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Item 3.1 of the Provisional Agenda

COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

INTERGOVERNMENTAL TECHNICAL WORKING GROUP ON ANIMAL GENETIC RESOURCES FOR FOOD AND AGRICULTURE

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DETAILED FAO PROGRESS REPORT ON THE IMPLEMENTATION OF THE *GLOBAL PLAN OF ACTION FOR ANIMAL GENETIC RESOURCES*

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DETAILED FAO PROGRESS REPORT ON THE IMPLEMENTATION OF THE *GLOBAL PLAN OF ACTION FOR ANIMAL GENETIC* RESOURCES

I. INTRODUCTION

1. The Commission on Genetic Resources for Food and Agriculture (Commission), at its Twelfth Regular Session, requested FAO to prepare a progress report on FAO activities related to animal genetic resources and the implementation of the *Global Plan of Action for Animal Genetic Resources*[1] *(Global Plan of Action*). As document, *Report on FAO activities in the follow-up to the International Technical Conference on Animal Genetic Resources for Food and Agriculture*[2] provided an overview of activities undertaken between the Fifth Session of the Intergovernmental Technical Working Group on Animal Genetics Resources (Working Group) and the Twelfth Session of the Commission, this document provides a more detailed report on FAO activities since the Fifth Session of the Working Group. The activities are grouped according to their relevance for the four Strategic Priority Areas of the *Global Plan of Action*.

II. REPORTING AND AWARENESS RAISING ON THE *GLOBAL PLAN OF ACTION*

2. The FAO Secretariat, on the request of the Thirty-Fourth FAO Conference[3], presented a document *Status of implementation of the Global Plan of Action for Animal Genetic Resources*[4] to the Thirty-Sixth FAO Conference.

3. The *Global Plan of Action* has been brought to the attention of various scientific and technical conferences and bodies. The details of this reporting are found in the respective sections and in Annexes 2, 3, 4 and 6 of this document. The Russian version of the *State of the World's Animal Genetic Resources for Food and Agriculture* (*State of the World*) has been published electronically and in print in May 2010 with significant in kind contribution from the National Coordinator for the Management of Animal Genetics Resources of the Russian Federation and his colleagues[5].The Spanish version of the *State of the World* was published electronically and in print in June 2010[6]. The publication was funded by a FAO Special Allocation for Implementation of the Language Policy and the Government of Spain.

[1] CGRFA-12/09/Report, Appendix G (Strategic Plan), paragraph 10.
[2] CGRFA-12/09/9
[3] C 2007/REP, paragraph 146.
[4] C 2009/22.
[5] http://www.fao.org/docrep/012/a1250r/a1250r00.htm
[6] http://www.fao.org/docrep/012/a1250s/a1250s00.htm

4. Printed versions of the *Global Plan of Action*, the *Interlaken Declaration* and the *State of the World* and related products have been widely distributed overall, as follows:

Product	number of copies distributed						
	total	Arabic	Chinese	English	French	Russian	Spanish
Global Plan of Action and the *Interlaken Declaration*	10250	800	500	4450	1900	1000	1600
State of the World – full report	3030	130	...[a]	2500	400		
State of the World – in brief versions	14200	650	450	2500	1250	1000	1250
State of the World – flyer	7100	650	450	2500	1250	1000	1250
State of the World – CD-ROMs (containing all language versions including annexes)	13000						
Fact sheets	3900	n/a	n/a	3100	300	n/a	500
Preparation of National Strategies and Action Plans for Animal Genetic Resources (guidelines)	910	n/a	n/a	450	160	200	100
Breeding strategies for sustainable management of animal genetic resources (guidelines)	1650	in preparation	n/a	1650	in print	n/a	in print

[a] This product was prepared, printed in 3000 copies and distributed by Chinese collaborators

5. National Coordinators for the Management of Animal Genetic Resources (National Coordinators) were encouraged to prepare national language versions of the *State of the World – in brief*, the *Global Plan of Action* and the *Interlaken Declaration* or other information products under local language agreements with FAO. The *Global Plan of Action* is now available in five and the *State of the World - in brief* in four local languages[7]. In addition, 15 countries are currently preparing local language versions of the *Global Plan of Action*.

6. The *State of the World*, the *Global Plan of Action* and the *Interlaken Declaration* or other related information products have been provided for national workshops in Costa Rica, Fiji, France and Malaysia and made available to the following international conferences and meetings: The Seventeenth Session of the United Nations Commission on Sustainable Development, the Twenty-second Session of the FAO Committee on Agriculture, the Thirty-first FAO LAC Regional Conference and workshops organized by the European Livestock Breeds Ark and Rescue Net[8].

7. The Ninth World Congress on Genetics Applied to Livestock Production[9], attended by 1400 persons was held in in Leipzig, Germany, in August 2010. The *Global Plan of Action* was referred to

[7] *Global Plan of Action* in Danish, German, Norwegian, Polish, Portuguese; *State of the World – in brief in* German, Japanese, Polish, Portuguese

[8] http://www.save-foundation.net/ELBARN/index.htm

[9] http://www.wcgalp2010.org

in the opening speech as the international framework relevant for animal genetics research. FAO arranged that copies of the *Global Plan of Action* and the *State of the World CD-ROM* were provided to all participants in the conference bags.

III. CAPACITY-BUILDING AND TECHNICAL SUPPORT TO IMPLEMENTATION OF THE *GLOBAL PLAN OF ACTION* AT NATIONAL LEVEL

8. The Global Plan of Action[10] describes the essential role of the FAO in supporting country-driven efforts to implement the Global Plan of Action, in particular, in facilitating global and regional collaboration and networks; supporting the convening of intergovernmental meetings; maintaining and further developing the Domestic Animal Diversity Information System (DAD-IS); developing communication products; providing technical guidelines and assistance, and coordinated training programmes; promoting the transfer of technologies relating to sustainable use, development and conservation of animal genetic resources; and coordinating future preparation of global status and trends reports on animal genetic resources.[11],[12] The following paragraphs provide a detailed description of FAO activities in each Strategic Priority Area of the Global Plan of Action.

Strategic Priority Area 1. Characterization, inventory and monitoring of trends and risks

Research and capacity-building

9. To allow a global analysis of breed diversity through molecular genetic characterization, FAO has continued to promote the international use of standard microsatellite marker sets for the various species of livestock. This work is done in partnership with the International Society of Animal Genetics (ISAG)/FAO Advisory Group on Animal Genetic Diversity and the European Commission-funded project "A Global view of livestock biodiversity and conservation"[13] (GLOBALDIV).

10. The work of the ISAG/FAO Advisory Group on Animal Genetic Diversity progressed during the reporting period. The Advisory Group met in the United Kingdom in July 2010. It approved the contents of the *Draft guidelines on molecular genetic characterization*[14] and offered continuing assistance to FAO and its member countries. Species leaders offered to provide reference samples to interested parties for standardization of genotyping procedures, upon request through FAO.

11 The FAO/IAEA Joint Division on Nuclear Techniques in Food and Agriculture (AGE) has developed a web-accessible database for storage and exchange of microsatellite and other genotypic data for molecular characterization of animal genetic resources[15]. The data gathered will be used as the basis of a meta-analysis of characterization studies undertaken in multiple regions and on multiple species. AGE has also offered to serve as a central repository for DNA samples and contributed reference material for the *Draft guidelines on molecular genetic characterization*[16].

12. AGE, with the participation of ILRI and national stakeholders, has completed a coordinated research project "Gene-based technologies in livestock breeding: Characterization of small ruminant genetic resources in Asia". The project involved phenotypic and genetic characterization of nearly 100

[10] *Global Plan of Action for Animal Genetic Resources*, paragraph 58–61.
ftp://ftp.fao.org/docrep/fao/010/a1404e/a1404e00.pdf
[11] ITC-AnGR/07/REP paragraph 20.
http://www.fao.org/ag/AGAinfo/programmes/en/genetics/documents/Interlaken/Final_Report_en.pdf
[12] *Global Plan of Action for Animal Genetic Resources*, paragraph 22–23, Strategic Priority 14.
ftp://ftp.fao.org/docrep/fao/010/a1404e/a1404e00.pdf
[13] www.globaldiv.eu
[14] CGRFA/WG-AnGR-6/10/Inf.7.
[15] www.globalgenomic.com
[16] CGRFA/WG-AnGR-6/10/Inf.7.

sheep and goat breeds in eight Asian and Near Eastern countries[17]. Equipment and training for participating scientists were provided by the project. Results will be disseminated as a special issue of a scientific journal. The data collected will be integrated with information from previous characterization studies in other regions (in particular Europe and Africa) to allow for a global analysis of small ruminant diversity. In addition, AGE is supporting National Technical Cooperation Projects involving the characterization and sustainable utilization of animal genetic resources in four countries[18].

13. AGE has collaborated with ILRI, the United States Department of Agriculture (USDA) and the Universidade Estadual de São Paulo in Brazil on a genome scan study of genes influencing resistance to parasites in sheep. The AGE has also technically and financially supported activities within the scope of the "International bovine hapmap project"[19] and the "International sheep hapmap project"[20]. The Domestic Animal Diversity Network (DAD-Net) listserver was used to alert scientists in developing countries about the possibility to participate free-of-charge in the sheep hapmap project, and the Global Focal Point coordinated interaction between scientists and the project coordinator. The Global Focal point is participating in a similar manner to the recently initiated "International goat genome consortium" and "Ruminant genome biology consortium".

14. AGE has developed, with co-funding from China and technical support from France and USA, a radiation hybrid (RH) panel for the goat. Clones of the RH panel will be made available upon request to interested parties and the resulting RH map will be used to improve the accuracy of the international goat genome sequence.

15. Officers of the Global Focal Point are serving as invited experts to GLOBALDIV, a three-year project funded by the European Commission in the framework of the AGRI GEN RES 2006[21] initiative that aims to disseminate current advanced and integrated methodologies for the characterization, evaluation, prioritization and conservation of animal genetic resources. FAO hosted one workshop (May 2010) and was represented at another (Poland 2009); the Rome workshop was in conjuction with "EuReCa - European Regional Cattle breeds"[22], another project in AGRI GEN RES. In addition, FAO provided lectures at a summer school (Italy 2009) and was represented at project meetings that were held in conjunction with the workshops and summer school. The Global Focal Point has contributed to four[23] GLOBALDIV review articles which have been published in the scientific journal "Animal Genetics" with free and open access to the public[24]. Copies of the special issue have been obtained and distributed to all National Coordinators and their alternates.

16. FAO, with support from Germany, has conducted a project to promote strategies for the prevention and control of highly pathogenic avian influenza (HPAI) in Cambodia, Egypt and Uganda. The project focused on smallholder livelihoods and biodiversity. In the project's poultry diversity component, production systems are described, and local poultry populations are characterized phenotypically and genetically. This project is completed; reports have been produced for the three countries, and can be dowloaded from the Animal Production and Health Division website[25]. A synthesis paper on the risk of HPAI and its control measures on the local poultry populations in these three countries is being prepared.

17. FAO, with support from Australia, and in collaboration with the Secretariat of the Pacific Community, has supported the molecular genetic characterzation of pigs and chicken in 6 countries of

[17] Bangladesh, China, Indonesia, Iran, Pakistan, Saudi Arabia, Sri Lanka and Viet Nam
[18] Burkina Faso, Morocco, Sri Lanka, and Zambia.
[19] www.bovinehapmap.org
[20] www.sheephapmap.org
[21] European Commission: Council Regulation N°870/2004 establishing a Community programme on genetic resources in agriculture.
[22] www.regionalcattlebreeds.eu
[23] www.globalgenomic.com
[24] http://onlinelibrary.wiley.com/doi/10.1111/age.2010.41.issue-s1/issuetoc
[25] http://www.fao.org/ag/againfo/themes/en/poultry/AnGR.html

the South Pacific[26]. The molecular characterization is performed by the International Livestock Research Institute (ILRI) for all countries. A report and scientific papers are being preared, and metastudies on global chicken and pig diversity are planned with other existing consortia and diversity studies.

18. FAO, with extra-budgetary funding from the Governments of Norway and Sweden, has continued the development of the guidelines on phenotypic characterization of animal genetic resources and their production environment. The guidelines were discussed and evaluated by 100 participants from 28 countries at three workshops, which were held in Argentina (December 2009), Senegal (March 2010) and Italy (June 2010). These evaluations allowed to improve the guidelines. The draft guidelines are available to the Working Group in document *Draft guidelines on phenotypic characterization*[27].

19. The Global Environment Facility (GEF) funded 2010 Biodiversity Indicators Partnership (BIP) project developed within the framework of the 2010 Biodiversity Indicator Development Plan under the Convention on Biological Diversity (CBD) aims to establish a set of indicators that will allow better assessment of progress towards the target of "reducing the rate of loss of biodiversity by 2010". The project addresses all focal areas identified by the Strategic Plan of the CBD. FAO, as one of the partners in the BIP project, is responsible for coordinating the development of the headline indicator for "Trends in genetic diversity of domesticated animals, cultivated plants, and fish species of major socioeconomic importance". The Commission requested at its Twelfth Regular Session[28] that status and trends reports on animal genetic resources be prepared by FAO every two years and that these reports include the CBD headline indicator once it has been developed. Given the urgent need for progress in the development of the indicator(s), FAO convened the "Expert Meeting on Indicators for Animal Genetic Resources", with the objectives of developing the methodology for calculating the indicator(s) and considering how the indicator(s) should be presented and communicated. The meeting was held in Rome in February 2010. In order to calculate all proposed indicators, a system for classifying breeds as "native" and "non-native" must be developed and implemented in DAD-IS, and National Coordinators should classify their breeds accordingly. The other indicators are already reflected in document, *Status and trends report on animal genetic resources – 2010*[29].

20. The Global Focal Point participated in a workshop on "Breeds at risk: criteria and classification", hosted by the Rare Breeds Survival Trust in the United Kingdom in February 2010. The objective of the workshop was to develop an agreed set of criteria to define thresholds for endangerment of breeds, both nationally and regionally. The benefits of harmonization of criteria across countries were recognized and the appropriateness of the current FAO criteria was reinforced.

21. To aid member countries in their inventory and monitoring of trends and risks, FAO has produced the document *Draft guidelines on surveying and monitoring*[30] for review by the Working Group.

22. AGE, as part of IAEA Regional Technical Cooperation Project (TCP) RER/5/057 "Supporting early warning and surveillance of avian influenza infection in wild and domestic birds and assessing genetic markers for bird resistance", presented in December 2009 the training course "Regional training course on genomic DNA preparation, microsatellite analyses and sequencing" to provide capacity building in molecular genetic characterization. The training course was hosted by the FAO/IAEA Agriculture and Biotechnology Laboratory in Seibersdorf, Austria. The training course, which targeted Eastern Europe was attended by 18 representatives from 12 countries[31] in the project.

[26] Fiji, Niue, Samoa, Solomon Islands, Tonga, Vanuatu.
[27] CGRFA/WG-AnGR-6/10/Inf.6.
[28] CGRFA-12/09/Report.
[29] CGRFA/WG-AnGR-6/10/Inf.3
[30] CGRFA/WG-AnGR-6/10/Inf.5
[31] Albania, Armenia, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Hungary, Kazakhstan, Macedonia, Montenegro, Moldova, Romania, Russian Federation, Serbia and Turkey.

In addition, FAO supported participants from two countries[32]. The Global Focal Point also provided lectures. The training course was used to validate the *Draft guidelines for molecular characterization of animal genetic resources*[33].

Institutional and technical support

23. At its Twelfth Session[34], the Commission requested that FAO continue updating and further developing technical guidelines on the management of animal genetic resources as important support for countries in their implementation of the *Global Plan of Action* and to keep the DAD-IS user manual up-to-date. To this end FAO prepared the following information documents for this Sixth Session of the Working Group: *Draft guidelines on surveying and monitoring*[35], *Draft guidelines on phenotypic characterization*[36] *and Draft guidelines on molecular genetic characterization*[37] with extra-budgetary funding from the Governments of Norway and Sweden.

24. The Global Focal Point has continued to maintain and develop DAD-IS, with extra-budgetary funding from the Governments of Norway and Sweden. A module has been developed enabling geo-referencing the geographic distribution of national breed populations and describing their production environments as described in the report of an earlier workshop[38]. This module is curently being completed. A set of global GIS layers describing all aspects of the natural environment with the exception of the distribution of animal disease has been prepared. In addition, the textual information describing geographic breed distribution has been transferred to geo-referenced data for validation by National Coordinators (funded by Government of Norway and the European Regional Focal Point for management of animal genetic resources - ERFP). In collaboration with the International Center for Agricultural Research in the Dry Areas (ICARDA), country case studies for sheep and goat breeds are being developed for Egypt, Iran, Morocco and Turkey, demonstrating the practical application and use of the new module and developing a methodology to aggregate individual production environment descriptors in a way that enables the automated overviews of the diversity of animal genetic resources by production environment in DAD-IS. The module has been developed in the context of the European Commission funded Farm Animal Biodiversity Information System Network (FABIS-net) project.

25. National Coordinators were contacted and invited to update their national breed-related data in view of the preparation of the next status and trends report (see document *Status and trends report on animal genetic resources – 2010*[39]). Currently 93 (out of 158) National Coordinators have requested and received their user name and password and are thus able to update their national data. In addition, 16 countries have set-up their national nodes under the European FABIS and update their data directly through those. Countries have increased their activities to update their national data in 2009 (20 countries) and 2010 (38 countries). For nine percent of the national breed population the population size has been reported for either 2007, 2008, 2009 or 2010. However, no population size has been reported for 48 percent of the national breed population.

26. Training in the use of DAD-IS was provided at several regional National Coordinator workshops, including for Central Asia (hosted by Kazakhstan), Asia (hosted by China), and Central and Eastern Europe (hosted by Ukraine). The Government of the Republic of Moldova requested FAO's assistance (Technical Cooperation Project-Facility, TCPF) in the development of a national information system on animal genetic resources. The project will commence in late 2010.

[32] Azerbaijan and India.
[33] CGRFA/WG-AnGR-6/10/Inf.7.
[34] CGRFA-12/09/Report, paragraph 41.
[35] CGRFA/WG-AnGR-6/10/Inf.5.
[36] CGRFA/WG-AnGR-6/10/Inf.6.
[37] CGRFA/WG-AnGR-6/10/Inf.7.
[38] Report of the FAO/WAAP Workshop on Production Environment Descriptors for Animal Genetic Resources at http://dad.fao.org/cgi-bin/getblob.cgi?sid=-1,593
[39] CGRFA/WG-AnGR-6/10/Inf. 3.

Awareness raising and information

27. FAO has provided inputs on animal genetic resources for the 2010 issue of the "Global Biodiversity Outlook[40], the flagship publication of the CBD.

Strategic Priority Area 2. Sustainable use and development

Research and capacity-building

28. FAO participates as a technical advisor in the project "*In situ* conservation of endemic ruminant livestock in West Africa" (PROGEBE), jointly financed by the GEF and the African Development Bank. The objective of the project is to ensure sustainable use and *in situ* conservation of targeted endemic ruminant livestock breeds – N'dama cattle, Djallonke sheep and the West African Dwarf goat – in four West African countries[41]. With the technical support of ILRI, the Centre International de Recherche-Developpement Sur l'Elevage en Zone Subhumide (CIRDES) and the International Trypanotolerance Centre (ITC), the project will establish effective models for community-based management of endemic ruminant livestock and their habitat at project pilot sites, and strengthen production, market, and policy environments in support of these breeds. Currently, the project is characterizing endemic ruminant livestock in the four countries under the technical leadership of ILRI and with the involvement of national institutions.

29. FAO serves on the steering committee of and is providing an in-kind contribution to the GEF-funded project on "Development and application of decision support tools to conserve and sustainably use genetic diversity in indigenous livestock and wild relatives". The project involves promoting the sustainable use of animal genetic resources in Bangladesh, Pakistan, Sri Lanka and Viet Nam. FAO provided technical support at meetings of the project steering committee in Bangladesh (2009) and Viet Nam (2010).

30. FAO contributed to various courses organized by partner organizations, including the "International master in animal breeding and reproduction biotechnology" organized by two Spanish universities and the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM) from October 2009 to June 2010, which was attended by 20 participants from 15 countries[42], and the "European master in animal breeding and genetics" (EM-ABG), a two-year MSc programme supported by the European Commission and provided by six European universities with active training and research programmes in animal breeding and genetics, which aims to train students who wish to contribute to the development of sustainable livestock breeding; to date, more than 90 students from 41 countries have enrolled in the EM-ABG[43].

31. FAO collaborated with the ILRI-Swedish University of Agricultural Sciences (SLU) project (funded by the Government of Sweden) on capacity building for sustainable use of AnGR in developing countries. An assessment in Eastern and Southern African countries contributed to the jointly organized workshop "Synthesis of institutional issues and developing innovative frameworks for sustainable use of AnGR: How to make a difference". The workshop, in Tanzania, was attended by participants from 10 countries. Presentations on the *State of the World* report and the *Global Plan of Action* were also given at the FAO-ILRI-SLU Follow-up Workshop for South Asia organized 2009 in Nepal, which was attended by participants from six countries.

32. FAO coordinated the organization of a training workshop on animal identification and recording systems, within the framework of the project "Modernization and development of the dairy

[40] http://gbo3.cbd.int/the-outlook/gbo3/foreword/foreword-by-the-united-nations-secretary-general.aspx
[41] Gambia, Guinea, Mali and Senegal.
[42] Albania, Algeria, Argentina, Chile, Colombia, Costa Rica, Cuba, Ecuador, Egypt, Spain, Morrocco, Peru, Tunisia, Uruguay, Venezuela.
[43] http://www.emabg.wur.nl/UK/.

cattle sector in Iraq" (OSRO/IRQ/801/UDG). The workshop took place in Amman (Jordan), in January 2010, and was attended by 15 participants from three countries.

33. FAO collaborated with the French National Institute for Agricultural Research (INRA) for the joint organization of the FAO-INRA "Workshop on animal genetic resources and their resistance/tolerance to diseases, with special focus on parasitic diseases in ruminants". The workshop was attended by 23 participants from 10 countries[44], and two international organizations (ICARDA, IAEA). The report of the workshop is available in document, *Report of a workshop on Disease resistance*[45].

Institutional and technical support

34. The Commission, at its Twelfth Session[46], endorsed *Guidelines for Breeding Strategies for Sustainable Management of Animal Genetic Resources*, and encouraged countries to make full use of these guidelines. FAO has published theses guidelines[47] in English, French (in print) and Spanish (in print) and distributed the English version widely (more than 1600 copies). An Arabic version is in preparation. These guidelines were used as support material in a regional training workshop "Formulation of policies and strategies for development and management of animal genetic resources in Latin America", held in Bogotá, Colombia, in September 2009, and attended by 26 participants from six countries[48].

35. In response to the need for technical assistance to ensure the better use, development and conservation of animal genetic resources, FAO further invested in providing assistance, both directly and through cooperation with other organizations. Several of the technical assistance initiatives for the current reporting period, including FAO Technical Cooperation Projects (TCP), are listed below.

36. Through TCP Facility project TCP/ARM/3101, a national strategy for sustainable use and development of farm animal genetic resources was formulated in Armenia. The document was produced by a national task force composed of six members representing major stakeholders, led by the Head of the Department of Animal Husbandry, Ministry of Agriculture, with the support of an international consultant and FAO officers from headquarters and the Regional Office. 100 copies in Armenian and 80 copies in English have been produced and distributed[49].

37. TCP Facility project TCP/BDI/3103 aimed to support national authorities in developing a national policy and strategy for the management and improvement of animal genetic resources in Burundi. Due to the lack of a livestock policy, it was decided to dedicate the resources of this TCP Facility to establishing a livestock development strategy, as a complement to the national agriculture strategy. The livestock strategy document was produced and adopted by the Governement of Burundi in March 2010. A new TCP project is being formulated for the elaboration of national startegy for the management and improvement of animal genetic resources in Burundi.

38. TCP MON/3104 (Mongolia), NEP/3105 (Nepal) and MYN/3201 (Myanmar), with the objectives of genetic improvement of dairy cattle through the establishment of pedigree and performance recording schemes, rehabilitation and support to artificial insemination services, and improved animal feeding have been successfully completed, but additional funding is needed in the short-to-medium term for backstopping to ensure future sustainability. A similar TCP in Sri Lanka (SRL/3204) was initiated in 2010.

[44] Australia, Brazil, Burkina Faso, France, Gemany, Kenya, New Zealand, Netherland, UK, USA.
[45] Report of a workshop on Disease resistance.
[46] CGRFA-12/09/Report para. 41.
[47] http://www.fao.org/docrep/012/i1103e/i1103e00.htm
[48] Argentina, Brazil, Bolivia, Chile, Ecuador and Mexico.
[49] http://www-data.fao.org/ag/againfo/home/en/news_archive/2010_TheNationalStrategy_in_the_Republic_Armenia.html

39. The Global Focal Point, as a member of the board of the International Committee for Animal Recording (ICAR), continued to lead the ICAR Task Force for Animal Identification and Performance Recording in Developing Countries[50]. The task force combines e-mail discussions and physical meetings. The task force met in Croatia in May 2009. The task force conducted a survey to assess the current status of animal identification and recording systems in 33 developing countries, which is being compiled into a single document. Guidelines for animal identification, traceability and performance recording in low and medium input production systems are under preparation.

40. AGE supported a Regional Coordinated Research Project (CRP) with mainly Asian participating countries and a Regional TCP on cattle breeding in Asia. Participants from 13 Asian[51] and 22 African[52] countries received technical support for the establishment and management of animal genetic resources, with an emphasis on sustainable utilization of local breeds. A technical document on selection and breeding of cattle in Asia was produced[53]. AGE has developed methodology for the identification of candidate genes for traits of economic importance. The data generated through different AGE projects on animal genetics are already being utilized to identify and characterize genes that could have economic or environmental importance such as heat or helminth resistance traits, increased milk production or improved meat quality and quantity. Building on this basis, AGE has also initiated a new CRP on "Genetic variation on the control of resistance to infectious diseases in small ruminants for improving animal productivity" with 14 countries participating[54].

Awareness raising and information

41. FAO participated in two international conferences on animal identification and traceability. The first, organized by World Organization for Animal Health (OIE) in Argentina in March 2009, was attended by more than 500 persons from more than 100 countries. The second, organized by the European Commission, in Belgium in June 2010, was attended by 450 participants. In both occasions, FAO's multipurpose approach for animal identification, traceability and performance recording as a livestock development tool, which involves all stakeholders in the livestock sector was presented, and FAO's capacity building activities and support to countries for relevant policy development, drafting of legislation and strategic planning, and technical assistance for the implementation of relevant Codex Alimentarius and OIE standards was stressed.

42. FAO, in collaboration with the Southern African Development Community (SADC) Livestock Technical Committee, organized a regional workshop on "Animal identification, traceability and performance recording in the SADC region". The workshop was held in Botswana in November 2009. In total, 49 participants from 13 SADC[55] and seven other countries[56] attended the workshop. The participants were policy makers, professionals and scientists in animal health, animal breeding and production, livestock support services and security-related services.

43. In collaboration with LPP (League For Pastoral Peoples and Endogenous Livestock Development), LIFE Network and International Union For Conservation of Nature–World Initiative for Sustainable Pastoralism (IUCN-WISP) a publication titled "Adding value to livestock diversity - Marketing to promote local breeds and improve livelihoods"[57] was published in English and 2400

[50] Namibia, South Africa, Argentina, Uruguay, India, Hungary, France.
[51] Bangladesh, China, India, Indonesia, Malaysia, Mongolia, Myanmar, Pakistan, Republic of Korea, Sri Lanka, Philippines, Thailand, Viet Nam.
[52] Algeria, Burkina Faso, Botswana, Central African Republic, Cameroon, Congo, Egypt, Ghana, Kenya, Libyan Arab Jamahiriya, Madagascar, Mali, Mauritius, Niger, Nigeria, Senegal, Sierra Leone, Sudan, Tunisia, Uganda, United Republic of Tanzania, Zimbabwe.
[53] http://www-pub.iaea.org/MTCD/publications/PDF/te_1620_web.pdf
[54] Argentina, Bangladesh, Brazil, Burkina Faso, China, Eritrea, Ethiopia, Indonesia, Iran, Mexico, Nigeria, Pakistan, Saudi Arabia, Sri Lanka.
[55] Angola, Botswana, Democratic Republic of Congo, Lesotho, Malawi, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe.
[56] Australia, Ethiopia, Germany, Italy, Kenya, Sudan and United Kingdom.
[57] http://www.fao.org/docrep/012/i1283e/i1283e00.htm

copies have been distributed. A French and Spanish version of the publication is being prepared under copublication agreement.

44. FAO contributed to the development of "Pastoralism, nature conservation and development"[58], published in Arabic, English and French by the CBD in it's Good Practice Guide series. The guide is supplemented with a powerpoint presentation for training. The CBD provided FAO with copies of the guide for distribution to its global network for the management of animal genetic resources.

45. At the Sixty-first annual meeting of the European Association for Animal Production (EAAP) in August 2010, a symposium "Strategies to add value to local breeds" was organized by FAO, ERFP and the EAAP Working Group on Animal Genetic Resources. The symposium consisted of 11 presentations and 9 posters. More than 110 participants including 22 National Coordinators participated in the symposium. A number of practical issues related to the development, protection and marketing of special products often produced from animals of local breeds were discussed. ERFP (previous secretariat) and EAAP are considering to publish proceedings of the symposium in the EAAP Technical Series.

Strategic Priority Area 3. Conservation

Institutional and technical support

46. FAO prepared document *Draft guidelines on cryoconservation*[59], which were validated in a series of workshops, which were also used to build capacity in member countries for conservation of animal genetics resources. With regard to cryoconservation, three workshops were held. The first workshop, in April 2009, was hosted by the National Gene Bank in Tunisia, with primary financial support from the USA and in-kind support from Brazil, Canada, and the Netherlands, in addition to the host country. Administrative support was provided by ICARDA. Training was provided to 35 participants from 18 countries[60]. The second workshop was held March 2010 in Ecuador, hosted by the Ministry of Agriculture at the Escuela Superior Politécnica del Litoral and was attended by 27 persons from 9 countries[61]. Lecturers were from the Global and Regional Focal Points and National Coordinators. The third workshop was held at the gene bank of the Centre for Genetic Resources of the Netherlands. The Global Focal Point sponsored the participation of representatives from Eastern Europe and the ERFP and various National Focal Points also provided support. The Workshop was attended by 39 persons from 27 countries[62]. Lectures were provided by FAO, the hosts and other European countries.

47. Guidelines for *in vivo* conservation are in preparation; FAO supported a workshop in India in October 2010. The workshop was hosted by the National Bureau of Animal Genetic Resources.

48. In response to discussion by the Working Group at its Fifth Session[63], FAO undertook a global survey on the current arrangements for existing regional storage systems, including existing health and other relevant regulations for the exchange of genetic materials among countries. The National Coordinator of Turkey contributed to the survey which was also supported by Japan and Norway. The results of the survey are summarized in the document, *Current arrangements for existing*

[58] http://www.cbd.int/development/training/guides/
[59] CGRFA/WG-AnGR-6/10/Inf.9.
[60] Algeria, Bangladesh, Botswana, Egypt, Ethiopia (2), Jordan, Kenya (2), Kyrgyzstan, the Libyan Arab Jamahirya (3), Mauritania, Morocco, Senegal, South Africa (2), Sri Lanka, Tunisia (10), Uganda (2), Uzbekistan (2), Viet Nam.
[61] Argentina, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Honduras, Peru, and Uruguay.
[62] Albania, Austria, Azerbaijan, Belgium, Cyprus, Czech Republic, Denmark, Finland, France, Georgia, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Moldova, the Netherlands, Poland, Serbia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine and Uzbekistan.
[63] CGRFA/WG-AnGR-5/09/Report, paragraph 20.

national and multi-country storage systems for the conservation of animal genetic resources[64]. The majority of countries expressed willingness to participate in multi-country gene banks for animal genetic resources, but frameworks for formal collaboration are required to address issues such as ownership of germplasm, differences between countries in technical capacity and health and sanitary standards, and funding.

Strategic Priority Area 4. Policies, institutions and capacity-building

Research and capacity-building

49. The Thirty-Sixth FAO Conference recommended that FAO, in its livestock programme, emphasize the linkages between the management of animal genetic resources, animal health, livestock policies and institutions for poverty alleviation, biodiversity and climate change adaptation and mitigation[65].

50. The Global Focal Point contributed to the FAO expert meeting "The role of biodiversity for food and agriculture in feeding the world and in light of global changes" and prepared a scientific paper on the link between biodiversity and sustainability. Other scientific papers and presentations at international conferences were prepared on the interactions between animal genetic resources and climate change, covering positive and negative effects of livestock on the environment and threats to livestock biodiversity.

51. In response to CBD COP decision IX/4, "In-depth review of ongoing work on alien species that threaten ecosystems, habitats or species" and considering the gaps and inconsistencies identified by the Ad Hoc Technical Expert Group on Gaps and Inconsistencies in the International Regulatory Framework in Relation to Invasive Alien Species[66], FAO prepared a scientific paper on the role of livestock diversity and invasive alien species.

52. Already at its Third Session, the Working Group had raised the issue of disease factors – including the effects of emergencies and the need to identify disease-resistance[67]. The *Global Plan of Action* indicates a need for a review of the impact of zoosanitary standards on the conservation and use of animal genetic resources[68]. FAO, in collaboration with the World Trade Institute, Switzerland, developed a study "Effects of international legal regimes and policy measures aimed at the protection of human, animal or plant life or health on animal genetic diversity"[69]. The study concluded that current zoosanitary standards do not pose an immediate threat for the conservation and use of animal genetic resources but that genetic resources conservation should be a crucial component of contingency plans.

Institutional and technical support

53. At its Twelfth Session, the Commission endorsed guidelines for the preparation of national strategies and action plans for animal genetic resources and encouraged countries to make full use of these guidelines. FAO published the guidelines entitled *Preparation of national strategies and action plans for animal genetic resources*[70] in English, French, Russian, Spanish and Chinese (in preparation) and distributed more than 900 copies.

54. Supporting guidelines on the development of an institutional framework for the management of animal genetic resources were developed and actively discussed in an e-conference among DAD-

[64] CGRFA/WG-AnGR-6/10/Inf.4.
[65] C 2009/REP, paragraph 65.
[66] UNEP/CBD/SBSTTA/11/INF/4.
[67] CGRFA/WG-AnGR-3/04/REPORT, paragraph 17.
[68] Global Plan of Action, Strategic Priority 11/4.
[69] http://www.nccr-trade.org/fileadmin/user_upload/nccr-trade.ch/wp3/working_paper2010-09.pdf
[70] http://www.fao.org/docrep/012/i0770e/i0770e00.htm

Net subscribers. The comments received have been taken into consideration when further developing the guidelines which are available for review by the Working Group in document, *Draft guidelines on development of the institutional framework for the management animal genetic resources* [71].

55. Through a TCPF project, a national strategy for sustainable use and development of farm animal genetic resources was formulated in Armenia. The resulting document was published in English and Armenian. Another TCPF project originally aiming to support the development of a national policy and strategy for the management and improvement of animal genetic resources in Burundi was redirected to establishing a livestock development strategy, as a complement to the national agriculture sector development strategy.

56. Training on the development of national strategies and action plans was provided at several regional workshops to National Coordinators and their alternates. These workshops have also been used to initiate the establishment of new (Sub-) Regional Focal Points for Animal Genetic Resources Management (RFP) and to strenghten existing RFPs:

- Central Asia held in Almathy, Kazaksthan, September 2009, with participants from 10 countries [72], funded by the Government of Norway;
- Asia and the Pacific held in Beijing, China, November 2009, with participants from 16 countries and Secretariat for the Pacific Community (SPC)[73], funded by the Government of Norway;
- Central and West Africa held in Dakar, Senegal, March 2010, with participants from 15 West and Central African countries[74], co-organized with FAO-RAF, FAO-SFC and PROGEBE, with financial support of the Government of Norway;
- Central America audio conference, August 2010, organized by FAO-SLM with 8 participants from three countries; [75]
- Central Eastern Europe held in Kiev, Ukraine, September 2010, with participants from 15 countries[76], with assistance from FAO and the Government of Sweden;
- Latin America and the Carribean held in November 2010.

57. The regional workshop for Central Asia resulted in a project proposal responding to the call for the FAO/Turkey Partnership Programme (FTPP). The project aims at initiating a Sub-regional Focal Point for the Management of Animal Genetic Resources for five countries of Central Asia and Azerbaijan and Turkey and assisting with the development of national strategies and action plans. The concept note has been accepted by the donor, and a full project is being developed.

58. The Global Focal Point participated in the annual meetings of National Coordinators within the European RFP (Spain 2009; Greece 2010).

59. A meeting of the enlarged steering committee of the RFP Latin America and Carribean, was co-organized in collaboration with FAO-RLC, in Pucon, Chile, in October 2010. It was attended by 11 National Coordinators[77]. The Steering Committee prepared three regional projects which were submitted to donors but unfortunately without success so far. However, national activities are on their

[71] CGRFA/WG-AnGR-6/10/Inf.9.
[72] Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkey, Uzbekistan, Ukraine and Russian Federation
[73] Bangladesh, Cambodia, China, India, Indonesia, Lao People's Democratic Republic, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Papua New Guinea, Philippines, Sri Lanka, Thailand and Viet Nam and SPC.
[74] Burkina Faso, Cameroon, Central African Republic - CAR, Côte d'Ivoire, Equatorial Guinea, Gabon, the Gambia, Ghana, Guinea, Guinea-Bissau, Mali, the Democratic Republic of the Congo, Sao Tome and Principe, Senegal and Togo.
[75] Panamá, Costa Rica, and Guatemala
[76] Belarus, Bosnia and Herzegovina, Croatia, Estonia, Georgia, Hungary, Lithuania, Moldova, Montenegro, Poland, Russian Federation, Serbia, Slovakia, Slovenia and Ukraine.
[77] Argentina, Bolivia, Brazil, Colombia, Costa Rica, Chile, Guatemala, Ecuador, Peru, Suriname and Uruguay.

way; Chile, Colombia and Peru are formulating their national action plans for animal genetics resources, supported by FAO-RLC through TCP-Facility funding.

Awareness raising and information

60. FAO continues to maintain DAD-Net as an informal forum for the discussion of issues relevant to the management of animal genetic resources at national, regional and international levels. In September 2010, 1300 persons from more than 114 countries were subscribed to the network. Over the last 2 years of operation, more than 780 messages have been exchanged. DAD-Net has proved to be an effective means of sharing experiences, enabling participants to request information and facilitating informal discussions among individuals involved in various aspects of the management of animal genetic resources, in particular for individuals from countries where such means do not otherwise exist.

61. FAO continued to produce the journal "Animal Genetic Resources" (previously AGRI); issues 44 to 46 were published during the reporting period. Special Issue 45 was dedicated to the International Year of Natural Fibres. Special Issue 47 dedicated to the International Year of Biodiversity is currently being finalized for publication. The Global Focal Point contributed to several papers in the special issue. The journal is now being published in collaboration with Cambridge University Press[78]. As of September 2010, 2150 persons were subscribed to "Animal Genetic Resources".

62. FAO invited National Coordinators, Regional Coordinators and international non-governmental organizations (INGOs) to contribute to posters for the International Year of Biodiversity; a poster exhibition will take place at the occasion of the Sixth Session of the Working Group. The theme of the country and organization's posters is "Implementation of the *Global Plan of Action* for Animal Genetic Resources". As of October 2010, 24 countries and 5 international INGOs had contributed to this initiative.

63. The Commission, at its Twelfth Session[79] and the Thirty-sixth FAO Conference[80] stressed the importance of addressing the particular needs of small-scale livestock keepers and pastoralists, custodians of much of the world's animal genetic resources, and encouraged their full and effective participation in the implementation of the *Global Plan of Action*[81]. In response, FAO prepared and widely distributed the publication "Livestock keepers – guardians of biodiversity"[82]. Furthermore, FAO, in collaboration with the NGOs LPP and Natural Justice, piloted biocultural protocols and tested their potential for strengthening indigenous communities to continue stewarding their animal genetic resources and their ecosystems. Biocultural protocols aim to create a link between articles 15 and 8(j) of the CBD and the *Global Plan of Action*. A booklet "Biocultural community protocols for livestock keepers" summarizing the experiences with the first four protocols was widely distributed and the results presented to the CBD.

64. FAO contributed to the preparation of documents and statements for the Fourteenth Session of the CBD Subsidiary Body on Scientific, Technical and Technological Advice, especially the review of the Programme of Work on Agricultural Biodiversity, and the Tenth Session of the CBD Conference of the Parties. FAO also contributed to the UN system-wide contribution for advancing the biodiversity agenda coordinated by the Environment Management Group.

65. FAO is collaborating with the World Intellectural Property Organization on a patent landscape study, representatives from governments, research and industry are being contacted to contribute.

[78] http://journals.cambridge.org/action/displayJournal?jid=AGR
[79] CGRFA-12/09/Report para. 44.
[80] C 2009/REP, para. 67.
[81] C 2009/REP, para. 68.
[82] ftp://ftp.fao.org/docrep/fao/012/i1034e/i1034e.pdf

66. FAO continued its interaction with various scientific organizations and the breeding industry. It hosted a meeting of the European Forum of Farm Animal Breeders (EFFAB) and the "Industry days" of the European Commission funded SABRE and EADGENE projects, in May 2009. A Memorandum of Understanding was signed between FAO and EFFAB, formally expressing and agreement to collaborate on issues of mutual interest relating to management of animal genetic resources. A Poultry Leadership Think Tank was held in Germany in June 2009, with representatives of the poultry breeding industry, the World Poultry Science Association (WPSA) and FAO to discuss social equity and sustainability issues relating to the present systems employed globally in poultry production. A wider stakeholder symposium "Guidance for the poultry sector – issues and options" was organized by FAO, WPSA and the poultry breeding industry at the European Poultry Conference in France, in August 2010. It was attended by 100 people from research, representatives from various points along the value chain of the poultry industry, representatives of regulatory bodies and governments, and NGOs. FAO also participated to the 6th European Poultry Genetics Symposium, organized by the Polish Branch of WPSA in October 2009. The symposium was attended by more than 70 people from industry and academia from 17 countries.

67. As part of the Ninth World Congress on Genetics Applied to Livestock Production, a particular session was jointly organized with FAO and titled *Genetic improvement programmes: management of Animal Genetic Resources. Quo vadis after the state of the world report*. This session included 18 papers. Moreover, 600 copies of the conference proceedings (on CD-ROM) were made available to FAO for distribution to the global network for the management of animal genetic resources. FAO and the USDA organized a side-event on cryoconservation of animal genetic resources that was attended by approximately 30 persons.

68. The Global Focal Point served as the FAO Focal Point for Livestock in association with the FAO International Conference on Agricultural Biotechnologies in Developing Countries[83], held in March 2010 in Mexico. The conference was attended by approximately 300 persons from 68 countries. In addition to chairing the sessions on livestock, the Global Focal Point oversaw the preparation of a background document[84] on the use of animal biotechnologies in developing countries, including for the management of animal genetic resources.

69. Representatives from the Global Focal have participated as invited speakers at a number of meetings of organizations with programmes related to the management of animal genetic resources. These meetings were held in locations spread throughout the world, including Australia, Belgium, Canada, Chile, China, Ireland, Italy, Kenya, Mexico, the Netherlands, Poland, Portugal, South Africa, Thailand, Tunisia and Viet Nam.

70. AGE organized a "Symposium on sustainable improvement of animal production and health"[85] in Austria (2009). The Symposium included sessions on the management of animal genetic resources and how these resources could improve the quality of livestock. The Global Focal Point assisted in the preparation of the programme, selection of speakers and review of the conference proceedings[86] and presented a lecture on the interactions between animal genetics resources and climate change which will be published as part of the symposium proceedings.

71. T-shirts with the slogan "promoting diversity" have been produced for distribution at workshops and for sale in the FAO Brand Centre. More than 200 T-Shirts were sold. National Coordinators have been contacted and offered the opportunity to reproduce such T-shirts locally. The National Coordinator of Poland has produced 600 T-shirts for national distribution. In addition, the Secretariat of the Pacific Community (SPC) has reproduced 200 T-Shirts and distributed them at workshops in six countries of the South-West Pacific region.

[83] http://www.fao.org/biotech/abdc/en/
[84] http://www.fao.org/fileadmin/user_upload/abdc/documents/livestock.pdf
[85] http://www-pub.iaea.org/Mtcd/Meetings/Announcements.asp?ConfID=35424
[86] http://www-naweb.iaea.org/nafa/aph/BookOfExtendedSynopses.pdf

IV. SUPPORT BY FAO TO GLOBAL PLAN OF ACTION PART III. IMPLEMENTATION AND FINANCING OF THE *GLOBAL PLAN OF ACTION*

72. The Commission, at its Twelfth Session, had adopted the *Funding Strategy for the implementation of the Global Plan of Action for Animal Genetic Resources*[87] and requested FAO to implement it and to establish a FAO Trust Account. The Funding Strategy was published as an FAO document[88] and made available in the official FAO languages. The Commission requested FAO to report to the Working Group on the administrative arrangements for the FAO Trust Account for the Funding Strategy.[89] Such report is available in document, *Funding Strategy for the implementation of the Global Plan of Action for Animal Genetic Resources, including administrative arrangements for the FAO Trust Account* [90].

73. FAO conducted informal surveys on how the *Global Plan of Action* has been implemented at national level. The document, Results of informal surveys on progress in country implementation of the Global Plan of Action for Animal Genetic Resources[91], indicates that after the adoption of the Global Plan of Action there is a new and unprecedented momentum for the promotion of the wise management of animal genetic resources as a means to improve food security and sustainable development worldwide. FAO had no direct role in most of the country activites highlighted in this document. The country experiences imply that countries have made strategic use of national, bilateral and multilateral resources to advance the implementation of the Global Plan of Action.

[87] CGRFA-12/09/Report, Appendix C,
[88] www.fao.org/docrep/012/i1674e/i1674e00.htm
[89] CGRFA-12/09/Report, paragraph 43.
[90] CGRFA/WG-AnGR-6/10/4.
[91] CGRFA/WG-AnGR-6/10/Inf.10.

Annex 1: Development of guidelines and manuals

Title	SPA	Dates	Location	Countries of participating experts
Workshop for drafting guidelines for surveying and monitoring of animal genetic resources	1	2–7 March 2009	Peebles, United Kingdom	United Kingdom, Ethiopia/Papua New Guinea, Germany/India, Zimbabwe/United Kingdom, Zimbabwe/Mozambique, China
Workshop for drafting guidelines on molecular genetic characterization	1	9-11 November 2009	Piacenza, Italy	Italy, the Netherlands
Workshop for drafting guidelines on cryoconservation	3	8-10 December 2009	Lelystad, the Netherlands	Brazil, Italy, the Netherlands, USA
Workshops for drafting guidelines on phenotypic characterization	1	13-18 December 2009	Bariloche, Argentina	Argentina, Austria, Brazil, Bolivia, Chile, Italy, Peru, Spain
		22–25 March 2010	Dakar, Senegal	Burkina Faso, Cameroon, Central African Republic, Côte d'Ivoire, Equatorial Guinea, Gabon, the Gambia, Ghana, Guinea, Guinea-Bissau, Mali, Democratic Republic of Congo, Sao Tome and Principe, Senegal, Togo
		28 June-3 July 2010	Viterbo, Italy	Brazil, Cambodia, Ethiopia, France
Workshops for drafting guidelines on *in vivo* conservation of animal genetic resources	3	21-24 June 2010	Como, Italy	India, Italy, the Netherlands, Spain, USA
	3	18-20 October 2010	Milan, Italy	Italy, the Netherlands
Workshops for drafting guidelines on ainmal identification at the Second meeting of ICAR task force for developing countries	2	8-12 May 2009	Porec, Croatia	Namibia, Argentina, South Africa, Uruguay, India, Tunisia, France, Estonia, Malaysia, Kenya

Annex 2: Regional workshops for National Coordinators, FAO and in collaboration with partners

Title	Dates	Location	List of countries participating
Joint FAO/Kazakhstan Association for Animal Production Workshop on Sustainable management of animal genetic resources: Development of priorities, policies and national action plans	13-20 September 2009	Almaty, Kazakhstan	20 participants from 11 countries (Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkey, Turkmenistan, Uzbekistan, Ukraine and Russian Federation) and FAO SEUM
Regional National Coordinator meeting	26-30 October 2009	Pucon, Chile	13 participants from 11 countries (Argentina, Bolivia, Brazil, Colombia, Costa Rica, Chile, Guatemala, Ecuador, Peru, Suriname, Uruguay)
Regional Workshop on Sustainable management of animal genetic resources: Development of priorities, policies and national action plans	13–22 November 2009	Beijing, China	21 participants from 16 countries (Bangladesh, Cambodia, China, India, Indonesia, Lao People's Democratic Republic, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Papua New Guinea, Philippines, Sri Lanka, Thailand and Viet Nam) and Secretariat for the Pacific Community (SPC)
Regional workshop on sustainable management of animal genetic resources in Central and West Africa	22–25 March 2010	Dakar, Senegal	56 persons from 15 West and Central African countries (Burkina Faso, Cameroon, Central African Republic, Côte d'Ivoire, Equatorial Guinea, Gabon, the Gambia, Ghana, Guinea, Guinea-Bissau, Mali, Democratic Republic of Congo, Sao Tome and Principe, Senegal and Togo) and 8 regional and international research and development institutions (CIRAD, CIRDES, CORAF/WECARD, EISMV, ENMV Sidi Thabet Tunisia, FAO, ILRI, ITC) and PROGEBE.
Sub-regional audio-conference	16 August 2010	Panama	8 persons from 3 countries (Panamá, Costa Rica, and Guatemala)and FAO SLM
Regional Workshop on Development of national action plans for sustainable management of animal genetic resources	27-30 September 2010	Kyiv, Ukraine	30 persons from 15 countries (Albania, Belarus, Bosnia and Herzegovina, Croatia, Hungary, Lithuania, Republic of Moldova, Montenegro, Poland, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Ukraine) and FAO-SEUM, FAO-SEC
Regional workshop on the operations of the Regional Focal Point and exchange of experiences	1-2 November	Costa Rica	Argentina, Plurinational State of Bolivia, Brazil, Chile, Costa Rica, Columbia, Peru and FAO-RLC

Annex 3: Technical trainings, FAO and in collaboration with partners

Training	Date	Location	List of countries participating
ILRI and Swedish Agricultural University (SLU) course on Capacity building for sustainable use of animal genetic resources in developing countries, for university teachers and researchers from Asia	16-18 February 2009	Kathmandu, Nepal	Bangladesh, Bhutan, India, Nepal, Pakistan, Sri Lanka
FAO-ICARDA workshop on animal identification, traceability and performance recording in countries of the Near East and North Africa	2-6 March	Aleppo, Syria	Algeria, Egypt, Jordan, Libya, Mauritania, Morocco, Oman, Saudi Arabia, Sudan, Tunisia and Yemen, FAO and ICARDA
Formulation of policies and strategies for development and management of animal genetic resources in Latin America, orgainzed jointly with, the National Agricultural Research Institution – CORPOICA	2-4 September 2009	Bogotá, Colombia	Argentina, Brazil, Bolivia, Chile, Colombia, Ecuador, Mexico
ILRI-SLU-FAO Workshop 'Synthesis of institutional issues and developing innovative frameworks for sustainable use of AnGR: How to make a difference	21-25 September 2009	Arusha, Tanzania	Uganda, Tanzania, Ethiopia, Rwanda, Kenya, Botswana, Malawi, Mozambique, Zimbabwe, Swaziland and ILRI, SLU, FAO and East African Community (EAC)
Second summer school of the GLOBALDIV project	8–13 September 2009	Piacenza, Italy	Australia, Belarus, Brazil, Croatia, Egypt, Germany, Iran (Islamic Republic of), Italy, Lithuania, Nigeria, Poland, Romania, Slovakia, Slovenia, South Africa, Spain, Switzerland, Syria, Tunisia, Turkey, Uganda
FAO-SADC workshop on animal identification and recording	1-4 November 2009	Gaborone, Botswana	Angola, Australia, Botswana, Democratic Republic of Congo, Ethiopia, Germany, Italy, Kenya, Lesotho, Malawi, Mozambique, Namibia, Seychelles, Sudan, South Africa, Swaziland, Tanzania, United Kingdom, Zambia, Zimbabwe
Regional training course on on genomic DNA preparation, microsatellite analyses and sequencing, presented by FAO/IAEA Agriculture & Biotechnology Laboratory of AGE	7- 18 December 2009	Seibersdorf, Austria	Albania, Armenia, Azerbaijan Bosnia and Herzegovina, Bulgaria, Croatia, Eritrea Greece, Hungary, India, Kazakhstan, Macedonia, Montenegro, Moldova, Romania, Russian Federation, Serbia, Turkey
Training workshop on animal identification and recording systems	18-22 January 2010	Amman, Jordan	Iraq, Jordan
International Master in Animal Breeding and Reproduction Biotechnology, jointly organized by CIHEAM, Polytechnic University of Valencia	6–7 April 2010	Valencia, Spain	Albania, Algeria, Argentina, Chile, Colombia, Costa Rica, Cuba, Ecuador, Egypt, Spain, Morrocco, Peru, Tunisia, Uruguay, Venezuela

(UPV) and University of Barcelona			
First global workshop on gene bank development for cryoconservation of animal genetic resources	21-23 April 2009	Tunis, Tunisia	Botswana, Mauritania, Uganda, Kenya, Ethiopia, Senegal, Algeria, Morocco, Libya, Egypt, Jordan, Kyrgyzstan, South Africa Tunisia, Uzbekistan, Viet Nam, Bangladesh, Sri Lanka
Latin American regional workshop on conservation of animal genetic resources	23-26 March 2010	Guayaquil, Ecuador	Argentina, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Honduras, Peru, Uruguay
European regional gene banking and cryopreservation training workshop	1-3 June 2010	Lelystad, the Netherlands	Albania, Austria, Azerbaijan, Belgium, Cyprus, Czech Republic, Denmark, Finland, France, Georgia, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Moldova, Poland, Serbia, Slovenia, Spain, Sweden, Switzerland, the Netherlands, Turkey, Ukraine, Uzbekistan
Asian regional workshop on *in vivo* conservation of animal genetic resources	28-30 October 2010	Delhi, India	Bangladesh, Bhutan, Indonesia, Malaysia, Mongolia, Nepal, Pakistan, Papua New Guinea, Sri Lanka, Viet Nam
Individual or group training on-site or abroad through the IAEA Technical Cooperation Projects on DNA-based technology for improving productivity of indigenous livestock breeds	Various	Austria, Spain, Italy, Zambia, Burkina Faso	Austria, Burkina Faso, Italy, Madagascar, Morocco, Sri Lanka, Spain, Zambia

Annex 4: Conferences attended

Conference title	Dates	Location
First GLOBALDIV Workshop	18-20 March 2009	Bydgoszcz, Poland
OIE International conference on Animal Identification and Traceability	23-25 March 2009	Buenos Aires, Argentina
FAO-European Forum for Farm Animal Breeders (EFFAB) Workshop	3 June 2009	Rome, Italy
FAO/IAEA Symposium on Sustainable Improvement of Animal Production and Health	8-11 June 2009	Vienna, Austria
Technical meeting of GEF-CBD 2010 BIP (Biodiversity Indicator Project)	9-10 July 2009	Cambridge, United Kingdom
2009 Joint Annual Meeting of the American Dairy Science Association (ADSA), American Society of Animal Science (ASAS) and Canadian Society of Animal Science	12-16 July 2009	Montreal, Canada
60th Annual Meeting of the European Association of Animal Production	24-27 August 2009	Barcelona, Spain
6th European Poultry Genetics Symposium	30 September-2 October 2009	Poznan, Poland
Symposium on Genetic Resources for Latin America and the Caribbean (Sirgealc)	28-30 October 2009	Pucón, Chile
Taxonomic Databases Working Group - Biodiversity information standards conference	8-12 November 2009	Montpellier, France
International Seminar on Breeds at risk: Criteria and classification	16-18 February 2010	London, United Kingdom
FAO International Technical Conference on Agricultural Biotechnologies in Developing Countries (ABDC-10)	1-4 March 2010	Guadalajara, Mexico
GLOBALDIV-EuReCa Livestock Biodiversity Workshop	5-7 May 2010	Rome, Italy
EU Conference on Identification and Traceability along the Food Chain	14-15 June 2010	Brussels, Belgium
32nd Conference for the International Society for Animal Genetics	26-30 July 2010	Edinburgh, United Kingdom
9th World Congress on Genetics applied to Livestock Production (WCGALP)	1-6 August 2010	Leipzig, Germany
XIII European Poultry Conference	23-27 August 2010	Tours, France
61th Annual Meeting of the European Association of Animal Production	23-27 August 2010	Heraklion, Greece

Annex 5: Projects, FAO and in collaboration with partners

Project title	SPA	Donor	Description	List of countries participating
Promoting strategies for prevention and control of HPAI that focus on smallholder livelihoods and biodiversity (GCP/INT/010/GER).	1, 4	Germany	Promotes policies/strategies for prevention and control of highly pathogenic avian influenza (HPAI) that focus on smallholder livelihoods and biodiversity. Genetic characterisation of local poultry genetic resources and their production systems in the three countries	Cambodia, Egypt, Uganda
National breeding policy and strategy formulation (TCP/ARM/3101)	2, 4	FAO	Support the Ministry of Agriculture (MoA) in formulating a national livestock breeding policy and strategy document for the sustainable use and development of livestock	Armenia
Development of national policy and strategy for the management and the improvement of animal genetic resources in Burundi (TCP/BDI/3103-D)	4	FAO	Due to the lack of a livestock policy, it was decided to dedicate the resources of this TCP-Facility to establishing a livestock development strategy, as a complement to the national agriculture strategy	Burundi
In-situ conservation of endemic ruminant livestock in West Africa.	1, 2, 3, 4	GEF and AfDB	Promotes sustainable *in situ* conservation of targeted endemic ruminant livestock breeds – N'dama cattle, Djallonke sheep, and West African Dwarf goats. The project also aims to establish effective models for community -based management of endemic ruminant livestock and their habitat at project pilot sites, and to strengthen production, marketing and policy environments in support of these breeds.	Gambia, Guinea, Mali, Senegal
Modernizing and upgrading the national animal breeding programme (TCP/MON/3104)	2	FAO	Supports genetic improvement of dairy cattle through the establishment of pedigree and performance recording schemes, rehabilitation and support for the artificial insemination service, the provision of expert advice in animal feeding, provision of	Mongolia
Dairy cattle improvement (TCP/NEP/3105)	2	FAO		Nepal
Dairy cattle improvement	2	FAO		Myanmar

(TCP/MYN/3201)			training for stakeholders and development of draft breeding strategies.	
Dairy cattle and buffalo improvement (TCP/SRL/3204)	2	FAO		Sri Lanka
Elaboración del Plan Nacional de Conservación y Uso Sostenible de Recursos Genéticos Animales del Perú (TCP/PER/3302)	4	FAO	Formulation of National Strategies and Action Plans for animal genetics resources	Peru
Formulación del Plan Nacional de Acción para la conservación, mejoramiento y utilización sostenible de los recursos genéticos animales (TCP/COL/3201)	4	FAO		Colombia
Plan Nacional de Acción para la conservación y utilización sostenible de los recursos genéticos animales (TCP/CHI/3201)	4	FAO		Chile
CRP Gene-based technologies in livestock breeding: Characterization of small ruminant genetic resources in Asia".	1	AGE	Undertakes phenotypic and genetic characterization of nearly 100 sheep and goat breeds in eight Asian and Near East countries and disseminates information via a project database. Provides equipment and training for participating scientists.	Bangladesh, China, Indonesia, Islamic Republic of Iran, Pakistan, Saudi Arabia, Sri Lanka Viet Nam
AGE is supporting National Technical Cooperation projects involving characterization of animal genetic resources in 4 countries (BKF/5/008, MOR/5/030, SRL/5/041, ZAM/5/025)	1	IAEA	Undertakes capacity-building in molecular and phenotypic characterization	Burkina Faso, Morocco, Sri Lanka Zambia
Farm Animal Biodiversity Information System Network (FABISnet)	1	EU	Supports establishment of national information systems	Austria, Cyprus, Estonia, Finland, Georgia, Iceland, Ireland, Italy, Netherlands, Slovakia, Slovenia, Switzerland, United Kingdom
2010 Biodiversity Indicators	1	GEF	Develops guidelines for surveying and	International

Partnership project			monitoring, and tools and methodology for developing and testing the CBD headline indicator “trends in genetic diversity	
CRP Genetic variation on the control of resistance to infectious diseases in small ruminants for improving animal productivity”	1,2	AGE	Characterize breeds of sheep and goats for resistance to parasites and develop tools for genetic improvement	Argentina, Bangladesh, Brazil, Burkina Faso, China, Eritrea, Ethiopia, Indonesia, Iran, Mexico, Nigeria, Pakistan, Saudi Arabia, Sri Lanka
Development and application of decision support tools to conserve and sustainably use genetic diversity in indigenous livestock and wild relatives	1,2,3	GEF	Characterize local breeds of chicken, goats and pigs and their wild relatives and develop conservation and sustainable use programmes	Bangladesh, Pakistan, Sri Lanka and Viet Nam
FAO/IAEA Technical Contract for the genotyping of African Sheko cattle for the international Bovine HapMap Programme	1	AGE	Production of quality controlled and certified genotypes for 30,000 SNP for 24 animals in the African Sheko breed of cattle	Australia, Brazil, Canada, France, Italy, Kenya, New Zealand, Norway, UK, USA
FAO/IAEA Technical Contract for the genotyping of African Dorper sheep for the International Sheep HapMap Programme	1	AGE	Production of quality controlled and certified genotypes for 60,000 SNP for 24 animals in the African Dorper breed of sheep	Australia, Austria, Bangladesh, Barbados, Brazil, Canada, China, Cyprus, Egypt, Finland, France, Germany, Greece, Iceland, India, Iran, Ireland, Israel, Italy, Kenya, New Zealand, Norway, Spain, Sri Lanka, Switzerland, Turkey, United Kingdom and USA
FAO/IAEA Technical Contract for the developing and characterization of a radiation hybrid panel for the goat	1	AGE	Availability of genomic information and tools for research work for improving goat productivity.	USA
Developing and validating molecular nuclear technologies for rapid diagnostics of Foot and Mouth Disease and genotyping of indigenous cattle breeds	2	AGE	Development of database for genetic repository and characterization of Cattle breeds of Bulgaria	Austria, Bulgaria
Regional TCP on strengthening capacities for the diagnosis and	2	AGE	Development and adaptation of a Laboratory Information System (LIMS) for veterinary	Algeria, Angola, Botswana, Burkina Faso, Cameroon, Central African

control of transboundary animal diseases in Africa			diagnostic laboratories	Republic, Cote d'Ivoire, Democratic Rep. of the Congo, Egypt, Eritrea, Ethiopia, Gabon, Ghana, Kenya, Malawi, Mali, Mauritania, Morocco, Namibia, Niger, Senegal, Seychelles, Sierra Leone, South Africa, Sudan, Tunisia, Uganda, United Republic of Tanzania, Zambia, Zimbabwe, Austria
Cattle production improvement	2	Turkish Partnership Programme (FTPP), Turkish International Development Agency (TIKA), Turkish Cattle Breeders Association (CBAT).	Establish Cattle Producers Association (CPA) operating in one high potential district in four Central Asian countries; at least one forage demonstration plot and at least one animal feed concentrate milling plant supported in each target district. A modern livestock husbandry management system that includes identification and registration of selected livestock, complete with ear tag identification of animals belonging to CPA members,	Tajikistan, Kyrgyzstan, Azerbaijan and Uzbekistan
Promoting the management of animal genetic resources in SEC countries	4	Turkish Partnership Programme (FTPP)	Strengthen National Focal Points; establish a Sub-regional Focal Point for the Management of AnGR for Central Asia and Azerbaijan, develop National Strategy and Action Plan for the Management of AnGR by each participating country	Countries of Central Asia and Azerbaijan
Regional TCP on cattle breeding in Asia.	2	AGE	Provides technical support and expertise for the establishment and management of animal genetic resources, with an emphasis on the sustainable utilization of local breeds.	Bangladesh, China, India, Indonesia, Malaysia, Mongolia, Myanmar, Pakistan, Republic of Korea, Sri Lanka, Philippines, Thailand Viet Nam
Regional TCP on cattle breeding in Africa.	2	AGE		Algeria, Burkina Faso, Botswana, Central African Republic, Cameroon, Congo, Egypt, Ghana, Kenya, Libyan Arab Jamahiriya, Madagascar, Mali, Mauritius, Niger, Nigeria, Senegal, Sierra Leone, Sudan, Tunisia Uganda, United Republic of Tanzania,

				Zimbabwe
Development and implementation of projects on animal genetic resources consistent with the *Global Plan of Action*	1, 4	Australia, through FAO	Establishment of the South Pacific regional AnGR network and AnGR inventory and characterisation	Secretariat of the Pacific Community (SPC), Fiji, Niue, Samoa, Salomon Islands, Tonga, Vanuatu

Annex 6: Publications since the ITWG 5

FAO documents

FAO. *AGRI (Animal Genetic Resources Information)* Tri-lingual (English/French/Spanish) journal volumes 44, 45, 46, 47 (in print), with two special issues (volume 45 and 46).

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