specie, i.e., number of cattle classified as local, exotic and crossbred by governorate. Lack of data by breed, population or genotype makes it difficult to assess and monitor the risk status accurately or make a precise state of AnGR. Moreover, there are only few discriminate characteristics to distinguish each of the Egyptian breeds. Comprehensive updated phenotypic and genetic characterization is needed to define breeding objectives and plans for the management (utilization and conservation) of the available resources. Although, many of breeds presently existing in Egypt can be listed within the category “not at risk“, Galal (2007) using the census prepared by the Economic Affairs Sector of the Egyptian Ministry of Agriculture mentioned that trends of genetic erosion in local cattle and poultry could be alarming. The percentage of local cattle has been decreasing and the crossbred is on the increase while exotics are more or less constant. The introgression of exotic genes into local cattle is mostly indiscriminate because surplus males from exotic breeds as well as F1 and later generations of crossbred males and females from planned crossbreeding projects go to market and used for breeding. During the last ten years, local buffalo genotypes were subjected to a progressive crossbreeding by the Italian buffalo semen. Production systems prevailing in poultry and rabbit industry indicate that the situation regarding local breeds could be also alarming but there are no figures to substantiate such observation. National efforts made to conserve local chicken breeds, e.g. Fayoumi; through utilization is a good example for maintaining farm livestock biodiversity. Pure breeding of exotics in sheep and goats did not take root to any serious degree that may endanger local. Number of camels, sheep and goats in the North-western coastal zone is, more or less, the same during the last decade but differ from year to another proportionally to rainfall.

2. Strength, weaknesses and gaps in capacity to manage AnGR in Egypt:
A fruitful cooperation among FAO, Faculty of Agriculture - Ain Shams University and Animal Production Research Institute (APRI) in 2002 resulted in establishing a qualified team on the assessment of AnGR management and preparation of reports. APRI is the official National Focal Point for AnGR in Egypt. One of the main missions of APRI is characterization, genetic improvement, conservation and dissemination of genetically improved local AnGR. However,

AnGR as an integral part of livestock production, is a field of a special nature requiring multidisciplinary orientations and networking. No real or virtual institutional structures, whose sole concern is AnGR management in its entirety, exists in the county. Lack of institutional capacity is evident from the following:

2.1. No breed associations in the conventional sense exist in the country. However, there are buffalo, cattle and sheep & goats breeders associations that fall under “utility associations” providing production services for their members but do not keep herd-books or run performance recording nationwide.

2.2. Role of NGOs and different stakeholders is minimal, especially farmers.

2.3. Absence of national identification and recording systems. The existing recording only takes place in state farms and some isolated large herds and flocks. Efforts made by the General Organization for Veterinary Services in animal identification took place in some governorates for veterinary purposes only.

2.4. Regardless the current efforts made by APRI and other research centers and universities, no institutional structures, whose concern is AnGR management, exists in the county, i.e. breed identification, breed characterization, breed development, breed surveying, monitoring and determination of risk status and breed conservation.

2.5. Lack of short- and long-term policies and their implementation for the management of AnGR in the country.

3. Key constraints and challenges with respect to AnGR management in Egypt:

3.1. Livestock production systems in Egypt focus mainly on increase its output. This lead to an intensification of the system with less attention paid to sustainability and environmental elements.

3.2. Lack of database on the state of AnGR in the country.

3.3. Lack of Stakeholder networking regarding the management of AnGR.

3.4. Lack of monitoring systems and economic evaluation of production systems where AnGR are kept.

3.5. Lack of appropriate legislations regarding AnGR management.

3.6. Shortage of properly trained manpower.

3.7. Lack of financial resources.

4. Priorities and strategic directions for future action for the next ten years:

In agreement with the first Egyptian report on AnGR (2003), priorities mainly include capacity building, developing the institutional structure and increasing awareness among producers/breeders of the benefits gained from the maintenance of local breeds. Priorities may differ for different species/breeds in different agro-ecological zones according to climate conditions, customs and consumer's preference. However, current AnGR needs relevant institutional structure with properly trained manpower, infrastructure, policies and legislations. Detailed priorities include:

4.1. Legislations: there is much legislation in Egypt dealing with livestock in general, i.e. hygiene, slaughterhouses managment, quarantine etc, but very little that deal with AnGR management in specific. Legislations are needed for the regulation of the use of exotic and local germplasm especially in cattle, buffaloes and poultry.

4.2. The state of AnGR in the country must take the breed into account in animal census (accurate and regular inventory of all genotypes should be performed).

4.3. Stakeholder networking focusing on the characterization (phenotypic and genetic) and utilization of animal genetic resources is urgently needed.

4.4. Establishing national identification and recording systems is an essential step for AnGR management.

4.5. Establishing gene banks and application of AnGR conservation practices specially cryo-preservation.

4.6. Human resources development in all aspects of AnGR management is needed, more specifically,

a) Systematic characterization, both phenotypic and genetic, of local AnGR,

b) Molecular genetics techniques,

c) Establishing of gene banks and giving special attention to cryo-preservation and

d) Networking different livestock stakeholders.

APRI in collaboration with number of universities and research centers are capable to offer a reasonable level of training in some aspects of the above mentioned but this requires commitment, coordination, national networking and financial support.

References:

Galal, Salah, 2007. Farm Animal Genetic Resources in Egypt: Factsheet. Egyptian J. Anim. Prod., 44(1):1-23.

Ministry of Agriculture and Land Reclamation. Economic Affairs Sector, 1992 to 2013. Study of Most Important Statistical Parameters of Animal, Poultry, Fish and Apiculture Wealth.

Ministry of Agriculture and Land Reclamation and FAO, 2003. First Report on the State of Animal Genetic Resources in the Arab Republic of Egypt, FAO, Rome.

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.

Some particular genetic resources (i.e. Fayoumy and Dandarawy Chicken) was transferred to some developed countries (some European and USA) in uncontrolled/unregistered manner.
Some developing-to-developing countries flows occurred by introduction of Syrian Awassi sheep and Damascus goats.

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).

Buffaloes and cattle are covered. References are:
1. General Organization for Veterinary Services (GOVS): www.govs.gov.eg
2. Central Agency for Public Mobilization and Statistics (CAPMAS): www.capmas.gov.eg

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.

1. Numbers of imported animals and semen straws are increasing.
2. Species involved are buffaloes, cattle, rabbits and chicken.
3. Cattle breeds are: Holstein (USA), Friesian (Netherlands), Abundance and Tarentaise (France).
Italian Buffaloes Semen (Italy).
Rabbit breeds are: R -Line and V-Line (Imported from Spain).
Imported Chicken breeds are hybrids for commercial use but leakage does happen

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.

Change has been done significantly in the last ten years due to the excessive gene flow from exotic AnGR.
Unplanned crossbreeding of indigenous cattle and buffalo, and accordingly numbers of pure local breed has decreased.

LIVESTOCK SECTOR TRENDS

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

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

Drivers of change	Impact on animal genetic resources and their management over last ten years	Future impact on animal genetic resources and their management (predicted for the next ten years)	Describe the effects on animal genetic resources and their management
Changing demand for livestock products (quantity)	medium	medium	Due to the over population and increased income, demand for livestock product has increased. Therefore number of both exotic and crossbred cattle increased to face the increased demand. On the other hand, the unplanned and extensive use of AI for increasing number of crossbred animals, resulted in decrease in the number of some indigenous FAnGR (e.g. Damietta cattle, and some local buffalo genotypes). Also a shift towards the consumption of poultry meat is occurring , and away from local ruminant.
Changing demand for livestock products (quality)	none	none	Minor changes in quality demand for specific local livestock products occurred did not make any detectable change in AnGR.
Changes in marketing infrastructure and access	none	low	Monitoring of the domestic market is weak, and lack of policies/legislations protecting the national farmer and his/her local products.
Changes in retailing	none	none	Change in retailing system of AnGR products e.g. increase in number of Super- and Hyper-markets did not show significant impact on AnGR and is not expected to have in the coming 10 years.
Changes in international trade in animal products (imports)	none	low	Increasing number of imported live animals/ carcasses from other African countries e.g. Sudan, Somalia and Ethiopia will have its effect.
Changes in international trade in animal products (exports)	none	none	No much exportation.
Climatic changes	low	low	The changes in climatic pattern, e.g. draught cycles in the main grazing regions of the North Western Coastal Zone, NWCZ, resulted in fluctuated decrease in number of livestock (sheep, goats and camels) in the region. The effect was reversible after the draught cycles. This trend is expected to be repeated in the coming 10 years.
Degradation or improvement of grazing land	low	low	The changes in climatic pattern, e.g., draught cycles (see above point), resulted in decrease the grazing land, and therefore decrease in number of livestock (sheep, goats and camels).

Drivers of change	Impact on animal genetic resources and their management over last ten years	Future impact on animal genetic resources and their management (predicted for the next ten years)	Describe the effects on animal genetic resources and their management
Loss of, or loss of access to, grazing land and other natural resources	none	none	Not Available
Economic, livelihood or lifestyle factors affecting the popularity of livestock keeping	none	low	The developing lifestyle will be accompanied with the tendency to consume healthier animal products e.g. less fat/cholesterol meat and milk, more milk casein, more organic-produced egg, etc is expected to have its effect in the coming 10 years.
Replacement of livestock functions	low	low	Minor change occurred in replacing the livestock function, as draught animals power in agricultural activities. Number of indigenous cattle, used to be used as work animals, decreased. This trend is expected to continue with continuing the mechanization of agricultural activities.
Changing cultural roles of livestock	low	low	Cultural roles of livestock are not changing much.
Changes in technology	medium	medium	The application of AI using frozen semen of Italian buffaloes and exotic breeds of cattle (Friesian, Holstein, Abondance and Tarentaise) resulted in a decrease of the number of local pure animals.
Policy factors	medium	medium	The lack of a long term policy (importation of frozen semen and the uncontrolled crossing programs) affected the local AnGR.
Disease epidemics	medium	medium	Outbreaks of some disease epidemics (e.s. avian & swine flue) results in drastic decrease in some genetic resources e.g. improved Mahallah85 Turkey and Egyptian pigs. Frequent incidence of endemic FMD in large ruminants resulted in waves of decrease in number of animals in the years of its incidence.

OVERVIEW OF ANIMAL GENETIC RESOURCES

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

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

Species	Locally adapted breeds	Exotic breeds
Cattle (specialized dairy)	0	2
Cattle (specialized beef)	0	0
Cattle (multipurpose)	4	0
Sheep	6	2
Goats	6	1

Species	Locally adapted breeds	Exotic breeds
Pigs	1	0
Chickens	13	11
Buffaloes	3	0
Ducks	2	3
Geese	2	0
Rabbits	7	3
Turkeys	1	1
Pigeons	4	0
Horses	2	1
Dromedaries	2	1
Asses	3	0

CHARACTERIZATION

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

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

Note: Please focus on characterization studies that have been conducted within the last ten years (baseline surveys of population size may have been conducted in the more distant past). Recall that some types of characterization study on your country's breeds may have been conducted outside your country. For the first two columns, please insert the number of breeds; for columns 3 to 8 please choose one of the following categories: none; low (approximately <33%); medium (approximately 33–67%); high (approximately >67%).

Species	Baseline survey of population size	Regular monitoring of population size	Phenotypic characterization	Molecular genetic diversity studies – within breed	Genetic diversity studies based on pedigree	Molecular genetic diversity studies – between breed	Genetic variance component estimation	Molecular genetic evaluation
Cattle (specialized dairy)	2	2	none	none	none	none	none	none
Cattle (specialized beef)	0	0	none	none	none	none	none	none
Cattle (multipurpose)	4	4	low	none	none	low	none	none
Sheep	6	6	medium	none	none	medium	medium	none
Goats	6	6	medium	none	none	low	medium	none

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
Pigs	0	0	none	none	none	none	none	none
Chickens	0	0	medium	none	none	medium	medium	none
Buffaloes	3	3	low	none	none	medium	medium	none
Dromedaries	2	2	low	none	none	low	none	none
Ducks	0	0	none	none	none	none	none	none
Geese	0	0	none	none	none	none	none	none
Horses	2	2	medium	none	low	low	none	none
Pigeons	0	0	low	none	none	none	none	none
Rabbits	0	0	high	none	none	low	medium	none
Turkeys	0	0	medium	none	none	none	none	none
Asses	3	3	none	none	none	none	none	none

INSTITUTIONS AND STAKEHOLDERS

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

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

	Score
Education	medium
Research	low
Knowledge	medium
Awareness	low
Infrastructure	none
Stakeholder participation	none
Policies	low

	Score
Policy implementation	low
Laws	low
Implementation of laws	low

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	There exist institutions catering for livestock production *per se* but not directly involved in AnGR management. There are few courses concerning AnGR management are regularly offered in Animal Production Department (e.g. Faculty of Agriculture, Ain Shams University). In addition, the Biotech department of many universities can help, if directed to, in AnGR management e.g., Molecular characterization, *In Vitro* conservation, etc.
Research	Animal Production Research Institute, National Research Center, Desert Research Center and some Universities have been carrying out number of research activities associated with AnGR management e.g. between breeds molecular genetic diversity, and phenotypic characterization. However, there are no comprehensive studies on genetic distances between breeds, evaluation of different breeds, and economic evaluation of production systems where these breeds produce and breed characterization.
Knowledge	Although knowledge on AnGR management has been accumulating during the last ten years (made more accessible), only scientists have access to the knowledge needed to perform their roles effectively. This is due to the lack of networking among different stakeholders in the field of management of AnGR.
Awareness	The level of awareness is limited to some specialized scientific stakeholders, no governmental support is directed to all stakeholders.
Infrastructure	1. Lack of database on the state of AnGR in the country, necessary to get a clear picture of the status of different species/breeds. 2. Absence of stakeholder networking regarding the management (Characterization, utilization and conservation) of AnGR. 3. None allocating/shortage of financial resources needed for properly trained manpower. 4. Weakness of institutional capacity in the country is reflected in: 4.1. No breed associations (only few species associations). 4.2. Role of NGOs and different stakeholders is absent or minimal. 4.3. Absence of national animal identification and recording system 4.4. Lack of international/regional coordination 4.5. No real or virtual institutional structures exist in the county whose main concern is AnGR management (i.e. identification, characterization, development, surveying, monitoring and determination of risk status, and conservation).
Stakeholder participation	1. Absence of Stakeholder networking regarding the management of AnGR. 2. No breed associations in the conventional sense exist in the country 3. Role of NGOs and different stakeholders is absent or minimal.
Policies	Lack of short- and long-term policies for the management of AnGR in the country.
Policy implementation	Lack of policy implementation.
Laws	Lack of appropriate legislations.
Implementation of laws	Lack of appropriate legislations.

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).

None exists.

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

Species	Government	Livestock keepers organized at community level	Breeders' associations or cooperatives	National commercial companies	External commercial companies	Non-governmental organizations	Others
Asses	no	no	no	no	no	no	no
Buffaloes	no	no	no	no	no	no	no
Dromedaries	no	no	no	no	no	no	no
Ducks	no	no	no	no	no	no	no
Geese	no	no	no	no	no	no	no
Horses	no	no	no	no	no	no	no
Pigeons	no	no	no	no	no	no	no
Rabbits	no	no	no	no	no	no	no
Turkeys	no	no	no	no	no	no	no

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

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

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

Species	Tools															
	Animal identification		Breeding goal defined		Performance recording		Pedigree recording		Genetic evaluation (classic approach)		Genetic evaluation including genomic information		Management of genetic variation (by maximizing effective population size or minimizing rate of inbreeding)		Artificial insemination	
	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex
Cattle (specialized dairy)	0	2	0	2	0	2	0	2	0	0	0	0	0	0	0	2
Cattle (specialized beef)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cattle (multipurpose)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
Sheep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Goats	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buffaloes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dromedaries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pigs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chickens	0	4	0	4	0	4	0	4	0	4	0	0	0	0	0	0
Asses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ducks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Geese	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Horses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pigeons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rabbits	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkeys	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Species	Breeding method			
	Straight/pure-breeding only		Straight/pure-breeding and cross-breeding	
	Loc	Ex	Loc	Ex
Cattle (specialized dairy)	0	0	0	0
Cattle (specialized beef)	0	0	0	0
Cattle (multipurpose)	0	0	0	0
Sheep	0	0	0	0
Goats	0	0	0	0
Buffaloes	0	0	0	0
Dromedaries	0	0	0	0
Pigs	0	0	0	0
Chickens	0	4	0	0
Asses	0	0	0	0
Ducks	0	0	0	0
Geese	0	0	0	0
Horses	0	0	0	0
Pigeons	0	0	0	0
Turkeys	0	0	0	0

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

Species	Training	Research
Cattle (specialized dairy)	medium	medium
Cattle (specialized beef)	none	none
Cattle (multipurpose)	low	low
Sheep	medium	medium
Goats	medium	medium
Pigs	none	none
Chickens	medium	medium
Buffaloes	medium	medium
Dromedaries	low	low
Ducks	none	none
Geese	none	none
Horses	low	low
Asses	none	none
Rabbits	medium	medium
Turkeys	low	low

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

Species	Organization of livestock keepers
Cattle (specialized dairy)	none
Cattle (specialized beef)	none
Cattle (multipurpose)	none
Sheep	none
Goats	none
Pigs	none
Chickens	none
Buffaloes	none
Dromedaries	none
Ducks	none
Geese	none
Rabbits	none
Horses	none
Asses	none
Pigeons	none
Turkeys	none

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

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

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

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

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)	no
Cattle (specialized beef)	no
Cattle (multipurpose)	no
Sheep	no
Goats	no
Pigs	no
Chickens	no
Asses	no
Buffaloes	no
Dromedaries	no
Ducks	no

Species	Policies or programmes
Geese	no
Horses	no
Pigeons	no
Rabbits	no
Turkeys	no

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)	None
Cattle (specialized beef)	None
Cattle (multipurpose)	None
Sheep	None
Goats	None
Pigs	None
Chickens	None
Asses	None
Buffaloes	None
Dromedaries	None
Ducks	None
Geese	None
Horses	None
Pigeons	None
Rabbits	None
Turkeys	None

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)	Non-Exists
Cattle (specialized beef)	Non Exists
Cattle (multipurpose)	1. Lack of interest in the genetic improvement of local breeds. 2. Absence of clear policy/breeding program results in focusing on quantitative needs of animal products on the cost of the local AnGR improvement, utilization and conservation. Therefore, number of exotic and crossbred animals significantly increased and, on the other hand, number of local animals decreased.
Sheep	In spite of the absence of breeding program and the importation of some exotics, this did not take root to any serious degree that may negatively affect locals.

Species	Description of consequences
Goats	In spite of the absence of breeding program and the importation of some exotics, this did not take root to any serious degree that may negatively affect locals.
Pigs	Non Exists
Chickens	Lacks of policies/programs for the utilization and conservation of local breeds, accompanied with the commercial approach of utilizing imported hybrids resulted in a national-wide inefficient use of local breeds.
Asses	Non Exists
Buffaloes	1. Lack of interest in the genetic improvement of Egyptian buffalo genotypes. 2. Absence of clear policy/breeding program for buffalo results in focusing on unplanned importation and dissemination of Italian buffalo semen on the cost of the genetic improvement, utilization and conservation of local breeds. Therefore, number of crossbred buffalo animals are significantly increasing.
Dromedaries	Non Exists
Ducks	Non Exists
Geese	Non Exists
Horses	Non Exists
Pigeons	Non Exists
Rabbits	Lack of policies/programs for the utilization and conservation of local breeds, accompanied with the commercial approach of utilizing exotic breeds resulted in a national-wide inefficient use of local breeds.
Turkeys	Non Exists

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.

The main constraints to the implementation of breeding programs are:
1. Lack of institutional capacity in the country evidenced from the following:
1.1. Virtually no breed associations
1.2. Role of NGOs and different stakeholders is absent
1.3. Absence of national recording systems.
1.4. No real or virtual institutional structures exist in the county whose main concern is breeding programs implementation, monitoring and improvement.
1.5 Lack of short- and long-term policies for a national breeding program

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)	
Cattle (specialized beef)	
Cattle (multipurpose)	The following actions are needed: 1. Establishing national identification and recording system 2. Networking different livestock stakeholders 3. Genetic evaluations 4. Accurate and regular inventory of all genotypes 5. Systematic characterization (phenotypic and genetic) 6. Reproductive Biotech. 7. AnGR conservation 8. Establishing gene banks.

Species	Description of future objectives, priorities and plans
Sheep	The following actions are needed: 1. Establishing national identification and recording system 2. Networking different livestock stakeholders 3. Genetic evaluations 4. Accurate and regular inventory of all genotypes 5. Systematic characterization (phenotypic and genetic)
Goats	The following actions are needed: 1. Establishing national identification and recording system 2. Networking different livestock stakeholders 3. Genetic evaluations 4. Accurate and regular inventory of all genotypes 5. Systematic characterization (phenotypic and genetic)
Pigs	
Chickens	The following actions are needed: 1. Gradual involvement of local poultry genetic resources 2. Establishing national database and recording system 3. Networking different poultry production stakeholders 4. Genetic evaluations 5. Accurate and regular inventory of all genotypes 6. Systematic characterization (phenotypic and genetic)
Asses	
Buffaloes	The following actions are needed: 1. Establishing national identification and recording system 2. Networking different livestock stakeholders 3. Genetic evaluations 4. Accurate and regular inventory of main genotypes 5. Systematic characterization (phenotypic and genetic) 6. Reproductive Biotech. 7. AnGR conservation 8. Establishing gene banks
Dromedaries	The following actions are needed: 1. Systematic characterization, both phenotypic and genetic 2. Genetic evaluations: evaluation of crossing experiments, estimation of breeding value 3. Molecular genetic techniques 4. Embryo transfer and related technologies, e.g. MOET, and artificial insemination 5. Networking 6. Establishing national recording system 7. AnGR conservation 8. Establishing gene banks 9. Networking different livestock stakeholders.
Ducks	The following actions are needed: 1. Systematic characterization, both phenotypic and genetic 2. Genetic evaluations: evaluation of crossing experiments, estimation of breeding value 3. Molecular genetic techniques 4. Artificial insemination 5. Networking 6. Establishing national recording system 7. AnGR conservation 8. Establishing gene banks 9. Networking different livestock stakeholders.

Species	Description of future objectives, priorities and plans
Geese	The following actions are needed: 1. Systematic characterization, both phenotypic and genetic 2. Genetic evaluations: evaluation of crossing experiments, estimation of breeding value 3. Molecular genetic techniques 4. Artificial insemination 5. Networking 6. Establishing national recording system 7. AnGR conservation 8. Establishing gene banks 9. Networking different livestock stakeholders
Horses	The following actions are needed: 1. Systematic characterization, both phenotypic and genetic 2. Paying attention to the elite Arab horse Center in the country and establishing objective criteria for selecting breeding stallions and mares 3. Molecular genetic techniques 4. Embryo transfer and related technologies, e.g. MOET, and artificial insemination 5. Networking 6. Establishing national recording system 7. AnGR conservation 8. Establishing gene banks 9. Networking different livestock stakeholders
Pigeons	Systematic characterization, both phenotypic and genetic Genetic evaluations: evaluation of crossing experiments, estimation of breeding value
Rabbits	The following actions are needed: 1. Establishing national identification and recording system 2. Networking different livestock stakeholders 3. Genetic evaluations 4. Accurate and regular inventory of all genotypes 5. Systematic characterization (phenotypic and genetic) 6. Reproductive Biotech. 7. AnGR conservation 8. Establishing gene banks
Turkeys	The following actions are needed: 1. Systematic characterization, both phenotypic and genetic 2. Genetic evaluations: evaluation of crossing experiments, estimation of breeding value 3. Molecular genetics techniques 4. Artificial insemination 5. Networking 6. Establishing national recording system 7. AnGR conservation 8. Establishing gene banks 9. Networking different livestock stakeholders

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)	none	none	none
Sheep	low	low	none
Goats	low	none	none
Pigs	none	none	none
Chickens	low	none	none
Asses	n/a	n/a	n/a
Buffaloes	none	none	none
Dromedaries	none	none	none
Ducks	none	none	none
Geese	none	none	none
Horses	n/a	n/a	n/a
Pigeons	n/a	n/a	n/a
Rabbits	low	none	none
Turkeys	none	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	no
Genetic uniqueness	no
Genetic variation within the breed	no
Production traits	no
Non-production traits	no
Cultural or historical importance	no
Probability of success	no

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

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

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

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.

Experimental farms belonging to MoA, e.g.. APRI and DRC practice *In Situ* conservation (live animals) for some the local breed of sheep goats, chickens and rabbits.

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

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

- ○ yes
- ◉ no

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

- ○ yes
- ◉ no

23.2. If yes, please describe the plans.

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

	Stored in national genebank
Semen	no
Embryos	no
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)							
Cattle (specialized beef)							
Cattle (multipurpose)							
Sheep							
Goats							

Species	Number of breeds for which material is stored	Number of breeds for which sufficient material is stored	Does the collection include material from not-at-risk breeds?	Have any extinct populations been reconstituted using material from the gene bank?	Have the gene bank collections been used to introduce genetic variability into an in situ population?	Have the gene bank collections been used to introduce genetic variability into an ex situ population?	Do livestock keepers or breeders' associations participate in the planning of the gene banking activities?
Pigs							
Chickens							

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.

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.

none

REPRODUCTIVE AND MOLECULAR BIOTECHNOLOGIES

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

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

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

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

AI is used livestock production at experimental level only in some species as indicated in the table.
IVF is practiced on research level but did not yet extended to MOET
Molecular genetic characterization of local populations of cattle, buffalo, sheep, goats, chicken and rabbits are performed on experimental/research level.

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	no
Embryo transfer	no	no	no	no	no	no
IVF	yes	no	no	no	no	no

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

Aside from experimental/state farms, AI services in cattle, buffalo and rabbits are provided mainly by private Vets.

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

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

30.1. Please briefly describe the research.

There is research being carried out in Agriculture Research Center, National Research Center, and some universities on MOET especially in buffaloes where there are some difficulties in *In Vitro* fertilization.
some international collaboration funded research project concerned with the study of molecular genetic diversity in indigenous small ruminants (6 sheep breeds and 4 goat breeds), with multinational organizations fund; and cattle (3 populations) with European fund.
Genomic adaptation was studied in two desert populations (Barki sheep and goats) and genetic association and natural

signature of selection was studied.
Within the scientific collaboration between Egypt (Animal Production Research Institute) and Spain (Valencia University) research team managed to produce a synthetic rabbit breed (APRI) as results of crossbreeding between Spanish V-Line and Local Red-Baladi.
National Gene Bank in collaboration with the Animal Production Research Institute performed molecular genetic characterization of chicken breeds.

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

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	none	none	low	none	medium
Artificial insemination using nationally produced semen from exotic breeds	none	none	low	none	low
Artificial insemination using imported semen from exotic breeds	none	none	none	none	none
Natural mating	none	none	medium	none	low

Buffaloes	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	none	low	none	low
Artificial insemination using nationally produced semen from exotic breeds	none	none	none	none	none
Artificial insemination using imported semen from exotic breeds	none	none	low	medium	low
Natural mating	none	none	medium	medium	medium

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

Practically, the only reproductive technology used is AI. Its use is mainly based on individual initiative. There needs to be

an institutional structure for delivering AI services involving certification.

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

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

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

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

2. Please describe any other types of collaboration.

Ministry of Agriculture, Agricultural Development Program, has been supporting a project (Sustainable utilization of agriculture biodiversity to develop the local communities in the western desert) that focused on sustainable utilization of agriculture biodiversity, development of agriculture products and improvement of rural livelihood. Based on Integration of Genetic Resources Management in western desert communities, this target could be achieved through raising awareness and building capacity of local communities, non-governmental organizations and private sectors that are involved in the region. The project targets four oases namely El-Kharga, El-Dakhla, El-Farafra and Siwa that have distinct farm animal genetic resources, adapted alfalfa cultivators and a great quantity of under-utilized by-products of date palm, olive and other agricultural by-products.

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

Applying the proposed model for integration between plant and animal genetic resources as well as sustainable utilization of by-products from genetic resources in the project targets four oases namely El-Kharga, El-Dakhla, El-Farafra and Siwa , a project will help to increase the values of agro-biodiversity accounting for economic development of local community as well as farmers, ensuring environmental sustainability. So, the project will support efforts to improve feeding quality as well as utilization of agricultural by products. A unique combination of social, economic, environmental outputs as well as technology and knowledge transfer will be produced by the project to take steps towards the conservation and sustainable use of genetic resources.

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

1. Raising awareness among breeds of the benefits of maintaining locally adapted breeds and encourage them through the provision of soft-loans and the establishment of breeder associations.
2. Capacity building and institutional development of Ministry of Agriculture agencies, Faculties of Agriculture and Veterinary.
3. Updating legislation and regulations to enhance conservation and utilization of AnGR at risk.
4. Research institutions should carry out national breeding programs to make these breeds viable entities in the prevailing production systems.
5. Efficient animal extension and veterinarian services is a key for this success.

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

1. Absence of stakeholder networking
2. Lack of financial resources
3. shortage of properly trained manpower
4. Lack of appropriate legislations and policies
5. Lack of awareness among players in field.

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).

1. Efficient use of water in animal production activities as indicated in Egyptian strategy until 2030.
2. Make benefit of rice straw and control pollution.

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).

No Details.

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).

No Details.

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

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

- ○ yes
- ◉ no

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

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

No Details

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).

No Details.

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.

No details.

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

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

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

No Details.

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:

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:

Animal production Research Institute (APRI), other Animal Research Organizations and Universities have carried out studies over last 3-4 decades and many reports have been published.

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:

APRI, other Animal Research Organizations and Universities performed molecular characterization of different indigenous breeds of buffalo, cattle, sheep, goats, camel and poultry using RAPD and Microsatellite. Further efforts are needed to cover all indigenous AnGR populations utilizing high density markering approaches (e.g. Genome-Wide SNP).

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:

National Consensus is carried out each 10 years, which include inventory of AnGR. Extrapolation are conducted biannually. These include species and populations of local, exotic and crossbred populations according to geographical locations but not detailed breed population.

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:

Animal production Research Institute (APRI) is the National Institute responsible for monitoring AnGR.

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:

AnGR group had been initiated within the "Committee of Agriculture Genetic Resources". Detailed schedules and

activities need to be strengthened.

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:

National consensus is carried out each 10 years on geographical basis, which included monitoring of different AnGR species. Extrapolation are made biannually.

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:

No criteria are used due to the lack of breed inventory/senus, on which, risk status can be assessed.

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:

Risk Management Unit had been established in Ministry of Agriculture, which can deal with this issue in collaboration with AnGR committee.

10. Is your country conducting research to develop methods, technical standards or protocols for phenotypic or molecular characterization, or breed evaluation, valuation or comparison? (SP 2, Action 2)

- ◉ a. Yes, research commenced before the adoption of the GPA
- ○ b. Yes, research commenced after the adoption of the GPA

- ○ c. No, but action is planned and funding identified
- ○ d. No, but action is planned and funding is sought
- ○ e. No

Please provide further details:

Research methods and protocols for phenotypic characterization, breed evaluation and comparisons are conducted before the GPA, however, molecular characterization protocols were adopted after the GPA.

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:

1. Uncompleted national identification recording systems (could be done in near future), therefore population inventory for some breeds is missed.
2. Indiscriminate crossbreeding with exotic breeds.
3. About 85% of the livestock populations are in the hands of small holders.
4. Coordination among researchers, extension staffs and breeders are week.

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

1. Strengthening national programs for individual animal identification and recording systems.
2. Strengthening networking among concerned organization and stakeholders.
3. Strengthening institutional capacity for AnGR management.
4. More attention is needed for indigenous populations, especially those vulnerable and at risk.
5. Supporting Human Resource Development (HRD), especially for the activities of national recording and molecular genetic characterization.
6. Governmental and public awareness.

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.

1. programs for breed characterization and utilization of exotic breeds are as early as the fifties, and also species inventory, however, inventory of indigenous populations is estimated.
2. Some national breeding programs are going on, especially for potential rural poultry, indigenous small and large ruminants, but need up scaling.
3. Sustainable program for the management and conservation of vulnerable and at-risk indigenous breeds is needed.

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:

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:

The majority of AnGR populations are managed in crop-livestock mixed production systems at different agro-ecosystem as follow:

1. Intensive crop-livestock agriculture system is dominant in Delta (small and medium farms), based on buffaloes and crossbred cattle. Commercial dairy farms are expended in reclaimed lands around Delta.
2. Semi-intensive agriculture system is followed in East Delta, Mid and Upper Egypt (hot areas), where small holdings with few heads of large ruminant (cattle and buffaloes) and 5-10 heads of small ruminants are common. Animals are mainly of local breeds and represent 80% of the total national livestock.
3. Extensive production system applied in Sinai, North Coast and Shalateen-Halaieb-Aburamad desert areas. Sheep, goats and camels are raised in these areas.
4. Peri-Urban system, where small dairy herds are raised in the fringes of big cities (Zarraba).

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:

No solid breeding programs exist. However, on experimental level, breeding herd/flock for major livestock and poultry breeds are kept and breeding plans are applied within these herds/flocks. Unfortunately, such plans are not up-scalable for the national level due to lack of animal identification and recording system; polices and legislation, fund and stakeholder networking.

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:

Efforts have been made for Sheep and Goats at medium scale holders.

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:

1. The majority of livestock populations (85%) are raised in small holdings.
2. Food chain problems especially for fresh milk and dairy products.
3. High prices of feedstuffs and competition with human food.
4. Global climatic changes.
5. Weak extension and veterinarian services.
6. Weakness of breeder associations.
7. Livestock production is moving towards intensification due to:

7.1. Fast growing population and the rising of live-standards increase the demand on animal products.
7.2. Limited cultivated land area pushes towards maximizing the output per unit and/land
7.3. Increase the importation of meat and milk products.
7.4. Expanding the pre-urban animal production, and its health and management problems.

19. Have the long-term impacts of the use of exotic breeds on locally adapted breeds (e.g. economic, environmental or genetic impacts) and on food security been assessed in your country (SP4, Action 1)?

Glossary:

Exotic breeds are breeds that are maintained in a different area from the one in which they were developed. Exotic breeds comprise both recently introduced breeds and continually imported breeds.

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

f. No

Please provide further details:

The use of commercial hybrids in broiler and egg production has a main contribution to national production of these products.

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:

In 2014, Minister of Agriculture has a legislation to record all or some of the animals in designated areas. For each animal registered card with numbered and registered.

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:

No Details.

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

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

Please provide further details:

No Details.

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:

No Details.

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:

No Details.

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:

No Details.

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:

No Details.

27. Have efforts been made in your country to promote products derived from indigenous and local species and locally adapted breeds, and facilitate access to markets (SP 6, Action 2, 4)?

- ○ a. Yes, sufficient measures have been in place since before the adoption of the GPA
- ○ b. Yes, sufficient measures are in place because of progress made since the adoption of the GPA
- ◉ c. Yes, some measures are in place (and were established or strengthened after the adoption of the GPA)
- ○ d. Yes, some measures are in place (but no progress has been made since the adoption of the GPA)

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

Please provide further details:

No Details.

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

1. Strengthening breeders and stockholders associations.
2. Strengthening extension and veterinary services
3. Enough budget and fund allocation.
4. Human resources development and public awareness.

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.

1. Establishment of NGOs for different stakeholders, e.g. buffalo-breeders and Zaraibi-goat breeders associations, poultry production association.
2. Research institutes and universities launched number of awareness campaigns for breeders for better utilization of potential AnGR.
3. Credit funds to support the utilization of potential AnGR through integrated actions.
4. Animal production research institute, within its mandatory activities for genetic improvement of indigenous AnGR, had disseminated strategy for the improved germ-plasm from different species for proberagro-ecosystems.
5. Number of agricultural development projects support veterinary and extension services.
6. Capacity building for ministry of agriculture agencies for genetic improvement and utilization of indigenous AnGR.

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:

No Details.

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:

1. The most serious factor negatively impacting indigenous AnGR are the introduction of the exotic breeds and the non-organized crossing. The introduction of Friesian and Holstein has negative impact on local cattle breeds/populations and led the near disappearance of Damietta cattle, while the introduction of New-Zealand and California rabbit breeds in Egypt has led the disappearance of two local rabbit breeds (Giza and white rabbits).
2. Wide utilization of agricultural machineries and inorganic fertilizers, had affected the role of livestock as draft animals.
3. Avian Flu and Swine Flu impact, is still to be assessed.
4. No incentives for raising indigenous breeds at risk.

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:

No Details.

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:

No Details.

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:

Animal Production Research Institute and "Azab" Project (Fayoum) Some research institutes belonging to Ministry of Agriculture, APRI and DRC ,

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:

Farafra sheep (from Farafra Oasis in the Western desert) is kept for *Ex-Situ* conservation purposes in Malawi Experimental Station (Animal Production Research Institute), in Menia governorate (Mid-Egypt).

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:

No Details.

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:

Formation of Fayoumi chicken lines before 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:

No 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:

1. Lack of identification and recording systems.
2. Lack of animal gene banks.
3. Lack of sustainable breed/population monitoring system.
4. Lack of public concern on the research investment.
5. Lack of funds for AnGR conservation.
6. Lack of public awareness.
7. Weak networking for different stack-holders.

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:

Started at National Gene Bank/Agricultural Research Center.

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:

No Details.

42. Are arrangements in place in your country for extraction and use of conserved genetic material following loss of animal genetic resources (e.g. through disasters), including arrangements to enable restocking (SP 9, Action 3)?

- ○ a. Yes, arrangements have been in place since before the adoption of the GPA
- ○ b. Yes, arrangements put in place after the adoption of the GPA
- ○ c. No, but action is planned and funding identified
- ○ d. No, but action is planned and funding is sought

- (●) e. No

Please provide further details:

No Details.

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:

In situ conservation research programs for the following breeds:
1. Damietta cattle, establishment of Damietta cows herd at APRI.
2. Zaraibi Goats,establishment of nucleus herd of the Zaraibi goats of more than 300 does.
3. Establishment of Black Baladi Rabbit nucleus herd at APRI.
4. Establishment of Fayoumi chicken nucleus herd at APRI.

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:

No Details

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

1. Strengthening breed association for development and conservation of potential AnGR especially those at risk.
2. Raising awareness among breeds of the benefits of maintaining locally adapted breeds and encourage them through the provision of soft-loans and the establishment of breeder associations.
3. Capacity building and institutional development of Ministry of Agriculture agencies, Faculties of Agriculture and Veterinary.
4. Updating legislation and regulations to enhance conservation and utilization of AnGR at risk.
5. Research institutions should carry out national breeding programs to make these breeds viable entities in the prevailing production systems.
6. Efficient animal extension and veterinary services are key for this success.

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.

1. Ministry of Agriculture strategy included projects aiming at the maintenance of AnGR at risk.
2. Cooperation with international organizations like FAO, ICARDA on conservation of Zaraibi goats and indigenous camels.

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:

No Details.

48. What is the current status of your country's national strategy and action plan for animal genetic resources (SP 20)?

Glossary: National strategy and action plan for animal genetic resources: a strategy and plan, agreed by stakeholders and preferably government-endorsed, that translates the internationally agreed Global Plan of Action for Animal Genetic Resources into national actions, with the aim of ensuring a strategic and comprehensive approach to the sustainable use, development and conservation of animal genetic resources for food and agriculture.

- ○ a. Previously endorsed national strategy and action plan is being updated (or new version has been endorsed)
- ◉ b. Completed and government-endorsed
- ○ c. Completed and agreed by stakeholders
- ○ d. In preparation
- ○ e. Preparation is planned and funding identified
- ○ f. Future priority activity
- ○ g. Not planned

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

Sustainable Agriculture Development Strategy/2030 and its Business plan/2017 include plans for livestock development and better utilization of AnGR including capacity building and revising regulations.

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:

No Details.

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:

Most urgently needed is a set of legislations addressing different aspects of the management of AnGR.

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:

There is lack of political well, and more urgently matters that need to be addressed is the judgement of officials.

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:

No Details.

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:

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:

A federation for dairy production and industry has been established in APRI during 2011 including cattle identification, milk recording, milk industry and health care. Unfortunately this strong coordination was to stopped due to the unstable political situation.

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:

New National Focal Point had been assigned in 2011, some activities were initiated but affected by current uprise political situation.

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:

No Details.

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:

Some institutional programmes exist, for example: Agricultural Research Center (National gene bank and Animal production research institute), Rabbit Embryo Bank at Cairo University.

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:

No Details.

59. Are there any national NGOs active in your country in the fields of:

Characterization?

- ○ a. Yes
- ◉ b. No

Sustainable use and development?

- ◉ c. Yes
- ○ d. No

Conservation of breeds at risk?

- ○ e. Yes
- ◉ f. No

If yes, please list the national NGOs and provide links to their web sites:

1. Egyptian association for Sheep and Goats (EASG) at: http://www.easg.eg.net
2. Egyptian Rabbit Science Association (ERSA) at: www.ersa.com
3. Cattle information system-Egypt, at: www.cise.org.eg
4. Egyptian Buffalo Production Association: http://www.ebpa.com.eg
5. Port-Said Sheep and Goat Association (no web adress is available)
6. Matrouh Sheep-breeding association (no webaddresss is available)

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:

No Details.

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.

1. Legislations for controlling import/export of germ-plasm and live animals are in place, but they need revision and updating.
2. Policies for national veterinarian campaign for common diseases and animal identification are in place partially in some cases, budget needs to be strengthened mainly for the control of disease transmission.
3. Number of research, education and developing institutions, have given higher attention to the management of AnGR after the adoption of GPA.
4. Infrastructure for AI, ET, and molecular genetics have been strengthened in a number of institutions and developmental organizations, but they need coordination and linkage in a national networking.
5. There is a need for regional and international support to the national efforts for the capacity building.
6. Some preliminary efforts have been made to establish specialized animal extension services but these need to be strengthened.

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:

1. Cooperation with ICARDA on conservation had been carried out for some theme including molecular genetic characterization of indigenous small ruminant.
2. Cooperation with FAO for conservation of Egyptian Nubian Goats.
3. Collaboration with Improvement and Conservation of Domestic Animals, Cordoba, Spain has been carried out including molecular genetic characterization of indigenous cows (Baladi).

63. Are there any international NGOs active in your country in the fields of:

Characterization?

- ○ a. Yes
- ◉ b. No

Sustainable use and development?

- ○ c. Yes
- ◉ d. No

Conservation of breeds at risk?

- ○ e. Yes
- ◉ f. No

If yes, please list the international NGOs:

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

- ○ a. Yes
- ◉ b. No

Please provide further details:

No Details

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:

Although aware of funding possibilities offered by international organizations e.g. FAO, such possibilities were not sought actively due to lack of timely activities on the part of structures pertaining to AnGR.

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:

No 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:

National experts on AnGR were seconded to other countries in the region.

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:

No Details.

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:

No Details.

70. Has your country contributed to establishing or strengthening global or regional information systems or networks related to inventory, monitoring and characterization of animal genetic resources (SP 1, Action 6)?

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

Please provide further details:

Some efforts had been made in the context of supporting global information & networking in the field of molecular characterization of AnGR e.g., comparative characterization of Mediterranean buffalo (Egyptian, Greek and Italian), Goats (Egyptian breeds vs.s Italian ones).

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:

No Details.

72. Has your country contributed to the development and implementation of regional in situ conservation programmes for breeds that are at risk (SP 8, Action 2; SP 10, Action 1)?

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

Please provide further details:

No Details.

73. Has your country contributed to the development and implementation of regional ex situ conservation programmes for breeds that are at risk (SP 9, Action 2; SP 10, Action 3; SP 10, Action 4)?

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

Please provide further details:

No Details.

74. Has your country contributed to the establishment of fair and equitable arrangements for the storage, access and use of genetic material stored in supra-national ex situ gene banks (SP9, Action 3)?

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

Please provide further details:

No Details.

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

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

Please provide further details:

Visits to Libya, Sudan, Tunisia and Morocco have been carried out.

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:

Commission on Genetic Resources for Food and Agriculture. Intergovernmental Technical Working Group on Animal Genetic Resources for Food and Agriculture - Seventh Session. Rome, Italy. 24-26 October 2012.

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