



منظمة الأغذية
والزراعة
للأمم المتحدة

联合国
粮食及
农业组织

Food
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Agriculture
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l'alimentation
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Unidas
para la
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FAO'S POLICY AND TECHNICAL ASSISTANCE ON BIOTECHNOLOGY FOR FOOD AND AGRICULTURE, AND MATTERS RELEVANT TO CODES OF CONDUCT, GUIDELINES, OR OTHER APPROACHES

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I. INTRODUCTION

1. Biotechnology represents a broad palette of tools that can be used for a variety of purposes in food and agriculture, such as the characterization and conservation of genetic resources; the genetic improvement of plant varieties and animal populations to increase yields or efficiency; plant or animal disease diagnosis; vaccine development; and improvement of feeds.
2. The Commission, in considering, at its Eleventh Regular Session, the document, *Progress on the draft Code of Conduct in Biotechnology, as it relates to genetic resources for food and agriculture: policy issues, gaps and duplications*,

*“acknowledged the potential of modern biotechnologies for agricultural improvement, in particular the opportunities for improving the conservation and sustainable use of genetic resources for food and agriculture. It was stressed that this involved much more than transgenic technologies. In order to minimize risks and maximize benefits of new biotechnologies, there was a need to take new directions, and specifically focus on improving use of appropriate biotechnologies for the conservation and sustainable use of genetic resources, including through policy development, national capacity building, and support for the development, national capacity-building, and support for the development of relevant national and international regulations.”*¹
3. The Commission recognised that some of the issues raised were more pertinent to its tasks than others. Within this context, it appreciated the work of FAO and its Priority Area for Interdisciplinary Actions on Biotechnology in Food and Agriculture (PAIA-Biotechnology) in collecting and disseminating biotechnology-related information, and in providing policy development and assistance on request to Members. It encouraged the PAIA-Biotechnology to continue to do so. It also requested a *“report on FAO’s policy and technical assistance on biotechnology for food and agriculture, and matters relevant to codes of conduct, guidelines, or other approaches, at its Twelfth Regular Session.”*²
4. FAO considers that biotechnologies provide useful tools that can be of significant assistance for the sustainable development of agriculture, fisheries and forestry, as well as the food industry, when appropriately integrated with other technologies for the production of food, agricultural products and services.³ In furthering its objectives, and as the United Nations lead agency committed to the promotion of food security and sustainable agriculture, FAO has a key role to play in assisting its Member Countries to harness the potential of science and technology to improve agriculture and people’s access to food, while ensuring that the implications and risks in doing so are adequately addressed.
5. The present document provides an overview of FAO policy and technical activities and its collaboration with partners.

II. PROVIDING ADVICE TO MEMBER COUNTRIES

6. Drawing on its widespread information networks and the skills and experience of its technical staff, FAO provides independent advice on agricultural policy and planning, and on the administrative and legal structures needed for development. FAO also advises on national strategies for rural development, food security and the alleviation of poverty. Regarding biotechnology for food and agriculture, FAO provides legal and technical advice to governments

¹ CGRFA-11/07/Report, paragraph. 46.

² CGRFA-11/07/Report Para 46

³ The FAO Statement on Biotechnology, <http://www.fao.org/biotech/stat.asp>

on areas such as development of national biotechnology strategies and development of biosafety frameworks.

National biotechnology strategies

7. FAO assists Member Countries in establishing priorities for biotechnology within the broad context of their agricultural research needs and policies or in identifying appropriate biotechnologies, taking into account all possible negative impacts, and providing guidance on their use. FAO's assistance in biotechnology policy and programme development has been requested by a number of countries and, as of end 2008, related Technical Cooperation Programme projects have been completed or are being implemented in several countries, including Bangladesh, Nicaragua, Paraguay, Sri Lanka and Swaziland, while others are at different stages of formulation. The national biotechnology strategies include elements of biosafety policy development.

8. In developing a national biotechnology strategy, FAO encourages countries to use a participatory approach. Although time-consuming, the involvement of the main stakeholders, including the Ministries of Agriculture, Environment, Science and Technology, research and technology centres, extension and technical advisory services, civil society organizations, and private sector interests, including seed companies and farmers, through their associations; stimulates debate, ownership and commitment, resulting in policies and strategies being widely shared and more likely to be approved and implemented.

Biosafety

9. One of the biotechnological tools, genetic modification, can be used to produce genetically modified organisms (GMOs) i.e. organisms into which DNA, normally containing one or more genes (called transgenes), have been transferred from elsewhere, usually from a different species. Whereas other biotechnology tools are little discussed outside of academic circles, genetic modification and resulting GMOs have generated considerable controversy worldwide, and received much focus in the media. The issue of GMO regulation has engaged international high level policy-makers. For example, the Cartagena Protocol on Biosafety to the Convention on Biological Diversity, an international treaty which seeks to contribute to ensuring an adequate level of protection in the field of the safe transfer, handling and use of living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health, and specifically focusing on transboundary movements, was adopted in January 2000, entered into force in September 2003 and has been ratified by 156 countries so far (July 2009).

10. Biosafety is a general term used to describe frameworks encompassing policy, regulation and management to control potential risks associated with the experimentation, release, use, and transboundary movement of GMOs. For the food and agriculture sector, the potential risks to be considered in the context of biosafety, are risks to human health through the consumption of foods, or exposure to agricultural products; the impacts on plant and/or animal life and health; and environmental impacts, such as potential adverse effects on the conservation and sustainable use of biodiversity, including genetic resources for food and agriculture.

11. FAO has been addressing biosafety and related aspects since the late 1990s, before the Cartagena Protocol came into force. As the subject evolved, many environment, trade and food-related aspects of biosafety, and their impact on agriculture, have been considered by FAO's statutory bodies, including the Committee of Agriculture, Regional Conferences and the Commission. Legal, policy and technical aspects have been discussed in particular, to ensure that relevant on-going strategies on agricultural biotechnology are consistent with the obligations of the Cartagena Protocol. FAO maintains that biosafety, as a contribution to sustainable agriculture and food production, can be appropriately and effectively addressed through a holistic Biosecurity approach developed by FAO, which enables the assessment and management of biological risks to food safety, plant life and health, animal life and health, as well as the relevant impacts on

biodiversity. In this context, FAO encourages consideration of biosafety in this broader Biosecurity context, and thus, the involvement of all relevant stakeholders throughout the different components of the biosafety framework using a participatory approach.

12. FAO has established a Working Group on Biosafety comprising officers from various technical divisions. Through this group, FAO promotes coherence of its corporate strategy on biosafety and regularly participates in the meetings of the Parties to the Cartagena Protocol on Biosafety and other relevant meetings and working groups on biotechnology, risk assessment, capacity building and communication. The Biosafety Working Group further developed the conceptual basis for FAO activities in the field of biosafety through an Expert Consultation on *Biosafety within a Biosecurity Framework: Contributing to Sustainable Agriculture and Food Production*, held in Rome in 2006.⁴

III. PROVIDING TECHNICAL ASSISTANCE

13. FAO supports developing countries through a wide range of technical assistance projects. It encourages an integrated approach, with inclusion of environmental, social and economic considerations in the formulation of development projects. Regarding biotechnology, FAO collaborates with a range of partners, including other United Nations agencies and research Centers of the Consultative Group on International Agricultural Research (CGIAR), in building the capacities of Member Countries in biotechnology and related issues through technical co-operation and training (organization of workshops, etc). To date, a total of 26 projects worth approximately USD 7 500 000 have been completed or are underway at the national, sub-regional, regional and global levels.

Assistance at the national level

14. Upon request, FAO provides technical assistance directly to its Members in areas such as building or strengthening national biotechnology and biosafety capacities, including development and implementation of regulations, training of scientists and personnel of regulatory bodies in risk analysis of GMOs, communication and public participation in biosafety-related decision-making, upgrading of laboratory capacities, and establishing effective linkages among all relevant stakeholders, including the Ministries of Agriculture, Environment, Science and Technology, international and national agricultural research institutions, farmers associations, private sector, and civil society organizations.

15. Since 2002, eighteen technical cooperation projects with national focus have been completed or are under implementation in many countries, including Argentina, Bangladesh, Benin, Bolivia, Croatia, Dominican Republic, Grenada, Kenya, Malaysia, Nicaragua, Paraguay, Sri Lanka, Swaziland and the United Republic of Tanzania.

Assistance at the regional or sub-regional levels

16. FAO has also provided technical assistance in biotechnology and biosafety at the regional and sub-regional levels, as the pooling of limited resources (financial, laboratory and human resources) between neighbouring countries can be an effective strategy to ensure efficiency and sustainability of the capacity building initiatives. While the responsibility for formulating national biosafety policies and legislations remains with the national governments, experience has demonstrated that sub-regional/regional collaboration and harmonization in biosafety can offer important opportunities of mutual benefit and determine consistent environmental and economic benefits, including for international trade.

17. Four subregional projects have been implemented, or are in progress since 2002. These are in Asia (Bangladesh, China, India, Indonesia, Malaysia, Pakistan, Philippines, Sri Lanka, Thailand and Viet Nam); Eastern Europe (Republic of Armenia, Georgia and the Republic of

⁴ The Consultation report is available at http://www.fao.org/ag/agn/agns/meetings_consultations_2006_en.asp

Moldova); MERCOSUR Ampliado Member States (Argentina, Bolivia, Brazil, Chile, Paraguay and Uruguay); and the Near East (Jordan, Lebanon, the Sudan, Syria, United Arab Emirates and Yemen). The projects assisted the participating countries in the establishment of biosafety networks, delivered issue-specific training (for instance GMO detection and quantification, communication, and GM food safety risk assessment), and organized technical consultations for subregional harmonization of rules and regulations and for the development of common technical tools. A series of workshops have also been carried out in the Caribbean, Central and Eastern Europe, Central Asia, the Near East and Latin America on topics ranging from the establishment of a common biosafety policy, to specific technical and managerial issues, such as risk analysis and appropriate communication approaches. A subregional project for biosafety capacity building in the Economic Community of Central African States (ECCAS) has been formulated, and submitted to the Global Environmental Fund (GEF) for funding. The participating countries are: Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea and Gabon.

18. FAO has also provided support for the establishment of biotechnology networks in different parts of the world. One example is the Technical Cooperation Network on Plant Biotechnology in Latin America and the Caribbean (REDBIO), based at the FAO Regional Office for Latin America and the Caribbean, in Santiago, Chile. It began in 1990 under the auspices of FAO, and by December 2008, comprised 5 467 researchers in 738 agricultural biotechnology laboratories, in 32 countries in Latin America and the Caribbean.

Assistance at the global level

19. Two global training programmes have been launched, namely on seed testing and variety verification, including GM seeds and varieties, in collaboration with the International Seed Testing Association (ISTA); and Training of Trainers in GM Food Safety Assessment (Biosafety within the Biosecurity Approach). The aim of the GM seed detection programme is to train the seed technicians from national agencies and other relevant stakeholders in methods of verification of species, cultivars and hybrids, as well as qualitative and quantitative GMO detection. The Training of Trainers Workshops on GM Food Safety Assessment is a worldwide initiative aimed at providing a common knowledge base on GM food safety assessment and to create a critical mass at key agencies in research and development, health, agriculture, plant and animal health inspectorates, standards bodies and coordination of biotechnology/biosafety. Codex principles for risk analysis and guidelines for the conduct of food safety assessment of foods derived from modern biotechnology provide a framework for GM foods safety assessment. They are important tools for all those involved in the GM food chain research, development, trade and regulation. To date, two regional training courses have been carried out, in Kenya and the Philippines, and two more training courses are planned for 2009, in Chile and South Africa. By the end of 2009, approximately 120 GM food researchers, developers and regulators from 28 countries, will be trained.

IV. PROVIDING INFORMATION

20. FAO has been at the forefront in recent years in providing high-quality, updated, balanced science-based information to its Members, and in providing a neutral platform to exchange information on this important subject. One of the main elements assisting FAO to fulfil its role in providing information in this area is its FAO Biotechnology web site,⁵ launched in Arabic, Chinese, English, French and Spanish, in 2001, with Russian included in 2007. The web site provides information on FAO's work and international developments regarding biotechnology techniques and products, as well as on related policy and regulatory issues surrounding research and deployment of agricultural biotechnology.

⁵ <http://www.fao.org/biotech/>

21. The web site provides an overview of FAO's activities in agricultural biotechnology; enables access to national biotechnology policy documents of FAO Members as well as access to about 200 articles, books, meeting reports, proceedings and studies published by FAO or prepared in collaboration with FAO on biotechnology in food and agriculture. The FAO Glossary of Biotechnology for Food and Agriculture includes 3 200 terms and the related definitions, and has been translated into Arabic, French, Russian, Serbian, Spanish, and Vietnamese, while translations into other languages, including Chinese, Kazakh, and Polish are currently in progress. Terms and definitions in Arabic, English, French and Spanish are available also through a multilingual searchable database. The Web site also contains FAO-BioDeC, a database providing data on agricultural biotechnologies in use or in the pipeline in developing countries, which also includes a 'Country Profiles' feature that contains country specific information regarding a number of issues, including biotechnology-related institutions, legislation and policies. FAO-BioDeC currently includes almost 4 200 entries related to biotechnologies research initiatives and their status of advancement in more than 100 developing countries.

22. FAO has also focused on knowledge sharing by e-mail, e.g. through the electronic newsletter FAO-BiotechNews, posted in six languages to about 4 300 subscribers, and through the FAO Biotechnology Forum. The Forum has over 3 600 members and has hosted a series of 16 e-mail conference since the year 2000, providing a neutral platform for people to exchange views and experiences on agricultural biotechnologies in developing countries. Some of its conferences have dealt directly or indirectly with genetic resources for food and agriculture.

23. FAO has also disseminated information by CD-ROM (e.g. in October 2008, a CD-ROM containing the Arabic, English, French, Spanish and Russian versions of the FAO Biotechnology Glossary was released) as well as in traditional book form. Some recent publications of particular relevance to genetic resources in food and agriculture include "The role of biotechnology in exploring and protecting agricultural genetic resources" (2006); "Biotechnology tools for conservation and use of plants: A school play for senior students" (2007); "Marker-assisted selection: Current status and future perspectives in crops, livestock, forestry and fish" (2007); and "Socio-economic impacts of non-transgenic biotechnologies in developing countries: The case of plant micropropagation in Africa" (2009). These and other recent FAO biotechnology documents can be downloaded from the FAO Biotechnology web site.⁶

V. PROVIDING A MEETING PLACE FOR NATIONS

24. FAO provides a neutral forum where all nations can discuss and formulate policy on major food and agriculture issues. FAO facilitates development of international standards and helps frame international conventions and agreements. It also hosts major conferences, technical meetings and expert consultations.

25. Many FAO intergovernmental bodies are dealing with aspects related to biotechnology, including the Commission, and the International Treaty on Plant Genetic Resources for Food and Agriculture. The Joint FAO/WHO Codex Alimentarius Commission⁷ is an intergovernmental body set up to establish international standards on foods. It is the principal forum for addressing the food safety aspects of GMOs where, for example, a first Ad Hoc Intergovernmental Task Force on Foods Derived from Biotechnology was established in 1999, to consider the health and nutritional implications of such foods. The International Plant Protection Convention (IPPC)⁸ is an international treaty to secure action to prevent the spread and introduction of pests of plants and plant products, and to promote appropriate measures for their control. Living modified organisms (LMOs) that may present phytosanitary risks fall within the scope of the IPPC.

⁶ <http://www.fao.org/biotech/doc.asp>.

⁷ <http://www.codexalimentarius.net>

⁸ <https://www.ippc.int>

26. The FAO Code of Conduct for Responsible Fisheries⁹ was approved by the FAO Conference at its 28th session in 1995. The Code is a voluntary set of principles and standards applicable to the conservation, management and development of fisheries, which also refers specifically to genetically altered fish (Article 9.3.1).

27. A major international technical conference on “Agricultural biotechnologies in developing countries: Options and opportunities in crops, forestry, livestock, fisheries and agro-industry to face the challenges of food insecurity and climate change” (ABDC-10) will be convened by FAO in early 2010. The conference will be held in Guadalajara, Mexico, and is expected to be attended by approximately 600 invited participants. Prof. Swaminathan is serving as the Honorary Chair of the Steering Committee (SC) for the conference. More information about the conference, including its background, rationale, scope and objectives, expected outputs, organization and funding, as well as the SC is available on FAO’s website, at: www.fao.org/biotech/abdc.

28. The impetus for the conference comes from the need for concrete steps to be taken to move beyond the “business-as-usual” approach and to respond to the growing food insecurity in developing countries, particularly in light of climate change that will worsen the living conditions of farmers, fishers and forest-dependent people who are already vulnerable and food insecure. Expected outputs from the conference are:

- (i) Documentation of the current status of application of biotechnologies in developing countries;
- (ii) An analysis of the reasons for the success and failure of the application of different biotechnologies in developing countries in the past;
- (iii) The formulation of recommendations that will enable developing countries to make informed decisions on the application of appropriate biotechnologies for food security;
- (iv) The development of Priorities for Action for building capacities for generation, adaptation and adoption of biotechnologies in developing countries;

29. The conference will include plenary sessions in the mornings followed by parallel sessions in the afternoon (sector-specific, regional, cross-cutting) for the first three days, while the last day of the conference will be dedicated to the discussion of Priorities for Action and the conference report. The CGIAR is a major partner in this conference and will lead the organization of two afternoon parallel sessions, one on the conservation and sustainable use of genetic resources for food and agriculture, and the other on genomics applications in plant and animal breeding. Other partners in the organization of the Conference are the International Center for Genetic Engineering and Biotechnology (ICGEB), the World Bank, the International Union for the Conservation of Nature (IUCN), farmers’ associations and non-governmental organizations, regional fora for agricultural research, and other United Nations agencies.

VI. MATTERS OF RELEVANCE FOR THE COMMISSION

30. According to its Multi-Year Programme of Work, the Commission, at its Thirteenth Regular Session, will consider the application and integration of biotechnologies for the conservation and utilization of genetic resources for food and agriculture.¹⁰ In preparation for that Session, the Commission may wish to consider matters relevant to its mandate in this field, including codes of conduct, guidelines or other approaches. Among the areas identified by the Commission, at its Tenth Regular Session, for consideration as elements of the Multi-Year Programme of Work are: the conservation of genetic resources for food and agriculture in the centres of origin and *ex situ* collections; appropriate biotechnologies that apply to genetic

⁹ <http://www.fao.org/fishery/ccrf/en>

¹⁰ CGRFA-11/07/REP, Appendix E.

resources for food and agriculture; access and benefit-sharing issues related to biotechnologies that apply to genetic resources for food and agriculture; national capacity building and international cooperation; biosafety and environmental concerns; genetic use restriction technologies (GURT's); GMO gene flow and the question of liability; and incentives to promote appropriate biotechnologies.¹¹

31. Given the increasingly broad range of areas of application of biotechnologies, the Commission may wish to consider a scoping paper describing the range of biotechnologies being applied to the conservation and utilization of genetic resources for food and agriculture, the current status of application of these technologies and matters relevant for their future development. Such a scoping paper could also consider policy developments in other international fora, including the scope and contents of existing instruments relevant to the conservation and sustainable utilization of genetic resources for food and agriculture.

32. Finally, the Commission, at its last Session, requested that its Intergovernmental Technical Working Groups and the FAO Regional Groups be consulted to consider biotechnology issues that will require further development.¹² The Draft Strategic Plan 2010-2017 for the implementation of the Multi-Year Programme of Work already contains provision for the Working Groups to provide recommendations in their field of expertise. The Commission may wish to provide guidance on the scheduling of consultations with FAO Regional Groups.

VII. GUIDANCE SOUGHT

33. The Commission may wish to

- (i) Welcome the convening of the international technical conference on *Agricultural biotechnologies in developing countries: Options and opportunities in crops, forestry, livestock, fisheries and agro-industry to face the challenges of food insecurity and climate change* (ABDC-10) and acknowledge the important partnerships that have been formed to ensure its success;
- (ii) Request to receive a report on the outcome of the conference and relevant follow-up activities at its next Regular Session;
- (iii) Request FAO to prepare a scoping paper describing the range of biotechnologies being applied to the conservation and utilization of genetic resources for food and agriculture, the current status of application of these technologies and matters relevant for their future development, including relevant policy developments in other international fora, for consideration at its next Regular Session;
- (iv) Request its Intergovernmental Technical Working Groups, on Animal and Plant Genetic Resources for Food and Agriculture, to review the scoping paper prior to the next Regular Session of the Commission;
- (v) Identify areas in which FAO should support the work of the Commission in relation to biotechnology as it relates to genetic resources for food and agriculture;
- (vi) Recommend that FAO continue its work supporting possible contributions of biotechnologies to the conservation and sustainable use of genetic resources for food and agriculture.

¹¹ CGRFA-10/04/REP, para 82.

¹² CGRFA-11/07/REP, para 49.