



MYPOW Bulletin

A Summary Report of the Event on Emerging Issues in the Management of Genetic Resources for Food and Agriculture: Towards a Multi-Year Programme of Work

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EMERGING ISSUES IN THE MANAGEMENT OF GENETIC RESOURCES FOR FOOD AND AGRICULTURE: TOWARDS A MULTI-YEAR PROGRAMME OF WORK: 9 JUNE 2007

On Saturday, 9 June 2007, in the lead up to the eleventh regular session of the Commission on Genetic Resources for Food and Agriculture (CGRFA-11), a special event was held at the headquarters of the UN Food and Agriculture Organization (FAO) in Rome, Italy. The event, entitled “Emerging Issues in the Management of Genetic Resources for Food and Agriculture: Towards a Multi-Year Programme of Work,” offered delegates and observers an opportunity to discuss with experts the Commission’s draft Multi-Year Programme of Work (MYPOW).

Participants addressed the status and challenges for genetic resources for food and agriculture, with presentations from experts on plant, animal, aquatic and forest genetic resources, and micro-organisms and insects. They also focused on cross-sectorial matters, with presentations on: applying the ecosystem approach; a typology of effects of transgene flow; and international cross-sectorial matters on genetic resources. After presentations on these topics by relevant experts, extensive discussion pursued among participants and presenters on the issues raised. The event closed with a great sense of anticipation regarding what the week ahead will hold in terms of moving forward on the draft MYPOW. Chaired by Eng Siang Lim (Malaysia), Commission Chair, and facilitated by Clive Stannard, Commission Secretariat, the event was well-attended by delegates and observers to CGRFA-11, indicating the significant degree of interest in the draft MYPOW and the issues it seeks to address.

The draft MYPOW will be considered by delegates to CGRFA-11 in line with the outcomes of CGRFA-10, which was held in Rome, Italy, in November 2004. At that meeting, the Commission requested the Secretariat to prepare for submission to CGRFA-11 a draft MYPOW addressing: a study on the status and needs of forestry, fishery and microbial genetic resources; biodiversity for food and agriculture; the agro-ecosystem approach to genetic resource conservation; and cross-sectorial matters.

OPENING SESSION

Eng Siang Lim welcomed participants to the special event, noting that it had been organized to provide an opportunity for CGRFA-11 delegates to discuss with experts, observers and one another how to move forward on determining the Commission’s own work. He noted that taking a decision on the MYPOW would not be an easy task, as delegates would have to consider how genetic resources for food and agriculture will look 10 to 20 years from now.



Eng Siang Lim, Commission Chair

Clive Stannard introduced a short film prepared by the FAO, which presented an overview of the Commission and its work. He noted that the special event sought to open up an informal space for delegates to interact with some of the experts involved in developing the draft MYPOW in advance of CGRFA-11. He also highlighted that CGRFA-11 will be the Commission’s largest ever meeting, evidencing a genuine interest in the items up for discussion.

INTRODUCTION TO THE DRAFT MULTI-YEAR PROGRAMME OF WORK

Introducing the MYPOW, Clive Stannard outlined that delegates to CGRFA-10 tasked the Secretariat with preparing a draft MYPOW covering all sectors of genetic resources for food and agriculture. Drawing on the example of the multi-year programmes of work adopted by the UN Commission on Sustainable Development and the Convention on Biological

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Diversity (CBD), he explained that a MYPOW serves to provide an institution with a means of focusing its work on several major outputs, programming that work and monitoring its implementation. He explained that, based on the assumption that a Commission meeting should seek to address four or five major issues, the draft MYPOW aims to identify key issues for action and to place them in a schedule related to work taking place inside and outside the FAO. Clive Stannard outlined consultations undertaken



Clive Stannard, Secretariat

in the drafting of the MYPOW and provided participants with an overview of the relevant CGRFA-11 meeting documents. In closing, he urged participants, in their deliberations over the draft MYPOW at CGRFA-11, not to get lost in the details, rather to lay out a road map establishing major parameters, which could then be fleshed out at later meetings.

GENETIC RESOURCES FOR FOOD AND AGRICULTURE: STATUS AND CHALLENGES

STATUS AND NEEDS: Expert panelists presented, and then participants commented, on issues relating to: the status and needs of genetic resources for food and agriculture; the value of genetic resources; major threats; the interdependency of genetic resources; and likely future trends.

Godfrey Mwila (Zambia), Chair of the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGR), underscored the value of plant genetic resources for sustaining crop production, addressing hunger and ensuring food security. Regarding threats, he highlighted: rapid and increased industrial development; globalization; human population pressure, resulting in the need to increase productivity by focusing on a narrow genetic base; and rural-urban migration, with consequent gaps in knowledge systems relevant to plant genetic resources. He observed how recurrent droughts and floods attributable to climate change have led to crop failure and the depletion of seed stocks. He also highlighted that interdependency is one of the major reasons for facilitated access and benefit-sharing.

Barbara Rischkowsky, International Center for Agricultural Research in the Dry Areas, highlighted the increasing demand for dairy and fiber products derived from animal genetic resources, noting that the adaptive traits of animal genetic resources would become more critical when faced with the prospect of climate change. Regarding threats, she mentioned the outbreak of epidemics such as avian influenza, and the rapid change in production systems, compelling governments to increase productivity by importing exotic germplasm. She cited the State of the World's Animal Genetic Resources for

Food and Agriculture, which highlights the interdependence of animal genetic resources, especially exchanges from North to South, but also from South to South and from South to North.

Roger Pullin, formerly at the WorldFish Center, underlined the importance of the aquatic resources sector, which employs 38 million people globally, observing that this sector will be required to provide an additional 40 metric tones of product by 2030 to meet global needs. On threats, he highlighted water pollution, and habitat obstruction and degradation and consequent risks, particularly to wild fish. He drew attention to the interdependency of aquatic genetic resources in the context of the increasing number of farmed aquatic species, along with the need for shared genetic resources for the growth of aquaculture, a sector which he said is as diverse as agriculture.

Lennart Ackzell (Sweden), expert on forest resources, emphasized the balancing act required between the exploitation and sustainable management of trees and forests, and the need for a holistic approach when considering forestry genetic resources. He observed the lack of information and status regarding forest genetic resources, and threats related to ongoing deforestation, resulting in the loss of 30 million hectares per year.

Jeff Waage, Imperial College London, discussed micro-organisms and insects in the context of their "hidden" value to agricultural systems, and associated threats caused by agricultural intensification and the misuse of pesticides. He outlined how the alien species problem has also been addressed using biological control methods, elaborating on the benefits of this "free" method of pest control, particularly for developing countries. He also highlighted the lack of an adequate knowledge base to further identify species of micro-organisms and acknowledged interdependency, especially within the context of the biological control of exotic pests

CONSERVATION AND SUSTAINABLE USE:

Presenters and participants then addressed the conservation and sustainable use of genetic resources.

Highlighting that the Global Plan of Action (GPA) through



Godfrey Mwila (Zambia), Chair of the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture

its 20 priority areas clearly provides for both *ex situ* and *in situ* conservation, Godfrey Mwila said the two conservation strategies broadly complement one another. He suggested that more could be done to recognize the role of smallholder farmers and to promote on-farm management of plant genetic resources, including through incentives. He also highlighted

the importance of policy measures in overcoming barriers to improving sustainable genetic resources.

Barbara Rischkowsky suggested that the most effective way to maintain animal diversity is to ensure a high number of breeds are in use, with particular emphasis on those that



Barbara Rischkowsky,
International Center for
Agricultural Research in the
Dry Areas (Syria)

respond to environmental stresses. She said this requires supportive policies, together with sound knowledge and capacities. She noted that in some situations, it may not be possible to achieve results quickly and that *in situ* conservation programmes are important but costly. She also underscored the important role of smallholder farmers. On sustainable use, she noted the

need for clarification of relevant definitions, methodologies and techniques, the provision of information and support to policy makers, and support to countries that do not have the infrastructure necessary for sustainable use.

Regarding capture fisheries, Roger Pullin said that a well-managed conservation programme will necessarily be *in situ*, that few exist and that they require complementary measures, such as marine and aquatic protected areas. Regarding farming, he said that *in situ* conservation often occurs in the wild, but that this is complicated by the difficulty of ensuring such sites are not disturbed. He proposed a “twinning” of the goals of aquaculture and conservation, and highlighted under-investment in *ex situ* conservation activities across the fisheries sector. On sustainable use, he cited institutional and policy-making barriers, along with inadequate information and mechanisms for sharing that information which does exist.

Lennart Ackzell explained that gene conservation in forests extends from conserving individual trees and species to conserving forest ecosystems. He said that as trees are long-living organisms, conservation is mostly *in situ* and focuses on key species. He also noted the trend away from *in situ* conservation in terms of strict protection, to the integration of genetic resource conservation into tree and forest management. On barriers, he noted difficulties associated with replicating appropriate actions on larger scales in the forestry sector. He also pointed to problems with land management control, illegal logging and other uncontrolled actions in forests.

Jeff Waage noted that a key challenge in relation to micro-organisms is knowing when new challenges will emerge and where they will come from, making it difficult to determine where to preserve micro-organism genetic resources and when they will be needed. He suggested that sustainable bioagriculture is probably the best way to preserve *in situ* and that the conservation of genetically diverse agro-ecosystems is preferable. He pointed out that many such resources may sit in natural rather than agricultural ecosystems, thus requiring cooperation with those involved in environmental activities.

He also outlined threats, including: the loss of knowledge and collections; institutional and policy barriers; and outstanding issues of intellectual property, access and safety, which he said must be addressed at the international level.

Discussion: Participants highlighted various issues including: the need to develop disease resistant breeds of livestock; documenting and archiving traditional knowledge; and threats to plant genetic resources emanating from genetically modified organisms and changes in dietary habits, with a resulting loss of local species in the Andean region. They also raised questions regarding: maximizing the value of *in situ* conservation through acknowledging the worth of traditional knowledge; developing legal frameworks to provide for the conservation and sustainable use of genetic resources; and clarifying the role of the market in global diversity conservation. A non-government participant suggested that an idea akin to the “polluter pays principle” could be applied to the process of *in situ* livestock conservation, with a “genetic erosion tax” being paid by the main proponents of erosion. Another participant emphasized the need, not only to conserve, but to improve genetic resources for food security purposes.

INTERNATIONAL COOPERATION AND LESSONS LEARNED: In the closing part of the morning session, panelists considered the role of international cooperation and lessons to be drawn from other genetic resource sectors.

Godfrey Mwila highlighted the adoption of the ITPGR as an example of international cooperation that can protect farmers’ and breeders’ rights, and noted that implementation of the GPA is outstanding. Barbara Rischkowsky highlighted the strong international collaboration on animal genetic resources within the FAO network and experiences to be drawn from the plant genetic resources sector. She also emphasized the role of global markets in promoting niche, high quality



R. Pullin
Roger Pullin, formerly at the
WorldFish Center

products. Roger Pullin observed that international cooperation with respect to aquatic genetic resources is inadequate and underscored the value of international cooperation on international information sharing.

Lennart Ackzell said that investments in tree plantations are profitable on a global scale, and emphasized that the forestry sector would benefit from drawing on experiences emanating from other genetic resource sectors. Jeff Waage noted the absence of a broad, coordinated approach to understanding micro-organisms, adding that many responses are crisis-driven, such as was the case with the avian influenza virus and outbreaks of pests or disease. He highlighted a number of successful examples of international cooperation, including with the Consultative Group on

International Agricultural Research and global taxonomy initiatives. He also underscored the need to marry indigenous knowledge with scientific knowledge on micro-organisms.

A FOCUS ON CROSS-SECTORIAL MATTERS

APPLICATION OF THE ECOSYSTEM APPROACH:

Serge Garcia, formerly Director of the Fishery Resources Division, FAO, presented on the application of the ecosystem approach to fisheries, which strives to balance diverse societal objectives by taking into account knowledge and uncertainties about the biotic, abiotic and human components of ecosystems and their interactions. He explained how a successful fisheries ecosystem approach (FEA) entails: mapping areas and habitats; identifying stakeholders; identifying partners; assessing ecosystem values and risks; developing an implementation plan; educating and training stakeholders; and improving communication channels and content. He also outlined that FAO implementation of the FEA consists of: international collaboration; advocacy in regional fishery bodies; guiding documentation; plans and strategies; special studies; assessment methods; information systems and networks; expert meetings and international conferences; and a Code of Conduct for Responsible Fisheries.

BIOTECHNOLOGY: A TYPOLOGY OF EFFECTS

OF TRANSGENE FLOW: Jack Heinemann, University of Canterbury (New Zealand), explained that gene flow is any

novel introduction of a gene into a genome or of a new genome into an environment. He outlined three pathways for gene flow, namely, pollen, seed or propagule, and horizontal gene transfer, and said the essential feature of transgene flow is the scale at which transgenes are introduced into the environment.

He emphasized that gene flow is a natural phenomenon but that

the use of transgenes creates special impacts on agriculture and on biodiversity in general. He outlined natural and manufactured barriers and limits to gene flow, but explained that as these barriers may fail, it is necessary to consider what should be done if so. He also discussed the loss of agronomic traits through mixture, and legal issues associated with transgene flow. He concluded by noting that there is not yet adequate evidence to show that no gene will ever flow, but that technologies exist which, if used in combination and in the right circumstances, might bring down the rate of flow to reduce potential harm.

INTERNATIONAL CROSS-SECTORIAL POLICY

MATTERS ON GENETIC RESOURCES: Carlos Correa, University of Buenos Aires (Argentina), provided an overview of the CBD and the ITPGR, noting that the latter is not



Carlos Correa, University of Buenos Aires (Argentina)

applicable to non food-uses, rather applies to crop plants. He explained that the basic principle enshrined in these international legal frameworks is the recognition of the sovereign rights of member states over their genetic resources. He suggested that a separate legal regime for each genetic resources sector would not be

feasible, and called for the development of a common system or regime. He also noted the need for benefit-sharing systems to take into account the interests of the communities who safeguard resources.

DISCUSSION AND CONCLUSION: In the ensuing discussion, participants further discussed aspects of an ecosystem approach for fisheries management. Serge Garcia noted that states have both responsibilities and rights under relevant international law, and that governments must collaborate to address issues within ecosystem boundaries.

Participants raised questions in relation to a wide number of matters concerning transgene flow, including: genetic use restriction technologies and transgene containment strategies; placing greater emphasis on the assessment and monitoring of transgene flows; concrete examples of the human side effects of transgenic crops; the legal and biological implications of transgene flow; and the cost of monitoring such flows.

On international cross-sectorial matters, various issues were raised, including: the feasibility of negotiating a legal regime for each genetic resources sector; the benefits of a cross-sectorial approach to genetic resources, including in the context of addressing climate change; avoiding duplication of efforts with other multilateral environmental agreements; the paradox of dwindling resources within the context of increased global economic growth; promoting private sector investment in research and development; and the need to strengthen intellectual property rights to facilitate innovation.

Clive Stannard noted that the FAO is divided into sectors, and that the objective of the MYPOW is not to break down these sectorial departments, rather to foster collaboration. He said Commission members could guide the Commission on the way forward, and that this guidance via the MYPOW should be incorporated into the FAO's programmes of work and budget. He suggested that when members adopt authoritative statements of principle, these could be translated into instruments similar to the GPA. He concluded by noting that conservation is vital, but that the key to conservation is utilization. Carlos Correa expressed support for earlier comments regarding the need for consistency across various forums.

Chair Lim closed the meeting at 5:37 pm.