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COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

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REPORT FROM FAO ON ITS POLICIES, PROGRAMMES AND ACTIVITIES ON AGRICULTURAL BIOLOGICAL DIVERSITY: (2) OTHER SECTORS OF AGRICULTURAL BIOLOGICAL DIVERSITY

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I. INTRODUCTION

1. The Commission regularly receives reports from international organizations, including FAO, on the policies, programmes and activities for the conservation and use of plant genetic resources. The Commission considers such reports to be of value, both to it and to the organizations, which are able to acquaint countries with the objectives and programmes, and benefit from their comments.

2. As in past years, FAO has reported on its policies, programmes and activities in the field of plant genetic resources, in document CGRFA-7/97/8.1. Following the broadening of the mandate of the Commission to also cover other components of biological diversity of interest to agriculture, the present document complements that report, and provides the Commission with complementary information regarding FAO's role in other fields of agro-biological diversity, and on supporting activities in the legal, economic and social, and gender issues, fields.

II. FARM ANIMAL GENETIC RESOURCES

3. Table 1 lists the major budgetary allocations within FAO's 1996-97 Regular Programme budget for the Animal Health and Production Division, in which substantial animal genetic resources activities are pursued. FAO staff salaries are included. A number of other programme elements, not listed here, also support activities of importance to animal genetic resources, such as work on animal disease resistance.

Table 1: 1996/97 Programme of Work and Budget allocations to regular programme elements with components relevant to animal genetic resources, and estimated weight of these components

Programme element	Budget (US $ 000)	Estimated weight of AnGR components
Coordinating the country-base structure	952	high
Sustainable utilization and conservation *(in situ* and *ex situ*)	881	high
Characterization and early warning	448	high
DAD-IS development and maintenance	416	high

4. Regular Programme resources partially support the essential core activities that provide the global focus for the country-based Global Strategy for the Management of Farm Animal Genetic Resources, whereby FAO seeks to lead, coordinate and facilitate the step-by-step development of the Global Strategy, on the basis of broad stakeholder involvement, the development of the necessary modalities, and reporting on developments, including on long-term in-kind and financial support needs. Extra-budgetary funding is required to complement the Regular Programme provisions for the global focus. Extra-budgetary resources are also being sought to develop country and regional field activities within the Global Strategy.

5. A comprehensive and coherent *framework for the Global Strategy for the Management of Farm Animal Genetic Resources* was considered by the Committee on Agriculture (COAG), and

Decision III/11 of the Conference of the Parties to the Convention on Biological Diversity, again in 1996, "appreciates the importance of the country-based Global Strategy for the Management of Farm Animal Genetic Resources under the Food and Agriculture Organization of the United Nations and strongly supports its further development" (para. 20, in document UNEP/CBD/COP/3/REP).

6. The Global Strategy framework includes a set of key actions that aim, in particular, at:

- developing and making better use of animal genetic resources adapted to the world's major medium-input and low-input production environments, so as to sustainably intensify their agricultural systems; and
- overcoming the serious threat of genetic erosion in the remaining 5,000 or so breed resources of the fourteen main farm animal species; preliminary survey results show that about 30% of these resources are currently at high risk of loss.

7. The Global Strategy framework contains four basic components:

- A global, country-based structure with three elements: (i) focal points and networks, (ii) stakeholders, and (iii) the Domestic Animal Diversity Information System (DAD-IS).
- A technical activities programme with six elements: (i) characterization; (ii) *in situ* utilization and conservation; (iii) *ex situ* conservation; (iv) the development of guidelines and action plans; (v) the development of communications and information systems, and relevant training; and; (vi) coordination.
- Expert cadres to guide development of the strategy, and maximize the cost-effectiveness of country participation.
- An inter-governmental mechanism whereby governments can directly guide international policy development: the Commission on Genetic Resources for Food and Agriculture.

8. The components of the Global Strategy are inter-dependent, and, in order to be cost-effective, maintain momentum and achieve long-term success, must be implemented concurrently. Once the basic guidelines and framework are in place, activities need to be developed in a coherent manner, as the necessary human and financial resources become available. The implementation of the Global Strategy is based on the collaboration of all stakeholders, through the Initiative for Domestic Animal Diversity (iDAD).

9. This programme, which began in 1995, has already achieved the following:

- The *technical rationale* on which the framework for the Global Strategy is based was evaluated and endorsed by an Informal Panel of Experts, representing a broad range of disciplines.
- The *basic structure* at country level is being established: National Focal Point Institutions, as well as National Coordinators for Farm Animal Genetic Resources, are being identified by governments in 73 countries in Africa, Asia, the Americas and Europe, although most are not yet fully active.
- A pilot *regional focus* has been introduced in Asia, funded by the Government of Japan. A mid-term evaluation mission reported favourably on this pilot regional focus and stressed the need for local and regional coordination and assistance to countries, to allow them to make the substantial efforts required for the effective management of animal genetic resources. Preparations are under way to initiate Regional Focuses for Africa, the Americas, Europe and the Near East, making use, wherever possible, of existing sub-regional country-based structures, such as the Southern African Development Community (SADC) and the Inter-American Institute for Cooperation in Agriculture (IICA).
- The *Domestic Animal Diversity Information System (DAD-IS)* was designed to be

cover all areas of animal genetic resources management, as a "virtual structure" for the implementation of the Global Strategy. There are currently about 1,000 regular users, but there is not yet adequate day-to-day global focus support to assist users and fully enable the System. A considerable further investment of human resources is still needed.

- The first steps have been taken towards developing *mechanisms for stakeholder consultation*, whereby a broad range of stakeholders involved in animal genetic resources may contribute actively to the development of the Global Strategy. An informal *Ad Hoc* Meeting of Donors and Other Stakeholders resolved to support the Global Strategy, and to "mainstream" it in discussions with countries and in their collaborative livestock activities. They also agreed on the need to meet regularly to exchange information on progress.
- Development of an *Early Warning System* has been initiated, through global surveys of twenty-eight species of farm animals, and the development of the Global Databank for Animal Genetic Resources. The *World Watch List for Domestic Animal Diversity* was published in English and French, and the Spanish version is ready for printing: it has proved very popular.
- Four of nine planned *project identification missions* have taken place. Their aim is to better understand which activities, if implemented, would accelerate the improvement of animal genetic resources management in each region.
- *Primary country-level guidelines* for developing and implementing sound action plans for each farm animal species, and the range of primary agro-ecosystems incorporating livestock, are under development.
- A comprehensive *communications strategy* has been prepared, which focuses on the target audiences' information needs: it exploits all major communication opportunities, and aims at maximum cost-effectiveness. Key elements are: DAD-IS, the *World Watch List on Domestic Animal Diversity*, the *Animal Genetics Resources Information Bulletin*, a stakeholders' newsletter, and a briefing kit.
- The initial consideration, by the Commission, of animal genetic resources, at this session, has been prepared through the *Ad Hoc Working Group of Experts on Animal Genetic Resources* (its Report is document CGRFA-7/97/10), and subsequent discussions during the Fourteenth Session of COAG (relevant extracts of its Report are in document CGRFA-7/97/Inf. 2). A broad range of technical and policy issues concerning the better management of this sector of agro-biodiversity that need to be addressed have been identified in this process.

III. FISHERY GENETIC RESOURCES

Regular Programme

10. Table 2 lists the major budgetary allocations to programme elements within FAO's 1996-97 Regular Programme budget for the Fisheries Department, in which substantial fishery genetic resources activities are pursued. The figures given reflect only those parts of the element directly related to fishery genetic resources. Non-staff human resources allocations are included, but FAO staff salaries are not.

Table 2: 1995-96 budget allocations to regular programme elements with components relevant to fishery genetic resources, and estimated weight of these components

Programme element	Budget (US $ 000)	Estimated weight of FiGR components

Programme element	Budget (US $ 000)	Estimated weight of FiGR components
Development of tools for planning inland fisheries and aquaculture/Publication of the *Code of Conduct for Responsible Fisheries*	67	low
Conservation and management of inland water fisheries	18	low
Monitoring and reporting on the status and trends in inland fisheries and aquaculture	11	low
Technologies for the practice and enhancement of inland fisheries and aquaculture	78	Medium-Low
Interagency and interdepartmental environment activities	8	Medium

11. Most activities dealing with fishery genetic resources take place within the Inland Water Resources and Aquaculture Service (FIRI) of the Fishery Resources Division (FIR). There is one full-time Fishery Resources Officer responsible for fishery genetic resources matters. However, because fishery genetic resources utilization and conservation are involved in many aspects of the work of the division, other services, notably Marine Resources (FIRM) make significant contributions. No formal structure has been created to deal specifically with fishery genetic resources.

12. FAO's programme in fishery genetic resources for food and agriculture covers two broad, and very different, matters: (i) the sustainable use of genetic diversity in aquaculture, for example, through the genetic improvement of farmed aquatic species, and (ii) the management and conservation of genetic diversity in the wild. In contrast to the situation with crops and livestock, very few fish species have been domesticated, and the majority of fishery genetic resources are to be found in wild populations of fish, shellfish, crustaceans, and plants. Many of FAO's activities in fishery management relate to the conservation and sustainable use of aquatic diversity, through the promotion of responsible fishing practices and the correction of harmful practices, such as the deployment of over-capacity, and the use of explosives or poisons.

13. Accurate data on the types of aquatic species harvested and farmed, stock composition and stock assessment, are required for conservation and sustainable utilization and much of the necessary basic information remains unavailable. In this context, although they do not specifically cover genetic diversity, FAO Fishery statistics on capture fisheries and aquaculture, and the species identification programme are a valuable source of information on biological diversity.

14. *Improvement of Biological Data on Exploited Resources*: The Species Identification and Data Programme promotes the upgrading of fisheries data, and reliable species identification, through the development of a worldwide biotaxonomic system that includes species inventories, species diagnosis, reference illustrations, and a readily accessible information system.

15. *Development of tools for planning inland fisheries and aquaculture*: The *Code of Conduct for Responsible Fisheries* was finalized and adopted by the Twenty-eighth Session of the FAO Conference. The articles on responsible aquaculture and fisheries management have a bearing on fishery genetic resources, and technical guidelines have been drafted to support their implementation. There are ongoing activities to document the genetic diversity of aquaculture species, in both their domesticated and wild forms. Guidelines for the responsible use and trans-boundary movement of introduced species have been formulated, were presented at the Nineteenth Session of European Inland Fisheries Advisory Commission, and are being promoted for implementation in developing areas.

Aquatic Resources Management)/FAO relational database, FishBase. This has recently been expanded and a version is being prepared for FAO's Internet site. A regional aquaculture project in Southern Africa, "Aquaculture for local community development" (GCP/INT/555/SWE and GCP/RAF/227/BEL), has supported regional workshops on, and environmental impact assessment of fisheries and aquaculture development, with the goal of protecting local fishery genetic resources.

17. *Monitoring and reporting on the status and trends in inland fisheries and aquaculture*: A large number of articles and publications have been prepared to document the increasing number of aquatic species being farmed, their origin, and their genetic basis. *The FAO Aquaculture Newsletter* is a widely distributed outlet for such documentation, and has published other information on FAO's activities in the use and conservation of fishery genetic resources. A document on *The State of World Fisheries and Aquaculture - 1996*, covering aquaculture and fisheries at global and regional levels was made available to the 1997 Commission on Fisheries (COFI).

18. *Technologies for the practice and enhancement of inland fisheries and aquaculture*: Intensified marine and fresh-water management involve a variety of methods that may affect fishery genetic resources. Guidelines for responsible intensification of fishery management are being developed through an FAO/ODA (British Overseas Development Agency) Expert Consultation on Inland Fishery Enhancements (Bangladesh, 7-11 April, 1997), and publication of a *Framework for the development and management of inland fisheries*. Genetic concerns for ocean-ranching and stock-enhancement are addressed in *Marine and coastal area hatchery enhancement programmes: food security and conservation of biological diversity* (Kyoto Conference publication KC/FI/95/TECH/5), and in follow-up activities to the FAO/Japan Kyoto Conference on Fisheries and Food Security, sponsored in part by a Japanese unilateral trust fund project (GCP/INT/643/JPN). Genetic technologies to increase aquaculture production - for example, through selective breeding programmes - are also being assessed, partly in the same context.

19. *Participation in Inter-agency and Inter-departmental Environment Activities* - FAO supports a number of regional and national fishery bodies in promoting the responsible conservation and utilization of fishery genetic resources. FAO cooperates with ICLARM (the Consultative Group on International Agricultural Research centre that deals with aquatic resources), on the International Network of Genetics in Aquaculture, general issues of genetic resource use and conservation, and fishery genetic resource policy formulation. In the field of Fishery Genetic Resources, FAO is committed to the follow-up to UNCED, and has participated and will continue to participate in the Convention on Biological Diversity forums, including the Conference of the Parties, its Subsidiary Body on Scientific, Technical and Technological Advice, and relevant Expert Groups.

20. The responsible use and conservation of fishery genetic resources will be essential for future fishery development and in promoting food security. The technologies for genetic manipulation and genetic characterization are advancing much more quickly than the knowledge on how to apply them in a sustainable and responsible manner throughout the world. The expanded Commission on Genetic Resources for Food and Agriculture will provide a valuable inter-governmental forum for the exchange of ideas and the development of appropriate policy, recommendations and guidelines.

Field Programme

21. Relevant current field projects are listed in Table 3. FAO is promoting the inclusion of fishery genetic resources issues in field projects.

Table 3: FAO Field projects that have a significant component on fishery genetic

Project	Budget (US $ 000)* dates	Estimated weight of FiGR component
Genetic Improvement of Coho Salmon - Chile (TCP/CHI/2354A)	225 1993-95	Very High
Genetic Improvement of Tilapia - Venezuela (TCP/VEN/6611)	225 1997-98	Very High
Pollution Control and Other Measures to Protect Biodiversity of Lake Tanganyika (UNTS/RAF/007/GEF)	925 1996-97	Medium
FISHAID Project - Papua New Guinea (PNG/93/007)	668 1993-97	Medium
Research for the Management of the Fisheries of Lake Tanganyika (GCP/RAF/271/FIN)	6886 1991-97	Low
Aquaculture for local community development - Southern Africa (GCP/INT/555/SWE & GCP/RAF/227/BEL)	5813 1993-96	Low
Regional Aquaculture Development for the South Pacific (GCP/RAS/116/JPN)	3400 1994-96	Low

* Total project budget

IV. LEGAL ACTIVITIES RELATED TO PLANT GENETIC RESOURCES

22. Under the Major Programme 1.2.4, *Legal Services*, the Legal Office undertakes significant activities in the area of genetic resources for food and agriculture, especially through the provision of direct support to inter-governmental negotiations, such as those currently underway for the revision of the International Undertaking on Plant Genetic Resources. The Legal Office also provides support in areas such as the development of the International Network of *Ex Situ* Collections under the Auspices of FAO, the implementation of the Convention on Biodiversity and its implications for the International Undertaking on Plant Genetic Resources, the legal aspects of the development of FAO's programme on animal genetic resources and the development and follow-up of codes of conduct and agreements, such as the Code of Conduct on Plant Germplasm Collecting and Transfer, the Code of Conduct on Responsible Fisheries, and the FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas. The Legal Office also supports a variety of other negotiations relevant to fisheries resource conservation and management at the global and regional levels.

23. Under Major Programme 3.1.3, *Legal Assistance to Member Nations*, the Legal Office, through the Regular and Field Programmes, continues to provide technical assistance, at regional and national level, in the formulation of policies, strategies and legislation in the field of genetic resources for food and agriculture and related matters.

24. During 1996 and 1997, the Legal Office assisted Belize in drafting legislation regulating the Certification Scheme for Citrus under the Technical Cooperation Programme project, TCP/BEZ/6611, "Establishment of a Mandatory Certification Scheme for Citrus". Similar assistance was provided to Jamaica under TCP/JAM/6611, "Citrus Production and Certification Strategy". These two projects were undertaken in parallel to a regional project funded by an Italian trust fund, GCP/RLA/108/ITA, "Harmonizing Seed Legislation in the CARICOM Region". Similarly, Georgia (TCP/GEO/6711) and Kyrgyztan (TCP/KYR/6611) were assisted in the preparation of their national seed legislation and quality control schemes.

V. ECONOMIC AND SOCIAL ASPECTS OF AGRICULTURAL BIOLOGICAL DIVERSITY

25. The Economic and Social Department (ES) is undertaking a number of activities of

26. The programme element, *Economics of the valuation and conservation of genetic resources in agriculture* addresses a number of related questions:

- *The valuation of genetic resource:* Linkages between valuation and strategies for the conservation and sustainable development of genetic resources for food and agriculture (including questions of intellectual property, and Farmers' Rights) were addressed at an international symposium organized by the University of Tor Vergata in Rome, with the sponsorship of FAO (May 13-15, 1996). The symposium was attended by high-level researchers from around the world, and is the first such attempt specifically to consider methodologies for the valuation of agro-biodiversity. The university and FAO will jointly publish the proceedings of this symposium in late 1997.

- *Economically optimal public investment in agro-biodiversity* is being addressed through the development of a dynamic bio-economic model, to estimate the net present value of genetic resources for food and agriculture (measured as economic gains to agriculture less the cost of investment in agro-biodiversity) on the basis of assumptions of the impact of conservation programmes (in particular of changes in the number of plant genetic resources accessions) on plant breeding and agricultural production. This study, *Public investment in reducing the erosion of agro-biodiversity*, is being developed for mid-1997. When the general model has been developed and undergone peer-review, individual case-studies are programmed.

27. *Biodiversity and trade*: FAO regularly studies the interaction between environmental policies and commodity trade, including aspects of relevance to agro-biodiversity. In particular, a paper, *Impact of biotechnology development on trade of agricultural commodities*, (document CCP 97/17) was presented to the Committee on Commodity Problems in February 1997. It provided a tentative assessment of the qualitative impact of biotechnological developments on competitive changes in the world market, between commodities, and between commodity-exporting countries, and developed a framework for a quantitative analysis of these factors, so that future work may, *inter alia*, address the impact of environmental and biotechnology regulations on trade in a quantitative way.

28. FAO has also published the report of a joint FAO/WHO Expert Consultation on Biotechnology and Food Safety (30 September to 4 October 1996). There are also continuing discussions within the Codex Alimentarius Commission on the food safety and labelling aspects of foods produced using genetically modified organisms and related technologies.

29. *Biodiversity Indicators*: Work is also underway to establish a system of statistical environmental indicators for monitoring the development of the state of the natural resource base, both globally and at country level. This could eventually be expanded, to include indicators of the state of genetic resources of interest to agriculture, and their change over time.

30. *Agro-biodiversity in home gardens*: The programme activity, *Improving nutrition through home gardening*, emphasizes the improvement of diets through more intensive and diversified home gardens in developing countries. It encourages farmers, in particular women, to make appropriate use of both local plants and improved seed resources, and contributes to the *in situ* conservation of agro-biological diversity and nutritionally valuable food plants. It also helps preserve indigenous knowledge about cultivation practices.

VI. AGRICULTURAL BIOLOGICAL DIVERSITY AND GENDER QUESTIONS

31. The Department of Sustainable Development, through the Women in Development Service, maintains a focus on the inter-relationship between agricultural biological diversity and gender questions.

Norwegian funds in trust. Within the context of the project, agro-biodiversity covers "the diversity within and between the species of agro-ecosystems (including crops, 'wild foods', livestock, forests and fisheries), the diversity of agro-ecosystems themselves, and the diversity of species (varieties, landraces, breeds, natural populations) that interact with agro-ecosystems or contribute directly to food security." The Intermediate Technology Development Group (Zimbabwe and United Kingdom), NORAGRIC (Norway), Commutech (Zimbabwe), and CIKSAP (the Centre for Indigenous Systems and By-Products, University of Nairobi, Kenya) participated in the formulation exercise. Fact-finding missions visited Zimbabwe, Tanzania, Mozambique and Swaziland. A formulation wrap-up workshop was held in Harare, Zimbabwe in November 1995, attended by representatives of several regional and national projects, non-governmental organizations, governmental bodies, and international agencies. The US$ 1.5 million project was approved in late 1996 (GCP/RAF/338/NOR), and will start up in 1997.

33. In April 1996, at the Commission's Second Extraordinary Session, a conference for delegates was held on *Farmers' Rights in the conservation and use of plant genetic resources: a gender perspective*, with the aim of promoting the incorporation of gender issues in the *Global Plan of Action*, then under discussion. During the Fourth International Technical Conference on Plant Genetic Resources, a further presentation was made of FAO's priority programme area in *Gender, biodiversity and technology*. The *Global Plan of Action*, as adopted, highlights gender issues. In October 1996, an Expert Working Group on Incorporating Gender-sensitive Approaches into Plant Genetic Resources Conservation and Use was held, in collaboration with IPGRI, to discuss possible guidelines, a methodology, and a programme strategy for promoting the consideration of gender and other socio-economic issues in the implementation of the *Global Plan of Action*, through gender-responsive national programmes.

34. A Letter of Agreement has been signed with the Plan de Acción Forestal in Guatemala for action-oriented research on *The role of women in the conservation of genetic resources - maize in Huehuetenango.* The aim is to document the role of women in plant-domestication and plant genetic resource conservation, to highlight the contribution of local knowledge systems and practices in the management of agrobiodiversity, and to foster an increased awareness among communities, Government institutions and development workers of the importance of gender considerations in the conservation and management of genetic resources, as part of a more integrated approach to agricultural development. Field work began in early 1997, with a process of consulting six communities in Huehuetenango.