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TECHNICAL CONSULTATION ON LOW LEVELS OF GENETICALLY MODIFIED (GM) CROPS IN INTERNATIONAL FOOD AND FEED TRADE

Rome, Italy, 20 - 21 March 2014

Narrative report of the Technical Consultation on low levels of GM crops in international food and feed trade

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Acknowledgements

This narrative report was prepared by Masami Takeuchi, Ph.D., Food Safety Officer, Agriculture and Consumer Protection Department (AG), Food and Agriculture Organization of the United Nations (FAO). The overall direction for the Technical Consultation was provided by Renata Clarke, Head of the Food Safety and Quality Unit, AG, FAO, and Ren Wang, Assistant Director General, AG, FAO. FAO is grateful for written inputs provided by Antonio A. Alfonso (Philippines), Dorothée André (European Commission), Teresa Babuscio (European association representing the trade in cereals, rice, feedstuffs, oilseeds, olive oil, oils and fats and agro-supply trade [COCERAL]), José Falck-Zepeda (International Food Policy Research Institute [IFPRI]), Tom Heilandt (Codex Alimentarius), Peter Kearns (Organisation for Economic Co-operation and Development [OECD]), Yumi Kisaka (Japan), Gijs Kleter (RIKILT Wageningen UR), Esther Kok (RIKILT Wageningen UR), Ula Abdelaziz Makkawi (Sudan), Alex Owusu-Biney (United Nations Environment Programme [UNEP]), Kinley Pelden (Bhutan), Frédéric Seppey (Canada) and Michael Schechtman (USA). Review comments on the draft report, provided by Argentina, Armenia, Canada, China, the EU, Germany, Ghana, Japan, Madagascar, Malaysia, Mexico, Pakistan, the Philippines, Swaziland and the USA, are appreciated. Technical contributions from several FAO colleagues, namely Jamie Morrison, El Mamoun Amrouk, Jing Peng and Mehad Omer, are also gratefully appreciated.

Acronyms

AA	asynchronous approvals
AP	adventitious presence
BAP	biodiversity action plan
Bt	*Bacillus thuringiensis*
CBD	Convention on Biological Diversity
CCMAS	Codex Committee on Methods of Analysis and Sampling
COP-MOPs	conference of parties and meeting of parties on the Cartagena Protocol
CPD	Cartegena Protocol on Biodiversity
DNA	deoxyribonucleic acid
EFSA	European Food Safety Agency
EU	European Union
EURL	European Union Reference Laboratory
FAO	Food and Agriculture Organization of the United Nations
FDA	Food and Drug Administration (USA)
GM	genetically modified
GMO	genetically modified organism
IFPRI	International Food Policy Research Institute
IP	identity preserved
IPR	intellectual property rights
ISO	International Organization for Standardization
JRC	Joint Research Centre (EU)
LLP	low-level presence
LMO	living modified organism
NCBP	National Committee on Biosafety of the Philippines
NGO	non-governmental organization
OECD	Organisation for Economic Co-operation and Development
OIE	World Organisation for Animal Health
r-DNA	recombinant deoxyribonucleic acid
SPS	sanitary and phytosanitary measures
TFFBT	Codex Ad Hoc Task Force on Food derived from Biotechnology
UNEP	United Nations Environment Programme
USDA	United States Department of Agriculture
WHO	World Health Organization
WTO	World Trade Organization

1. Background

1.1. Background to the Technical Consultation

Several countries requested that the Food and Agriculture Organization of the United Nations (FAO) facilitate international discussion on the issue of trade disruptions involving low levels of genetically modified (GM) crops in international food and feed trade.

FAO proposed to its governing body at the 148th session of the Council that the Technical Consultation on Low Levels of Genetically Modified Crops in International Food and Feed Trade should be convened. This Technical Consultation would be a forum for initial dialogue on the extent and pattern of trade disruptions based on reporting from Members and would explore likely trends. The Council reviewed the proposal in December 2013 and supported the convening of such a Technical Consultation in early 2014.

In taking its decision, the Council took into account the relevance of the competencies of other international organizations and bodies, such as the Codex Alimentarius Commission and the World Trade Organization (WTO), to the issues to be addressed in the Consultation. The Council also noted that the Technical Consultation would not consider the establishment of standards or other types of norm, and that it was not intended to reach policy agreement.

1.2. Background documents

For the Technical Consultation, the following three background documents were prepared (all are available online in all six FAO languages at http://www.fao.org/food/food-safety-quality/a-z-index/biotechnology/LLP/):

- Low levels of GM crops in food and feed: Regulatory issues (TC-LLP/2014/2);
- Low levels of GM crops in international food and feed trade: FAO international survey and economic analysis (TC-LLP/2014/3);
- The compilation of responses to the FAO survey on low levels of genetically modified (GM) crops in international food and feed trade (TC-LLP/2014/4).

1.3. Participation at the Technical Consultation

The Technical Consultation was held on 20 and 21 March 2014 in Rome, Italy. The Technical Consultation was open to all FAO Members and Observers and was attended by a total of 220 people. The participants included 201 delegation members from 90 countries, 10 observers, 4 intergovernmental organization participants and 5 external speakers, as well as several FAO staff members. The participants are listed in document number TC-LLP/2014/5, which is available online at http://www.fao.org/fileadmin/user_upload/agns/topics/LLP/AGD803_5_List_of_Participants_En.pdf.

1.4. Objective, scope and expected results

The overall objective of the Consultation was to facilitate discussion among FAO Members on low levels of GM crops in international food and feed trade.

The scope of the Consultation was technical and exploratory, providing a forum for experts to discuss the information provided in the background documents and to share other relevant information. It is the prerogative of participating FAO Members to utilize the findings as they deem appropriate. The Consultation was not intended to make recommendations on any decisions or policies that national authorities might make under their own regulatory framework.

The FAO Technical Consultation was designed to contribute to:

- Raising awareness of the issue of low levels of GM crops in food and feed;
- Improving the mutual understanding of various points of view of the issue among relevant stakeholders and building a common appreciation of the possible impacts of this issue on trade and on food security.

2. Session 1: Opening session

2.1. Chair of Session 1

The opening session of the Technical Consultation was chaired by **Mr Ren Wang**, Assistant Director General of the Agriculture and Consumer Protection Department, FAO.

2.2. Opening speech

The opening speech was delivered by **Ms Maria Helena Semedo**, Deputy Director General Natural Resources of FAO. Ms Semedo welcomed all participants and observers and explained that this Consultation would be a neutral forum with a very clear focus. She emphasized that the Consultation was a first step in considering technical issues related to low levels of GM crops in international food and feed trade.

Ms Semedo stated that world agriculture would need to produce 60 percent more food globally by 2050, and developing countries would be expected to double their production. The agriculture sector would be also expected to produce more non-food products, especially for energy and feed. At the same time as the demand for food increases, the natural resources upon which agriculture depends will be increasingly threatened by environmental degradation, climate change, and loss of biodiversity and ecosystem services. To meet the challenges agriculture will face in the twenty-first century, science and technology will need to play a key role.

The speaker discussed the idea that agricultural biotechnology represents a potential means to respond to farmers' demands. The challenge for FAO will be to facilitate access to new technologies for smallholder farmers in order to boost their production. Agricultural biotechnology represents a broad range of technologies, including: genetic improvement of plant varieties and animal populations to increase their yield or efficiency; animal disease diagnosis; and vaccine development. All potential research options should be kept under consideration. Agricultural biotechnology could provide powerful tools for the sustainable development of agriculture, forestry and fisheries. Whereas other biotechnologies have been applied widely, one of the tools in the biotechnology toolbox, genetic modification, has been at the centre of a major debate worldwide since the 1990s and has been the focus of continued media attention. This long-running debate about genetically modified organisms (GMOs) has led to the other, non-GMO, biotechnologies being overshadowed.

Ms Semedo emphasized that FAO has been aware of the ongoing debate on whether genetic modification may eventually have the potential to help increase production and productivity in agriculture, and thus contribute to food security. However, FAO has also been aware of the concern about the potential risk that GMOs pose, in relation to their effects on human and animal health and the environment. FAO supports the careful evaluation of the potential benefits and possible risks associated with the application of GMOs, based on scientific evidence and a case-by-case approach. It is left to individual governments to make decisions on the development, testing or release of any specific GMO in their countries. Governments should also ensure that consumers have the right to be informed and to decide whether or not they want to eat foods containing GMOs. The speaker also pointed out that, on these and associated topics, FAO could support the development of international standards and assist in framing international conventions and agreements. Particularly

relevant to this role is the fact that FAO hosts bodies such as the Joint FAO/WHO Codex Alimentarius Commission.

Ms Semedo once again stressed FAO's important role as a neutral broker among its Members, providing a neutral forum for a Technical Consultation to address disruptions involving low levels of GM crops in international food and feed trade. She welcomed representatives from various intergovernmental organizations, including the Codex Alimentarius Commission, United Nations Environment Programme, World Health Organization, World Trade Organization and Organisation for Economic Co-operation and Development, as well as other organizations and associations from civil society and the private sector.

Ms Semedo concluded her opening speech by thanking all participants and observers, with the statement that she hoped that the Consultation would contribute to an increased awareness of the subject and possible impacts on food security, and to an improved understanding and recognition of the various points of view on the issue held by all relevant stakeholders.

2.3. Presentation on objectives and structure of the Technical Consultation

Ms Renata Clarke, Head of the Food Safety and Quality Unit, Agriculture and Consumer Protection Department, FAO, gave a presentation explaining the objectives and structure of the Technical Consultation.

Ms Clarke explained that the pathway to this Technical Consultation began more than 1 year previously, when a number of countries approached FAO to raise concerns about the growing problem of trade disruptions linked to trace amounts of GM commodities in internationally traded products. There was limited information available on the actual extent of the phenomenon, and for this reason FAO sent a questionnaire to all FAO Members to gather information. FAO considered it would be critical to have information on the experience and perspectives of as many Members as possible as a foundation for building a shared understanding of the issue.

The Consultation was intended to raise general awareness of the phenomenon of trace-level admixtures of GMOs in other commodities. In order to support this, FAO prepared and made available background documents in the six official languages. The second and main objective of the Consultation was to facilitate broad international dialogue. If there is a problem emerging then a common understanding of the extent of the problem, of the factors that have been driving it and how it could evolve is a necessary foundation for thinking about how to address it. As highlighted by Ms Semedo in her opening speech and as agreed by the FAO Council Session last December, the Consultation would be technical and exploratory in nature. Ms Clarke stressed that this Technical Consultation would not consider the establishment of standards or any policy agreement.

The speaker then described the structure of the Consultation. The 2-day Technical Consultation was subdivided into 10 sessions. She asked the participants to maintain the focus of each section to ensure that each session's objectives were met. Ms Clarke also introduced all of the Session Chairs, who were the representatives of key intergovernmental organizations:

- Mr Ren Wang, Assistant Director General, Agriculture and Consumer Protection Department, Food and Agriculture Organization of the United Nations (FAO);
- Ms Awa Aidara-Kane, Coordinator, Foodborne and Zoonotic Diseases, Department of Food Safety and Zoonoses, World Health Organization (WHO);
- Mr Alex Owusu-Biney, GEF Portfolio Manager for Biosafety, United Nations Environment Programme (UNEP);
- Mr Peter Kearns, Principal Administrator, Organisation for Economic Co-operation and Development (OECD);

- Ms Christiane Wolff, Counsellor, Agriculture and Commodities Division, World Trade Organization (WTO);
- Renata Clarke, Head, Food Safety and Quality Unit, Agriculture and Consumer Protection Department, FAO.

The presentation is available online at http://www.fao.org/food/food-safety-quality/a-z-index/biotechnology/LLP/.

2.4. Overview presentation

The overview presentation was delivered by **Mr José Falck-Zepeda**, Senior Research Fellow/Leader Policy Team, Program for Biosafety Systems, International Food Policy Research Institute (IFPRI).

Mr Falck-Zepeda started his presentation by stating that low-level presence (LLP) has become an important global issue because of increases in market shares and the volume of trade of GM commodities, and the increasing number of new GM crops and events. This could be a complex issue, given that internationally harmonized definitions, standards and feasible policies have not been agreed. IFPRI's research has focused on analysis of the impact of policy options on economic welfare, defined in terms of prices, trade and distribution of gains among stakeholders. The research considered three distinct variables that may be relevant to identifying policy options (although these are not the only influential variables): the potential risk and price of the product and the cost of enforcing a trade regulation. Furthermore, IFPRI has identified three critical issues in the design of policy options: the tolerance level, delays in approval and confidence in regulations, particularly exporter regulations.

Recognizing that there have been some limitations, the researchers concluded that "0% pass" policies are valid in cases of high perceived risk, whereas "100% pass" is a valid policy when price matters more than anything else. The LLP policies that use a tolerance level between 0% and 100% pass are therefore valid, economically viable, options. The higher the tolerance level, the lower the cost of enforcement, especially the cost of detection. Expanding the cost of compliance to consider all regulatory costs has a distinct set of implications, particularly for developing countries.

The regulatory delay had a negative impact on returns to investment. The researchers estimated that 4–6 years of delay is the trigger point for suspending investments in GM crops, based on existing assumptions about their development. Currently, average regulatory processes seem to be reaching the 4-year mark, close to the trigger point. IFPRI concludes that regulatory delays therefore increase investment risk. In turn, uncertainty increases the likelihood that no investment will be made in research and development. The study suggested that the cost of compliance is not important, except for those organizations that have budget constraints, such as national research organizations, international research centres and smaller private firms in developing countries. A higher cost of compliance and/or higher investment risk are likely to affect the number and type of technologies chosen for development, most likely in favour of those technologies with a higher return and less of a "public good" nature. The presentation is available online at http://www.fao.org/food/food-safety-quality/a-z-index/biotechnology/LLP/.

2.5. Codex Alimentarius: food safety assessment in situations of low-level presence (LLP) of recombinant-DNA plant material in food

Mr Tom Heilandt, the Officer-in-Charge, Secretary, Codex Alimentarius, provided a presentation on the work of the Codex task force on foods derived from biotechnology, which met from 1999–2003 and 2004–2008, hosted and chaired by Japan. One of the major outputs was the Guideline for the Conduct of Food Safety Assessment of Foods Derived from Recombinant-DNA Plants (CAC/GL 45-

2003). Annex III to this guideline describes food safety assessment in situations of low-level presence of recombinant-DNA plant material in food.

The Annex was intended to deal with low levels of recombinant DNA plant materials: i) which have passed a food safety assessment according to the Codex Plant Guideline in one or more countries; ii) which are present in food in importing countries in which the food safety of the relevant recombinant-DNA plants has not been determined; and iii) as a consequence of asynchronous authorization in different countries.

Mr Heilandt explained that the Annex was not intended to apply to a recombinant-DNA plant that was not authorized in an importing country as a result of that country's food safety assessment, and it would not:

- address risk management measures, which are the responsibility of national authorities;
- preclude national authorities from conducting a safety assessment according to the Codex Plant Guideline;
- eliminate the responsibility of industries, exporters and, when applicable, national competent authorities to continue to meet the requirements of relevant countries, including those relating to unauthorized recombinant-DNA plant material.

The principal approach of the Annex is a combination of a simplified food safety assessment for cases of LLP and mechanisms for sharing data and information, which FAO agreed to maintain, to facilitate utilization of the guideline and to determine whether it should apply. Mr Heilandt explained that if further Codex work on issues related to LLP was needed, this could be requested through a project document submitted to the Executive Committee and the Commission. The Commission would then discuss and decide how to address the request, e.g. by reinstating the task force on foods derived from biotechnology. The presentation is available online at http://www.fao.org/food/food-safety-quality/a-z-index/biotechnology/LLP/.

2.6. Working definitions

Ms Masami Takeuchi, Food Safety Officer of the Agriculture and Consumer Protection Department, FAO, introduced three working definitions for the Technical Consultation. She explained that some technical terms and acronyms had been applied that were based on the terms generally used in various Codex documents (http://www.codexalimentarius.org/). These often differ among countries, and translations in various languages might increase the confusion associated with the terminology. Therefore the following working definitions had been adopted for the purpose of the Technical Consultation. It should be noted that these are not official FAO definitions but terms that have been used in relevant papers in an attempt to minimize possible misunderstanding.

- **GM crops:** A genetically modified (GM) crop refers to a recombinant-deoxyribonucleic acid (r-DNA) plant. An r-DNA plant is a plant in which the genetic material has been changed through *in vitro* nucleic acid techniques, including r-DNA injection and direct injection of nucleic acid into cells or organelles.
- **Low-level presence (LLP):** LLP refers to the detection of low levels of GM crops that have been approved in at least one country on the basis of a food safety assessment according to the relevant Codex guidelines. It should be noted that LLP is not specifically defined by Codex, however in the context of the Codex guidelines such a situation is referred to as LLP.
- **Adventitious presence (AP):** AP refers to detection of the unintentional presence of GM crops that have not been approved in any country on the basis of a food safety assessment according to the relevant Codex guidelines.

The presentation is available online at http://www.fao.org/food/food-safety-quality/a-z-index/biotechnology/LLP/.

2.7. FAO GM Foods Platform

Ms Takeuchi then delivered a presentation on the FAO GM Foods Platform (http://fao.org/gm-platform). She explained that the FAO GM Foods Platform was officially launched on 1 July 2013 to share information on the safety assessment of foods derived from recombinant-DNA plants, in accordance with the Codex Plant Guidelines (CAC/GL 45-2003, Annex III, adopted in 2008). Ms Takeuchi stressed that, although the FAO GM Foods Platform has been managed and maintained by the food safety unit of FAO, all FAO Members share its ownership.

The FAO GM Foods Platform is freely accessible to those who wish to browse the information. Registration is required for those who wish to upload information. Only officially nominated Focal Points are able to register with the Platform. One Focal Point per FAO Member is officially nominated by the respective country through its Codex Contact Point.

Ms Takeuchi informed the participants that, as of 28 February 2014, 131 countries had nominated their Focal Points, 119 countries had registered for the Platform, 59 countries had completed their country profile page and 297 records had been hosted on the Platform. She strongly encouraged those countries that had not yet nominated their Focal Points to contact FAO and join the Platform community. The presentation is available online at http://www.fao.org/food/food-safety-quality/a-z-index/biotechnology/LLP/ and the related leaflet, entitled "Food Safety at FAO Highlight: FAO GM Foods Platform (http://fao.org/gm-platform)", is available at http://www.fao.org/fileadmin/user_upload/agns/news_events/FS_Highlight_GM_Platform_Final.pdf.

3. Session 2: International activities

3.1. Chair of Session 2

Session 2 was chaired by **Ms Awa Aidara-Kane**, Coordinator, Foodborne and Zoonotic Diseases, Department of Food Safety and Zoonoses, World Health Organization (WHO).

3.2. Organisation for Economic Co-operation and Development (OECD): Low-level presence of transgenic plants in seed and grain commodities – environmental risk/safety assessment, availability and use of information

Mr Peter Kearns, Principal Administrator, OECD, described the results of an OECD study on the "Low Level Presence of Transgenic Plants in Seed and Grain". Mr Kearns first explained that the OECD's Working Group on Harmonisation of Regulatory Oversight in Biotechnology has developed a document entitled "Low Level Presence of Transgenic Plants in Seed and Grain Commodities: Environmental Risk/Safety Assessment, and Availability and Use of Information", which is available from the OECD Web site at http://oecd.org/env/ehs/biotrack/latestdocuments/. OECD member countries, together with a number of non-member countries, have worked on the document and it is intended to serve as an aid to risk assessors and regulators. The scope was given as "low level presence situations where seed contains low levels of transgenic seed that have been reviewed for environmental risk/safety and received authorization for commercial cultivation (unconfined release) in one or more countries but not in the country of import".

Mr Kearns described the process of development of the document, which largely depended on questionnaire responses on LLP experiences related to the environment. The document provides guidance on handling the aspects of an environmental safety assessment, and accessing and using information in situations of low-level presence (LLP) of transgenic plants in seed and grain

commodities. It benefits from the knowledge of 27 countries that have had experiences with LLP situations and describes those experiences. It complements the experience of FAO, which focuses on food safety, and its Members. The presentation is available online at http://www.fao.org/food/food-safety-quality/a-z-index/biotechnology/LLP/.

3.3. United Nations Environment Programme (UNEP): UNEP's work in biosafety

Mr Alex Owusu-Biney, Global Environment Facility (GEF) Portfolio Manager for Biosafety of UNEP, provided a presentation focusing on UNEP's mandate on the environment and its catalytic and advocacy role in the sustainable development of the global environment agenda (http://www.unep.org/About/).

An overview was presented on UNEP's work in biosafety, in the area of normative actions in the administrative hosting and support of the work of the Secretariat of the Convention on Biological Diversity, and its capacity-building interventions in the implementation of the Cartagena Protocol on Biosafety (http://bch.cbd.int/protocol/) with funding support from the Global Environment Facility (http://www.thegef.org).

UNEP's biosafety capacity building activities support eligible parties in building capacity for institutional strengthening, tools and measures to facilitate implementation of the Cartagena Protocol on Biosafety and, specifically, national biosafety decision-making processes. In the specific context of the Technical Consultation on Low-Level Presence of Genetically Modified Crops, UNEP's activities focus on implementation of the Protocol's articles 15, 16 and Annex III on Risk Assessment and Risk Management. A risk analysis framework should be guided by sound scientific analysis, based on a risk analysis framework which emphasizes: (i) a case-by-case approach, (ii) clearly defined protection goals and risk profile, (iii) guidance from the national/regional legislative frameworks informed by the context of the receiving party and (iv) access to high-quality information from the Biosafety Clearing House (article 20) and other relevant databases, including that of the OECD. In taking decisions on low-level presence (LLP) or adventitious presence (AP), the biosafety system should have a contextual framework which shows clearly defined entry points that will provide triggers to guide decisions on whether a presence is LLP or AP.

Mr Owusu-Biney used a diagrammatic framework with the South African Biosafety System to illustrate his points (see http://www.pub.ac.za). In taking decisions on LLPs, it is important for parties supported by international organizations and other relevant stakeholders to develop standardized or harmonized tools, formats and measures to assist decision-makers. In addition, wherever regulatory systems allow, parties could consider adopting a simplified procedure guided by knowledge, use, the information available and the receiving environment. In the consultative process on LLPs and APs, it will be useful to consider the following issues: (i) handling of LLPs, (ii) ongoing national processes to develop measures and agreements on simplified procedures and (iii) incorporating new developments and ongoing discourse from COP-MOPs on the Cartagena Protocol on Biosafety and other relevant international discussions (e.g. the OECD Working Group and FAO Technical Consultation). The following recommendations were made.

i. Strengthen national ownership, guided by sound scientific risk analysis supported by the required toolkits and standardized formats for handling living modified organisms (LMOs); including LLPs.
ii. Utilize national and regional measures and Biosafety Protocol-related measures to support decision-making on LLPs/APs.
iii. Strengthen implementation of the Biosafety Strategy 2011–2020.

Mr Owusu-Biney concluded his presentation by stating that UNEP will continue to focus its activities on ensuring a vibrant public participation process to support national decision-making on biosafety

with clearly defined guidance. The presentation is available online at http://www.fao.org/food/food-safety-quality/a-z-index/biotechnology/LLP/.

3.4. World Trade Organization (WTO): The WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) and GM crops

Ms Christiane Wolff, Counsellor, Agriculture and Commodities Division, WTO, explained that the SPS Agreement sought to achieve a balance between: (i) reaffirming the right of countries to take the trade measures necessary to protect human, animal and plant life or health and (ii) avoiding unnecessary trade barriers. The SPS Agreement applied to all measures (laws, regulations, decrees, procedures, etc.) that had the objective of protecting human health from food safety risks, animal health from feed- and disease-related risks, plant health from pests, and preventing other damage from the entry, establishment or spread of pests. The SPS Agreement requires that such measures be non-discriminatory, and that they have a scientific basis. It encourages WTO members to harmonize their SPS measures on the basis of international standards, and references the international standards established by the Codex Alimentarius for food safety, those of the World Organisation for Animal Health (OIE) for animal health and zoonoses, and the International Plant Protection Convention for plant health. Where no relevant international standard exists, or a country wishes to establish a measure that deviates from an existing standard, they can do so on the basis of a risk assessment. Where scientific evidence is insufficient, countries can take provisional measures based on the available information; they then need to obtain the additional information that is necessary for a more complete assessment of the risk, and review the provisional measures within a reasonable period of time (Article 5.7).

Ms Wolff explained that jurisprudence from dispute settlement cases had given some further guidance that could be relevant for the LLP of GMOs. In the European Union (EU)–Biotech dispute, the panel had found that the definition of an SPS measure (contained in Annex A(1) of the SPS Agreement) was to be read broadly, including, for example, measures taken to address risks to biodiversity arising from GM crops and human health risks arising from the possible presence of allergens. In another case (EU–Continued Suspension), the Appellate Body had found that, despite the existence of international standards based on risk assessments carried out by Codex bodies, a WTO member could invoke Article 5.7 and argue that the scientific evidence was insufficient. According to the Appellate Body, this was because a WTO member might have established a higher appropriate level of health protection than that embodied in the Codex standard, and may therefore require more, or different, scientific evidence to be able to carry out a risk assessment. The presentation is available online at http://www.fao.org/food/food-safety-quality/a-z-index/biotechnology/LLP/.

3.5. World Health Organization (WHO)

The Session Chair, **Ms Aidara-Kane**, briefly explained that WHO often works jointly with FAO on activities relevant to food safety. At WHO, the topic of GMOs (and low levels of GM crops) is captured in the framework of food safety, therefore WHO works with FAO in this area. Ms Aidara-Kane reminded participants that the Codex Alimentarius is a joint FAO/WHO programme and confirmed that any future follow-up of the work would be done jointly with FAO.

4. Session 3: LLP/AP incidents

4.1. Chair of Session 3

Session 3 was chaired by **Mr Owusu-Biney**. He provided a quick overview of the session: following a brief presentation by FAO on LLP/AP incidents reported to the FAO survey, several government officials and representatives from non-governmental organizations (NGOs) and industry would present their current situations and perspectives on LLP and AP incidents.

4.2. LLP/AP incidents reported to the FAO survey

Ms Takeuchi presented the results of the FAO survey on LLP/AP incidents. FAO had sent out a questionnaire in three languages on 25 February 2013. The initial deadline was set as 18 March 2013. Responses returned by 30 June 2013 were included in the econometric analysis (http://www.fao.org/fileadmin/user_upload/agns/topics/LLP/AGD803_3_Final_En.pdf). Responses returned by 31 October 2013 were included in the compilation document (http://www.fao.org/fileadmin/user_upload/agns/topics/LLP/AGD803_4_Final_En.pdf). The survey was sent to a total of 193 countries, including those of the EU, and a total of 75 responses were received. The response rate was 39%. Regional response rates were as follows: Africa, 29%; Asia, 43%; Europe, 48%; Latin America and the Caribbean, 48%; Near East, 24%; North America, 100%; Pacific, 19%. The regional share (distribution) was similar to that of FAO Members.

Ms Takeuchi explained that 35% of the respondents answered "Yes" to the question "Has your country faced situations of LLP or AP in imports in the last 10 years?", with a report of 198 incidents. Among these, the majority (138 incidents) were reported after 2009, thus there was a marked increase in cases between 2009 and 2012. Shipments with low levels of GM crops originated mainly from the USA, Canada and China, although other countries had also accidently shipped such crops. Once detected, most shipments were destroyed or returned to the exporting country. Most incidents involved linseed, rice, maize or papaya. The increased production of GM crops around the globe has led to a higher number of incidents of low levels of GMOs being detected in traded food and feed. The incidents have led to trade disruptions between countries, with shipments of grain, cereals and other crops being blocked by importing countries and destroyed or returned to the country of origin. Ms Takeuchi said that the numbers of incidents are small relative to the millions of tonnes of food and feed traded every day; however, she stressed that trade disruptions may be very costly.

Ms Takeuchi noted that the data provided were based purely on the responses submitted to the FAO survey, and FAO would consider them to be the official responses. However, owing to the differences in the methods, frequency and precision of monitoring applied to LLP/AP incidents, the data may not perfectly correspond to the actual events reported elsewhere. The presentation is available online at http://www.fao.org/food/food-safety-quality/a-z-index/biotechnology/LLP/.

4.3. Comments by delegates

The **United Kingdom (UK)** stated that there seems to be a clear need for a road map which addresses the key objectives in order to achieve some type of consensus with regard to the LLP/AP issues. **Eritrea** asked whether low levels of GM crops are risky or not. He said there had been no information from the presentations about the risks. The **Session Chair** clarified that the Technical Consultation would focus on LLP/AP issues but not on issues of GMOs in general. **FAO Secretariat** further clarified that the relevant Codex guidelines contain detailed information on safety assessment of GM plants, microorganisms and animals. The present Technical Consultation would focus on the management of

trace levels of GM crops. Also, in this Consultation, the particular focus was on the issues of food and feed, and not seed.

Jordan asked whether GM crops are marketed domestically in Canada and the United States of America (USA) and, if the answer was yes, whether there are domestic controls over their consumption. **Canada** responded that all the GM products produced in Canada are also consumed in Canada. Canada's science-based regulatory system for GM products was established to ensure the safety of Canadian consumers, livestock and the environment. Once they have been assessed as being as safe as their conventional counterparts, approved GM products are treated as any other seed or grain and are not subject to any additional special controls. The **USA** responded that over 300 million Americans eat the GM corn, soybeans and other products that the USA produces and the USA also exports these products to many countries.

Eritrea commented that the scope of the present Technical Consultation is limiting. The fundamental question is why some countries have a zero tolerance policy. The **Session Chair** explained that the policy issue would be discussed during the later sessions in the agenda, and that there would be more discussions on the challenges for developing countries.

4.4. European Union (EU): LLP Policy in the EU – implementation and implications

Ms Dorothée Andre, Head of the Unit of Biotechnology and Plant Health, Directorate General for Health and Consumers (DG SANCO), delivered a presentation on the situation in the EU. She explained that GMOs are a matter of safety in the EU because no GMO can be placed on the market unless it is covered by an authorization. This is issued after a specific safety assessment for each GMO which demonstrates that it is not likely to have adverse effects on human and animal health or the environment. Currently, 57 GMOs have been authorized for food and feed use and 1 GMO authorized for cultivation and food and feed use. The EU applies a "zero tolerance" policy for non-EU authorized GMOs.

Given the experience gained by the EU with AP/LLP incidents, the EU differentiates four types of non-authorized GMO: (i) not authorized in any country for commercial use; (ii) asymmetrical in the EU; (iii) asynchronous in the EU; and (iv) obsolete in the EU. The EU does not differentiate between AP and LLP because the zero tolerance policy applies to all non-authorized GMOs. The EU has experienced a decrease in LLP incidents since 2009. During this period, and based on the typology set out previously, almost all the incidents have involved GMOs not authorized in any country, or asymmetrical cases; there has been no LLP incident, and only five incidents concerning an obsolete GMO (Bt176 maize).

Some important actions have been taken by the EU in order to address the LLP problem, including: (i) applicants have been requested to make submissions in the EU sooner than in third countries (taking into account the different timeframes of authorization procedures); (ii) the EU has recently streamlined the authorization procedure (Regulation 503/2013); (iii) the EU and its Member States perform effective control measures; and (iv) controls and testing for feed consignments were harmonized within the EU in 2011 (Regulation 619/2011). The last action streamlined and reinforced the zero tolerance policy by ensuring its harmonized implementation across the EU, setting a technical and analytical zero level at 0.1% for GM material detected in feed (which is the lowest concentration of GM material in a sample that is reliably detected by official laboratories, and where results are satisfactorily reproducible). The EU participates actively in international discussion fora. The EU intends to call for a study on experience with a possible analytical technical zero for food. The presentation is available online at http://www.fao.org/food/food-safety-quality/a-z-index/biotechnology/LLP/.

4.5. Canada: Canada's approach to low-level presence

Mr Frédéric Seppey, Director General, Trade Agreements and Negotiations, Agriculture and Agri-Food Canada, provided a presentation on the Canadian case. Mr Seppey explained the Canadian system as a rigorous, science-based regulatory system for agricultural biotechnology and stated that it assures the safety of GM crops used in Canada and exported. Innovation in areas such as agricultural biotechnology can play an important role in addressing agricultural productivity and environmental sustainability in the face of global population growth and climate change.

Mr Seppey stated that sound science in regulations and international measures supports not only this innovation, but also the efficient, fair and effective trade of agricultural goods. Trade disruptions due to traces of unapproved GMOs in shipments can impact food security and sustainability and result in higher costs to traders and consumers. Two types of unapproved event must be distinguished: low-level presence (LLP), where the safety of a GM crop has been demonstrated according to rigorous scientific principles, and adventitious presence (AP), in which the GM product has not been approved anywhere. Because safety has already been demonstrated in cases of LLP, LLP does not pose a food risk and is therefore strictly a commodity trade issue. LLP-related trade disruptions are unnecessary and have been shown to have significant impacts on both importers and exporters.

Canada is considering developing a pragmatic, transparent domestic LLP policy for grain imported to Canada. Discussion involving a wide range of countries with different experiences is critical to identify and characterize the issues and to consider potential practical solutions that could be adopted by the international community. The presentation is available online at http://www.fao.org/food/food-safety-quality/a-z-index/biotechnology/LLP/.

4.6. Sudan: Country presentation

Ms Ula Abdelaziz Makkawi, Agriculture Engineer, Federal Ministry of Agriculture Quality Control & Export Development Unit, Sudan, presented a Sudanese case study. She explained that productivity of major crops in Sudan is below the world average; this is mainly attributed to limited funding, limited capability of farmers, reduced inputs, shortages and losses due to biotic and abiotic stress.

Ms Makkawi said that Sudan is taking serious steps to utilize biotechnology in improving agricultural productivity in both plant and animal sectors. Regulations and requirements relating to the import and trading of GM food and feed have been developed according to the guidelines of the Cartagena Protocol and EU regulations and legislation. She explained that Sudan is still in the process of building capacity in the area of biotechnology, considering the possible limitations in effectively identifying and managing potential risks associated with their biotechnology programme. Therefore, Sudan has made a full commitment to the principles of protection of consumers, the environment and the national economy with its pledge to encourage scientific research and take advantage of technologies to provide the needs of humans and animals.

Sudan has set in place a National Policy on Biosafety in the application of modern biotechnology, in accordance with its national, regional and international obligations. With regard to LLP/AP incidents and management in Sudan, in early 2000–2003 Sudan permitted the entry of GM crops when receiving external food aid from various organizations to support the displaced people and refugees in conflict zones. Entry of ground grain and cereals which were acknowledged as GM was permitted in a way that allowed maintenance of genetic resources and protection of the environment. However, Sudan is facing challenges with a number of constraints in terms of detection and quantification of GMOs. It needs further capacity to develop a national strategy and action plan on agricultural biotechnology, to establish an effective intellectual property rights (IPR) system, strengthen

laboratory facilities and train staff, and perform research in biotechnology. The presentation is available online at http://www.fao.org/food/food-safety-quality/a-z-index/biotechnology/LLP/.

4.7. Philippines: Country case presentation

Mr Antonio A. Alfonso, Director, Department of Agriculture Biotechnology Program, Philippines, presented the country case study. The Philippines experienced two cases of low-level presence (LLP) before the country had developed a clear policy on LLP. The first incident involved Liberty Link (LL) Rice 601; this was an unapproved event, with the GM product alleged to be present in imported long grain rice in supermarkets in 2006. The government responded by recalling all commercial rice alleged to contain this GMO. In the following year, the Department of Agriculture (DA) and Bayer forged an agreement on GM detection to ensure zero presence in the subsequent proposed imports from the USA. As government regulators required testing of subsequent shipments, a Plant Quarantine Officer was sent to the USA to check compliance and oversee loading in the ports. In February 2008, the shipments that arrived in the Philippines tested negative for the presence of LL Rice 601.

The other LLP incident took place in 2008 and involved Corn TC1507. Monsanto Philippines reported to the DA Bureau of Plant Industry (the lead regulatory agency of the DA for GM products) this unapproved event associated with a shipment of corn Mon810, which was intended for propagation. The entire shipment was quarantined and, later, the seeds were disposed of by using them as fuel in a cement factory.

Biosafety regulations have been in place in the country since 1990, with the issuance of Executive Order 430, which instituted the National Committee on Biosafety of the Philippines (NCBP). Executive Order 514 was issued in 2006 and decreed the establishment and implementation of a National Biosafety Framework. Furthermore, the guidelines addressing the introduction and commercialization of GM products in the country, as prescribed in DA Administrative Order No. 8 (DA AO 8), have been strictly implemented since 2002. DA AO 8 adopts zero tolerance for unapproved events and, therefore, transformation events that have not obtained a biosafety permit are not allowed into the country and are subject to disposal. The AO also stipulates that developers of technology and importers are required to state clearly the identity of transformation events in shipments. The above incidents prompted the DA to formulate rules on LLP, which espoused Annex 3 to the Codex Plant Guideline as the basis for risk assessment. The biosafety regulations, especially DA AO 8, continue to evolve to make them more responsive to current and emerging situations.

Strengthening of the DA regulations involves the issuance of supplementary guidelines to clarify the processes and regulatory requirements, and adoption of internationally accepted principles and practices on risk analysis and safety assessment, such as those of Codex. Moreover, the Philippines continues to enhance institutional capacity for GMO regulation by continuously upgrading laboratory facilities for GMO detection and enhancing skills related to GMO regulation through local and international collaborations and networks. Enhancing the country's policy framework and institutional capacity in biosafety regulation is consistent with its national policy "to promote the safe and responsible use of modern biotechnology as one of several means to attain food security, equitable access to health services, sustainable and safe environment and industry development". The presentation is available online at http://www.fao.org/food/food-safety-quality/a-z-index/biotechnology/LLP/.

4.8. Third World Network and Consumers International: NGO perspective – low levels of GM crops in international food/feed trade

Mr Michael Hansen, Senior Researcher, Consumers International, and on behalf of the Third World Network, delivered a presentation on the perspective of the two NGOs. Mr Hansen explained that LLP/AP incidents occur because of co-mingling as a result of commodity grain trade, gene flow and human error. He stated that potential risks exist when unauthorized GMOs have not undergone a risk or safety assessment in the country of import, in the case of LLP, and a risk/safety assessment may not have been done in the country of export, in the case of AP. He gave the example of the USA, where he stated that there is no mandatory requirement for food assessment. He further discussed the possibility of untested GMOs in field trials or GM crops with higher risk levels entering the food and feed supply. Relevant policy and regulatory issues should be strengthened by following Annex III of the Codex Guideline and the Cartagena protocol (article 17, 18.2 (a), 25).

Mr Hansen provided some points of consideration for exporting countries. One was to implement more stringent control on field trials and commercial planning. He also stressed the need for clear identification in the documentation accompanying shipments, by referring to the Cartagena Protocol on Biosafety. The second set of considerations he provided was on segregation, identity preservation and testing to ensure that no unauthorized GMO enters the food/feed chain. He said that compliance with the domestic regulations of importing countries, including zero tolerance policies, needs to be considered. Regarding the prevention of AP, the speaker insisted that it is necessary to conduct safety assessment according to the relevant Codex guideline for all GM crops in research and field trials. He emphasized the importance of sharing data and information, referring once again to Annex III of the Codex Guidelines, and stated that data and information on GM crops should be made available to a publicly accessible FAO database (the FAO GM Foods Platform).

Mr Hansen then provided some points of consideration for importing countries, stating that countries have the sovereign right to put in place a zero tolerance policy and require that all GM crops undergo risk assessment prior to approval. Importing countries can conduct “reduced” safety assessment in the case of LLP, according to Annex III. He also stated that it is important for developing countries to increase their capacity for testing and detection of GMOs. Lastly, he stated that, in cases of illegal transboundary movement, importing countries may request the source to dispose of the LMO in question, at its own expense, by repatriation or destruction. In conclusion, Mr Hansen confirmed that NGOs strongly support Annex III of the Codex guidelines and the Cartagena Protocol on Biosafety with regard to the issue of LLP. The presentation is available online at http://www.fao.org/food/food-safety-quality/a-z-index/biotechnology/LLP/.

4.9. Industry association: Almost two decades of low level presence – lessons to be learnt: turning challenges into opportunities?

Ms Teresa Babuscio, Secretary General, COCERAL, presented a perspective of an industry association. COCERAL is the European association representing the trade in agricultural commodities, such as cereals and oilseeds, rice, protein crops, feedstuffs, and oils and fats including olive oil. The members of COCERAL are 30 national associations in 19 countries representing the same sector at national level, for a total of about 2700 companies. Global trade in agricultural commodities contributes to enhancing food security worldwide. Trade enables the movement of agricultural commodities from areas of surplus into areas of deficit at sustainable and affordable prices. Trade operators move goods of all types (conventional, organic, etc.) from any geographical area in surplus.

As GM crops are cultivated and traded globally, enhanced harmonization and synchronization of GM policies between exporting and importing countries are needed. Low-level presence (LLP) of GMOs is

one of the major trade barriers: it reduces the predictability of trade flows and prevents global trade from operating efficiently.

Ms Babuscio stated that the EU's management of GMO matters is conservative because it has failed to address these issues with a comprehensive and scientifically sound policy on LLP. This policy's shortcomings have considerable negative consequences for global and European food security, as well as for the economic sustainability of business operators. The EU is not self-sufficient in its food/feed and industrial demands, especially for vegetable proteins and oils (in some years even for maize), hence it has to rely on imports. Imports are a crucial complement to the supply and balance of raw material in the EU. Although critical for the European market, imports remain under threat from the possible unintentional and technically unavoidable presence of minute traces of GM events that have not been authorized in the EU but have already been safely assessed and authorized in the exporting countries. The EU applies a "zero" tolerance policy for GMOs not authorized in the EU and found in low levels in shipments, regardless of the scientific assessment carried out in the country of export. Zero is a small number; when applied to a policy of tolerance in the framework of agricultural commodities traded in bulk it becomes even smaller.

Zero tolerance applied to GMOs not authorized in Europe but deemed safe in the country of export represents a major challenge to European operators, exposing them to LLP vulnerability in the supply of food and feed. The EU has experienced almost two decades of enduring threats to supply attributable to LLP incidents. LLP is a trade matter, not a safety issue. Consequently, national governments should continue working together to find a common understanding on LLP thresholds and their respective safety; because LLP is a global issue affecting food security, an international approach towards finding long-term policies on LLP is needed. The International Statement on Low Level Presence subscribed to by many countries in Vancouver in 2012 is a good way to move forward on LLP policies. The presentation is available online at http://www.fao.org/food/food-safety-quality/a-z-index/biotechnology/LLP/.

4.10. Questions and answers

4.10.1. Working definitions and general regulatory considerations

Turkey raised a question about the working definitions of LLP and AP and proposed using "low-level approved GM crops" instead of LLP. **FAO Secretariat** clarified that this Technical Consultation is not a forum to set the definitions. However, according to the current working definition of LLP, it is still not approved in the importing country, so "low-level approved GM crops" is not technically correct. **Canada** confirmed that its definitions are very similar to the working definitions of FAO. For Canada, LLP raises compliance and trade issues. The **USA** also stated that LLP is likely to be much more often a trade issue than a safety issue. The USA also explained that countries need to understand that, if an exporting country has authorized and cultivated a particular GM crop variety, the material will be present in exports from that country at some probably very low level, regardless of whether there is any effort made at detection. Therefore, LLP will occur. The US delegate further explained that focusing on detection masks the actual situation that countries will experience. The US delegate continued and said that the working definition of LLP should focus on presence, rather than detection. While importing countries retain the right to take appropriate measures to ensure the safety and legality of imported products, importing countries may wish to consider that, in instances of LLP, the crop has received regulatory authorization in at least one country. That is, at least once country has found it safe for its population. The **European Union (EU)** stated that, because there is no mutual recognition or joint safety assessment accepted by the EU, there is no point in differentiating between AP and LLP incidents (with respect to the definitions, factors contributing to the occurrence of both, etc.). The differentiation has no effect on the fact that a GM material is not authorized in the EU under the EU authorization procedure. **FAO Secretariat** once again clarified that FAO is not proposing international definitions at this Technical Consultation. Those working

definitions were only introduced to minimize any misunderstandings during this Technical Consultation and in the relevant documents.

The **USA** stated that AP events are unapproved events and they should not occur in commerce. If AP events occur in the market, this will be a mistake, and this is a regulatory issue for every country. The **EU** responded that, for the EU, an LLP also should not occur in trade, because it is also a safety issue because the EU has not assessed its safety. **Japan** commented that, for Japan, the absolute priority in the LLP/AP issue is to assure food safety. As an importing country, Japan considers that LLP and AP cases are equally non-compliant situations in domestic law. Therefore Japan does not differentiate LLP and AP. The prevention and swift solution of a problem are equally necessary for both LLP and AP in accordance with each country's laws and regulations.

4.10.2. Occurrence of AP/LLP

The **EU** welcomed FAO's initiative in holding the Technical Consultation, which has no intention to make any recommendations, and stated that the EU has not experienced any asynchronous LLP incident since 2009, mainly as a result of the effective control measures taken by the EU and its Member States, third countries and industry internal control reinforcement. For the EU, LLP is a safety issue. Possible economic effects of LLP incidents in commodity markets do not alter the fact that GMOs are a regulatory and safety matter for the EU. The **USA** noted that the incident of GM wheat reported by the EU was neither an LLP nor an AP situation and requested that the EU indicate that the reason that it has not faced an asynchronous LLP since 2009 is, in part or in large part, because the grain trade no longer ships such products. For example, the USA did not ship maize to the EU because of the lack of approvals. The **EU** responded that, regarding the GM wheat incident, the EU classified it as an AP because the product was not authorized anywhere except for field trials. Regarding the question on why there had been no LLP since 2009, the EU stated that there was evidence that there has been effective control in the industry as well as Member States. In response to the EU statement, **COCERAL** pointed out that the lack of EU Rapid Alerts due to unauthorized GMOs since 2009 does not necessarily mean that the LLP problem has been solved. Trading operators look at multiple origins when sourcing agricultural goods to supply the demands of the EU. Purchase contracts may be stipulated even 1 year in advance. At the moment of delivery, if a GMO has been launched for cultivation and production, or even for seed multiplication, in the exporting country, and if it has not been authorized in the EU, the risks are high that traces of that GM variety may be present in the shipment. Considering the lack of predictability of the EU authorization system for GMOs at import, trade operators have been pressured to fulfil their contract obligations to supply the demand and choose not to take any risks. In summary, the reason why LLP incidents have not been reported through the EU Rapid Alert system since 2009 is simply because there has been no trade with certain regions of the world, in order to avoid any possible trade risks.

4.10.3. Safety assessment

Cameroon stated that the country has a zero tolerance policy on LLP/AP. However Cameroon asked about the guarantee of safety for imported GM crops for consumers in developing countries with limited capacity. In response to this question, **Canada** stated that it is both an importing and an exporting country. For every GM crop that is to be imported into Canada or cultivated for export or domestic use, Canadian officials undertake three rigorous scientific safety assessments. The federal department of Health Canada undertakes food safety assessments while the Canadian Food Inspection Agency is responsible for feed safety and environmental safety assessments. The results of these assessments and the decisions taken from them are publicly available on Government of Canada websites. The **USA** also confirmed that all GM crops that are approved for commercial use in the USA undergo rigorous food safety assessment. An **NGO** pointed out that the US FDA makes a voluntary assessment and it does not require pre-market safety assessment. The NGO also stated that the USDA does not require a detection protocol for field trials.

In response to this NGO's comment, the **USA** explained that the US FDA conducts comprehensive product reviews for food and feed products in a manner that is consistent with the Codex Guidelines, through voluntary consultations. The USA confirmed that it is true that these consultations are, strictly speaking, voluntary, but the requirement that food that is offered for sale must be safe is not voluntary so that, in the USA, all GM products that are commercialized have gone through the consultation process. As to the rigor of the process and the type of safety declaration FDA makes about products, countries need to understand how the process works to be assured of its rigour and comprehensiveness. It is consultative: developers provide FDA with information about the new crop variety, which FDA considers. If the information provided does not fully address any potential concerns, FDA asks questions which may necessitate the provision of new information and, in some instances, new testing. FDA continues asking questions until all potential concerns have been addressed. When FDA concludes a consultation by indicating to the developer that it has no further questions, the implication is that all of its safety concerns have been addressed. With regard to the detection protocol, the USA stated that they do not believe it would make sense to use a detection protocol at the early stage of field trials. The USA considers that early-stage field trials are small and adequately managed so that the products do not enter commercial channels.

COCERAL stated that, in terms of safety, traders rely entirely on two points: the first is the approval system, with government authorities confirming that a product is safe. Once the product is approved, traders do not intervene further on the safety issue. The second point relates to the biotechnology companies' confirmation of the product's safety. In this case, owing to the patent issue, traders do not intervene further. The **EU** stated that the EU has its own very strict authorization procedure and it provides assurance on the safety of products which the EU has approved under the EU's rigorous assessment framework. Safety assessments by the European Food Safety Agency (EFSA) are publicly available. Applicants are recommended to take into account the timeframe of the procedure when submitting an application for GMO authorization, to avoid LLP incidents. For the EU, detection methods are a very important element in the authorization process. Event-specific methods for detection, identification and quantification of GMOs in food and feed must be included in the application dossier. The EU Reference Laboratory (EURL) validates those methods. Detection methods for non-authorized GMOs are also important. Every detection method used by the EU is posted on the Web. **COCERAL** recalled the earlier statement by the EU and acknowledged that the EU has no legal obligation mutually to recognize GM scientific assessment performed in third countries. However the EU food safety system stipulates the principle of equivalence, which has almost remained unapplied. The **EU** stated that it provides training through the EU programme "Better Training for Safer Food". EURL trains laboratories from third countries in GM detection methods applied in the EU, and supports the development of regional networks of GMO laboratories where necessary. **COCERAL** responded that traders do not have a solution, but hoped that this exchange will trigger discussion leading to a solution.

5. Session 4: Factors contributing to the occurrence of LLP/AP incidents

5.1. Chair of Session 4

Session 4 was chaired by **Mr Kearns**. He reminded the floor that this session would focus on LLP and AP incidents and factors contributing to such incidents.

5.2. FAO Presentation: Factors contributing to the occurrence of LLP/AP incidents

The FAO study on factors contributing to the occurrence of LLP/AP incidents was presented by the FAO international consultant **Ms Esther Kok**, Researcher, Head of the Unit of Novel Food and Agri-chain, RIKILT (the food safety research institute of Wageningen University), the Netherlands.

The presentation described the factors contributing to the occurrence of LLP/AP incidents. Ms Kok explained that such factors include regulatory factors, factors related to current plant breeding and production programmes, and factors related to storage, transport and processing conditions. Regulatory factors lead to asynchronicity between countries, but also within countries, and asynchronous approvals may have their basis in differences in the duration of approval procedures, but also in asynchronous submission of dossiers by applicants in different countries and/or provinces. Plant breeding programmes may lead to the unintended admixture of unauthorized GM crops that may have been used in field trials, but not selected for final marketing. Also, during the cultivation of the crop, gene flow may occur in the field (in pollen), leading to cross-pollination, or as a result of the unintended admixture of the seed with GM volunteer plants, if a GM plant has been grown in the same field in the previous year. Finally, the illegal production of GM seeds or cultivation of unapproved GM crops may lead to co-mingling of unauthorized GM crop material already in the seed and crop production phase. During the final stages, involving the storage, transport and processing of the crop, carryover at any of these stages may lead to accidental mixture, for instance in large silos or bulk carriers, or during subsequent processing in factories where many different crops are processed.

Ms Kok explained that, in order to prevent AP incidents, it is important that clear policies and protocols for field trials are formulated, together with effective enforcement regulations and the implementation of good practices. In addition to this, sufficient monitoring is necessary, not only in the year of GMO production, but also in the same fields in subsequent years. Different inspection regimes, or varying the frequency of inspection, may lead to the detection of LLP/AP. In addition to this, the use of different methods for detection (regulatory requirements, sampling strategy, analytical approaches and laboratory capacity) will lead to variation in the ability to identify LLP/AP. With relation to LLP incidents, asynchronicity in applications and approval procedures is an additional factor, as well as variation in application of the mutual recognition principle in national regulations. The presentation is available online at http://www.fao.org/food/food-safety-quality/a-z-index/biotechnology/LLP/.

5.3. Structured discussion session

5.3.1. The case of Japan

Japan commented, and explained that the country allows commercial distribution of GM products only after the products have been passed by the science-based food/feed safety and biodiversity reviews based on Japanese domestic laws. Japan stressed that the safety of GM foods could not be verified without safety assessment by the Japanese government, regardless of the amount, because it is the government's responsibility to the general public to assure the safety of foods in Japan. Japan considers that it is each country's responsibility and right to conduct its own food safety assessment. In addition, Japan pointed out that the Codex Plant Guideline's Annex III does not preclude national authorities from conducting a safety assessment, nor eliminate the responsibility of industry to meet countries' relevant import requirements.

Japan referred to the FAO study that indicated that LLP/AP incidents could steadily increase in the future. In order to manage such LLP/AP incidents appropriately and realistically, Japan considers that it will be important to make clear that the issue is the responsibility of each and every country, in terms of conducting food safety assessment and managing situations of legal violation in accordance with the domestic laws and regulations. In addition, Japan remarked that one of the most important

aspects is the effort made by relevant operators to prevent LLP/AP, together with provision of information by the operators and exporting countries in an LLP/AP situation, in cooperation with importing countries. Japan stated that, when discussing LLP/AP issues, we should focus not only on trade issues but also on many other factors such as socio-economic conditions, legislative frame mandates, stakeholders' preferences and the availability of resources. The LLP/AP issue contains many elements and it requires careful discussion.

5.3.2. The case of the USA

The **USA** explained that the country is one of the largest exporters and importers of agricultural products, including GM products, identity-preserved non-GM products and organic products. The USA supports all three types of production and has much experience in each type of production. For both domestic and imported products, the USA considers that AP occurrences pose legal and safety issues for any country that regulates the presence of GM material in its food and feed supply. Because AP, by definition, refers to products that have not been authorized for commercial use in any country, there will be less information available regarding these materials to establish either their identity or to conduct risk assessments to establish their safety. The USA noted that the situation is very different for LLP occurrences.

The USA stressed that it is important to recognize that LLP and AP occurrences are generally very rare, relative to the number and amount of agricultural products shipped worldwide. However, occasional detections can cause significant trade disruption, sometimes including even the closure of entire export streams. The global system for movement of agricultural commodities operates via systems that depend on aggregation and co-mingling, and it depends on volume and speed to deliver affordable food and feed products worldwide. It is important to recognize that grain handling systems for food and feed are not designed to provide, nor are they capable of providing, 100% purity of any product; that is, they are unable to meet zero percent tolerances for any product, even by putting in place measures to minimize the presence of products in a commodity stream that have not been authorized in a particular destination market.

The USA explained that the country considers that commodity segregation and identity-preservation systems are likewise not 100% effective. Throughout the food and feed production chain, there are numerous points at which unintended material can be co-mingled with an intended export product: at the field level, and during harvest, storage and transport. For example, crop dust remaining in the hold of a ship from one shipment may be considered an LLP when the ship is reloaded with a different product and sent to a different destination. The USA has experienced trade disruptions as a result of such occurrences.

The USA stated that, while importing countries retain the right to take appropriate measures to ensure the safety and legality of imported products, they – as others have already noted during this Technical Consultation – may wish to consider that in instances of LLP the crop has received regulatory authorization in at least one country. That is, at least one country has found it safe for its population. It is also important to put into perspective the fact that the ability to detect ever-smaller quantities of unauthorized material in commodities and food products through testing raises the possibility of increased frequency of very low-level detections, as well as erroneous false-positive test results, which can disrupt trade.

5.3.3. AP experiences

Ghana stated that the country is undertaking confined field trials for cotton, cowpea and rice. Ghana would be interested in learning more about other countries' AP experiences on the challenges of confined field trials and their possible impact on trade. **Ms Kok** commented that there have been some indications of AP occurrence resulting from some admixture events that were part of a selection process and not intended for marketing, but unfortunately ended up in a very trace amount

in batches. The **USA** commented that AP incidents will be very rare if proper controls are implemented. Unlike LLP, the AP situation may not be easy to manage because it may be difficult to obtain access to information about the product, as AP incidents may occur during a development process. **Canada** noted that AP can arise if a product that is found at export is at the field-testing stage and not yet approved anywhere in the world. The Canadian Food Inspection Agency maintains rigorous oversight and inspection of confined research field trials. Canada has not had an incident of AP resulting from a Canadian field trial.

5.3.4. Testing and detection methods, and capacity issues

Mexico commented on access to validated detection methods; it is particularly interested in accurate routine sampling methodologies for LLP detection. Mexico suggested that it would be helpful to have a greater insight into the FAO GM Foods Platform (http://fao.org/gm-platform/), if the Platform has information on detection methods and the relevant validation techniques that help to improve the capacity of countries in addressing cases of LLP. **Canada** noted that increasing detection capacity itself would result in increased unnecessary trade disruption if not accompanied by appropriate consideration of risk. Given the way grain commodities are traded in bulk, and depending on sampling regimes, extremely low trace levels can be detected, but in the case of LLP this is not associated with health and safety risk.

The **USA** commented that its government is not aware of any occurrences in which an LLP has entered the commercial food and feed supply in the country. However, the USA has had experience with related incidents that have occurred as a result of the unauthorized release of low levels of regulated domestic products within the USA (i.e. domestic AP incidents). In such incidents, US regulatory agencies communicate with each other and coordinate their activities. Safety assessments are prioritized and focus primarily on food safety issues. However, attention is also given to environmental safety issues where appropriate. Outcomes of the evaluations are communicated to the general public and stakeholders who may be affected. The regulatory agencies may take enforcement actions if the occurrence has resulted in a violation of law. For LLP incidents, should they occur in the future, the US response will be decided on a case-by-case basis and will depend on the nature of the LLP material entering the country and the safety risks it may pose, in accordance with US law. The USA believes it has sufficient flexibility in this system to address any risks that may need to be considered, while working to minimize impacts on trade. All food and feed products, whether imported into the USA or of domestic origin, are required to meet the food and feed safety regulations.

The USA also stated that it does not test imported products for LLP of GM materials in food or feed. Given the range of possible safety concerns that must be addressed for products offered for sale, from bacterial contamination to the presence of shards of glass in jars, the US Food and Drug Administration (FDA) focuses its limited testing resources on the issues that it believes pose the greatest imminent danger to public health. However, the USA attempts to monitor technological developments in other countries closely. If the USA were to believe that there was an imported product that potentially posed a significant risk, it would be prepared to address the situation. In addition, the US government actively seeks to engage foreign product developers, commercial interests and governments, to explain the US system for regulating GM crops and to encourage early communication between the responsible foreign entities and US regulatory agencies. This could result in foreign developers submitting regulatory dossiers to the US regulatory agencies. In any case, the extent of prior and ongoing communications, including the nature and amount of safety data accessible to, and reviewed by, US regulatory agencies, can help resolve a situation more quickly, should an LLP incident occur. The more familiar the US authorities are with a product, the sooner an assessment of risk is likely to be made should such an incident occur. In the USA, early food safety assessments can prevent later LLP incidents. In their view, establishing GM testing should not be viewed as even a partial solution to the problem of LLP. The apparent detection of unapproved plant

material in itself does not provide the information necessary for a country's assessment of potential risk.

The USA explained that establishing routine testing protocols is expensive and is fraught with numerous technical challenges, as well as an increased risk of unintended trade disruptions resulting from false positives and testing discrepancies between point of origin and point of receipt. The USA stated that there are many complexities of testing but, in short, they are very significant. Like the USA, other countries must balance their food security needs, their technical capacities and any risks that may be posed by LLP, in addition to their legal obligations, in deciding on the appropriate risk management strategy to employ. The USA believes that the most effective strategy for addressing LLP is to focus effort on minimizing asynchronous authorizations. Timely, predictable, transparent, science-based regulatory systems can eliminate most occurrences of LLP.

The **EU** stated that testing and detection are important elements for GM authorization in the EU. The rule of technical zero relies purely on detection and validation methods. The **Russian Federation** commented that LLP is not only a trade or food safety issue but also a consumer information issue. Russia has one of the most effective GM testing frameworks. It implements zero tolerance for any unauthorized products and at the same time sets a threshold level in accordance with the consumers' need for information. Russia has found LLP/AP occurrence in many traded agricultural commodities.

5.3.5. The issue of under-reporting of LLP/AP

Bhutan commented that it has not had any LLP/AP incidents in the past. However, this did not mean that LLP/AP did not occur in Bhutan. This was because Bhutan does not have the capacity to test. For the country of Bhutan, the underlying concern of trade disruption is related to the issues of food safety, the environment, sustainability of smallholder farms and cultural value. Therefore it is important to develop testing capacity in Bhutan.

5.3.6. Asynchronicity and LLP

Malaysia commented on the LLP policies of the countries that do not allow importation of GM products. Malaysia asked how the issue of asynchronous approvals arises in such countries. In the case of Malaysia, which allows importation of GMOs that have already been approved by the National Biosafety Board, LLP occurs when there is a mixture of different GM products (approved and unapproved) in one shipment. The **USA** commented that the countries that do not allow importation of GM products may not be able to receive any products from countries that produce GM crops, if they choose to test and detect GMOs, because LLP would be likely to occur at a very low level. **Malaysia** also asked whether stacked events contribute to LLP. The **USA** commented that there are two aspects to the issue. One is the regulatory framework of an individual country and whether the country would consider a stacked event as a new event or not. The other aspect is detection and quantification. Given that many detection methods target a single event, stacked events may complicate the issue. **Canada** stated that the country recognized that addressing stacked events is a very important regulatory question and could be another factor contributing to LLP. However, stacked events are not specific to LLP. An LLP refers to trace amounts of a product that has been approved in one jurisdiction following rigorous scientific and internationally accepted assessment procedures.

5.3.7. Factors contributing to LLP/AP

FAO Secretariat asked the floor to comment on the factors contributing to LLP/AP that were identified in the FAO background paper. These factors include:

- AP: lack of clear field trial policies and protocols;
- AP: ineffective regulations on field trials and ineffective enforcement;
- LLP/AP: failure to implement good practice and monitoring;

- LLP: possibilities for mixing along the food supply chain;
- LLP: asynchronicity;
- LLP: divergence among national authorization processes;
- LLP: different/no policies and regulations;
- LLP: different inspection regimes;
- LLP/AP: different methods used for detection;
- LLP: asymmetry.

Canada noted that grain commodities are traded in bulk and therefore LLP occurrences will arise in GM crops or traditional/conventional crops. Therefore it will be important to gauge the capacity for product developers, such as those in academia, from developing countries to seek the appropriate approvals for those crops that could end up in the bulk handling system. The **EU** suggested that one element that has not been included in the FAO paper involves the errors made during production by companies. This might include the issue of incorrect labelling applied in error.

Canada provided an example of non-GM soy produced in eastern Canada. A railcar in which non-GM soy is transported to the port for export might have been used in the past to carry GM canola. In this case, a very low trace amount of GM canola may be in the shipment of non-GM soy and may eventually be exported to a country with zero tolerance. Canada also currently applies a zero tolerance policy, but notes that such a case raises a practical non-compliance issue but not a health and safety concern.

5.3.8. Food safety risk versus environmental risk

The **Republic of Korea** commented that an LLP situation might pose more of a risk to the environment, as opposed to a food safety risk. This arises because, according to the working definition, an LLP situation occurs when a relevant food safety risk has been assessed in at least one country. This means that even if the product is not likely to pose a risk to human health, if a low level of a GM crop accidently falls on the roadside, for example during transportation, and the plant grows, this may be an environmental concern.

6. Session 5: Trade impact and economic analysis; food and feed regulatory issues

6.1. Chair of Session 5

Session 5 was chaired by **Ms Wolff**. She explained that two presentations by FAO would be delivered during the session, followed by a structured discussion session. The FAO presentations were based on the results of the FAO technical survey.

6.2. Pre-session discussions

Before the session, a brief summary of the first four sessions was provided by the FAO Secretariat followed by comments from the floor. The **USA** stated that the word “agreement” should not be used because the purpose of the Consultation was only to raise the awareness of the LLP/AP issue. The USA also commented that the words “zero” and “zero tolerance” need a caution because, from the scientific and practical point of view, “zero” is not achievable. **FAO Secretariat** confirmed that FAO would be careful in using the word “agreement” in the report. With regard to the terminology “zero tolerance”, FAO Secretariat clarified that this is the name of a regulatory approach that most countries currently have put in place for LLP/AP.

6.3. FAO Presentation: Trade, food prices and food security, a context for the analysis of regulatory issues

Mr Jamie Morrison, Senior Economist, Trade and Markets Division, FAO, presented an analysis of the potential trade effects of LLP regulations in the context of the evolving global market environment. He described the current price situation and outlined the results of the OECD–FAO medium-term projections, highlighting the importance of the assumptions made, the projected changes in net import and export positions and the new policy challenges that countries face in addressing key food security concerns. Within this context, Mr Morrison provided tentative insights from an econometric analysis, which used survey data on the incidence of LLP and AP and the regulations that countries have adopted in tackling such incidents, to investigate the potential impacts of GM-related regulations on bilateral trade flows. Explaining the use of a gravity-type bilateral trade flow model which introduced a GM regulation index and an LLP threshold, Mr Morrison argued that, while there is some evidence in support of the hypothesis that GM regulations have a trade deterrent effect, it was not possible to find significant evidence that lower LLP thresholds act as a deterrent to trade. Looking forward, it was suggested that, because the number of incidents is likely to increase in the future, improved analysis will be required to inform discussion on the appropriateness of different forms of regulation; this will require better datasets, particularly on the GM-related policies implemented by different countries. The presentation is available online at http://www.fao.org/food/food-safety-quality/a-z-index/biotechnology/LLP/.

6.4. FAO Presentation: Policy and regulatory issues, needs and concerns of developing countries, and future trends

Mr Gijs Kleter, FAO international consultant, researcher, RIKILT (the food safety research institute of Wageningen University), the Netherlands, provided a presentation on policy and regulatory issues, needs and concerns of developing countries, and future trends. The presentation highlighted various policy and regulatory issues in relation to the low-level or adventitious presence (LLP, AP) of GMOs in the food and feed supply chains. Such presence can occur at different stages of the chain from seed through cultivation and harvest, transport and processing, to the final product.

Different regulatory issues apply to each of the links in these chains, and may be either generic or specifically linked to the presence of GMOs (e.g. proposed thresholds for GMOs). The outcomes of the FAO survey on LLP/AP showed the varying degrees to which FAO Members have detection facilities and regulatory systems in place. The survey also showed that Members are well aware of the issues, while their capacities and procedures are different. Examples of different regulatory proposals for LLP policies were presented, including zero tolerance, action levels for GMOs that have been evaluated elsewhere according to Codex Alimentarius guidelines, and flexible stringency based on risk and familiarity.

For developing countries, LLP and AP may pose challenges in terms of regulatory oversight, analytical capacity to monitor LLP/AP, human resources for safety assessment and detection, access to information, segregation and the pressures imposed by the need for swift decisions under urgency (e.g. in the case of food aid). With regard to future trends, it was envisaged that the range of host crops and newly introduced traits in GM crops would expand, while for some GMOs there may not be an interest in acquiring approval from foreign countries if the product is only targeted to the domestic market. The presentation is available online at http://www.fao.org/food/food-safety-quality/a-z-index/biotechnology/LLP/.

6.5. Questions and answers

Mr El Mamoun Amrouk, Economist, Trade and Markets Division of FAO, commented that, on the issue of GM, countries face a trade-off between their risk perceptions associated with GM crops and the associated tolerance level: the higher the risk perception, the lower the tolerance level and the higher the potential effect on international markets. This effect can be measured only if markets can be disaggregated into GM and non-GM crops. Most importantly, we need to understand better the dynamics of GM markets. How do they function, what are their dynamics and their determinants (i.e. the determinants of supply and demand for GM crops)? Modelling the above framework will require the provision of data on GM crops, including volumes, prices, etc. Any serious analysis of GMOs would require the provision of such data. FAO stands ready to assist in future projection of the issue as well as in implementing the above framework, by expanding the AGLINK-COSIMO model to provide quantitative evidence on the effect of trade measures on GM crops, as well as the market outlook.

Canada stated that LLP and AP would call for different solutions. They have similarities, for example they do not have approval in the importing countries. However, in terms of economic impact and regulatory measures, LLP and AP are different. If there is to be another economic analysis conducted by FAO, Canada would like to suggest that FAO analyse the impact of LLP alone, and exclude AP. The **EU** commented that the FAO economic study was based on the survey results, therefore it has a limitation. The EU has not observed any asynchronous LLP incidents since 2009. FAO stated that LLP are steadily increasing, but the EU does not see the increase. The EU has measures to prevent LLP incidents, and it suggested that FAO should conduct a dynamic analysis, not a static one. The EU suggested that there should be no distinction between LLP and AP in the future economic analysis, because this is a regulatory matter associated with the management of non-compliance in order to assure the safety of food and the environment. **COCERAL** responded that there has been no rapid alert for an LLP since 2009 because there is almost no trade. For traders, it is too risky to have any trade with the countries that produce GMOs, considering the zero tolerance policy. Traders have simply stopped trading with such countries, thus there have been no LLP alerts in the EU since 2009. This does not necessarily mean that the regulatory measures are effective.

7. Session 6: Policy and regulations

7.1. Chair of Session 6

Session 6 was chaired by **Ms Clarke**. The Session Chair explained that the objective of the session was to discuss the policy options and regulatory issues associated with LLP/AP. In the previous session, the participants had briefly shared their feedback on the presentations provided by two experts. This session was designed to continue the discussion and explore the issue in further detail.

7.2. Structured discussion session

7.2.1. Policy and reality

COCERAL commented on Mr Kleter's earlier presentation on the policy issues. In commodity trading, COCERAL stressed that co-mingling occurs at every stage of the supply chain where small consignments are aggregated in large bulk supplies. Identity preserved (IP) systems are set up for quality purposes and to preserve the quality characteristics of a product. They are not conceived to reach "zero" trace levels. IP systems, when in place, are part of the contractual agreement, are often covered by quality premiums (and therefore incur higher costs) and have to start at the farm. IP is not a response to a zero tolerance policy. In general, during the 2 days of discussion, COCERAL had noted a lack of general understanding of the bulk handling system and its dimensions, logistics and functionality. Organic farming has been pointed out as a possible solution. Traders do trade in

organic products; however, even the EU legislator acknowledged the difficulties in achieving "zero" by foreseeing in the relevant legislation a GM presence – accidental and technically unavoidable – up to 0.9% in organic products. The legislator has accepted the reality. From an international perspective, COCERAL and the trading community urge FAO Members to consider the impact of LLP on their food security.

7.2.2. Economic study, and policy and regulatory issues

Sudan commented, with regard to the FAO's economic study, that there was no mention of the price comparison between GM and non-GM. Sudan expressed the desire to see further research on the topic, considering other legitimate factors including food/feed/environmental safety issues. **Morocco** also commented that, in the FAO presentation, it was emphasized that collection of data is difficult. Morocco asked how we can improve this. The **Session Chair** asked Mr Morrison how the international community could contribute to further analysis and understanding of the issues with the trading system. From what had been said by the EU and COCERAL concerning the magnitude of the effort being made by traders to meet EU requirements, one wondered about the implications for developing countries with less economic power and lower market power and what assurances they might have in terms of traders' interest to meet their requirements. **Mr Morrison** commented that many kinds of limit to trade exist in the global trading system. The issue can be conceptualized in terms of trade flows and resistances. In the case of LLP in the EU, the decrease in LLP incidents may have been observed because exports are now flowing to places with less resistance, and not to the places where LLPs have been previously detected or reported but where regulations are enforced more rigorously. Mr Morrison responded to Morocco's comment that any future research would need more concrete and targeted data.

Iran raised a question regarding FAO's economic analysis on price stability and price volatility. **Mr Amrouk** responded that it is difficult to understand the dynamics of the GM market with the LLP/AP incidents, because of the limited amount of data and lack of information with a clear distinction between GM and non-GM markets. Statistics are often presented in combination. The currently available analysis conducted by FAO on the state of the world food market is based on the conventional food market, with no distinction between GM and non-GM. The possible reason is that there is no set of price data. This also relates to the earlier comment made by Sudan regarding the time-series comparison on prices of GM crops. The answer is that there has been none. In order to conduct an insightful analysis of the GM market, the following factors need to be identified: determinants of the market; how the market works; the dynamics of the market; and the difference from and relations with the non-GM market. **Argentina** cautioned that the simple distinction of GM and non-GM might have an implication for trade. Simple separation would imply prejudice in how the products are perceived.

7.2.3. GM food safety and regulatory issues

Jordan stated that, during the discussions, there had been no indication from participants whether the consumption of LLP/AP would be safe or not. In the Middle East, 90% of food is imported. Jordan asked whether there is a percentage that can be considered to be "low enough" that an admixture is safe to consume. Jordan stated that they do not know whether there is a laboratory to detect and determine the "low enough" percentage in the Middle East. Jordan stressed that there is a significant need in the country for human resources and training. **FAO Secretariat** responded that GM food, when its safety has been assessed in accordance with the relevant Codex guidelines, is generally considered to be safe for human consumption. This is the case for LLP but not AP. **Armenia** asked if the same approach as used for GM crops can be applied to GM fruits and vegetables. **FAO Secretariat** confirmed that the Codex Guidelines would also apply to fruits and vegetables.

7.2.4. Regulations and training needs

Argentina commented on LLP and AP. In Argentina, they are two different cases that require two different management actions with regulatory and commercial considerations. Argentina considers that further work should be conducted by FAO, but LLP and AP should be separated. **Mr Kleter** stated that AP is no less significant than LLP for developing countries. Argentina's vision is that LLP is relevant because of asymmetrical or asynchronous approvals, while AP is irrelevant when governments implement adequate biosafety control systems on field trials. Argentina also commented on policy issues. Argentina is working in the framework of the Codex Committee on Methods of Analysis and Sampling (CCMAS) to develop policies for detection methods and validation methods for GMOs. The labelling issue has also been dealt with by the Codex Committee on Labelling for almost 20 years. With regard to food safety issues, the Codex Ad Hoc Task Force on Food derived from Biotechnology (TFFBT) has worked on this extensively, therefore there is no need to explore the issue further. Argentina strongly supports FAO in continuing to work on implementing the Codex Plant Guideline's Annex III, and especially on the database (FAO GM Foods Platform). It is important for FAO Members to use and populate the database. The data and information hosted on the FAO GM Foods Platform today are excellent, although only a limited number of countries have been sharing data. Once it has been completed, the database should suffice. FAO should continue to encourage its Members to strengthen the database. The contents of the database are not arbitrary or superficially devised. **FAO Secretariat** confirmed that FAO will continue encouraging countries to share relevant data and information on the FAO GM Foods Platform. The Platform is well functioning and user-friendly. It is up to the Members to make it useful by populating the Platform.

Argentina also stated that Annex III should be included in FAO training tools, for instance the "GM Food Safety Assessment Tools for Trainers" (http://www.fao.org/docrep/012/i0110e/i0110e00.htm). Many countries require extensive training on the matter of food safety assessment. When developing countries state that they do not have capacity, they need a starting point. Annex III is the starting point and should be in the manual prepared by FAO. **FAO Secretariat** responded that an update of the publication entitled the "FAO GM Food Safety Assessment Tools for Trainers" will be made in due course. The current version of the publication was finalized in 2007, before Annex III was adopted by the Codex Alimentarius Commission in 2008.

7.2.5. LLP versus AP in risk management

Japan elaborated on the distinction explained earlier between LLP and AP. Japan stated that LLP and AP are equal cases of non-compliance for Japan, and Japanese laws do not differentiate LLP and AP. One of the absolute priorities in the LLP/AP issue in Japan is to secure food safety. In Japan, as well as in many other countries, food safety is of great interest among the general public. Japan stressed that it is important to make sure that the present discussion on LLP/AP does not give an incorrect impression to the general public that GMOs without authorization by their government will be on the table at the cost of food safety. It is important to provide accurate information that all GMOs are going through proper authorization processes by the respective governments, and that both LLP and AP are managed as non-compliance situations to ensure food safety.

Based on Japan's experience, LLP/AP requires flexible management on a case-by-case basis, as each case may be different; some cases of LLP/AP Japan has experienced were not traceable initially. However, it is clear from all cases that speedy communication and information provision from the relevant operators and the relevant government agencies of exporting countries are absolutely crucial in allowing importing countries to decide on an appropriate response and management. Japan has been successfully managing LLP/AP cases with such communication and information and, as a result, Japan has been able to take appropriate management actions when such communication and information are available.

In Japan, even after the management actions have been taken, the communication channels with the stakeholders are kept open in order to establish detection methods and strengthened control protocols for possible future incidents. Cooperation among relevant operators and the governments of exporting and importing countries has been the key to success in responding to LLP/AP occurrences. For Japan, as an importing country, prevention of LLP/AP is one of the most important activities in GM management. Currently, major operators producing GM crops submit a dossier for safety assessment to the Government of Japan at almost the same time as they submit it to the government of the country of production. This action has been found quite effective in avoiding incidents of LLP/AP. In conclusion, Japan thinks that it is essential for GM-producing companies, traders and the government agencies of exporting countries to assume responsibility in cooperating with importing countries. Japan believes that it is possible to manage LLP/AP cases if all stakeholders play their roles adequately.

Morocco commented that the distinction made between LLP and AP in some countries has complicated the issue, as well as the economic analysis, and its impact on supply/demand. **Mr Morrison** commented that, in the FAO technical survey, no distinction between LLP and AP was made. However, in the analysis, FAO interpreted the discussions on threshold as applying only to the LLP cases. In order to understand the clear implications of LLP/AP, LLP alone, or AP alone, it is necessary to collect more data from individual countries with detailed questions. The findings of the current study presented were preliminary results of the responses to the survey questions, which were more general in nature.

7.2.6. No or limited regulations and/or policies

Egypt commented that there are no guidelines on GM food/feed in the country and no regulations on the topic. However, Egypt has established a biotechnology centre that has received International Organization for Standardization (ISO) accreditation. The centre has started to organize various workshops and there is need for a review of regulatory policy frameworks. Egypt would like to confirm to the international community that it wishes to strengthen its capacity to work in the area of food/feed safety assessment of GMOs and to make the data/information available to the FAO GM Foods Platform.

Togo stated that the country has put a GM regulation in place in 2009, however not on LLP/AP issues in particular. Togo would like to seek input from more developed countries to assess the best way to manage LLP/AP. **Morocco** supported this view and stated that it would be useful to understand what GM-producing countries currently have in place for managing LLP/AP. For Morocco, it is important to set up adequate regulatory measures to ensure safety. The input from more developed countries should include finding a trade-off between the perceived level of risk and the commercial effect. With this, many countries could adopt a more systematic approach rather than a product-by-product approach. Morocco suggested that the group should work simultaneously on clarifying the level of risk as well as the commercial impact, to establish a win–win situation. **Canada** offered to share its approach to LLP with Togo and Morocco, and also acknowledged that there was no single solution to LLP; rather, each country should adjust its own legislative framework to address the issue. However, if countries decide to use a new framework that works for them, it is equally important to be able to implement these decisions.

Mr Morrison commented that it is the reality that different countries have different policies and that it is important to have information shared on these different policies. In order to conduct a more in-depth technical analysis, it is essential to have information on the actual implementation and enforcement practices. In response to Morocco's question, Mr Morrison stated that there would be a need for more discussion among countries to help individual countries in making choices and finding a balanced trade-off between the perceived risk and commercial effect.

8. Session 7: Challenges and opportunities for developing countries

8.1. Chair of Session 7

Session 7 was chaired by **Ms Aidara-Kane**. The Session Chair provided a quick overview of the session and asked the floor to focus on issues related to developing countries in the discussion session.

8.2. Bhutan: Country-case presentation

Ms Kinley Pelden, Chief Regulatory and Quarantine Officer, Quality Control and Quarantine Division, Bhutan Agriculture and Food Regulatory Authority (BAFRA), Bhutan, presented the situation in Bhutan. She explained that Bhutan has not reported any incidences of LLP/AP owing to a lack of detection capacity. Bhutan expects that once the laboratory and field inspection capacity has been built for GM detection and testing, all the agricultural and food commodities will be subjected to testing for the presence of GMOs in order to safeguard human health, the farming system and the environment. All the development policies, including that of biosafety, have been screened through the national policy and planning tool which ensures that the provisions contribute to the pillars of gross national happiness: sustainable socio-economic development, cultural preservation, environmental conservation and good governance.

Ms Pelden explained that Bhutan became party to the International Convention on Biological Diversity (CBD) in August 1995. Subsequently, the National Biodiversity Centre was instituted and a Biodiversity Action Plan (BAP) developed in 1998. Bhutan ratified the Cartagena Protocol on Biosafety (CPB) to the CBD on August 26, 2002. Stringent policy on GMOs has been adopted and has been reflected in many documents, such as the Ministerial Notification in 2000 and 2011, the National Biosafety Framework in 2006 and the Biosafety Bill of Bhutan 2014. The Biosafety Bill of Bhutan 2014 prohibits the import, transit, intentional introduction, use, research and development of GMOs and their products capable of reproducing. Exemptions include conventional methods of breeding and propagation of plants and animals that do not involve the use of modern biotechnology and products derived from GMOs for pharmaceuticals for human and veterinary use. The bill establishes a legal backing for capacity building and regulation, a commission for decision-making, a competent authority for implementation, a technical working group with a technical forum and machinery, and a framework for regulation. The existing legislation that has references to GMOs and their products includes the Food Act of Bhutan 2005, Seed Rules and Regulations 2006 and the National Environment Protection Act 2007.

The challenges are many, and include the inadequacy of technical capacity in laboratories and for inspection, in terms of both human resources and facilities. Information access has also been a major problem; however, this is easing with participation in such meetings and fora, and particularly the GM Platform. In the pursuit of research and development of GMOs for various purposes, the major one being food security, there is a need for the whole system to be more sensitive to the policies, conditions and capacities of developing countries. The presentation is available online at http://www.fao.org/food/food-safety-quality/a-z-index/biotechnology/LLP/.

8.3. Structured discussion session

8.3.1. Concerns of developing countries versus developed countries

Mr Kleter commented that the perception outlined in the Bhutanese presentation was not only from the point of view of developing countries, but also related to some of the policies in developed countries. The issues include consumers' right to information, in terms of knowledge and choice, and socio-economic impacts. Safety requirements, standards, thresholds and other technical issues are covered by regulations, but other legitimate considerations are rarely included. **Canada**

acknowledged that consumer perceptions are a valid issue, but noted that such issues could not be covered by the Technical Consultation. The paramount goal of Canadian regulators is safety, and Canada seeks ways to verify the safety of events approved in other countries. The dissemination of information on countries' safety assessments is critical to this. In this regard, Canada publishes its summary of safety assessments on its website, as well as reflecting these assessments on the FAO GM Foods Platform (http://fao.org/gm-platform). **Mexico** also commented on the importance of the FAO GM Foods Platform. Mexico encouraged FAO staff to provide intensive and necessary follow-up with all Members to encourage implementation of Annex III of the Codex Plant Guideline and promote the use of the Platform.

The **USA** reminded the floor that the issue is not a matter of developed countries versus developing countries, because there have been more developing countries than developed countries cultivating agricultural biotechnology products. Out of 27 countries currently cultivating biotechnology products, 19 are developing countries. It does not make a good sense to group countries on whether they are developing or developed when discussing this issue. Those 19 developing countries use 94 million hectares to plant agricultural biotechnology products, and 16.5 million farmers from developing countries find the technology beneficial. It is also important to recognize that not all countries cultivate GM crops and there are countries without a fully functional regulatory framework in place. These factors could be used to group countries when discussing challenges.

8.3.2. Needs for capacity development in establishing/improving regulatory frameworks

Benin stated that it does not have a regulatory framework currently for GM food. The country is facing a challenging situation due to the development of GMOs in neighbouring countries. Benin considers that this is the country's limitation and there is no decision-making process for even detection-related activities, because there is no regulatory framework. Benin is attempting to develop capacity in the use of tools for the detection of GMOs. They do not know what provisions and management options and actions are available if LLP/AP incidents occur in the country. **Botswana** stated that the Technical Consultation has been beneficial for many countries with relevant regulations in place. However, countries like Botswana without any controls on LLP/AP have been left behind. Botswana would like to know whether FAO can provide assistance to countries without a regulatory framework. Botswana also asked FAO about its position on GMOs. **FAO Secretariat** responded that FAO can assess the feasibility of providing technical assistance to developing countries to develop or improve their regulatory framework if FAO receives an official request. FAO Secretariat clarified that FAO does not tell Members what to decide and what to do. FAO provides technical support to Members so that Members can understand the underlying factors and make their own decisions.

8.3.3. Needs for capacity development in detection and monitoring

Malaysia supported the importance of capacity development in detection and monitoring that Bhutan highlighted in its presentation. When referring to LLP/AP in developing countries, it is an issue of detection and monitoring capacity. If there is no capacity, there is no conclusion on whether or not LLP/AP occurs. Malaysia also stressed the importance of looking at article 17 of the Cartagena Protocol, regarding the unintentional transboundary movement of LMOs, when developing national policy on LLP. It is also important to consider existing domestic labelling mechanisms for GM foods in determining the threshold for LLP. Malaysia stated that they had noted that China and India did not participate in the FAO survey. These countries are major importers of grain in the region, and the survey results will be more meaningful if data on LLP incidents for both countries can also be captured. **China** responded that they had tried to send their responses to FAO and did not understand why FAO had not received them. China explained that they had encountered an LLP situation in the past due to lack of a synchronized approval system. China stated that they consider this Technical Consultation to be very important for the world and that international harmonization of the definitions of LLP and AP should be sought. China is willing to contribute to a technical panel to

define such definitions at the international level. **FAO Secretariat** confirmed that they had not received the survey response and would ask China to re-send their response.

The **EU** stated that it would also support capacity building in developing countries. The EU considers control and detection of GMOs to be important and it has various programmes in place to provide training related to capacity building for detection in developing countries. With regard to safety assessment of GM food and feed, all EFSA opinions are publicly available.

8.3.4. Needs for capacity development in implementing Annex III of the Codex Plant Guideline

Argentina commented on the issue of detection capacity and stressed the need actually to implement Annex III of the Codex Plant Guideline, rather than simply having technical detection capacity. Argentina noted that many countries offer aid to support countries in improving their testing and detection capacity. However there has been no capacity building aid available for implementation of Annex III. On the AP issue, **Argentina** shared its experience that implementation of appropriate controls on the ground is not difficult. Other developing countries should be able to implement good practices to avoid AP incidents.

8.3.5. Issue of asymmetry approvals

Uganda commented on the asymmetry issue. The National Agricultural Research Organization of Uganda is developing GMOs and transgenic crops specifically for African needs, addressing issues of indigenous crops which Uganda does not expect to be involved in international trade. Uganda explained that the country is developing a GM maize with traits that confer resistant to drought. Uganda considers that this could be an issue of concern in the future, in terms of LLP, because once farmers are producing such crops for home consumption within Uganda, some might cross the borders and this might become a challenge to Uganda and neighbouring countries. Uganda explained that there have been some initiatives in Africa on research and regulations, but involving all African countries has been difficult. Uganda proposed that regionalization of such regulatory initiatives might be useful, and international organizations such as FAO could support such initiatives to assist countries with limited capacity. **FAO Secretariat** commented that FAO can assess the feasibility of providing technical support on the issue if FAO receives an official request.

9. Session 8: Future trends

9.1. Chair of Session 8

Session 8 was chaired by **Mr Kearns**. The Session Chair highlighted that some developing countries had stated earlier that they are in the process of reviewing or developing regulatory policy frameworks. The first presentation, from Mr Falck-Zepeda of IFPRI, illustrated that LLP incidents are projected to increase, and the FAO survey also showed a steady increase in incidents. From the previous sessions, countries now understood that the LLP/AP issue exists globally. It is necessary to understand the possible future trends.

9.2. Structured discussion session

9.2.1. Factors potentially influencing future LLP/AP

FAO's background paper identified the following factors potentially influencing the future occurrence of LLP/AP incidents (see Section 8 of background paper 1):

1. Increasing volume of GM crops produced (possible impact: high);
2. Increasing volume of GM crops traded (possible impact: high);
3. Increasing diversity of traits that are used for new GM crops (possible impact: moderate–high);
4. Unintentional mixing (possible impact: moderate–high);

5. Different timing of approval being sought outside the producing country – asymmetrical approval (possible impact: moderate–high);
6. Diverse LLP policies (possible impact: moderate – high);
7. Diverse levels of implementation and enforcement of the relevant regulations (possible impact: moderate–high);
8. Diverse labelling requirements (possible impact: low);
9. Increasing use of advanced molecular biological techniques (possible impact: moderate–high);
10. Increasing sensitivity of detection methods (possible impact: moderate–high);
11. Improved capacity for detection, for developing countries (possible impact: low–moderate);
12. Advances in plant breeding programmes (possible impact: moderate–high);
13. Advances in "-omics" technologies for detection (possible impact: low–moderate).

9.2.2. Projected future LLP/AP incidents

Australia commented that, in Australia, LLP is an important issue for agriculture trade and global food security. Australia is aware that in coming years the demand for food and the volume of agricultural trade, particularly in the Asian region, will grow dramatically; therefore, Australia considers that the likelihood of LLP incidents will increase. Australia informed the floor that it is currently developing a framework for various LLP scenarios for structured decision-making. The framework should help the country to take appropriate and timely management actions in LLP situations. Australia will continue to share information on the safety assessment of GM products on the FAO GM Foods Platform.

Mexico stated that LLP incidents may be made more complicated by the improved capacities of developing countries to develop GM products. Mexico considers that the present Technical Consultation will contribute greatly to identifying needs for capacity building in the area of LLP for some developing countries, and it recognizes the relevance of international cooperation. However, Mexico also considers that certain novel technologies, such as new plant breeding techniques, will require more technical assistance from international organizations such as FAO to promote further information sharing. Mexico also stressed that it would be more important in the future to strengthen partnerships between exporters and importers, as well as the public and private sectors, to enhance the bilateral relations between member countries.

Canada noted that, while it is difficult to predict the trend, the risk of increasing LLP is high. Collectively, it is important for countries to reach a common understanding of this complex issue before the potential occurrence of any further proliferation of LLP incidents that cause unnecessary trade disruptions. Strict zero tolerance poses a number of questions in terms of food security, and therefore Canada appreciates these discussions as a good basis for future dialogue.

Turkey commented that the country expects LLP/AP incidents to increase in the future. However, at the same time, Turkey considers that the issue will be closely related to the types of policy implemented by different countries. Turkey proposed that countries should be made aware of this problem now, so that management of LLP/AP will be feasible and LLP/AP incidents might decrease. Good practices should be implemented at the field level.

Argentina commented that analysis of projected future trends would be useful. However, Argentina argued about factors 9, 10, 11, 12 and 13 identified by the FAO study. While new plant breeding techniques are important, this factor would not be expected to affect LLP/AP incidents. Argentina questioned numbers 10 and 11 by stating that the current state-of-the-art technologies for detection already have very good analytical sensitivity, which is below most of the thresholds, therefore the situation would not be affected. Instead, Argentina stressed key issues such as number 5, the issue of asymmetry, which is increasing in developing countries. Also, Argentina proposed the inclusion of an

additional point, which is related to expiration of approvals. Argentina considers that these are the key considerations for the future trends. **FAO Secretariat** commented that the detection sensitivity issue might affect future LLP/AP if there is a zero tolerance policy.

Mr Kleter commented that it is important to keep in mind that the present discussions are based on the points of view of policy-makers, regulators, risk assessors, risk managers and analysts. Regulators may put in place a detection requirement, but there are private initiatives with routine detection requirements. It is important to consider the points of view of companies and producers, including organic farming organizations, supermarket chains and non-GM industry associations. These private initiatives have their own requirements for producers and small-scale farmers, and they often follow their own detection protocols. This might be helpful in considering the future trends and in determining whether or not all regulators need to put detection requirements in place to avoid LLP/AP.

Mr Falck-Zepeda, IFPRI, referred to the 2009 report of the EU Joint Research Centre (JRC), which projected that there would be 120 single GM events in international trade in 2015. The report also stated that there would be an increase in LLP in the future. He explained that Annex III of the Codex Plant Guideline would be an excellent tool to help build trust between countries. This opens the way to additional policy options for flexible resynchronization among countries in terms of product safety assessment. Referring to his earlier presentation, Mr Falck-Zepeda said that the cost of compliance with some policy frameworks and decisions depended on the feasibility of their implementation. It is important to establish a framework and make decisions that are practical. Impractical policies are costly. Also, information-sharing on such policy frameworks and decisions is critical. Good communication among countries (exporters and importers) and developers, producers and traders is key.

COCERAL commented on the organic trade that Mr Kleter mentioned and confirmed that there are trades in conventional products, organic products and GM products. For traders it was useful that the EU has had the foresight in the organic legislation to set the threshold for accidental presence at up to 0.9% of GM, because it would have been almost impossible to achieve compliance if this was also set at zero tolerance.

The **USA** stated that, from the US perspective, in order to minimize the impact of LLP on trade, the key solution is to have a functioning regulatory system in every country that approves applications in a timely and science-based manner.

9.2.3. Provision of information and responsibilities of exporting/importing countries

Sudan explained that its government requests traders to provide initial information before shipping their products from the exporting country. However, Sudan has faced many LLP/AP incidents. Sudan would like to know why there is no mechanism in place for requesting exporting countries to provide information before shipping the products. Sudan considers that, if there is a maximum level of information, it will minimize trade disruption. The pharmaceutical sector is doing well in this regard and the agriculture sector should do the same.

Cameroon commented that North and South American countries are producing many GM crops and exporting them. The EU does not produce as much as the Americans do. During the Technical Consultation it had been mentioned that the producing countries have experienced difficulties in separating non-GM and GM crops because accidental mixing can occur during any step of the food supply chain. For the future, Cameroon thinks that all countries, both developed and developing, need to strengthen the implementation of good practices in careful handling of seed and plant materials. Also, all exporting countries need systematically to implement good control management and labelling requirements before exportation. Mr Morrison's presentation illustrated that

developing countries can be very vulnerable in this situation. If there is no detection system to check the quality of the shipments, anything can be sent to such developing countries without proper information. Cameroon considers that the least developed or developing countries without technical capacity should not have to suffer this, and asked FAO to provide assistance so that such countries could attain the same level of detection, to allow fair trade. **Ghana** supported the comment by Cameroon and stressed that there should be a shipping document indicating the level of GMOs in all consignments. Such documents are the only assurances developing countries would trust. If there is no trust, the vulnerability of such countries becomes very serious. **China** also supported Cameroon's comment, stating that exporting countries should take into consideration the regulations in the importing countries. **Mr Kleter** responded, and explained that some countries ask for specific certificates. For example, the Netherlands, as a large trader in grain, imports crops from Argentina and then exports agricultural products to China. China asks for certificates and the Netherlands provides them. There may be a mechanism that could be effective when traders are willing to pay for the certificates. **Canada** responded to this and noted that some level of co-mingling is inevitable in international trade. There have been cases where traces of a GM crop have been found in a conventional non-GM commodity (such as canola in mustard). Traces of products can be brought in from other countries, carried over in storage and transportation vessels, and find their way into exports. Thus Canada considers that LLP is a global issue, with potential to affect all exporters and importers, and needs a global solution.

9.2.4. Preventing future LLP incidents with asynchronous approvals

The **EU** commented on asynchronicity. The EU recognizes that it is a problem, and would like to discuss it with trading partners. Some countries that produce GMOs do not necessarily submit a dossier to the EU for approval, and then the issue of asynchronicity arises. The EU is ready to facilitate the process of application submissions to prevent future LLPs.

9.2.5. Preventing future LLP incidents with asymmetrical approvals

Malaysia commented on asymmetrical approvals and questioned how they are related to the unwillingness of developers to seek authorization in an unattractive market, which contributes to LLP. Malaysia is of the opinion that developers should submit applications to all those who open the door to GMOs. The **EU** responded that all applicants should submit dossiers in time, and consider the time required for the authorization process in importing countries. If the dossiers are complete and submitted on time, delays are prevented. The EU stated that making a difference between LLP and AP would not be important. Nevertheless, future analysis could be useful in understanding whether AP will have an impact on trade. The EU once again stressed that it had not faced asynchronous LLP in past years, but had experienced AP. **Canada** responded that, while recognizing that submitting complete applications would help to reduce approval delays, other factors contribute to asymmetry of authorizations. For example, non-traditional developers such as university researchers in developing countries may not submit applications to various countries for GM events they develop, owing to lack of resources and capacity.

10. Session 9: Data/information needs

10.1. Chair of Session 9

Session 9 was chaired by **Ms Renata Clarke**, FAO. The Session Chair first provided an overview of the session, stating that this session was intended to discuss information/data needs for better understanding of the evolution of the LLP/AP issue in the near future.

10.2. Structured discussion session

10.2.1. Future fora for information exchange

Kenya commented that the present Technical Consultation had already been an opportunity for information sharing and it had clarified a number of issues. In Kenya, there is a biosafety regulatory system in place but, in responding to the issues discussed at this Technical Consultation, Kenya would like to review the system in the future to allow better management and responses to future LLP/AP incidents. Kenya stressed that the socio-economic impact cannot be ignored and consumers would demand more information about the issue in general, as well as specific LLP/AP considerations. **Japan** supported the comment made by Kenya, stating that it is important to consider not only the trade issues but also socio-economic issues, legislation mandates of stakeholders' preferences and resource availability. In the future, sharing such information and in-depth analysis would be useful.

Swaziland commented that the Technical Consultation had been very informative. Swaziland requested another forum, to be organized by FAO, where countries can provide further feedback on the topic. Some participating countries had not been ready to speak up before the Technical Consultation because of a lack of knowledge and information.

10.2.2. Provision of technical information on trade and welfare analysis by FAO

Mr Morrison stated that FAO is ready to provide countries with information and analysis to assist them in making decisions on different elements of welfare. If such analysis is seen to be useful, solid data collection would be necessary to understand the current situation better and to project future trends. **FAO Secretariat** asked Mr Falck-Zepeda to explain a possible analysis on welfare impacts of the trade disruptions due to LLP/AP. **Mr Falck-Zepeda** responded that a survey that includes country-specific data and information on parameters described in the earlier presentation should address the question. Currently, an IFPRI study with this particular objective is ongoing, and case studies with some concrete examples from various countries would strengthen the analysis. The issue of the cost of compliance is also a target of the IFPRI's future study.

10.2.3. Information sharing on the FAO GM Foods Platform

The **USA** once again emphasized the importance of the FAO GM Foods Platform (http://fao.org/gm-platform/). The USA strongly encouraged Members to populate the Platform with relevant data and information, and suggested that FAO should further promote the Platform to all FAO Members. This comment had also been supported by Argentina, Australia, Bhutan, Canada, Egypt, Mexico and NGO in the earlier discussion sessions.

11. Session 10: Closing session

11.1. Closing session: FAO Secretariat

FAO Secretariat concluded the Technical Consultation by reminding the floor that the objective of the Consultation was to raise awareness of the topic. Some countries had not been informed of the LLP/AP issues prior to the Consultation. Now all participants had been made aware of the issue and understood the nature of the challenge. FAO would like the discussions to continue. FAO recognized that many countries are in the process of review or development of regulatory frameworks and relevant policies. The Technical Consultation had received many contributions from countries with more experience, as well as those with less experience. FAO will continue to work with Members in providing technical assistance and facilitating international discussions.

11.2. Closing remarks

Mr Wang provided the closing remarks. He stated that, over the past 2 days, the Consultation had covered many important issues on the topic, and he was delighted to learn that there had been very constructive discussions. During her opening speech, Ms Semedo had stated that it is FAO's core mandate to bring its technical knowledge closer to the Members, to assist them in addressing the challenges at country, regional and international levels.

For FAO, facilitating a Technical Consultation and providing a neutral forum for international discussion are very important, and are essential steps towards assisting FAO Members to address possible challenges. The Consultation had done just that. The Consultation had been expected to provide key information and address various perspectives to attain a better understanding of the issue of low levels of GM crops. The Consultation had achieved that goal as well.

Mr Wang quoted the statement made by Ms Semedo that *FAO is now much more proactive in building meaningful partnerships to help reach the goals established by FAO Members*. This is a very important strategy. FAO will continue to work together with all Members and stakeholders on this issue, and will continue to provide access to high-quality, science-based knowledge. **Mr Wang** thanked everyone on behalf of FAO and closed the Technical Consultation.