



**International organization progress report
on the implementation of
the Global Plan of Action for Animal Genetic Resources
2007-2013**

1. Contact information and mandate

Name and position of respondent	Barbara Rischkowsky, Principal Livestock Scientist
Name of organization	ICARDA
E-mail of organization	b.rischkowsky@cgiar.org
Geographical coverage of your organization	West and Central Asia, North Africa, Ethiopia,

2. Animal species coverage of your organization

General livestock-related mandate	<input type="checkbox"/>
Large ruminants	<input type="checkbox"/>
Small ruminants	<input checked="" type="checkbox"/>
Pigs	<input type="checkbox"/>
Poultry	<input type="checkbox"/>
Rabbits & micro livestock	<input type="checkbox"/>
Camelidae	<input type="checkbox"/>
Equines	<input type="checkbox"/>

Strategic Priority Area 1: Characterization, Inventory and Monitoring

1. Does your organization implement or support the implementation of projects or programmes on phenotypic characterization of animal genetic resources?

- Yes
- No

If yes, please provide details and specify the countries and species involved and whether you include characterization of production environments:

Inventory of small ruminant breeds in Central Asia and Caucasus (8 countries): Iñiguez, L., Mueller, J. (eds.). 2008. Characterization of Small Ruminant Breeds in Central Asia and the Caucasus, International Centre for Agriculture in the Dry Areas (ICARDA), Aleppo, Syria, viii+416 pp;
Characterization of 5 local goat breeds in Ethiopia (Gumuz, Agew, Begia-Medir, Bati, Central Abergelle, Abergelle): Hassen, H. et al. (2012). Phenotypic characterization of Ethiopian indigenous goat populations. African Journal of Biotechnology 11(73): 13838-13846. DOI: 10.5897
Phenotypic and molecular characterization of three local goat breeds in Syria (Jabali, Baladi and Shami) and characterization of the production systems: Hassen, H. et al., Morphological and molecular-genetic diversity of Syrian indigenous goat populations, submitted to Tropical Animal Health and Production.
Country-wide survey (2010/2011) of sheep and goat populations in Libya not yet completed due to project interruption (Field guide for phenotypic characterization of sheep and goats in Arabic and English (<http://www.icarda.org/ManualsFieldGuide.htm>)
Production Environment descriptors for local sheep and goat sheep breeds in Egypt, Morocco, Iran and Turkey. FAO Project Report, 2011.
Production systems and cashmere characteristics of Raeni goats in Iran: Ansari-Renani, H.R. et al. S. 2012. Cashmere quality of Raeini goats kept by nomads in Iran. Small Ruminant Research, 104: 10-16; Ansari-Renani, H.R., et al. 2013. Nomadic pastoralism in southern Iran. Pastoralism: Research, Policy and Practice, 3 (1): 11. <http://www.springer.com/alert/urlltracking.do?id=L16c7c55Mc3c7faSa>
S. Mekuriaw et al. 2013. Growth performance and linear body measurements of Washera, Farta and their crossbreed sheep under farmers management system in Western Highland of Amhara Region. Scientific Journal of Veterinary Advances, 2(9): 132-143. doi: 10.14196/sjvs.v2i9.991

2. Does your organization implement or support the implementation of projects or programmes on molecular characterization of animal genetic resources?

Yes
No

If yes, please provide details and specify the countries and species involved:

Molecular characterization of 5 local goat breeds in Ethiopia (compare to 1): Hassen, H., et al. (2012). Molecular characterization of Ethiopian indigenous goat populations. Tropical Animal Health and Production, 44 (6): 1239-1246. DOI 10.1007/s11250-011-0064-2.;
Phenotypic and molecular characterization of three local goat breeds in Syria (see under 1)
Molecular characterization of 3 goat and 3 sheep breeds in Egypt, papers in preparation
Hamdani sheep in Iraq: Al-Barzinji, Y.M.S., et al., 2011. Assessing genetic diversity of Hamdani sheep breed in Kurdistan region of Iraq using microsatellite markers. African Journal of Biotechnology, 10 (67): 15109-15116. doi: 10.5897/AJB10.2689

3. Does your organization implement or support the implementation of projects or programmes for surveying the size and/or structure of animal genetic resources populations and monitoring population trends?

Yes
No

If yes, please provide details and specify the countries and species involved:

4. Does your organization implement or support the implementation of projects or programmes for identifying and monitoring threats to animal genetic resources?

Yes
No

If yes, please provide details and specify the countries and species involved:

The inventory of small ruminant breeds in Central Asia and Caucasus by Iñiguez and Mueller includes an assessment of the risk status of the breeds based on expert opinion; in Ethiopia we are working on a review of successes/failure of crossbreeding programs i(to be published end 2014)

5. Does your organization support countries in the development of early warning and response systems for animal genetic resources?

Yes

No

If yes, please provide details and specify the countries and species involved:

6. Is your organization involved in research and development on methods, technical standards or protocols for phenotypic or molecular characterization, surveying and monitoring of population size or threats to animal genetic resources, or breed evaluation, valuation and comparison?

Phenotypic characterization

Yes

No

Molecular characterization

Yes

No

Surveying and monitoring

Yes

No

If yes, participatory monitoring

Yes

No

Breed evaluation or comparison

Yes

No

Economic valuation

Yes

No

Please provide details:

7. Has your organization identified major obstacles to inventory, characterization and monitoring of animal genetic resources in all or part of your mandate area or species coverage?

Yes

No

If yes, please list them being as specific as possible regarding geographical area / species:

8. What are the priority measures that need to be taken to address these obstacles?

No priorities identified

9. Please describe any additional activities relevant to the implementation of Strategic Priority Area 1: Characterization, inventory and monitoring of trends and associated risks.

No additional activities

Strategic Priority Area 2: Sustainable Use and Development

1. Does your organization support countries in developing, reviewing or adjusting their national policies affecting the sustainable use of animal genetic resources?

Yes

No

If yes, please provide details and specify the countries and species involved:

2. Does your organization promote agro-ecosystem approaches?

Yes

No

If yes, please provide details:

ICARDA's mandate is agricultural research in non-tropical dry areas; our NRM research is based on an agro-ecosystems approach, and we promoted this approach in the new CGIAR Research Programs (CRP) on Agricultural Systems for the Poor and Vulnerable in Drylands (CRP 1.1, <http://drylandsystems.cgiar.org/>)

3. Does your organization contribute to the planning or implementation of strategic breeding programmes?

Mainstream breeds

Yes

No

Under-utilized breeds

Yes

No

If yes, please provide details (including the breeds involved) being as specific as possible:

Tajik Angora goats in Northern Tajkistan (improve fiber fineness); Tajik Cashgora mixed type in South East Tajikistan (improve cashgora yield and quality); Raeini Cashmere goats in Iran (improve fiber fineness): <http://temp.icarda.org/cac/fiber/default.asp>; Horro, Menz, Bonga, Adilo and Atsbi sheep and Abergele goats in Ethiopia (improve growth and fertility): Gizaw, S.et al.. Breeding programs for smallholder sheep farming systems: I. Evaluation of alternative designs of breeding schemes. Animal

breeding and genetics. Accepted; Breeding programs for smallholder sheep farming systems: II. Optimization of cooperative village breeding schemes. Animal breeding and genetics. Accepted. Gizaw, S et al. 2014 Feasibility of pedigree recording and genetic selection in village sheep flocks of smallholder farmers. Trop Anim Health Prod. DOI 10.1007/s11250-014-0569-6. Awassi sheep in Syria (on-station nucleus to improve herd, fertility, growth and milk yield): Iñiguez, L, Hilali, M. 2009. Evaluation of Awassi genotypes for milk production improvement in Syria. Livestock Science 120(3): 232-239.

4. Does your organization contribute to the development of recording systems or organizational structures for breeding programmes?

Yes

No

If yes, please provide details (including the breeds involved) being as specific as possible:

Data Recording and Management System (DREMS) for SR Breeding Programs incl. application for mobile data recording and uploading, <http://srvgen.cnpc.embrapa.br/drems/start.php>; ICARDA is also actively promoting community-based breeding programs (expert consultation (report:<http://livestock-fish.wikispaces.com/file/detail/Expert%20report-CBBP.doc>) and related publication: Mueller, J.P. et al. Community based livestock breeding programs: Essentials and examples. submitted to J. of Animal Breeding and Genetics); Guidelines: Haile, A. et al., 2011. Guidelines for Setting up Community-based Sheep Breeding Programs in Ethiopia. ICARDA - tools and guidelines No.1. Aleppo, Syria, ICARDA.

5. If the projects and programmes that your organization implements or supports involve the use of exotic breeds, have any assessments been made of the long-term impacts of the use of exotic breeds on animal genetic resource diversity, livelihoods and/or food security in the affected countries and production systems?

Yes

No

No projects or programmes involving exotic breeds

If yes, please provide details:

To reduce kemp fiber and fiber diameter in Tajik Angora goats, we imported Texas Angora goats for a 'crossbreeding program'; however Texas Angora goats were one of the foundation breeds of the Tajik Angora goats; in South-East Tajikistan we imported Altai bucks from Russia to improve cashmere quality and yield and body size (Altai had been used in the region successfully before and the farmers still kept Altai crosses); as the introduction in both cases was very recent (2011-2013), we cannot yet measure the long-term effect

6. Has your organization implemented or supported the implementation of animal genetic resources-related projects that aim at achieving sustainable intensification of production?

Yes

No

If yes, please provide details and specify the countries and animal genetic resources involved:

Intensification of Awassi dairy sheep in Syria through introduction of Turkish Awassi (selected for milk production) and intensified feeding and management;
Improving Mohair quality (fiber fineness, reduction of kemp) of Tajik Angora through AI with Texas Angora goats (which is one of the ancestors of the Tajik goats) to allow processing of luxury fiber products;
The breeding programs in Ethiopia are linked to the long-term development of sheep and goat meat value chains in Ethiopia as part of CRP Livestock & Fish (<http://livestockfish.cgiar.org/>)

7. Does your organization contribute to the development of mechanisms for facilitating interactions among stakeholders, scientific disciplines and sectors as part of planning for sustainable use development of animal genetic resources?

Yes

No

If yes, please provide details and specify the countries or regions involved:

In the CRP Livestock & Fish we are developing a network of actors to develop sheep and goat meat value chains that is expected to enhance sustainable use of sheep and goat genetic resources in Ethiopia; specifically we are working on better marketing strategies through multi-stakeholder platforms (<http://cgspace.cgiar.org/handle/10568/34884>)

8. Do your organization's activities contribute to improving farmers' and livestock keepers' knowledge of animal genetic resources from various sources?

- Yes
- No

If yes, please provide details and specify the countries and types of animal genetic resources involved:

Question not clear (do you mean by various sources= sources outside the communities?)
In many project ICARDA provides farmers with information and access to improved genetic resources accessible in the country: some examples: in Kyrgyzstan Aikol rams (synthetic breed from Gissar and local coarse wool sheep) were introduced to farmers in a pilot program to improve their local coarse wool sheep; Kyrgyz farmers in Naryn Province were given access to high quality Tian Shan rams (to improve semi-fine wool quality, growth rate, homogeneity of smallholder flocks that were a mix of coarse wool local and semi-fine Tian Shan wool sheep).
In Central Tajikistan households keeping Gissar sheep were brought into contact with larger farmers keeping much higher quality Gissar sheep in order to improve their genetic material; in Syria farmers learnt about the improved Awassi sheep kept on ICARDA's experimental farm.

9. Do your organization's activities contribute to improving farmers' and livestock keepers' access to animal genetic resources from various sources?

- Yes
- No

If yes, please provide details and specify the countries and types of animal genetic resources involved:

Through community based breeding programs that are developed together with the communities, farmers get direct access to improved AnGR matching with their needs and objectives; for sheep and goats most of the time the locally available animals match best, but in some cases we have provided access to improved males from sources outside the community

10. Does your organization contribute to the development of agreements for equitable sharing of benefits arising from access to and use and development of, animal genetic resources?

- Yes
- No

If yes, please provide details:

11. Does your organization contribute to efforts to preserve and respect indigenous or local production systems and associated traditional knowledge and practices related to animal genetic resources?

- Yes
- No

If yes, please provide details:

We study local production systems (a long list of production systems studies) and knowledge and then base our interventions, in particular breeding programs, on existing structures, e.g.: Haile, A. et al., 2013. Community based sheep breeding programs: Tapping into indigenous knowledge. Livestock Research for Rural Development 25 (12) 2013, <http://www.lrrd.org/lrrd25/12/hail25219.htm>
Gizaw, S. et al., 2013. Characterization of indigenous breeding strategies of the sheep farming communities of Ethiopia: A basis for designing community-based breeding programs. ICARDA Working Paper, Aleppo, Syria. 47pp;

By working with farmers on their local sheep and goat genetic resources and helping them in utilizing their animals in a more sustainable way through low cost feeding, rangeland rehabilitation and value addition, we contribute to preserving local production systems.

12. Does your organization implement or support the implementation of projects that aim to promote the marketing of products from local breeds or local production systems?

- Yes
- No

If yes, please provide details and specify the breeds and production systems involved:

Fiber products: Mohair and Cashgora processing (yarn, knitted and woven products) in Tajikistan; Felting products from Kyrgyz Merino wool in Kyrgyzstan (www.adventureyarns.com); local dairy products in West Asia, e.g. Jameed n Jordan (Al Hiary, M. et al.2013. Enhancing the Dairy Processing Skills and Market Access of Rural Women in Jordan ICARDA Working Paper 15, Aleppo, Syria. 12pp) or Shanklish in Syria (Addas, M., et al., 2012. The Quality of Syrian Shanklish a Traditional Dairy Product (Poster). Tropentag 2012: Resilience of agricultural systems against crises, September 19-21, 2012, Goettingen-Kassel/ Witzenhausen. Book of Abstracts, pp. 485.).

13. Has your organization identified obstacles to enhancing the sustainable use and development of animal genetic resources?

- Yes
- No

If yes, please provide details:

Traditional institutions in the rangeland areas have been weakened - difficult to sustain pastoral systems; farmers' associations are non- existent in CWANA and it is difficult to introduce because of bad experiences with cooperatives in the past;

14. What are the priority measures that need to be taken to address these obstacles?

Introduce village or community based control over communal resources where feasible (successful example in South Tunisia); Work with NGOs and development projects on new models to develop functional associations - learn from success stories (ANOC in Morocco);

15. Does your organization provide, or support the provision of, training or technical support programmes for animal breeding activities in pastoralist and farming communities?

- Yes
- No

If yes, please provide details:

Yes, see breeding programs listed under 6

16. Has your organization identified priorities for future training or support programmes to enhance the use and development of available animal genetic resources?

- Yes
- No

If yes, please provide details of the priority activities, being as specific as possible:

Yes, training on breeding programs for smallholders; in Ethiopia the value chain assessment clearly showed a high demand for capacity building of smallholders and extension agents on improved husbandry practices to improve productivity.

17. Please describe any additional activities relevant to the implementation of Strategic Priority Area 2: Sustainable use and development.

No additional activities

Strategic Priority Area 3: Conservation

1. Is erosion of animal genetic resources occurring in any of the countries or regions in which your organization is active?

Yes

No

Do not know

If yes, please describe. Please be as specific as possible and indicate which factors or drivers affect which species in which countries or regions:

In nearly all WANA countries local cattle breeds have disappeared as cattle are mostly kept for milk production in the more favorable agricultural zones (higher rainfall), under these conditions local cattle breeds cannot compete in milk production with HF composites or pure HF; Angora goats in Turkey are disappearing and their fiber quality has deteriorated because fiber production in Turkey cannot compete with meat and milk production.

2. Does your organization support the establishment of emergency response systems that provide for immediate action to maintain threatened breeds?

Yes

No

If yes, please provide details:

3. Does your organization take or support actions to protect breeds and populations that are at risk from natural or human-induced disasters?

Yes

No

If yes, please provide details:

Only one case: Sicilo-Sarde sheep breed in Tunisia (see Djemali, M., Bedhiaf-Romdhani, S. Iñiguez, L., Inounou, I. 2009. Saving threatened native breeds by autonomous production, involvement of farmers organization, research and policy makers: The case of the Sicilo-Sarde breed in Tunisia, North Africa. Livestock Science, Volume 120, Issue 3, 213-217.)

4. From your organizational point of view, how would you judge the state of conservation policies for animal genetic resources in the countries and regions in which you operate?

Mostly non-existent, maybe some governmental herds (*in-situ*) of local cattle in some countries, e.g. in Syria; for small ruminant breeds so far there is no need as local breeds are used.

5. What types of conservation measures for animal genetic resources does your organization implement or support the implementation of?

In situ

Yes

No

Ex situ in vivo

Yes

No

Ex situ in vitro

Yes

No

Please provide details, and specify the countries and animal genetic resources involved:

6. If your organization maintains *ex situ* collections of animal genetic resources, could you please provide further information on these collections?

7. Is your organization conducting research to further develop methods and technologies for *in situ* or *ex situ* conservation of animal genetic resources?

Yes

No

If yes, please briefly describe the research:

8. Has your organization identified major obstacles to enhancing the conservation of animal genetic resources?

Yes

No

If yes, please provide details:

9. What are the priority measures that need to be taken to address these obstacles?

10. From your organizational point of view, what are the priority requirements for enhancing conservation measures for animal genetic resources in the countries and regions in which you operate? Please list the requirements, being as specific as possible:

would be preferable but it is doubtful if it is possible to convince the countries to work together - until this is achieved it may be too late (e.g. local cattle breeds in WANA);
A global DNA bank at ILRI should be supported as it could at least help to store information on genetic diversity and help to identify the genetic base for adaptive traits.

11. Please describe any additional activities relevant to the implementation of Strategic Priority Area 3: Conservation.

No additional activities

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

1. Does your organization support or facilitate the establishment of institutional frameworks for planning and implementing animal genetic resources programmes?

- Yes
No

If yes, please provide details and specify the countries or regions involved:

2. Does your organization support countries in formulating or implementing national strategies and action plans for animal genetic resources?

- Yes
No

If yes, please provide details and specify the countries involved:

3. Does your organization contribute to the development of regulatory frameworks or legislation for animal genetic resources?

- Yes
No

If yes, please provide details and specify the countries or regions involved:

4. Does your organization have a database or information system for animal genetic resources-related data?

- Yes
No

If yes, please describe the purpose and contents of the system and, if relevant, how frequently data are updated:

5. Does your organization have collaborative links to other stakeholders involved in the management of animal genetic resources (e.g. the breeding industry, livestock keepers, government agencies, research institutes and civil society organizations)?

Yes

No

If yes, please provide details:

With FAO, ILRI and NARS on characterization and sustainable use of AnGR

6. Does your organization cooperate with breeders' organizations?

Yes

No

If yes, please provide details:

7. Has your organization supported the establishment or strengthening of community-based organizations, networks or initiatives for sustainable use, breeding or conservation?

Yes

No

If yes, please provide details:

Community based breeding programs in Ethiopia, Tajikistan and Iran; three of our breeders' communities in Ethiopia have established formal breeders' cooperatives that we support.

8. Does your organization implement or support the implementation of training or capacity-building programmes for animal genetic resources management?

Yes

No

If yes, please provide details and specify countries involved:

ICARDA supported FAO training courses region on recording and traceability for WANA in March 2009 at ICARDA, Syria; and on cryoconservation and genebanks in April 2009 in Tunisia; and an FAO Workshop on breeds characterization and value addition in NENA in Rabat in 2012; ICARDA also conducted a series of JICA funded training programs for NARS scientists (Iraq, Afghanistan, Syria) that includes AnGR characterization and use; in Ethiopia we are training NARS partners and farmers on the implementation of breeding programs, especially on our data recording and management system (DREMS), e.g. <http://livestock-fish.wikispaces.com/DREMS>; currently two Libyan trainees are trained on molecular characterization in Morocco; ICARDA contributed to the Eras-Mundus PhD program on genetics with one full day on sheep and goat value chains including.

9. Has your organization identified priorities for future animal genetic resources-related capacity-building and education?

Yes

No

If yes, please provide details:

10. Does your organization implement or support the implementation of programmes to increase public awareness of the roles and values of animal genetic resources?

Yes

No

If yes, please provide details:

11. Please describe any additional activities relevant to the implementation of Strategic Priority Area 4: Policies, institutions and capacity-building.

No additional activities

Implementation and Financing of Global Plan of Action for Animal Genetic Resources

1. Has your organization's budget for activities supporting the implementation of the Global Plan of Action and animal genetic resources programmes increased since the plan's adoption in September 2007?

Yes

No

Please provide details:

2. Has your organization contributed to the establishment or strengthening of international research and/or education programmes to assist developing countries or countries with economies in transition to better manage animal genetic resources?

Yes

No

If yes, please provide details:

See our activities under the thematic areas characterization and sustainable utilization.

3. Has your organization contributed to the establishment or strengthening of international programmes to assist developing countries or countries with economies in transition to obtain training and technologies or develop information systems related to animal genetic resources?

Yes

No

If yes, please provide details:

4. Has your organization provided funding to countries for the implementation of the Global Plan of Action for Animal Genetic Resources?

Yes

No

If yes, please provide details and specify the countries involved:

5. Has your organization contributed to establishing or strengthening international collaboration with regard to:

Characterization of animal genetic resources

Yes

No

Use and development of animal genetic resources

Yes

No

Conservation of transboundary breeds

Yes

No

Please provide details and specify the countries involved:

See our activities under the thematic areas.

6. Does your organization collaborate with national or international non-governmental organizations (NGOs) in the fields of:

Characterization

Yes

No

Sustainable intensification

Yes

No

Conservation of breeds at risk

Yes

No

Please provide details and specify the countries involved:

Aga Khan Foundation in Tajikistan, Kyrgyzstan and Syria; CACSA-kg in Kyrgyzstan; SNV and CNFA in Ethiopia

7. Please describe any additional activities relevant to the implementation and financing of the Global Plan of Action for Animal Genetic Resources:

No additional activities

