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ASIA SUBREGIONAL TRAINING-OF-TRAINERS WORKSHOP ON THE IDENTIFICATION AND DOCUMENTATION OF LIVING MODIFIED ORGANISMS
New Delhi, 21-25 November 2011

REPORT OF THE WORKSHOP

INTRODUCTION

1. The Asia Subregional Training-of-Trainers Workshop on the Identification and Documentation of Living Modified Organisms was held in New Delhi from 21 to 25 November 2011. The workshop was hosted by the Government of India with funding provided by the Government of Japan.

2. The workshop was attended by 33 participants from 13 countries and five organizations.

3. The following countries were represented: Cambodia, India, Indonesia, Lao People's Democratic Republic, Malaysia, Mongolia, Philippines, Saudi Arabia, Sri Lanka, Syrian Arab Republic, Thailand, Vietnam and Yemen.

4. Resource people from the following organizations facilitated the workshop: the Association of Biotech Led Enterprises, the International Centre for Genetic Engineering and Biotechnology (ICGEB), the International Grain Trade Coalition, the National Bureau of Plant Genetic Resources (NBPGR) and the Secretariat of the Convention on Biological Diversity.

5. The objective of the workshop was to introduce customs officers and related border-control officials to:

(a) The Cartagena Protocol on Biosafety and its requirements regarding the identification and documentation of living modified organisms (LMOs) and their role in enforcing those requirements;

(b) Techniques and methodologies that may be used for the implementation of the above requirements, in particular the sampling of shipments and the detection of LMOs; and

(c) Activities and experiences of the Green Customs Initiative.

ITEM 1. OPENING OF THE WORKSHOP

6. The workshop was opened by Mr. Charles Gbedemah, Principal Officer, Biosafety, on behalf of Mr. Ahmed Djoghlaf, the Executive Secretary of the Convention on Biological Diversity. Mr. Gbedemah noted that this was the last in a series of regional workshops organized by the Secretariat in response to decisions of the Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol on Biosafety (COP-MOP) that called for capacity-building for the implementation of Article 18 of the Protocol. He further noted that the workshops were also being conducted as part of the Secretariat's

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involvement in the Green Customs Initiative. Mr. Gbedemah stated that implementation of Article 18 posed many challenges and he encouraged the participants to freely share and learn from each others' experiences. He also noted the Nagoya – Kuala Lumpur Supplementary Protocol on Liability and Redress that was adopted by the Parties at their fifth meeting and he urged the participants to facilitate its signature by their governments. He thanked the Government of Japan for its generous financial contribution towards the workshop and the Government of India for hosting it. He also thanked the local organizing committee for the excellent preparations.

7. Mr. M.F. Farooqui, Additional Secretary and Chairman of the Genetic Engineering Appraisal Committee, Government of India, welcomed the participants to India. He noted that the workshop would introduce customs officials to the identification and documentation requirements of the Protocol as well as tools and methodologies for detection. He recognized that while, in their work, some participants did not deal directly with biodiversity, their role in biodiversity protection was critical. He thanked ICGEB and NBPGR for their supportive roles in the organization of the workshop. Mr. Farooqui noted that the Government of India was working hard to ensure that the sixth meeting of the Parties to the Protocol, to be held in Hyderabad in October 2012, would be a success.

8. Mr. K.C. Bansal, Director of NBPGR, delivered a vote of thanks to the Secretariat and the co-organizers of the workshop. He explained that NBPGR was the nodal organization in India for the introduction, exchange and quarantine of plant genetic resources, including LMOs, and it included a laboratory for the detection of genetically modified organisms (GMOs) and the National Containment Facility greenhouse that the participants would be visiting later in the week. He thanked the Secretariat for holding the workshop in India, the Ministry of Environment and Forests of the Government of India, particularly Mr. Farooqui and Ms. Ranjini Warrier, as well as colleagues at ICGEB for their roles in organizing the workshop.

ITEM 2. OBJECTIVES AND PROGRAMME FOR THE WORKSHOP

9. Ms. Ranjini Warrier, Ministry of Environment and Forests, Government of India, chaired the workshop. She began by inviting the participants to introduce themselves.

10. Following the introductions, Ms. Kathryn Garforth of the Secretariat of the Convention on Biological Diversity outlined the objectives of the workshop and provided an overview of the programme for the workshop.

ITEM 3. INTRODUCTION TO THE PROTOCOL AND ITS ELEMENTS RELATING TO THE IDENTIFICATION AND DOCUMENTATION REQUIREMENTS FOR SHIPMENTS OF LIVING MODIFIED ORGANISMS

11. Two presentations were made under this item.[1] The first presentation, entitled "Introduction to the Cartagena Protocol on Biosafety", was made by Mr. Erie Tamale of the Secretariat of the Convention on Biological Diversity. Mr. Tamale began by showing a short video on the Cartagena Protocol on Biosafety. He then provided a brief background to the Protocol and its relationship with the Convention on Biological Diversity and other international instruments that deal with LMOs. He described the objective and scope of the Protocol, the different categories of LMOs under the Protocol, the different procedures for the transboundary movement of different categories of LMOs, and other provisions of the Protocol intended to foster the safe transfer, handling and use of LMOs. He also highlighted the Nagoya – Kuala Lumpur Supplementary Protocol on Liability and Redress, which was adopted in October 2010, and its role in the conservation and sustainable use of biodiversity by providing international rules and procedures in the field of liability and redress relating to LMOs.

[1] Presentations from the workshop are available on the Collaborative Portal for Customs Officials in the BCH: http://bch.cbd.int/onlineconferences/portal_art18/htpi_customs_materials.shtml.

12. The second presentation, entitled "Cartagena Protocol on Biosafety: Identification and Documentation of Shipments of Living Modified Organisms", was delivered by Ms. Garforth. She described the provisions on the handling, transport, packaging and identification of LMOs set out in Article 18 of the Protocol and provided an introduction and context to the Article. She described the main types of transboundary movements – intentional, unintentional and illegal – of LMOs under the Protocol. In the context of intentional transboundary movements, she stated that the Protocol contained different requirements for the information to be provided in documentation accompanying shipments of (i) LMOs intended for direct use as food or feed, or for processing; (ii) LMOs for contained use; and (iii) LMOs for intentional introduction into the environment. She outlined the specific information requirements contained in the Protocol and related decisions of the Parties to the Protocol, and described where to find such information in shipping documentation. She also provided an overview of unique identifiers for transgenic plants and demonstrated how they could be used to search the Biosafety Clearing-House (BCH) for further information. Finally, Ms. Garforth mentioned possible situations that could constitute unintentional transboundary movements of LMOs and also described what constituted an illegal transboundary movement.

ITEM 4. THE ROLE OF CUSTOMS AND BORDER-CONTROL OFFICIALS IN IMPLEMENTING THE PROTOCOL

13. Under this item, Mr. Tamale made a presentation on the role of customs officials in implementing the Protocol. He noted that to play an effective role, customs officials needed to know what information to look for, why such information was important, where to find the information and whom to contact for specialized assistance. He highlighted the following as some of the key roles and responsibilities of customs officers in the implementation of the Protocol: (i) ensuring that imports and exports of LMOs had proper approvals before they were cleared; (ii) ensuring that shipments of LMOs were accompanied by appropriate identification documentation; (iii) inspecting incoming shipments of LMOs to verify the actual content and cross-check them against the accompanying documentation; (iv) detecting illegal or unintentional transboundary movements; and (v) reporting to relevant authorities information concerning shipments of LMOs arriving at the ports of entry.

14. Ms. Garforth gave a presentation on the "Role of the Biosafety Clearing-House in Facilitating the Implementation of the Identification and Documentation Requirements". She explained that the BCH was an online information exchange mechanism that was freely accessible to everyone, and Parties to the Protocol were required to share certain types of information and decisions via the BCH. She stated that customs officers would most likely need to use the BCH to find contact information for the competent national authorities and the decisions taken by their governments on whether or not to allow the import of specific LMOs. She demonstrated how to search the BCH for different types of information and illustrated the types of results and information that users of the BCH might encounter. She concluded by presenting the Collaborative Portal for Customs Officials in the BCH, where more information on the handling, transport, packaging and identification of LMOs is available.[2]

ITEM 5. NATIONAL EXPERIENCES WITH TRANSBOUNDARY MOVEMENTS OF LIVING MODIFIED ORGANISMS

15. Under this item, participants gave short presentations on the current status and experiences gained with the identification and documentation of living modified organisms in their respective countries, which they had been invited to prepare prior to the workshop. The presentations highlighted the following:

(a) The current status of identification and documentation requirements in their respective countries, including existing provisions in national regulatory and/or administrative frameworks on the

[2] The Collaborative Portal for Customs Officials is available at http://bch.cbd.int/onlineconferences/customs_art18.shtml.

documentation that must accompany imports of LMOs, examples of the existing documentation systems, existing initiatives and facilities for the identification of LMOs, etc.;

(b) Experience gained, if any, with the identification of LMOs and the use of existing documentation systems to fulfil requirements for the identification of shipments of LMOs for import;

(c) Any difficulties or challenges encountered;

(d) The specific capacity-building needs and priorities; and

(e) Recommendations for improving the national implementation of the requirements for the identification and documentation of LMOs.

16. The participants from the following countries gave presentations: Cambodia, India, Indonesia, Lao People's Democratic Republic, Malaysia, Mongolia, the Philippines, Saudi Arabia, Sri Lanka, Syrian Arab Republic, Thailand, Vietnam and Yemen.

ITEM 6. DOCUMENTATION ACCOMPANYING SHIPMENTS OF LIVING MODIFIED ORGANISMS: CASE-STUDIES ON EXISTING DOCUMENTATION SYSTEMS

17. Under this item, Ms. Rosemary Richards from the International Grain Trade Coalition (IGTC) made a presentation entitled "Documentation accompanying Food/Feed/Processing Shipments of Living Modified Organisms". Ms. Richards provided a brief background to IGTC. She stated that IGTC's goal was to advise governments on how to implement the Biosafety Protocol to protect global diversity while minimizing disruptions in the international trade of grain, oilseeds, pulses and derived products. She noted that IGTC had more than 8,000 members in 80 countries and she outlined the regions of the world that were net importers of grain and those that were net exporters. She described the size and scope of the international grain industry and bulk grain handling systems, from farmer to processor, and emphasized their complexity. She noted that it was impossible to keep varieties of grain totally separate in a bulk handling system. Ms. Richards also described the role of identity preservation systems in providing tighter tolerance levels than could be provided in normal bulk grain shipments but noted that such systems could not provide zero tolerance. She stated that identity preservation must start at the farm level and should be maintained as the commodity moved through the handling and transportation system to market.

18. Ms. Richards also described international commercial grain transactions. She stated that negotiations between the exporter and importer normally began three to six months before the shipment, and involved agreement on the commodity to be shipped, its quality and quantity, the price and payment terms and the shipping terms. She noted that the commercial invoice was the only document that currently accompanied all transboundary shipments. In this regard, she said IGTC's view was that any identification information to accompany shipments of LMOs, as required in Article 18.2 of the Protocol, should be incorporated into the commercial invoice. She further noted that there were a number of other rules, at both the national and international level, that shippers must comply with for the transboundary movements of goods.

19. Ms. Richards highlighted the *IGTC Notice to Trade # 8*, which was issued in July 2009 to remind and update IGTC members of the documentation requirements of the Biosafety Protocol. She provided examples of how those requirements had been integrated into commercial invoices. In her conclusion, Ms. Richards stated that additional documentation requirements would result in significantly higher costs in the bulk commodity handling system, which would endanger food security primarily in food importing developing countries.

20. Ms. Garforth gave a presentation on the LMO quick-links tool developed by the Secretariat. She indicated that the Secretariat had developed the LMO quick-links tool to assist in the identification of LMOs in documentation accompanying their transboundary movement and to provide easy access to the BCH and information on specific LMOs. Ms. Garforth described LMO quick-links as small image files

that identified an LMO through the organism's unique identifier, trade name and a link to the BCH where more details on the LMO were available. She noted that the page of the BCH on the specific LMO could be accessed by either scanning the barcode included in the quick-link or by typing the web address into a web browser. She then demonstrated how the BCH could be used to access information on decisions taken by countries regarding specific LMOs. Ms. Garforth concluded by noting that while the inclusion of identification information in documentation accompanying LMOs was required by the Biosafety Protocol, the use of LMO quick-links to meet this requirement was not obligatory.

ITEM 7. SAMPLING, DETECTING AND IDENTIFYING LIVING MODIFIED ORGANISMS

7.1. Introduction and overview

21. Under this agenda item, Mr. Raj K. Bhantnagar from ICGEB gave a general introduction to biotechnology. He described traditional plant breeding and how it differed from modern biotechnology, as well as how genetic engineering was used to modify organisms and introduce desired traits. He provided two case-studies. The first examined genetic engineering for insect control and the use of *Bacillus thuringiensis* (Bt) to kill insects that damage crops. The second looked at genetic engineering for weed control, specifically modifying crops to be tolerant to glyphosate herbicides. He described some of the existing products from modern biotechnology, the steps required to bring a genetically modified (GM) crop to market and possible benefits from crops derived from biotechnology.

7.2. Sampling methodology

22. Mr. Mool Chand Singh from NBPGR gave a presentation on sampling methodology for the detection of LMOs. He explained that the objective of sampling was to ensure that the portion of the seed lot taken for testing was a true representation of the entire lot. He stated that a good sampling procedure was essential when dealing with bulk consignments in order to obtain a uniform and representative sample for testing for plant quarantine purposes.

23. Mr. Singh made reference to the guidelines for seed sampling developed by the International Seed Testing Association as well as India's national standards developed for sampling from bags. He outlined the number of primary samples that needed to be drawn (the sampling intensity) from different lot sizes on the basis of both weight and number of containers and also presented the minimum weight of submitted samples for different crop species. He also stated that the number of bags that would need to be sampled was based on the number of bags in a lot, according to India's national standard. He provided an overview of how to sample grain in bulk. Finally, Mr. Singh described different kinds of equipment used for drawing samples as well as methods for obtaining the working sample.

24. Ms. Gurinder Jit Randhawa from NBPGR also gave a presentation on sampling methodology. She began by noting the complexity of sampling in the supply chain. She reiterated the importance of a good sampling procedure and noted that poor sampling could greatly affect the reliability of the measured levels of a GMO. She noted that, during the different steps of sampling and analysis, there were many possible sources of errors. She also explained the purpose of sampling as being to provide traceability along the food and feed chain.

25. Ms. Randhawa outlined a number of steps that should be taken in preparation for sampling a seed lot. She explained that the accuracy of sampling depended on the thoroughness of the blending of the seed lot from which the sample was drawn, the sampling equipment used, the care exercised in drawing the primary samples, the care with which the primary samples were mixed to form a composite sample representing the seed lot, and the care exercised in mixing and reducing the composite sample to obtain the required sample for submission to the laboratory. Regarding the sampling of seeds, Ms. Randhawa pointed to the Association of Official Seed Analysts and the International Seed Testing Association as being organizations that develop, adopt and publish standard procedures for sampling and testing seeds and issue certificates of seed quality.

26. Ms. Randhawa then considered sampling along the food and feed supply chain. She noted a number of protocols for sampling bulk lots that had been adopted at the international and regional levels. She described how the distribution of genetically modified organisms (GMOs) in lots (i.e., homogenous versus heterogeneous distribution) could affect sampling. She also described how to use triers (a piece of sampling equipment) for collecting samples and different types of sampling, including automatic sampling, manual stream sampling and hand sampling. Ms. Randhawa concluded by describing some of the final steps in the sampling process, namely types and methods for sealing lots, marking and tagging the seed lot, and types of labels.

7.3. Detection and identification of living modified organisms

27. Under this agenda item, Mr. V. Siva Reddy from ICGEB and Ms. Randhawa gave presentations on the detection and identification of LMOs. Mr. Reddy began by reviewing how LMOs were created, the range of crops that had been genetically modified and the extent of their use worldwide. He also outlined the genetically modified cotton varieties that had been approved for use in India. Mr. Reddy described the processes by which ELISA (enzyme-linked immunosorbent assay) and strip-based detection methods worked. He concluded by noting that detecting an unapproved LMO was often very difficult, that LMOs based on RNA interference had no introduced protein to detect; that, while DNA-based tests could be designed easily, ELISA-based tests were possible only if the specific antibodies were available; and that there was a constant need to upgrade detection methods for new and stacked transformation events.

28. Ms. Randhawa outlined a number of purposes for detecting LMOs: to assure the purity and segregation of seeds and products thereof, to be able to trace genetic modification in breeding, to assure compliance with legislation, and to solve legal issues if they arise. She outlined three steps in the testing of GM crops. The first step is detection to determine whether a sample contains any transgenes. The second step is identification where, if the results from detection are positive, further analysis is required to determine which specific transgenes are present in a sample. Once the specific transgene has been identified, the third step is quantification to assess compliance with the allowable threshold level.

29. Ms. Randhawa outlined some of the advantages and limitations of ELISA detection methods. Advantages include that the tests are reasonably sensitive, are less susceptible to false positives, have low cost per sample and can handle a large number of samples, and that detection kits are available commercially. Limitations include the high development costs for the assays and limitations in detection capabilities; for instance it is difficult to use ELISA for detecting GMOs in processed foods.

30. Ms. Randhawa outlined the procedure for using polymerase chain reaction (PCR) in the detection of GMOs. It included the following steps: extraction of DNA from the organism, amplification of the DNA through PCR, and analysis of PCR products through gel electrophoresis and documentation of results on a gel documentation system. She noted that the advantages of PCR included high species specificity, high sensitivity, and the quantification capabilities of real-time PCR. Limitations of PCR included that it required relatively advanced laboratory facilities and highly trained staff, it was fairly costly, it took more time than protein-based methods, and special precautions needed to be taken to avoid cross-contamination of samples. She emphasized that real-time PCR was the method of choice for quantitatively measuring the amount of transgenic DNA in a sample. Ms. Randhawa also described the designing of primers to target the gene sequence of interest, which was then amplified through PCR. She noted that there were a number of different types of PCR-based strategies for DNA detection (e.g., qualitative PCR, multiplex PCR), as well as hybridization-based strategies for DNA detection. She distinguished between screening methods on the one hand, and gene-specific, event-specific and construct-specific methods on the other.

31. Ms. Randhawa also described microarray methods for GM detection. She noted that they allowed automated rapid screening but the materials were costly and photosensitive thus limiting their common use.

32. Finally, Ms. Randhawa described the DNA-based GM detection work at NBPGR. She noted that the Bureau was the nodal agency for import permits, quarantine processing and issuing phytosanitary certificates for germplasm and transgenic planting materials. She outlined some of the import clearance requirements of the Department of Biotechnology of the Government of India, including that the supplier must certify that the imported transgenic material contained the transgenes conforming to those described in the permit. She indicated that the Bureau had been involved in the testing of transgenes in imported material since 2000. She concluded by presenting some of the research on detection and identification of GMOs that had been conducted at NBPGR in recent years.

33. Also under this item, Mr. Seetharama Nadoor from the Agriculture Group of the Association of Biotech Led Enterprises (ABLE) gave a presentation on behalf of CropLife International (CLI) on their Detection Methods Database. He explained that CropLife International was a global federation representing the plant science industry and a network of regional and national associations (including ABLE) in 91 countries. He stated that the objective of the CLI Detection Methods Project Team was the implementation of harmonized and practical laws, regulations or policies for the development, validation and utilization of detection methods for plant biotechnology products.

34. Mr. Nadoor noted that the CLI Detection Methods Project Team provided a forum for seed technology registrants to address industry-wide regulatory applications of detection methods and reference materials, to work towards global harmonization of standards and requirements related to detection methods and reference materials, and to assess intellectual property issues associated with methods and reference materials. He indicated that in this regard, the CLI member companies recognized the need for reference materials and they sought to provide those materials to government agencies in a globally harmonized approach and under principles for transfer in order to control the distribution and use of intellectual property.

35. Mr. Nadoor stated that the CLI companies had created their Detection Methods Database as a means to publish detection methods, associated information and links to sources of reference material online. The methods were published after the organism had received regulatory approval and upon commercial sales. He noted that to access the information on a detection method, the requestor must agree not to use the method in fee-for-service testing. Mr. Nadoor outlined the following as some of the benefits of the Detection Methods Database: (i) it enables other companies to test for adventitious presence in their seeds without additional legal agreements; (ii) it asserts the CLI companies' methods as the only methods that the companies support; (iii) it may limit the proliferation of other methods and reference materials which could otherwise hinder harmonization; (iv), it demonstrates transparency, stewardship and goodwill; (v) questions come directly to the trait provider; and (vi) it is open to others willing to post detection methods.

36. Finally, Mr. Nadoor gave a demonstration of the Detection Methods Database, indicating the information that needed to be provided to download detection methods as well as providing an example of the types of information provided in one of the downloaded detection methods.

7.4. Laboratory exercises

37. Under this agenda item, the participants visited the laboratories at ICGEB and NBPGR.

38. At ICGEB, Mr. Reddy and Ms. S. Leelavathi led the participants through using strip tests and ELISA methods to detect genetically modified cotton seeds in a sample. At NBPGR, Ms. Randhawa demonstrated both simplex and multiplex PCR methods for detecting GMOs in seeds of two commercialized GM events of cotton, i.e., MON 531 and MON 15985.

7.5. Interpreting the results from detection and identification

39. Mr. Reddy presented the interpretation of the results from the strip tests and ELISA tests done by the participants at ICGEB. He explained that in presenting the results from testing, it was necessary to provide information on the date when the test was done, where it was conducted, a contact person, the test kit and the process that were used.

40. Ms. Randhawa presented the results from the simplex and multiplex PCR tests. She emphasized the importance of documenting data and results, which was crucial in the laboratory accreditation process, patent applications and resolving legal disputes. She explained that there was a greater chance for error if documentation was not done promptly and thoroughly.

ITEM 8. FIELD STUDY VISIT

41. Under this item, the participants visited the National Plant Quarantine Station, where Mr. J.P. Singh, Deputy Director, gave an overview of the plant quarantine process in India.

42. Participants then visited the Directorate of Plant Protection, Quarantine and Storage facilities at the Tughlakabad Inland Container Depot, where they learned how the customs and plant quarantine services inspect arriving cargo before it is cleared and distributed throughout the rest of the country.

43. They also visited the Plant Quarantine Facility at NBPGR, where Mr. Mool Chand Singh gave a tour and explained the role of NBPGR in India's plant quarantine process.

44. They also visited the Phytotron facilities at the Indian Agricultural Research Institute, where Mr. Arun provided explanations regarding the facilities available for scientists to conduct experiments to test how plants respond to different environmental conditions.

ITEM 9. EXPERIENCES OF THE GREEN CUSTOMS INITIATIVE

45. Under this item, Ms. Garforth gave a presentation on the Green Customs Initiative (GCI). She began by playing a short video that introduced the Initiative. She then described the scope and scale of environmental crime and its negative consequences for human health and the environment, government revenues and multilateral environmental agreements. She underlined the key role of customs and border protection officers as the front line in every country's defence against illegal trade and as the first link in the compliance and enforcement chain. She also noted that customs and border protection officers played an important role in facilitating legal trade, and building the capacity of these officers was thus vital. She commented that an effective solution was coordinated training, which was one of the activities of the GCI.

46. Ms. Garforth indicated the different multilateral environmental agreements that were partners in the GCI, namely the secretariats of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, the Stockholm Convention on Persistent Organic Pollutants, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the Montreal Protocol on Substances that Deplete the Ozone Layer, and the Cartagena Protocol on Biosafety. She noted other international organizations that were also partners in the Initiative: the Organisation for the Prohibition of Chemical Weapons, the United Nations Environment Programme's Division of Environmental Law and Conventions and Division of Technology, Industry and Economics, the World Customs Organization, INTERPOL, and the United Nations Office on Drugs and Crime. She stated that the objective of the Initiative was to enhance the capacity of customs and other relevant enforcement personnel to monitor and facilitate the legal trade and to detect and prevent illegal trade in environmentally-sensitive commodities covered by the relevant conventions and multilateral environmental agreements.

47. Ms. Garforth outlined the benefits of the GCI for customs officers, countries and the treaty secretariats, and its contribution to the protection of the global environment. She referred to a number of past Green Customs workshops organized in different countries. She also described a number of tools developed by the Initiative, including the Green Customs Guide to Multilateral Environmental Agreements and the Green Customs website. She noted that the GCI has demonstrated how coordinated, cost-effective training and awareness-raising of customs officers and enforcement personnel could be delivered through an umbrella partnership involving multiple organizations with diverse mandates. Finally, Ms. Garforth pointed to some next steps and challenges for the Initiative including exploring how

the Initiative could do more to assist the work of customs, integrating Green Customs into national training curricula for customs officers, and resource mobilization for the Initiative.

48. Mr. Ramesh Pandey, Deputy Director of the Wildlife Crime Control Bureau (WCCB) with India's Ministry of Environment and Forests, gave a presentation on the Environmental Crime Programme of INTERPOL. He noted that INTERPOL was the world's largest international law-enforcement organization, linking the police agencies of 190 member countries. He noted that each INTERPOL member country maintained a National Central Bureau, which was the gateway for sharing police information and cooperating with foreign counterparts. He added that the WCCB worked with India's National Central Bureau – the Central Bureau of Investigation. Mr. Pandey introduced I-24/7, INTERPOL's secure global police communications system that enables police to carry out secure communications throughout the world.

49. Mr. Pandey explained that the mission of INTERPOL's Environmental Crime Programme was to assist member countries in the effective enforcement of national and international environmental laws and treaties. He outlined the goals of the Programme as being to enhance and develop capacity and cooperation in effective enforcement; encourage and assist in the exchange of information and intelligence; provide operational support; and encourage and provide opportunities to network, communicate and exchange skills. He listed a number of means by which INTERPOL fought environmental crime, including by gathering intelligence in global databases, sharing data and best practices, supporting investigative requests and initiating international joint operations.

50. Mr. Pandey indicated that INTERPOL's Environmental Crime Programme was supported by an environmental crime committee and included a Wildlife Crime Working Group and a Pollution Crime Working Group. He then introduced INTERPOL's Ecomessages, which enable non-police enforcement agencies to share information on environmental crimes with others through INTERPOL's I-24/7 system. He encouraged participants to get involved by contacting their country's INTERPOL National Central Bureau to discuss how to enforce environmental law and how to cooperate in attaining this goal. Mr. Pandey concluded by providing some examples of joint operations that targeted environmental crime.

ITEM 10. THE WAY FORWARD: NEXT STEPS FOR CONTINUED COLLABORATION AND EXCHANGE OF INFORMATION

51. Under this agenda item, participants were invited to work in groups to brainstorm the actions they would undertake after returning to their respective countries, in light of the workshop. They discussed specific actions to be undertaken at the national and regional levels.

ITEM 11. CONSIDERATION OF THE CONCLUSIONS OF THE WORKSHOP

52. During the last plenary session of the workshop, the participants discussed reports from the group discussions held under item 10 above. The recommended activities at the national level were as follows:

(a) Conducting awareness-raising among policymakers, customs and other enforcement personnel, and the general public;

(b) Implementing documentation requirements according to the Cartagena Protocol on Biosafety and other international agreements;

(c) Auditing of borders to identify and address weak points;

(d) Enhancing cooperation among relevant national stakeholders;

(e) Identifying laboratories to provide training;

(f) Finalizing procedures for detection of GMOs; and

(g) Undertaking timely national updates of information on the Biosafety Clearing-House.

53. The recommended activities at the regional level were as follows:

(a) Harmonizing regulation of LMOs based on international standards;

(b) Training on the Biosafety Clearing-House to encourage its use;

(c) Enhancing regional cooperation for detection;

(d) Establishing an Asia-Pacific network to facilitate information exchange and the sharing of experiences.

54. Regarding the latter point, it was noted that the Food and Agriculture Organization of the United Nations had established the Asian Network on Biotechnology (Asian BioNet) as part of a biosafety capacity-building project. The initiative had ended due to lack of funds but it was suggested that it might be possible to explore the revival and expansion of the network. The existence of a detection network under the Association of Southeast Asian Nations (ASEAN) was also highlighted.

55. The participants also undertook an evaluation of the workshop. The results of the evaluation are summarized in annex I below.

ITEM 12. CLOSURE OF THE WORKSHOP

56. Following the customary exchange of courtesies, the workshop was closed at 1 p.m. on Friday, 25 November 2011.

Annex I

WORKSHOP EVALUATION

1. At the end of the workshop, participants were asked to complete a workshop evaluation form. They were asked to rate, on a scale of 1 to 6, the extent to which the workshop had improved their understanding of: (a) the Cartagena Protocol on Biosafety; (b) the role of customs officers in implementing the Protocol; (c) documentation and identification requirements under the Protocol; (d) existing practices in shipments of bulk grains; (e) the process of sampling and detection (identification) of genetically modified organisms and how to report the results of identification. The participants were also invited to provide an overall assessment of the workshop in terms of how well it was organized and conducted and the extent to which it had met their expectations. The results of the evaluation are summarized in the table below.

Item	Average rating (1-6)	Rating	Level of satisfaction
A. Introduction to identification and documentation on living modified organisms under the Cartagena Protocol on Biosafety			
How useful has the workshop been in:			
(i) Improving your understanding of the Protocol?	5	Very Useful	82%
(ii) Improving your understanding of the role of customs officers under the Protocol?	5	Very Useful	78%
(iii) Improving your understanding of what the documentation requirements are under the Protocol?	5	Very Useful	81%
(iv) Improving your understanding of the identification requirements under the Protocol?	5	Very Useful	78%
(v) Improving your understanding of the existing practices in shipments of bulk grains?	5	Very Useful	75%
(vi) Improving your understanding of the process of sampling GMOs?	5	Very Useful	78%
(vii) Improving your understanding of detection of GMOs?	5	Very Useful	85%
(viii) Improving your understanding of how to report the results of identification of GMOs?	5	Very Useful	80%
(ix) Improving your understanding of the Green Customs Initiative?	5	Very Useful	76%
(x) Improving your knowledge of existing practices in other countries?	5	Very Useful	78%
B. Overall workshop assessment:			
(i) Has the workshop met your expectations?	5	Very Useful	82%
(ii) Has the workshop improved your understanding of how to enforce the identification and documentation requirements of LMOs under the Protocol?	5	Very Useful	78%

Item	Average rating (1-6)	Rating	Level of satisfaction
(iii) How useful has the workshop been in improving your understanding of how your country could handle a shipment of LMOs?	5	Very Useful	81%
(iv) How useful was the workshop for you as an individual?	5	Very Useful	81%
(v) How well organized was the workshop?	5	Very Useful	82%
(vi) How did you find the balance between presentations and the discussions?	5	Very Useful	78%
(vii) Overall, how would you rate the workshop?	5	Very Useful	81%
Overall appreciation	5	Very Useful	80%

2. In the written comments, a number of participants considered the following to have been the most helpful parts of the workshop:

(a) The practical components including the laboratory sessions and field visit;

(b) The presentations on the Green Customs Initiative;

(c) Learning from other participants about the experiences of their countries with the detection and identification of LMOs;

(d) The sessions on the Biosafety Protocol, including learning about its requirements regarding documentation and identification and the Biosafety Clearing-House.

3. One participant considered the hands-on training to detect LMOs to be the least helpful aspect of the workshop. A number of participants commented that there were no aspects of the workshop that were unhelpful.

4. The participants made the following suggestions for improving future workshops:

(a) Incorporating more field visits to relevant enforcement agencies and more practical sessions;

(b) Giving participants a free day for sightseeing;

(c) Providing the participants with the workshop materials prior to or on the first day of the workshop so they can read them ahead of time;

(d) Making the lectures more interactive;

(e) Including discussions on other agreements relevant to the movement of commodities, such as the World Trade Organization agreements, to provide a clear picture of the requirements.

Annex II

WORKSHOP PROGRAMME

Date and time	
Monday ***21 November 2011*** 9 a.m. – 10 a.m.	*Agenda item*: 1. Opening of the workshop.
10 a.m. – 10.30 a.m.	*Agenda item*: 2. Overview of the objectives and programme for the workshop.
10.30 a.m.– 10.45 a.m.	**Coffee/Tea Break**
10.45 a.m. – 1 p.m.	*Agenda item*: 3. Introduction to the Protocol and its elements relating to the identification and documentation requirements for shipments of living modified organisms.
1 p.m. – 2 p.m.	**Lunch Break**
2 p.m. – 3.30 p.m.	*Agenda item:* 4. The role of customs and border-control officials in implementing the Protocol.
3.30 p.m. – 4 p.m.	**Coffee/Tea Break**
4 p.m. – 5.30 p.m.	*Agenda item*: 5. National experiences with transboundary movements of living modified organisms
Tuesday ***22 November 2011*** 9 a.m. – 10.30 a.m.	*Agenda item*: 6. Documentation accompanying shipments of living modified organisms: case-studies on existing documentation systems.
10.30 a.m. – 10.45 a.m.	**Coffee/Tea Break**
10.45 a.m. – 1 p.m.	Agenda item 6 (*continued*)
1 p.m. – 2 p.m.	**Lunch**
2 p.m. – 3.45 p.m.	*Agenda item*: 7. Sampling, detecting and identifying living modified organisms: 7.1. Introduction and overview; 7.2. Sampling methodology; 7.3. Detection and identification of living modified organisms.
3.45 p.m. – 4 p.m.	**Coffee/Tea Break**
4 p.m. – 5.30 p.m.	Agenda item 7 (*continued*)

Date and time	
Wednesday ***23 November 2011*** 9 a.m. – 1 p.m.	Agenda item 7 (*continued*): 7.4. Laboratory exercises.
1 p.m. – 2 p.m.	**Lunch**
2 p.m. – 6 p.m.	*Agenda item:* 8. Field study visit.
Thursday ***24 November 2011*** 9 a.m. – 1 p.m.	Agenda item 7: 7.4. Laboratory exercises (*continued*).
1 p.m. – 2 p.m.	**Lunch**
2 p.m. – 6 p.m.	*Agenda item:* 8. Field study visit (*continued*).
Friday ***25 November 2011*** 9 a.m. – 10.30 a.m.	*Agenda item*: 7.5. Interpreting the results from detection and identification. 9. Experiences of the Green Customs Initiative.
10.30 a.m. – 10.45 a.m.	**Coffee/Tea Break**
10.45 a.m. – 1 p.m.	*Agenda item:* 10. The way forward: next steps for continued collaboration and exchange of information. 11. Consideration of the conclusions of the workshop. 12. Closure of the workshop.

Annex III

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