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THE STATUS OF THE DRAFT CODE OF CONDUCT ON BIOTECHNOLOGY AS IT RELATES TO GENETIC RESOURCES FOR FOOD AND AGRICULTURE: REPORT OF SURVEYS OF FAO MEMBERS AND STAKEHOLDERS

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I. INTRODUCTION

(i) Background

1. At the request of the Commission, a preliminary draft of an "*International Code of Conduct on Biotechnology as it Affects the Conservation and Utilization of Plant Genetic Resources*", prepared on the basis of consultations with a wide range of biotechnology experts and relevant stakeholders, was presented for consideration to the Fifth Regular Session of the Commission in 1993. [1] Noting that the Convention on Biological Diversity (CBD) was considering the development of a Biosafety Protocol, the Commission recommended transmitting the distinct component of the draft *Code* dealing with biosafety and other environmental concerns to the CBD as an input to the Protocol negotiation process.

2. At its Sixth Session in 1995, the Commission received a *Report on Recent International Developments of Relevance to the Draft Code of Conduct for Plant Biotechnology*[2] and postponed further development of this draft *Code* until the negotiations then underway, for the revision of the International Undertaking on Plant Genetic Resources for Food and Agriculture, had been concluded. Following the broadening, in 1995, of the scope of the Commission to cover all components of biodiversity of relevance for food and agriculture, periodic reports on recent developments in both plant and animal biotechnology of relevance to the draft *Code* were provided to the Commission at its Regular Sessions.[3] At its Eighth Session in 1999, the Commission noted the important recent developments in biotechnology as it relates to genetic resources for food and agriculture, and requested the Secretariat to provide a report on the status of the draft *Code* to its Ninth Session.

(ii) Structure of the Report

3. This report responds to the Commission's request. In order to prepare it, surveys were conducted in 2000, among FAO Members, and among a wide range of relevant stakeholders throughout the world. They were invited to provide comments or advice on the current relevance of each of the components of the existing draft *Code,* given the considerable time that had elapsed since its preparation. They were also asked for suggestions on any further elements that ought to be considered, in the light of recent developments in biotechnology of relevance to the conservation and utilization of genetic resources for food and agriculture.

4. This report presents a synthesis of the comments, advice and suggestions received by the Secretariat. The views are those expressed by Members and stakeholders, which the Secretariat has limited itself to compiling.

5. Most members that replied strongly supported the continuation, under the auspices of FAO and its Commission, of the work towards a *Code of Conduct on Biotechnology* in order to address complex and critical issues around biotechnologies and genetic resources for food and agriculture. While some Members stated that the existing draft text could be the basis for further consideration, others – in the light of the rapid advances in biotechnology since its drafting – drew attention to the need for substantive updating and revision. A few Members questioned

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1 *Towards an International Code of Conduct for Plant Biotechnology as it Affects the Conservation and Utilization of Plant Genetic Resources* (CPGR/93/9).

2 CPGR-6/95/15.

3 *Recent Developments in Biotechnology as they Relate to Plant Genetic Resources for Food and Agriculture*. Spillane. C. (1999), Background Study Paper 9; *Recent Developments in Biotechnology as they Relate to Animal Genetic Resources for Food and Agriculture*. Cunningham E.P. (1999) Background Study Paper 10.

whether further work on such a *Code* should continue, while recognizing the need for FAO to continue working on the interface between biotechnology and genetic resources, in collaboration with other relevant organizations.

6. A majority of stakeholders stressed the importance of the *Code* and offered comprehensive suggestions for updating and revising the existing text. Stakeholders considered that technological advances had reached a point where a generic *Code of Conduct on Biotechnology* as they relate to genetic resources for food and agriculture was feasible and could be of considerable use to countries in the development of biotechnology policy and regulatory instruments. It was suggested that, when appropriate, specific agreed cross-sectorial and sectorial guidelines could then be developed, in support of such a generic *Code*, which governments might wish to take into account in the development and extended use of appropriate biotechnologies for food and agriculture.

7. The synthesis of the comments received has been ordered, for ease of reference, in the same format as the existing draft *Code*. New issues and suggestions raised have been dealt with in a separate section. The document with the existing draft *Code*[4] is provided in document CGRFA-9/02/18 Annex.

8. It should be noted that this survey was conducted before the negotiations for the revision of the International Undertaking had been completed. All references are therefore to the International Undertaking, not to the Treaty.

II. SUMMARY OF COMMENTS BY MEMBERS AND STAKEHOLDERS

(i) Framework, objectives and the scope of the Code of Conduct on Biotechnology

9. Most members who supported the continuation of work towards a *Code of Conduct on Biotechnology as it relates to Genetic Resources for Food and Agriculture* considered FAO and its Commission to be the most appropriate forum. A number of them pointed to the complementarity between genetic resources for food and agriculture and biotechnologies, genetic resources for food and agriculture being the building blocks to which biotechnologies are applied as tools, to produce new plant varieties, animal races and genetic resource products in general. Others pointed out that there are many varied biotechnologies, with varying degrees of usefulness and appropriateness in facing developing countries' agricultural problems and fighting hunger, while being environmentally friendly. They concluded that, in general, the use of the plural, "biotechnologies", was preferable to the generic term, "biotechnology".

10. There appears to be broad support that the main objective of this *Code* should continue to be *to maximize the positive effects of biotechnologies and minimize undesired effects and possible risks*. Other objectives suggested were:

(a) To promote and facilitate access to biotechnologies for the conservation and sustainable use of genetic resources for food and agriculture.

(b) To promote, and provide incentives for, the development and use of biotechnologies that are appropriate to the needs of developing countries and poor farmers, and that are environmentally friendly, particularly in cases where private investment is unlikely.

(c) To promote the fair and equitable sharing of the benefits arising from biotechnology-related uses of genetic resources for food and agriculture.

(d) To promote and advance international cooperation in biotechnologies applied to all sectors of genetic resources for food and agriculture.

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4 CPGR/93/9.

(e) To balance the rights of informal innovators with those of formal innovators.

(f) To mobilize awareness and resources for addressing priority concerns in food-insecure areas, through the application of appropriate biotechnologies.

(g) To assist in minimizing possible economic distortions in agriculture arising from the use of modern biotechnologies, and in maintaining a balanced agro-food system.

(h) To develop guidelines, which are specific for the safe use of biotechnologies as they relate to genetic resources in agricultural and food production, in harmony with the Cartagena Biosafety Protocol.

(i) To promote the development of adequate international and national frameworks and instruments for early warning, risk-assessment, and monitoring, in the case of the introduction of genetically modified organisms that may affect agro-biodiversity and genetic resources for food and agriculture.

11. Stakeholders, in recognizing the key role of the Commission and the *Code* in addressing issues of relevance to biotechnologies, food security and agricultural development, stressed the importance of agricultural genetic resources, and expressed continued concern about the possible negative effects of biotechnologies on agro-biodiversity. They considered that the *Code* could become an important tool in encouraging agricultural development and the conservation of genetic resources, by promoting best practices in biotechnology, and that it could guide biotechnological advances in ways that take into account social, economic, cultural, ecological, and ethical concerns. Such a *Code,* they felt, should contribute to ensuring that biotechnological advances benefit agro-biodiversity and the agro-food system.

12. Most Members stressed that, in light of the broadened mandate of the Commission, the draft *Code* should now address all components of genetic resources, including plants, livestock, fish and micro-organisms as they relate to food and agriculture. Stakeholders expressed similar opinions.

13. Many Members felt that the "definitions" in the text of the existing draft *Code* need to be revised, elaborated and updated. Members and stakeholders offered a wide range of suggestions, including definitions of "genetic engineering", "appropriate technologies", "Genetic Use Restriction Technologies", "transgenic organisms", "cell fusion technology" and "genetic erosion." Some Members and stakeholders also suggested harmonizing the definitions in the *Code* with those of other relevant international agreements.

14. Many members emphasized that the *Code* should be in harmony with, and complementary to, the revised International Undertaking on Plant Genetic Resources for Food and Agriculture. They stated that it should also be in harmony with other relevant instruments, including the Convention on Biological Diversity and its Cartagena Biosafety Protocol, the International Union for the Protection of New Varieties of Plants, the International Plant Protection Convention, and the World Trade Organization, and that it should complement them wherever relevant. Some stakeholders have noted that some provisions of these instruments appear to be themselves in tension with other provisions and with other of the instruments, and that their application and impacts with regard to agro-biodiversity and food security have not been adequately elaborated and examined. The FAO *Code* could have an important role to play in proposing a constructive approach to promoting synergy and resolving these possible inconsistencies and addressing these lacks.

15. Most members felt that the *Code* should be voluntary, and be addressed mainly to governments, although relevant organizations and stakeholders, such as researchers, biotechnology companies and civil society, should be encouraged to observe it and be guided by it. The *Code* should be periodically updated to reflect changes in agriculture, biotechnology, ecology, economy and society.

(ii) Conservation of genetic resources for food and agriculture

16. The surveys revealed the complex relationship between the goal of the conservation of genetic resources and the development of biotechnologies. Members regarded the *Code* as a useful instrument to encourage the conservation and sustainable use of local genetic resources. Biotechnologies were seen as being able to enhance the conservation of genetic resources and biodiversity, but it was at the same time felt that the increasing use of certain biotechnologies could lead to a further erosion of biodiversity, although it was the way in which they were often used, rather than the biotechnologies themselves, that was generally considered to be the cause of such erosion. In particular, some members and stakeholders expressed concern over the potential effects of some biotechnologies in accelerating the trend towards narrowing the genetic basis of crops. It was considered that this could have a wider impact, leading to environmental and socio-economic problems, through increased agricultural vulnerability, particularly in the developing world. Under the circumstances, the *Code* should provide guidance and seek to ensure that the advances in biotechnology support and do not jeopardize conservation efforts. The *Code* should also promote the development and use of biotechnologies aimed at the effective conservation of agro-biodiversity and genetic resources for food and agriculture, and at increasing the genetic basis for the production of commercial varieties. Stakeholders also pointed to the need to assist the numerous indigenous and local communities that maintain biological diversity, as well as the agencies that serve them, with the aim of minimizing genetic erosion.

(iii) Appropriate biotechnologies

17. Members suggested that the *Code* should promote a responsible use of biotechnologies, including through the promotion of the biotechnologies appropriate for resource-poor farmers and developing countries. This view was supported by many stakeholders. They urged that the *Code* should provide recommendations for the safe, responsible and equitable use of appropriate biotechnologies, taking into account socio-economic and environmental factors.

18. Many Members, international institutions, and members of the scientific community recognized the importance of promoting the development and transfer of appropriate biotechnologies that could contribute to improving living conditions for people in developing countries. Biotechnologies, they felt, should be targeted to improving income and employment conditions among the rural poor, and to supporting more sustainable development, with particular attention to local agricultural production systems.

19. While many stakeholders believed that appropriate biotechnologies can contribute to agricultural development, they noted that there is growing concern that a singular focus on biotechnologies in both developed and developing countries is reducing government support for other options in agriculture, including small-scale farming and organic agriculture, and that biotechnology is driving resources and efforts away from less glamorous alternatives, which could otherwise contribute significantly to food production and food security. Some stakeholders emphasized that biotechnologies should be seen as a useful tool for agriculture but that strategies for cohesive and balanced genetic resource management should not be undercut by over-concentration on biotechnologies *per se*. Instead, it was suggested that biotechnological development should be appropriately placed in a social, agricultural, technological and ecological framework. In this context, it was suggested that the *Code* should encourage and support certain biotechnologies, such as: plant tissue-culture and micro-propagation; inducible (switch on/off) apomictic crop systems, which could allow affordable heterosis for small-scale farmers; cryogenic plant germplasm storage; cost-effective breeding strategies, for specific environmental fitness, resistance, nutritional quality, *etc*., to improve varieties and locally adapted landraces that could directly benefit poor farmers. Some stakeholders considered that cost-effective breeding strategies could also include, as appropriate, the use of transgenic techniques to transfer genes within a single species, as well as among closely related species that are genetically compatible, which would allow more rapid production of varieties than has been possible by conventional breeding.

(iv) Access and benefit-sharing issues related to biotechnology

20. Many Members stressed the need for the *Code* to be in harmony with the revised International Undertaking on Plant Genetic Resources, and felt that it could, in various aspects, complement the Undertaking, including in relation to access and benefit-sharing arising from the application of biotechnologies to genetic resources for food and agriculture. Many stakeholders regarded the revised International Undertaking as the most appropriate framework for access and benefit-sharing for plant genetic resources for food and agriculture, and a model for other sectors of genetic resources for food and agriculture. Stakeholders also emphasized the importance of an equitable sharing of benefits, as biodiversity provides the feedstock for most biotechnology research.

21. Members noted that the growing use of intellectual property rights over biotechnological advances is currently a major source of international debate and discussion in inter-governmental forums, such as the World Intellectual Property Organization and the World Trade Organization, as well as in the Commission itself. A wide range of opinions was expressed on how such rights could be reflected in the *Code*. Many noted that the *Code* should be in harmony with other relevant international instruments and focus on the specific needs of the agriculture sector, at the interface between genetic resources for food and agriculture, biotechnology and property rights. Others suggested that the *Code* could provide valuable guidance for the preparation of relevant national legislations.

22. Stakeholders, while agreeing that intellectual property rights are an important instrument for biotechnology development, recognized that they could also become an obstacle to access to genetic resources, as well as to innovations in agriculture, in the context of technological development. They accordingly felt that the specific needs of the agricultural sector needed to be considered within the property right domain, and, if necessary, that other approaches should be explored. The issues of the privatization of germplasm, the ownership of genetic resources, the patentability of life forms, the development of *sui generis* systems, and the possible development of more options in agriculture as a result of proprietary technology, were all raised as matters that could be addressed in the *Code*.

23. According to some members and stakeholders, several of these issues – including the balance between the protection of formal and informal innovation, the prioritization of research and development agendas – are matters of national sovereignty and demand national treatment.

24. Most Members and stakeholders emphasized the need to support the realization of Farmers' Rights, as provided for in the revised International Undertaking, and in the draft *Code.* In addition, many Members felt that the *Code* should recognize the rights of informal innovators along with those of formal innovators. Stakeholders often suggested that the *Code* should consider mechanisms by which farmers, particularly in developing countries, could be guaranteed the right to re-use seeds from their own harvests, and should encourage governments to direct biotechnological research towards the needs of local farming systems.

25. In the view of some stakeholders, the *Code* should also deal with the results of the application of intellectual property rights to genetic resources and related technologies, with a view to promoting the interest of all stakeholders. They expressed concern that certain intellectual property rights systems, especially those that allow the accumulation of rights over many components or genes within a single genetic resource product, and which do not allow for an adequate research exception, are strong limitations on research and scientific development, especially in the public sector. Concerns were also expressed about broad patents over species characteristics, such as colours, and patents that appeared to give rights over names of local origin with existing market value. They suggested that the *Code* should work to prevent such uses of intellectual property rights, and to promote only intellectual property rights that facilitate research and do not allow the appropriation of existing genetic resources, traditional knowledge and local technologies.

26. A number of stakeholders raised the matter of ongoing litigation against farmers, who were accused of using without permission patented transgenic varieties, and who in their turn maintained that geneflow from the patented transgenic varieties had "contaminated" their crops. The *Code* could provide guidelines that could help deal with such matters.

(v) National capacity-building and international cooperation

27. Most Members indicated that the *Code* should encourage the development of capacity-building for all aspects of biotechnology, including biosafety, biotrade and biopolicy, through adequate programmes for policy-makers, researchers, extension-workers and farmers. Members proposed that the *Code* contain provisions for strengthening national expertise and increasing international cooperation programmes and action plans for this purpose. The need to foster public-private cooperation was also emphasized. It was suggested that such cooperation focus on the evaluation of the impact of biotechnologies on the conservation and transformation of genetic resources and subsequently on local farming systems, and the socio-economic consequences.

28. Stakeholders urged that the *Code* be seen as an invitation to cooperation and not as a punitive measure. It could encourage cooperative knowledge at both the national and international level, particularly with regard to risk-assessment and management, in particular in developing countries, where adequate frameworks or capacity for adequate risk-assessment regarding possible risks from certain biotechnologies to the environment and human health, as well as for maximizing the potential benefits of biotechnologies, may not be in place. Stakeholders also felt that incentives should be created for encouraging such cooperation.

29. Stakeholders stressed the need for developing countries to strengthen national capacity in all areas related to biotechnology, and genetic resources in particular. Some suggested that the *Code* should encourage capacity-building in both the North and the South. This, they felt, would facilitate mutual understanding of the technological advances of the North, as well as the intricate relationships between genetic resources – including biotechnologically modified genetic resources – and ecosystems, farming systems and cultures in the South.

30. Some Members raised concerns at the limited private sector initiatives for cooperation and capacity-building, despite the increasing role the private sector plays in biotechnology. It was suggested that the *Code* could note this trend and address the matter. Stakeholders suggested innovative approaches to mobilizing interest in the private sector for private-public ventures for capacity-building and public awareness. The *Code*, they felt, should pay special attention to recognizing and promoting the importance of public sector agriculture, whilst providing guiding principles for public-private cooperation.

(vi) Biosafety and environmental concerns

31. Many Members and stakeholders recognized that the *Code* should support and facilitate the application of the Cartagena Biosafety Protocol in the areas relevant to food and agriculture, and not duplicate its work. It was felt, however, that the *Code* could address those biosafety concerns that are not sufficiently covered in the Protocol, including the identification of genetically modified organisms, labelling, and liability, as they could affect genetic resources for food and agriculture. It was felt that such an initiative would further strengthen the "precautionary principle", through a wider participation. It was suggested that the Code should promote research in biosafety, by addressing major grey areas of uncertainty and ignorance related to the possible undesired effects and risks of biotechnological products, guided by agreed priorities, and possibly through cooperative efforts. The *Code* could also actively promote public safety measures in biotechnologies, as they affect food and agriculture. Some Members and stakeholders stated that FAO, through its *Codex Alimentarius*, International Plant Protection Convention and the Commission on Genetic Resources for Food and Agriculture should continue to promote relevant discussions on transgenics, to further the process.

32. The importance of the issues surrounding genetically modified organisms was recognized by both Members and stakeholders. Since the release of transgenic organisms for agricultural purposes could have an impact on genetic resource conservation and the environment, some Members recommended that the *Code* should provide guiding principles for dealing with aspects of the use of genetically modified organisms that are specific to food and agriculture, and not adequately developed or addressed by the Cartagena Biosafety Protocol. Many stakeholders who commented on this issue suggested, in particular, that the *Code* should address the possible impact of transgenic organisms in the centres of origin and diversification of cultivated plants, and on farming systems that use local varieties. Some urged the establishment of appropriate national authorities to deal with these issues, and cooperation among Members to ensure effective risk-management, in the event of release of transgenics. It was felt that the *Code* could provide an appropriate framework to address these issues.

33. Some stakeholders also noted that in the absence of international agreement, countries which neglect to adopt adequate regulatory policies may become attractive as test sites for genetically modified organisms and plants in ways forbidden in other countries. Once released, however, organisms modified by biotechnology will not be limited by political boundaries. It was therefore felt to be critical that means of regulation be developed at the international level. It was suggested that the *Code* set international standards for the testing and release of such organisms, as they may affect food and agriculture.

(vii) Information dissemination and public awareness

34. Several suggestions were put forward by Members on the subject of information-dissemination and public awareness. It was emphasized that the *Code* should give a high importance to mechanisms for better informing the public about biotechnological advances, as they affect food and agriculture. In encouraging the availability of balanced information for consumers and farmers, particularly about transgenic products, the *Code* could stimulate public awareness, and policy development, to ensure the maximization of the benefits of biotechnologies.

35. Stakeholders also highlighted the critical need for public education and a wider public acceptance of biotechnologies. It was suggested that the *Code* should be flexible, to recognize public concerns regarding the genetic modification of crops, and support and respect the diversity of cultural values regarding agriculture and food production. A balanced *Code*, it was felt, could be an excellent means for promoting public understanding and confidence.

(viii) New issues and concerns

36. Members and stakeholders raised various new issues that could be considered in the *Code,* but which do not easily fit into the existing structures. These can be categorized as follows.

a) *Ethical questions regarding biotechnologies as they relate to genetic resources for food and agriculture*

37. Stakeholders urged that emphasis be given to ethical considerations in the *Code,* in order to provide a framework for deeper investigation of the social, ecological and cultural dimensions of the deployment of modern biotechnologies. A Code of Conduct*,* they felt, was an appropriate instrument to promote ethics in food and agriculture, at both the public and the inter-governmental level.

38. Some stakeholders identified the question of equitability in the allocation of national and international resources for research and development as an ethics issue. They urged a more equitable distribution of the benefits of research and innovation, with priority support to the concerns of food-insecure areas in the most vulnerable sectors in agriculture, including through the development of appropriate biotechnologies to meet their needs. They expressed concern that an over-emphasis on certain biotechnologies, particularly in the context of trade liberalization,

may result in over-investment in the major international crops alone, to the detriment of farmers and communities that use local genetic resources. The *Code,* they felt, should take into account the position and needs of economically weak countries that may, as a result, suffer food insecurity.

39. It was suggested that, in the development and use of modern biotechnologies, the following matters had ethical implications that should be taken into consideration: impacts on traditional culture and cultural diversity; the need to maintain options for future generations; and the likelihood of producing irreversible biological, ecological or social changes.

b) Substitution of traditional agricultural products

40. Some Members expressed their concern about the socio-economic consequences of the rapid substitution of crops traditionally produced by resource-poor farmers, especially in developing countries, by products derived from biotechnologies. The example was cited of the negative socio-economic impact produced in traditional vanilla-exporting countries by the abrupt substitution, at an international level, of this agricultural product by laboratory-produced vanillin flavour, which had affected about 70,000 vanilla-farmers in a single African country. It was noted that there is no international mechanism to mitigate the possible temporary adverse effects of these substitutions on developing countries' economies, and suggested that the *Code* could offer options to minimize such effects, resulting in less drastic economic changes.

c) Appropriate regulatory frameworks

41. Members expressed the need to balance the spread of modern biotechnologies with the development of appropriate regulatory frameworks. It was felt that the *Code* could draw attention to the need for regulation of biotechnology at the national level, and encourage the establishment of mechanisms to better assess biotechnologies in socio-economic terms. Stakeholders had mixed views on the regulation of biotechnology. Some considered the existing draft text of the *Code* to be regulation-intensive and risk-adverse, which, they felt, could hinder the availability of biotechnologies to the developing world. Others argued that regulation and guidelines were necessary for effective biopolicy and biosecurity.

d) Genetic Use Restriction Technologies

42. Members and stakeholders both raised the question of biotechnologies that are designed and implemented not to increase productivity, but to provide commercial appropriation strategies, in particular, Genetic Use Restriction Technologies (GURTs). Many strongly urged that the *Code* should promote only appropriate biotechnologies such as those that improve productivity and protect the environment, and should oppose GURTS, when these do not provide a clear production advantage.

Secretariat note: In this context it should be noted that decision VI/5 of the Hague Conference of the Parties to the CBD specifically requests FAO "to consider Genetic Use Restriction Technologies in the further development of the Code of Conduct on Biotechnology as it relates to Genetic Resources for Food and Agriculture".

e) Biotechnology and increasing control over the global agro-food system

43. Some members and stakeholders expressed concern about the effects of modern biotechnologies on the global agro-food system. As biotechnology research and product development were associated mostly with corporate entities, there was increasing private sector control over genetic resources and agricultural biotechnological innovation. Many stakeholders expressed concern about vertical integration, and increasing concentration of ownership and control in the biotechnology industry, in ways that could have unforeseen impacts on genetic resource management and world food security. It was suggested that the *Code* should encourage and promote measures for a balanced agri-food system, and could, where appropriate, promote

policies that avoid or buffer drastic structural changes in the sector, to ensure good services for all stakeholders. It was therefore recommended that the *Code* contain general principles aimed at promoting locally adapted agricultural biodiversity, decentralization, resource-mobilization, public-private cooperation, prevent the development of monopolies and trusts, and minimize possible negative impacts on the global agro-food system. It was suggested that countries may need to consider anti-trust measures, in order to avoid excessive concentration of ownership and control in the biotechnology industry, as far as food and agriculture are concerned, and promote fair competition, to the benefit of all stakeholders.

44. Concerns that the public sector research in many countries is rapidly becoming unable to fulfil its objectives, because of effective monopoly by private industry over intellectual property rights-protected biotechnologies and products, was raised, especially by stakeholders. It was suggested that the *Code* include provision to promote further development of social and ecological roles of the public sector research in biotechnologies relevant to genetic resources for food and agriculture.

f) GMO gene flow and the question of liability

45. Stakeholders representing organic farming associations in several countries raised the issue of gene flow and the consequent "genetic contamination" of crops and landraces by GMO pollen and seeds from nearby transgenic fields, which could affect the market viability of the products. It was also noted that since most national regulations for organic agriculture allow only a small percentage of GMOs, gene flow from nearby GMOs fields could jeopardize, in few generations, especially in the case of open pollinated crops, the continuation of organic farming.

46. Other stakeholders considered that transgenic gene flow into non-GM crops, particularly landraces, was a more general problem, because it could both affect the marketability of the crops, and the genetic integrity of the variety or landrace. It was suggested that national policies or regulatory frameworks should allow for the establishment of "GMO-free" districts, or separate "enclaves" for organic, conventional and transgenic agriculture.

47. It was further noted that the concept of liability in the use of transgenic biotechnologies, while considered in certain instances in the context of the Cartagena Protocol, was not yet operational, and it was therefore suggested that national policies or regulatory frameworks should include provisions for liability, which the *Code* should promote.

g) Incentives to promote appropriate biotechnologies

48. According to a number of stakeholders, measures should be taken at national level, in order to promote appropriate biotechnologies, in harmony with the provisions of the revised International Undertaking and in compliance with Article 11 of the CBD, on Incentives. Some suggested market-driven incentives (*e.g.*, labelling of "diversity-rich", or biotechnological food that fulfilled certain requirements), or directive in nature (*e.g.*, policies to encourage the spread of useful transgenics in a wide array of elite, locally adapted varieties), particularly in the case of minor crops, which were unlikely to attract private investment.

h) International voluntary certification schemes

49. Some stakeholders proposed including in the *Code* general principles which could be taken as standards by independent national or international organizations to certify products obtained through biotechnologies as compliant with the *Code.* Commercial companies could subscribe to the certification scheme by accepting its regulation, and in so doing support the *Code*, or the relevant element of the *Code*.

i) Universal FAO genome declarations

50. Stakeholders also suggested that the *Code* should include an FAO Universal Plant Genome Declaration, and an FAO Universal Livestock Genome Declaration, which could be developed on the model of UNESCO's Universal Declaration on the Human Genome and Human Rights.

ix) Process for updating the Code of Conduct

51. Members and stakeholders also made suggestions regarding how the Commission might wish to proceed with the process of updating the existing *Code*. They suggested that:

(i) Studies may be needed of specific biotechnological developments, and their socio-economic and environmental impacts on agricultural production systems, agro-biodiversity and food security.

(ii) Workshops and seminars, with representation from a wide range of stakeholders, could help in revising the draft *Code* for consideration by the Commission.

(iii) The Commission may wish to create one or more subsidiary working groups to advance the process of preparing a revised draft.

52. Moreover, there were questions whether the *Code* was the most appropriate way of treating the various issues in biotechnology as they relate to genetic resources for food and agriculture, or whether some could be better treated through guidelines, or in some other type of instrument.

III. CONCLUSIONS AND GUIDANCE SOUGHT FROM THE COMMISSION

53. The working document submitted to the Commission reports on the large number of ideas and suggestions submitted by countries and stakeholders, in their replies to questionnaires on how to proceed on the development and content of the *Code*, regarding areas that may need to be covered. The responses obtained from Members and stakeholders suggest wide support for further work, through the Commission, on the *Code*, to ensure the maximization of benefits from the recent developments in biotechnology, and to minimize the possible risks. There appears to be wide consensus that, although the existing text of the draft *Code*[5] could be the basis for further consideration (and some Members stated that they had no objection to the current text), there was a need for substantial revision and updating, before submission to the Commission for consideration. A few Members and stakeholders, however, opposed the further development of the *Code*.

54. It was generally emphasized that the *Code* should be in harmony with relevant international agreements, including the Cartagena Biosafety Protocol, which it could complement in areas not addressed in the Protocol. It was felt that in matters related to biotechnology, and access and benefit-sharing for plant genetic resources, the *Code* would complement the revised International Undertaking on Plant Genetic Resources for Food and Agriculture.

55. Most respondents felt that the *Code* could provide a framework for promoting appropriate biotechnologies, capacity-building, and international cooperation for the management of biotechnologies for genetic resources for food and agriculture. By taking into account the needs of resource-poor rural communities, and vulnerable sectors of agriculture, the *Code* could address the socio-economic impacts of biotechnological advances on agricultural practices and food security. It could also provide a set of guidelines for the development of regulatory frameworks, where necessary, and encourage the dissemination of balanced information, on which to build public confidence in biotechnology. The *Code* could promote a balanced agro-

[5] CPGR/93/9.

food system, and address ethical concerns arising from the application of modern biotechnologies in food and agriculture.

56. With the recent developments in gene technologies, it appears that a fresh approach would be needed in developing the *Code of Conduct on Biotechnology*. The Commission may therefore wish to consider:

(i) Whether and how to proceed in updating the draft *Code*; and

(ii) What form the updated *Code* should take, *i.e*., a *Code* or a set of specific guidelines.

57. If the Commission wishes to proceed, it is requested to provide guidance on:

(i) What areas, particularly new issues, it would wish to see covered; and

(ii) What mechanisms it wished FAO to use in this process, possibly including:

- Studies on specific areas as they relate to biotechnology, genetic resources, food and agriculture;
- Workshops for stakeholder consultations; and
- Consultations with other relevant organizations.