Swiss Agency for the Environment, Forests and Landscape SAEFL

CBD

GEF UNEP

GENEVA ENVIRONMENT NETWORK

REPORT OF THE COORDINATION MEETING OF INSTITUTIONS OFFERING BIOSAFETY-RELATED TRAINING AND EDUCATION PROGRAMS

ORGANIZED BY

SWISS AGENCY FOR ENVIRONMENT, FORESTS AND LANDSCAPE IN COLLABORATION WITH THE CBD SECRETARIAT, THE UNEP/GEF BIOSAFETY UNIT AND THE GENEVA ENVIRONMENT NETWORK

4 – 6 OCTOBER 2004
GENEVA, SWITZERLAND

1. INTRODUCTION

1. The first Coordination Meeting of institutions offering biosafety-related training and education programs was held 4-6 October 2004 in Geneva, Switzerland. It was organized by the Swiss Agency for Environment, Forests and Landscape (SAEFL) in collaboration with the CBD Secretariat, the UNEP/GEF Biosafety Unit and the Geneva Environment Network. Thirty-seven (37) participants from 28 institutions attended the meeting, including representatives from academic and other organizations. The full list of participants is attached in the Annex.

2. The meeting was a follow-up to the offer made by the Government of Switzerland at the first meeting of the Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol on Biosafety (COP MOP). In its decision BS-I/5 on capacity-building, the COP-MOP emphasized the need for a coordinated approach towards capacity-building at all levels and accordingly established a Coordination Mechanism to promote partnerships and maximize complementarities and synergies between various capacity-building initiatives contributing to the effective implementation of the Protocol. In this regard, the Government of Switzerland offered to sponsor a coordination meeting for representatives of academic and research institutions actively involved in education, training and research programs in biotechnology and biosafety in the autumn of 2004. The Swiss Government contracted RIBios – Réseau Interdisciplinaire Biosécurité – (Biosafety Interdisciplinary Research Network), which is part of Institut Universitaire d'Études du Développement (IUED), to organize the meeting.

3. The primary objective of this meeting was to bring together representatives of institutions involved in biosafety training and education to share information and compare notes regarding their ongoing programs and to learn more about the about the Protocol and the capacity-building needs and priorities for its effective implementation. The specific objectives of the meeting were:

(a) To review the current status ("state of the art") regarding training and education programs in biosafety, including consideration of the draft compendium of existing programs;

(b) To review the needs and priorities of countries and discuss ways and means for enhancing training and education programs to respond to those needs and support effective implementation of the Protocol;

(c) To identify and discuss key components of biosafety training and education programs;

(d) To explore mechanisms to enhance coordination, networking and collaboration among institutions offering biosafety training and education programs.

4. The meeting was opened by the representative of the Swiss Government, Dr. Francois Pythoud from the Swiss Agency for Environment, Forests and Landscape. In his opening remarks, Dr. Pythoud welcomed all the participants and expressed his thanks to all the co-organizers of the meeting. He noted that over the last few years a number of biosafety-related training and education programs have been initiated but that it there is no central place to obtain information on who is teaching what and there is limited interaction between institutions offering such programs. In this regard, the Swiss Government made an offer at the first meeting of the Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol organize a coordination meeting for institutions offering biosafety-related training and education programs to share information and experience on their ongoing programs and to explore possibilities for future collaboration. He expressed his hope that the meeting would provide an opportunity to ascertain the current status (i.e. where we are today), develop a general understanding of the existing training needs and initiate a dialogue on what needs to be done to improve training and education programs in biosafety. He noted that one of the main practical outcomes of the meeting would be the compendium of existing biosafety-related training and education programs.

5. The meeting elected Dr. Andras November from RIBios as the chair. Dr. November also welcomed all the participants and encouraged them to exchange their views freely and in an informal manner. He introduced the agenda, which was adopted without changes (see Annex 1).

6. The agenda consisted of two parts. The first part (day one) included presentations on: overview of the Cartagena Protocol and the COP-MOP decisions (by Francois Pythoud, SAEFL); the capacity-building needs of countries and the role of training institutions in addressing those needs (Erie Tamale, CBD Secretariat); the experience from the UNEP-GEF projects on capacity-building in biosafety (Chris Briggs, UNEP/GEF) and overview of the draft compendium (Mirko Saam, RIBios). These were followed by short presentations by participants on their ongoing and planned programs.

7. The second part of the meeting included three plenary session discussions and one session of group discussions. The deliberations focused on the compendium; ways and means to improve biosafety training and education programs to address the needs of different target audiences; possible mechanisms for future networking/ collaboration and the next steps.

8. The presentation by Francois Pythoud provided a general overview of the objective and central elements of the Cartagena Protocol on Biosafety, including advance informed agreement (AIA) procedure, the procedure for living modified organisms (LMOs) intended for direct use as food, feed or for processing, risk assessment and risk management, identification and requirements documentation accompanying LMO shipments, the Biosafety Clearing-House, capacity-building and other provisions (liability and redress, socio-economic considerations and public awareness and education). He illustrated the different categories of training and education needs relevant to the implementation of the Protocol and the linkages between them. These included: life and environmental sciences (including the biology of LMOs, risk assessment and management, safety aspects, etc); social sciences (including: consumer choice, bioethics, information management, public participation, etc), law (including: legal and administrative procedures, liability and redress issues, etc) and economic sciences (including cost-benefit analysis, LMO use patterns, etc).

9. Erie Tamale's presentation highlighted some of the major biosafety capacity-building needs and priorities expressed different countries, which are registered in the Country Capacity Needs database in

the BCH1. He noted that majority of countries have indicated that they require, *inter alia*, training in the following specific areas: gene flow (nature and impacts), risk assessment and risk management methods and protocols, detection and quantitative analysis of LMOs, effects of promoter and marker genes, molecular biology skills (including: gene isolation, sequencing etc.), information technology and database management. In the legal and socio-economic field, the majority of countries require knowledge and skills in the following areas: Protocol requirements and relationships with other international agreements; analysis of trade impacts of biosafety-related measures, cost-benefit analysis of LMOs, regulatory training (legal drafting, policy analysis, enforcement, inspection etc.), auditing of the risk assessment reports and risk management plans, and integration of socio-economic considerations in decision-making. The paper also outlined possible interventions that training institutions could take to assist countries to fulfill their needs and made a number of suggestions for improving the training programs to support the effective implementation of the Protocol.

10. Chris Briggs described the three main capacity-building projects currently implemented by UNEP/GEF, including the project on development of national biosafety frameworks (NBFs) which is covering 130 countries, the demonstration project on implementation of NBFs covering 12 countries and the project on building capacity for the effective participation in the Biosafety Clearing-House (BCH), which will also cover 139 countries. He also highlighted some of the main training needs that have been identified by countries under the three projects. These include training in: obligations under the Biosafety Protocol, other international and regional agreements relevant to biosafety, biosafety regulatory frameworks, administrative practices (including handling of LMO import or release applications), preparation of LMO applications and dossiers (for potential applicants), drafting of biosafety laws and guidelines, procedures for enforcement of biosafety laws, decision-making process (including risk-benefit analysis and integration of socio-economic considerations), methodologies and procedures for monitoring environmental effects of LMOs, safety requirements and procedures for LMO confined field trials and contained use, LMO detection procedures and methodologies for improving public awareness and participation.

11. Mirko Saam of RIBios presented results from the analysis of the information submitted to the compendium. He reported that the questionnaire was sent to more [60] institutions and by the time of the meeting, 31 responses had been received. The majority of programs offered training in risk assessment and risk management (28), legislation/regulatory aspects (26), biosafety in general covering potential risks and benefit (23) and basic biotechnology (18). Only a few programs covered biosafety data management (6) and bioethics (10). The majority of courses are offered in English (16) and a few are offered in French (6), Spanish (3), Chinese (1), German (1) and Thai (1). Most of the existing programs are short-term stand-alone courses/ workshops and not part of the formal degree programs. A few of them issue formal certification upon completion. The highest biosafety qualification granting programs so far include: Masters in Biosafety by the University of Havana in Cuba and the Diploma in Biosafety offered by University of Concepcion in collaboration with UNIDO (there are plans to transform this into a Masters program). An overview of the different existing programs is contained in the compendium.

12. The following academic institutions represented at the meeting made brief presentations about their existing and planned training and education programs related to biosafety: Burapha University (Philippines), Kenyatta University (Kenya), Michigan State University (USA), Universidad Nacional Autónoma de México, University of Canterbury (New Zealand), University of Concepcion (Chile), University of Geneva (RIBios), University of Gent (Belgium), University of Havana (National Centre for Biological Safety, Cuba), University of Minnesota (USA), University of Namibia, University of Sheffield (UK), University of Tromso (Norway), University of Tsukuba (Japan) and Utah State University (USA).

1 The country capacity needs the database is accessible at: http://bch.biodiv.org/capacitybuilding/capacityneeds.aspx

13. The following organizations which offer biosafety-related training also made brief presentations about the programs: Center for Biosafety and Transdisciplinary Sustainability Management (BATS), International Centre for Genetic Engineering and Biotechnology (ICGEB), International Service for National Agricultural Research (ISNAR), Najing Institute of Environmental Sciences (China), Royal Belgium Institute of Natural Sciences, Scientific Institute of Public Health (Belgium), Swiss Federal College of Technology (ETHZ) and the United States Department of Agriculture and UNIDO (joint presentation with University of Concepcion).

2. A SUMMARY OF THE DISCUSSIONS

14. The following is the summary of the main issues, general observations and action points that emerged from the discussions after the presentations and during the three plenary sessions and the group discussions:

(a) Compendium of biosafety training programs

15. Most participants welcomed the initiative to develop a compendium of existing biosafety training and education programs. They noted that it would help to improve accessibility to available training and education opportunities by professionals who require such training and provide a general overview of who is providing what training. It would also enable training institutions to announce their new programs and to have an overview of the programs offered by other institutions and plan accordingly.

16. There was a long discussion about the content and structure of the compendium. Eventually, a common format (questionnaire) was agreed (see Annex 3). It was emphasized that the compendium should include a field that clearly indicates whether the course/seminar is a stand-alone program or part of a formal degree program.

17. It was emphasized that the compendium should be a dynamic, flexible and up-to-date resource, and not a static list. In this regard, it was suggested that the compendium should be a searchable database, which would allow users to search for courses that meet their specific needs and competencies they require. It should contain basic summary information about the different courses and a link to the respective websites for further detailed information.

18. Many participants suggested that compendium (the searchable database) should be part of the Biosafety Clearing-House central portal. The CBD Secretariat was requested to consider that suggestion.

19. It was emphasized that for the compendium to be a useful resource it must be up-to-date. The CBD Secretariat indicated that if the compendium is integrated into the BCH, it would possible for passwords to be issued to the institutions providing information for the compendium so that each institution who would responsible for updating its information online.

20. A number of participants underlined the need to invite other training institutions to provide information to the compendium. Some suggested that the CBD Secretariat should be requested to contact all governments and relevant organizations to help in identifying and encouraging institutions offering biosafety training and education programs to submit information using the common format.

(b) The structure, scope and delivery of biosafety training programs

21. The meeting emphasized the need for biosafety training programs to be responsive to the needs of the target groups. Broad and common understanding of the needs of countries among institutions offering training in biosafety is crucial and a bottom-up approach in terms of analyzing what sets of skills and

knowledge countries require is essential in designing or revising the curriculum. One immediately available source of such information which training institutions could use is the Country Capacity Needs database which accessible through the Biosafety Clearing-House.

22. Some participants highlighted the need for better clarity of the different education and training needs (formal, technical or tool building) and for a listing of unmet training needs, i.e. those that are currently not addressed by ongoing training programs.

23. It was noted that on-going needs training needs assessments were necessary in order to be able to address the new emerging needs over time. This would require cooperation between different players. It was recommended that the CBD Secretariat, UNEP/GEF and other organizations working directly with governments and other stakeholders on biosafety activities should encourage and assist them to assess their needs regularly and to collate and communicate the information to the BCH where training institutions would access it to enable them design appropriate programs.

24. Some participants called for the development of more targeted biosafety courses for specific audiences and addressing specific needs. Training programs should not be organized for the sake of training. However some participants noted that it is important to have programs designed to educate and train the next generation of professionals in biosafety. Both targeted and general training programs are needed. In this regard, training institutions were encouraged to design a variety of programs that respond to the needs of different target groups.

25. A number of specific target groups that would require different sets of competencies (knowledge and skills) were identified. These include: Senior government officials (policy/decision makers); Regulators (e.g. application reviewers/assessors, advisors, administrators, etc.); Enforcement officials (e.g. field inspectors, customs officers); Technical personnel who review or prepare applications (public & private sector); Specialists (e.g. lawyers, scientists, socio-scientists, lab technicians); IT and data/ information managers; Graduate and undergraduate students; Interest groups (e.g. consumer groups, farmer associations, professional associations, NGOs); Mass media and outreach/extension workers (e.g. journalists and agricultural extensionists); and Politicians and general public. A sample matrix of the target audiences against the key skills and knowledge they require was developed (see Annex 4). The CBD Secretariat, RIBios and UNEP/GEF will develop the matrix further. Training institutions were encouraged to use such matrices when designing their programs.

26. It was recognized that there are different types of training and education programs. Three main categories of training programs for different types of target audiences were identified, namely:

(a) Short-term courses for specialists in other fields (e.g. scientists, lawyers, etc) who need to acquire specialized (job-related) skills/ tools in biosafety in order to be able perform biosafety-related tasks (i.e. skilling/ tooling courses).

(b) Courses for professionals or technicians (practitioners) already involved in biosafety work but require re-training in biosafety skills in order to perform specific biosafety functions better ("re-skilling" or "re-tooling" courses). Such courses could be tailored for specific target groups based on specific needs.

(c) Long term formal education programs for students interested in acquiring broad knowledge and skills and building a career related to biosafety

27. The meeting recognized that biosafety is a multi-disciplinary field. In addition to training in specialized fields (e.g. risk assessment), students would require knowledge and skills in other areas such as: legal, socio-economic, communication, administration/ management and public participation.

28. Some participants highlighted the need to have a standard core curriculum for specific target groups (e.g. customs officers, field inspectors, decision-makers, etc) and supplemented by a set of optional modules students would tailor to their other specific needs.

29. There was a suggestion by some participants to organize a workshop of interested universities to explore the possibility of developing a curriculum for a joint graduate program in biosafety with an international repute. Some highlighted the need for developing biosafety courses at regional or sub-regional levels that would address the special needs of the respective regions. It would be strongly advisable to use local and regional experts/ resource persons to deliver such courses.

30. Several participants emphasized the need for follow-up and maintaining contact and ongoing communication between training institutions and the former students in order to continue sharing information and expertise and to expand knowledge and career development in biosafety through networking. Michigan State University indicated that it is in the process of an internet-based e-mail listserv of all its trainees and resource persons.

31. A number of participants noted the growing importance of online/ long distance learning as a cost-effective delivery mechanism for biosafety training and education. Dr. George Tzotzos made a brief demonstration of the UNIDO–University of Concepción Diploma program in Biosafety, which is offered largely online. It was noted, however, that online courses alone are not sufficient and cannot supplant residency (on-site) training. Face-to-face contact and interaction is very important. A proportionate mixture of the two would be ideal.

32. Some participants emphasized the need for transparency by training institutions regarding their funding sources (including scholarships for students), faculty and quality assurance procedures (e.g. how their courses are evaluated and whether they are peer reviewed).

(d) Sustainability of training programs

33. Many participants underscored the need have training programs that run on a regular basis. This is important both for the potential students and for the trainers. However, it was noted that usually lack of guaranteed funding often makes offering regularly scheduled courses difficult. It was noted that there are courses that are designed to respond to a particular need (i.e. demand-driven) and are terminated when the needs ceases to exist.

34. A number of participants decried the current situation where several biosafety training workshops and seminars are organized by different organizations, and often for the same participants, which do not complement each other and lack institutional base for continuity and follow-up. It was recommended that efforts should be made institutionalize such training workshops and seminars. The organizations planning such training workshops should consider offering them through training institutions with established facilities such as Universities in order to facilitate their continuity and cumulative value.

35. There was a strong support for promoting “training of trainers” programs. It was suggested that specialists from training institutions in developed countries should train/ mentor experts from local institutions in developing countries. One participant noted that many of the current trainers in biosafety also needed re-training.

36. Options and opportunities for offering distance learning (online courses) should be explored. For example under collaborative arrangements between developed and developing country institutions, this would help to ensure equally good quality training in developing countries. Lecturers in developed countries would backstop the local trainers in delivering the courses.

(e) Funding

37. Several participants underscored the need for additional financial resources to support training and education programs in biosafety. They suggested that COP-MOP should be requested to urge the GEF and development agencies (donors) to provide funding support for training programs and scholarships for students from developing countries, especially those involved in national processes and programs in order to build the expertise required for the effective implementation of the Protocol.

38. It was noted that some good biosafety training programs initiated by academic institutions, for example in Mexico, have been suspended due to lack of funding. Financial support is needed for buying or updating the training materials, translating course materials into the language of instruction, and for sending faculty (trainers) for further training. In some cases, funding is needed to replicate the courses in other countries.

39. Some participants suggested that one possibility for mobilizing funding for training programs by local academic institutions could involve training institutions working closely with Government agencies and other organizations that are developing project proposals, which include components on training/education in biosafety. For example, under future GEF projects for implementation of national biosafety frameworks, local training institutions could be offered to implement the training components of the projects.

(f) Involvement of training institutions and trained professionals in biosafety processes

40. It was noted that quite often personnel trained in biosafety are not mobilized and appropriately deployed to utilize their specialized knowledge and skills. In this regard, there was a suggestion to request COP-MOP to urge Governments and relevant organizations to endeavor to create opportunities and career paths for local professionals trained in biosafety in order for them to utilize their skills. Wherever possible trained personnel, especially young professionals should be actively involved in national biosafety processes, including the development and implementation of national biosafety frameworks and review of risk assessment report. Mechanisms to facilitate access to information on existing opportunities for professionals to engage in biosafety activities should be established.

41. Some participants emphasized the need to get trained personnel registered in the roster of experts for the Biosafety Protocol currently accessible through the BCH. It was noted that there are many well-known experts that are not currently in roster.

42. It was noted that in some countries academic institutions have not been actively processes related to implementation of the Protocol at the national, regional and international levels. However in order for them to develop a better understanding and appreciation of the emerging issues, needs and challenges, it critical for institutions offering training in biosafety to participate proactively in those processes.

43. On the other hand, it was considered very important to involve biosafety practitioners from government, non-government and private sectors in the training programs of academic and other institutions, either as resource persons, guest speakers or visiting lecturers wherever possible. It is also important to consult and/or invite them to provide input/comments in the design or review of the curricula.

(h) Future coordination, networking and collaboration

44. Participants welcomed the first opportunity for institutions involved in biosafety training and education to come together to interact and share information regarding their ongoing programs. Many called for the organization of similar meetings in future with focused agenda. Efforts should be made to widen the participation of other institutions from different regions.

45. Many participants preferred to have, in the beginning, an informal network (and sub-networks) of interested biosafety training institutions, rather than a formal global network, to exchange information, share experiences and lessons learned and to facilitate identification of opportunities for collaboration and establishment of partnerships. It was noted that networking among institutions could only be successful if it's responsive to their mutual interests and to the needs of the target audience. The networking institutions need to clearly define their expectations from such partnerships. This will evolve over time.

46. Some participants called for a coordinated effort to facilitate establishment of partnerships to support biosafety education and training programs in developing countries, for example establishment of collaborative or twinning arrangements between developing and developed country institutions to facilitate exchange of biosafety instructors (teachers)/specialists, improvement of education and training materials as well as further training for professionals (faculty) offering the courses.

47. The meeting encouraged institutions with biosafety-related training programs to combine their expertise and resources and develop new joint training programs that would be of potential value and responsive to the needs of several developing countries.

48. There was a brief discussion about the issue of transferability of academic credits between institutions offering training and education in biosafety. A few participants had reservations about its feasibility based on the experience in other fields. One participant was of the view that it would not be necessary to "re-invent the wheel" noting that already existing systems for transfer of credits between academic institutions would suffice. A few participants felt that it was an important issue that could be discussed at future meetings.

3. CONCLUSION AND THE WAY FORWARD

49. Overall, the meeting was a big success. It provided the first opportunity for institutions offering training and education in biosafety to meet and interact and laid a good foundation for their future collaboration and active involvement in biosafety processes at international, regional and national levels.

50. The meeting represented an important first step in preparing education and training institutions to play an effective role in building capacity for effective implementation of the Cartagena Protocol on Biosafety and other relevant instruments. It provided them with an insight into what the key training need are from the point of view of the countries that are now in the process of establishing and implementing their national frameworks and an the opportunity to learn more about what other institutions are offering and develop ideas for improving their programs.

51. The main outcome of the meeting was the development of a common format (questionnaire) for the compendium of existing biosafety training and education programs. The meeting also developed a set of draft recommendations for consideration by COP-MOP, governments, education and training institutions and other stakeholders in order to enhance biosafety training and education in support of the Protocol implementation. A summary of the recommendations is contained in Annex 1. The Swiss

Government offered to present the outcomes and recommendations of the meeting to COP-MOP for consideration at its second meeting.

52. While the meeting had resulted in fruitful deliberations, it also raised many new important questions. For example, questions were raised regarding how to effectively to involve the newly trained experts in biosafety activities of their own countries; how to insure the sustainability of the biosafety training and education programs, how to mobilize adequate funding for biosafety training programs and for scholarships to support students from developing countries; how to insure the availability of technical infrastructure in all countries for the effective delivery of biosafety education and training programs and how to fill the gaps in the existing courses. All these questions underline the arduous challenge ahead.

53. Many participants expressed interest to continue networking and discussing possible ways to improving their programs to respond appropriately to the training needs of different target audiences for the effective implementation of the Biosafety Protocol and other biosafety-related instruments. They emphasized the need to expand the attendance to include other institutions. It was tentatively agreed to hold a follow-up meeting in the fall of 2005, after COP-MOP-2.

4. CLOSING OF THE MEETING

54. The meeting was closed by Ms Anne-Gabrielle Wust-Saucy of the Swiss Agency for Environment, Forests and Landscape (SAEFL) on behalf of Dr. François Pythoud. In her closing remarks, Ms. Wust-Saucy thanked all the participants for attending the meeting and for their active participation throughout the meeting and the Chair, Prof. Andras November, for steering the meeting so well. She noted that over the three days, the meeting had managed to review the current status (i.e. the "state of the art") of the existing biosafety courses, identified the key target audiences, considered some of the expressed training needs and endeavored to define in a matrix form some of the key competences that would required by different targeted audiences. She particularly lauded the meeting for developing a comprehensive common format for the compendium.

55. Ms. Wust-Saucy welcomed the recommendations made by the meeting. She stated that the Swiss Government would present the recommendations to the next meeting of the Conference of the Parties serving as the meeting of the Parties to the Biosafety Protocol for its consideration. The Swiss Government will also communicate the recommendations made specifically to the CBD Secretariat as soon as possible.

56. In concluding, Ms. Wust-Saucy thanked the RIBios, in particular Mirko Saam, for spearheading the organization of the meeting and all the co-organizers of the meeting – Erie Tamale from the CBD Secretariat, Chris Briggs from the UNEP/GEF Biosafety Unit and Hardy Zamani from the Geneva Environment Network – for their contribution. She wished everyone a safe trip back home. The meeting was closed on Wednesday, 6 October 2004 at 1.20 pm.

ANNEX 1

RECOMMENDATIONS TO THE CONFERENCE OF THE PARTIES SERVING AS THE MEETING OF THE PARTIES TO THE CARTAGENA PROTOCOL ON BIOSAFETY

Participants that attended the first Coordination Meeting of institutions offering biosafety-related training and education programs held 4-6 October 2004 in Geneva, Switzerland wish to request the Conference of the Parties serving as the meeting of the Parties to the Protocol to consider and incorporate, as appropriate, the following recommendations in its decision on capacity-building:

1. Take note of the compendium of biosafety training and education programs designed to improve accessibility to information about available training and education opportunities in biosafety;

2. Request the Executive Secretary to:

(a) Make available on line, through the BCH, the searchable compendium on the basis of the common format described in Annex 3 of this report and information provided by institutions in preparation for this meeting;

(b) Request National Focal Points from Parties to the Protocol and other Governments as well as relevant organizations to identify other institutions offering biosafety courses and invite them to submit relevant information to the compendium using the common format available on the BCH.

3. Invite Parties to the Cartagena Protocol and other Governments to:

(a) Refer to and make use of the information in the compendium in order to take advantage of available training and education opportunities in biosafety;

(b) Provide additional financial resources and other support for biosafety training and education programs at the national level, including in particular, “training of trainers” programs as well as “re-skilling” or “re-tooling” courses;

(c) Actively involve academic and training institutions in relevant national and international biosafety processes, including the development and implementation of national biosafety frameworks;

(d) Incorporate specific biosafety training and education components in project proposals and implement them, as appropriate, through established local training institutions in order to institutionalise the various training activities to facilitate their continuity and snowballing effect.

(e) Endeavor to create opportunities and career paths for local professionals trained in biosafety, especially young graduates, in order for them to utilize their skills;

(f) Clearly identify their biosafety training and education needs and communicate the information to the Biosafety Clearing-House to enable relevant institutions to design appropriate training programs and packages;

(g) Promote regional collaboration among institutions to ensure efficiency and sustainability.

4. Invite institutions offering biosafety training and education courses to:

(a) Provide and regularly update information in the compendium regarding their courses using the tools made available through the BCH for this purpose;

(b) Collaborate and establish partnerships with sister institutions in developing countries in order to promote local biosafety training and education courses making effective use of, and building upon, the existing training capacities;

(c) Take into account the training needs of countries in order to develop a broader range of both short-term and long-term formal training programs that would assist them to deal with various biosafety issues and to develop, as appropriate, targeted (demand-driven) courses for specific audiences and addressing specific needs;

(d) Participate proactively in relevant biosafety processes at the national, regional and international levels in order to be acquainted with the emerging issues, needs and challenges in biosafety;

(e) Invite biosafety practitioners from government, non-government and private sectors to participate in the training programs of academic and other institutions as resource persons or advisors in design of curricula;

(f) Promote a multidisciplinary approach to biosafety training and ensure close collaboration with research institutions;

(g) Develop and promote quality assurance procedures for their biosafety training programs;

(h) Collaborate in developing distance learning tools, such as online courses;

(i) Reinforce collaboration and networking with other training institutions with the aim of sharing experiences and best practices as well as exploring mechanisms to enhance coordination, harmonization and mutual recognition.

5. Invite the Global Environment Facility, development assistance agencies (donors) and other public and private funding institutions to provide additional financial support for training and education programs in biosafety, including scholarships and fellowships for students from developing countries and countries with economies in transition.

ANNEX 2: AGENDA OF THE MEETING

Monday 4 October 2004		
Time	**Subject**	**Speaker**
09.00 - 09.30	***Welcome, Coffee & Registration***	
09.30 – 10.00	Opening & Objectives of the meeting	
10.00 – 10.40	Introduction to the Cartagena Protocol and Outcomes of the COP-MOP meeting regarding capacity-building for the effective implementation of the Protocol	François PYTHOUD (SAEFL)
10.40 – 11.20	Review of the capacity-building priority needs of Parties to the Protocol and the role of academic and other institutions offering biosafety-related training and educations programs in responding to those needs	Erie TAMALE (CBD Secretariat)
11.20 – 11.40	***Coffee Break***	
11.40 – 12.30	The UNEP-GEF projects on the Development and Implementation of National Biosafety Frameworks (Questions &discussion)	Chris BRIGGS (UNEP-GEF)
12.30 – 14.00	*Lunch*	
14.00 – 14.30	Draft compendium on biosafety-related training and education programs	Mirko SAAM (RIBios
14.30 – 15.30	Presentations by the participants on their ongoing biosafety-related training and education programs; (About 5'-10' per participant)	Participants
15.30 – 16.00	***Tea Break***	
16.00 – 16.30	Presentations by the participants on their on-going biosafety-related training and education programs (Cont'd.) - about 5'-10' per participant	
16.30 – 18.00	**Questions & General Discussion**	
20.00	***Reception/Diner***	
Tuesday 5 October 2004		
9.00 – 10.00	Components of a biosafety-related training and education programs: Scientific, Regulatory, Socio-economic & Other aspects	Plenary discussions
10.30 – 11.00	***Coffee break***	

11.00 – 11.45	Group discussions on training and education programs Group 1: Scientific aspects Group 2: Regulatory aspects Group 3: Socio-economic aspects	Group discussions
11.45 – 12.30	Plenary Discussion	
12.30 –02.00	***Lunch***	
14.00 – 15.30	Possible mechanism to enhance coordination, networking and collaboration among training institutions offering biosafety-related training and education programs	
15.30 – 16.00	***Coffee break***	
16.00 – 17.00	Ways and means of enhancing biosafety-related training and education programs in support of the Protocol implementation	
17.00 – 18.00	Discussion	
Wednesday, 6 October 2004		
9.00 – 10.30	Next steps: - Compendium (content, form, diffusion) - Networking - Other actions	
10.30 – 11.00	*Coffee break*	
11.00 – 12.30	Consideration and adoption of the results of the meeting to be presented at MOP 2 (Discussion)	
12.30 – 02.00	*Lunch*	
14.00 – 16.00	Discussion	
16.00	*Closure of the meeting*	

ANNEX 3: COMMON FORMAT FOR THE COMPENDIUM

1. TITLE OF THE COURSE:

Part of a degree program ☐ Standalone offering ☐

2. VENUE:

Institution:

City:

3. COUNTRY:

4. YOUR COURSE URL:

5. LANGUAGE USED: (indicate proportions if several)

English ☐	Arabic ☐	Other ☐
French ☐	Russian ☐	*Please specify:*
Spanish ☐	Chinese ☐	

6. BRIEF DESCRIPTION OF YOUR COURSE (max. 100 words):

7. TOPICS COVERED BY YOUR COURSE: (please specify the amount of time in hours)

Topic/Subject	Hours	Topic/Subject	Hours
Environmental, food and feed safety ☐		Compliance and enforcement ☐	
Regulatory regimes (laws, regulations) ☐		Data & information management ☐	
Systems for handling applications ☐		Liability and redress ☐	
Risk assessment and management ☐		Socio-economic considerations ☐	
Monitoring for potential impacts ☐		Other ☐	
Public awareness and participation ☐			

8. TARGET AUDIENCE:

- Undergraduate students ☐
- Graduate students ☐
- Government officials (policymakers, administrators, regulators, inspectors) ☐
- Technical personnel who prepare or review applications (public & private sector) ☐
- Working professionals/ specialists (natural and life science scientists, lawyers, social scientists, bioethicists, economists, etc.) ☐
- Farmers ☐
- Public interest groups (consumer groups, professional associations, NGOs, etc.) ☐
- Mass media and Outreach/ extension workers ☐
- General public, politicians, etc ☐

9. FORMAT:

- Modular format ☐
- Non-modular/ course format ☐
- Workshop format ☐
- Additional Comments:

10. TYPE OF TRAINING:

- Residency course ☐
- Distance learning (Online) ☐
- Mixture of residency and distance learning ☐

11. DURATION:

Total number of contact hours:

Duration of the entire course:

12. ADMISSION REQUIREMENTS (e.g. level of knowledge & experience required, age limit, etc):

13. MAXIMUM NUMBER OF PARTICIPANTS:

14. APPLICATION PROCEDURE:

15. TYPE OF CERTIFICATION/ ACCREDICATION and INTERNATIONAL RECOGNITION (for instance, which kind of certificate or degree or other qualification is issued at the end of the course):

Postgraduate degree	☐	Certificate of attendance	☐
Postgraduate diploma	☐	None	☐
Postgraduate certificate	☐	Other (*please specify*)	☐
Bachelor's degree	☐		
Diploma	☐		
Certificate	☐		

16. COURSE FEES (in US$):

17. SCHOLARSHIPS AVAILABLE FOR DEVELOPING COUNTRIES PARTICIPANTS:

Yes ☐ No ☐

18. ANY OTHER RELEVANT INFORMATION:

19. CONTACT PERSON FOR ADDITIONAL INFORMATION

☐ Mrs. ☐ Mr.

Last name	First name
Organization	
Street	Number
Postcode	City
Phone	Fax
E-mail	

Date:

Annex 4: Biosafety Training Needs Matrix

TRAINING NEEDS (KEY COMPETENCES – KNOWLEDGE AND SKILLS REQUIRED)	MAJOR TARGET GROUPS											
	Decision/ policy-makers (e.g. Ministers)	Government regulators/ (administrators handling applications)	Technical personnel/ advisors, experts who review the applications)	Enforcement officials (e.g. field inspectors)	Customs officials	Specialists (e.g. lawyers, scientists, economists	IT, BCH and data/ information managers	Researchers & technicians (e.g. in field trials or in the laboratories)	Graduate & undergraduate students	Interest groups (Consumer groups, farmers, NGOs)	Mass media/ extension workers	General public, politicians
General biosafety/ biotech knowledge	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Risk assessment & management		✓	✓			✓			✓			
Risk communication	✓		✓			✓			✓	✓	✓	✓
LMO detection & quantitative analysis			✓			✓		✓	✓			
Methodologies & procedures for monitoring environmental effects of LMOs			✓	✓				✓	✓			
Biosafety research/ field trial techniques (e.g. buffer zone, isolation distance, etc.)			✓			✓		✓	✓			
Precautionary principle/ approach	✓	✓		✓	✓				✓	✓	✓	✓
Administrative practices (including handling of requests for LMO imports or releases)		✓					✓					
Review of applications and the accompanying dossiers			✓	✓		✓						
Audit of risk assessment reports and risk management plans			✓	✓		✓		✓		✓	✓	✓
Preparation and presentation of LMO export or release applications/dossiers			✓			✓		✓				
Drafting/ knowledge of biosafety laws & regulations	✓	✓				✓				✓	✓	✓
Drafting/use of technical manuals & guidelines			✓	✓	✓	✓						

TRAINING NEEDS (KEY COMPETENCES – KNOWLEDGE AND SKILLS REQUIRED)	MAJOR TARGET GROUPS											
	Decision/ policy-makers (e.g. Ministers)	Government regulators/ (administrators handling applications)	Technical personnel/ advisors, experts who review the applications)	Enforcement officials (e.g. field inspectors)	Customs officials	Specialists (e.g. lawyers, scientists, economists	IT, BCH and data/ information managers	Researchers & technicians (e.g. in field trials or in the laboratories)	Graduate & undergraduate students	Interest groups (Consumer groups, farmers, NGOs)	Mass media/ extension workers	General public, politicians
Biosafety law enforcement techniques/ procedures		✓		✓	✓							
Decision-making practices, including assessment and integration of socio-economic considerations	✓	✓	✓	✓	✓					✓	✓	✓
Cost/ risk-benefit analysis	✓	✓				✓			✓	✓	✓	✓
Public awareness and participation	✓	✓					✓			✓	✓	✓
Public information	✓						✓			✓	✓	✓
Data and information management, including use of the BCH		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Procedures to be applied to LMO transboundary movements (including information on neighboring countries)	✓	✓	✓	✓	✓	✓			✓			
Documentation requirements for LMO shipments		✓	✓		✓							
Traceability procedures and techniques (e.g. labeling)			✓	✓	✓	✓						
Safety requirements and procedures for LMOs contained use and confined release	✓	✓	✓	✓				✓	✓			
Compliance requirements under the CPB	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
Liability and redress requirements	✓		✓	✓		✓			✓	✓	✓	✓
Understanding of other International agreements relevant to biosafety	✓		✓	✓		✓			✓	✓	✓	✓

Annex 5: List of Participants

SURNAME	INSTITUTION	COUNTRY
Bordogna-Petriccione, Barbara	RIBios	Switzerland
Breyer, Didier	Scientific Institute of Human Health	Belgium
Briggs, Christopher	UNEP-GEF	Switzerland
Carton, Michel	IUED	Switzerland
Chimwamurombe, Percy	University of Namibia	Namibia
Chong-low, Fee Chon	UNEP-GEF	Switzerland
Danteu, Yves	Intern	Switzerland
De greef, Willy	University of Gent	Belgium
Ferraiolo, Giovanni	UNEP-GEF	Switzerland
Galvez, Amanda	Universidad Nacional Autónoma de México	Mexico
Heinemann, Jack	University of Canterbury	New Zealand
Heron, David	Biotechnology Regulatory Services, USDA-APHIS	USA
Hilbek, Angelika	ETHZ	Switzerland
Kaeppeli, Othmar	BATS Centre	Switzerland
Kapuscinski, Anne	University of Minnesota	USA
Kinderlerer, Julian	University of Sheffield	England
Komen, John	International Service for National Agricultural Research	Netherlands
Liu, Yan	State Environmental Protection Administration of China	China
Machuka, Jesse	Kenyatta University	Kenya
Malnoe, Pia	RIBios	Switzerland
Maredia, Karim	Michigan State University	USA
Nielsen, Kaare	University of Tromso	Norway
November, Andras	RIBios	Switzerland
Pelegrino Argote, Esther	National Centre for Biological Safety	Cuba
Pythoud, François	SAEFL	Switzerland
Rashid, Kamal	Utah State University	USA
Saam, Mirko	RIBios	Switzerland
Senanan, Wansuk	Burapha University	Thailand
Tamale, Erie	CBD Secretariat	Canada
Tzotzos, George	UNIDO	Austria
Valenzuela, Sofia Alejandra	University of Concepcion	Chile
Venturi, Vittorio	International Centre for Genetic Engineering and Biotechnology (ICGEB)	Italy
Watanabe, Kazuo	University of Tsukuba	Japan
Weimer, Bart	Utah State University	USA
Wust-Saucy, Anne-Gabrielle	SAEFL	Switzerland
Zavagli, Monica	Mission Permanente d'Italie	Switzerland