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CONFERENCE OF THE PARTIES TO THE CONVENTION ON BIOLOGICAL DIVERSITY SERVING AS THE MEETING OF THE PARTIES TO THE CARTAGENA PROTOCOL ON BIOSAFETY
Fourth meeting
Bonn, 12-16 May 2008
Item 6 of the provisional agenda**

ONGOING BIOSAFETY CAPACITY-BUILDING INITIATIVES: A COMPILATION OF SUBMISSIONS MADE BY PARTIES, OTHER GOVERNMENTS AND RELEVANT ORGANIZATIONS

1. The Executive Secretary has the honour to circulate herewith, for the information of delegates, a compilation of updates on ongoing biosafety capacity-building projects and other initiatives submitted by Parties, other Governments and relevant organizations to the third and fourth Coordination Meetings for Governments and Organizations Implementing and/or Funding Biosafety Capacity-Building Activities, which were held in February 2007 in Lusaka and February 2008 in New Delhi, respectively.

2. The information is being made available in the format and language in which it was received by the Executive Secretary.

** UNEP/CBD/BS/COP-MOP/4/1.

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BRAZILIAN AGRICULTURAL RESEARCH CORPORATION

[12 FEBRUARY 2007]
[SUBMISSION: ENGLISH]

BioSeg – Embrapa´s Network Project on Biosafety

1. BioSeg is an initiative of researchers from the Brazilian Agricultural Research Corporation – Embrapa – on environmental and food safety assessment of genetically modified organisms (GMOs). It has been driven by the urgency of having in-country generated biosafety results and the importance of carefully designed research protocols that can meet the confidence standards by decision makers and the general public.

2. The BioSeg initiative aimed at building up on the existing capacity within Embrapa research centers in collaboration with well-known national and international experts from Universities and other Research Institutes, resulting in a network of laboratories and a multidisciplinary team.

3. The environmental risk assessment team dedicates to research and training on the impact of GM plants on organisms (target and non-target, crop-associated biodiversity), above and below ground effects, considering the production system in use and the specific characteristics of agro-ecosystems. The food safety team develops research on topics such as substantial equivalence, composition, effects of processing, protein expression product of the novel DNA (effects on function, potential toxicity and potential allergenicity), and other aspects. Laboratory and field tests are being conducted under the Brazilian regulatory system.

4. The network project, approved in September 2002, proposes to generate scientific information and protocols through the analysis of Embrapa's developed GM plants, aiming among other goals, to form capacity and expertise that will be available for further research, expert consultation, and training on risk assessment of GMO. The food and environmental safety of the following products are currently under evaluation: virus resistant bean, papaya and potato; herbicide tolerant soybean and insect resistant cotton.

Latest developments / main results referring to capacity-building

5. Three courses – already applied (two in 2005, one in 2006) – number of professionals attending: circa 70 people involving regulators, Ph. D. students, Embrapa Researchers, decision makers from Embrapa, extension service personal and one journalist.

Practical experiences

6. Development of curricula and establishment of a multidisciplinary group of teachers. Additionally, The BioSeg Project developed a strong collaboration with the GMO ERA Project and participated in the development of the GMO Risk Assessment Teaching Tools and the formation of the Brazil Expert Teaching Team.

"Good practices"

7. Good practices in coordination – organization of a Steering Committee which involves one expert acting in each of the key issues to be developed within the curricula or the capacity building courses;

8. Good practices in collaboration – To involve in the core group, teachers and researchers in such a balance that they could improve the teaching tools (pedagogical issues) and at the same time to include experimental results of local interest.

9. The training programs should involve Universities and teachers that will carry on and insert biosafety issues/ knowledge into regular long-term courses and curricula. Priority should be given in expanding the capacity in risk assessment research and capacity building to other Latin American countries, with an emphasis on training the trainers.

10. BioSeg had the opportunity to assist a broad collaboration with other international projects, thus being able to leverage the allocated funds by collaboration which resulted in a substantial contribution to biosafety capacity building in Brazil and generating scientific knowledge and information that supports the country's regulatory framework.

Biosafety Lessons learned

11. The courses offered by local experts and focused on regional experience and needs attained confidence by participants from different public institutions, regulatory bodies and students. For sustainability of the capacity building network, like the one being developed by BioSeg at Embrapa, can strengthen the consideration of critical problems, addressing them with greater confidence, to predict potential positive and negative environmental and food safety impacts.

Ongoing collaboration

12. The project is collaborating with a number of institutions, including:

- GMO-ERA project
- LAC Biosafety – World Bank funded project "multilateral" – Brasil, Colombia, Costa Rica and Peru
- Agrofuturo Project (funded by IADB)
- University of Viçosa
- University of São Paulo – ESALQ
- University of Minas Gerais
- Rural University of Rio de Janeiro

General recommendations for enhancing biosafety capacity building efforts

13. The project wishes to make the following recommendations:

(a) Projects on capacity building in other subjects related to some extent to biosafety should use the expertise to integrate their curricula

(b) Creation of a core expert group for a long term training project as a tool to ensure the sustainability of training programs

14. BioSeg is supported by Embrapa - Brazilian Agricultural Research Corporation (linked to the Ministry of Agriculture) and FINEP / Biotechnology Fund (financial agency linked to the Ministry of Science and Technology)

15. PROJECT Executive Committee: Deise M. F. Capalbo, Marília R. Nutti, Mônica C. Amâncio, Edson Watanabe, Eliana M.G. Fontes, Edison Sujii, André N. Dusi, Paulo E. de Melo, Josias C. Faria, Murillo Lobo Jr., Paulo E. Meissner, Jorge L. Loyola Dantas, Mariângela Hungria, Iêda C. Mendes.

GOVERNMENT OF CAMBODIA [12 FEBRUARY 2008]
[SUBMISSION: ENGLISH]

16. Capacity building needs on biosafety was identified in the national capacity self-assessment action plan (NCSA), which derived from the Rio Capacity Development Initiative (CDI). Cambodia has prioritized 10 capacity needs out of 160 priority actions under the NCSA Action Plan.

17. Following are priority actions for capacity building under the UNCBD-biosafety area of the NCSA Action Plan aiming at improving skills of the technical staff of key institutions in the areas of competence:

(a) Competence on the Political and Legal Contexts of the Safe Handling of Living Modified Organisms (LMOs). Widen their awareness and understanding of the harmful effects and safe handling of LMOs and of the political and legal systems associated with the introduction and use of LMOs in Cambodia. (Key agencies: MOE, MAFF, MOC, MOH, MEF; Relevant to CBD 10, 13).

(b) Competence on Handling and Disseminating Information on LMOs: Improve and strengthen their ability to design, develop, operate and maintain databases and information networks pertinent to regulating and releasing LMOs. (Key agencies: MOE, MAFF, Relevant to CBD 13).

(c) Research. Improve and strengthen their ability to do scientific studies on biodiversity risk monitoring and management including on handling LMOs

(d) Strengthening the legal, political and institutional mechanisms in the country for controlling the harmful effects of LMOs and ensure their safe handling

(e) Public Awareness and Participation: Widen and intensify public awareness of the importance and value of Cambodian biodiversity toward achieving national development objectives in Cambodia, in particular poverty alleviation. Further widen the level of public participation in biodiversity conservation and related efforts of key institutions, including on safe handling and use of LMOs.

(f) Competence on LMO Policy Development: Improve and strengthen their ability to develop policies,

(g) Research Competence: Improve and strengthen their ability to undertake systematic studies on effective policy and legal frameworks, including for LMOs.

(h) Enhance the Competence of the Civil Service on Technical Matters: Improve and strengthen the ability of civil service personnel, particularly the technical staff of key institutions and ministries including local governments, to standardize and systematize data collection, review, analysis and interpretation, and on storing and managing them in robust data bases, including information on products of new technologies (like LMOs) and their handling (e.g., biosafety) and the ability to develop and interpret maps and share information with users and stakeholders.

CHINA STATE ENVIRONMENTAL PROTECTION ADMINISTRATION (SEPA)

[25 FEBRUARY 2007]
[SUBMISSION: ENGLISH]

Ongoing Capacity-building Activities on Biosafety in China

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Legislative Activities and Initiatives

18. In 2006, Ministry of Agriculture (MoA) issued "Roles for Approval of Agro-GMOs for Processing" (GMOs-genetically-modified organisms) and "Approaches for Emergency Situations of Agro-GMOs". These two roles, together with other three roles issued in 2002 by Ministry of Agriculture (i.e. Roles for Agro-GMOs Labeling, Roles of Safety Governance for Imported Agro-GMOs and Roles of Safety Assessment for Agro-GMOs) and another one issued in 2004 by State Inspection and Quarantine Administration (i.e. Roles of Inspection and Quarantine for imported and exported Agro-GMOs), have constituted a legal system on biosafety governance for Agro-GMOs in China. All the above roles are based on The Regulation of Safety Governance for Agro-GMOs, issued in 2001 by China State Council, which is the most important legal document on GMOs biosafety by far in China.

19. To enhance biosafety legislation, since 2002, Ministry of Science and Technology (MoST) has been working on drafting "Biosafety Law". This drafting law is proposed to be promulgated by the Chinese Peoples' Congress, higher level than regulations issued by the State Council. This proposed law is so ambitious for a great inclusion of GMOs biosafety, alien invasive species control and bio-resources security that the drafting process is so difficult, even suspended its progress now.

20. In the meantime, China State Environmental Protection Administration (SEPA), national competent authority and focal point to the Convention on Biological Diversity (CBD) and Cartagena Protocol on Biosafety (CPB) in China, has also focused on developing a biosafety law in the past years, aiming to link domestic CPB implementation. Actually, SEPA has started the drafting work for a long time, but it was stimulated by China's ratification of CPB in 2005. Different with MoST's wide acope, SEPA has specified GMOs biosafety governance, not only GM crops, but also GM trees, flowers and herbs. The SEPA's proposed law, called "Biosafety Law for GMOs", is in its grogress. In 2006, SEPA drafted several versions for texts and carried out a series of consultations among the related ministries and other stakeholders. However, as coordination among ministries is not fluent, it will take more time for its promulgation.

Institutional Capacity-building

21. In 2006, a new technical entity, National Center of Safety Assessment and Inspection for Agro-GMOs was newly established. Also the Technical Committee of National Biosafety Standards for Agro-GMOs, consisting of 41 expert members, was set up in the same year, following by publishing 9 industrial standards for inspection and detection of GM soybean, soybean cooking oil and rape seeds. Furthermore, more than 20 labs distributed in while country were authorized for detection of GMOs' ingredients. In addition, more labs for GMOs detection are planned for establishment. Besides, the National Agro-GMOs Biosafety Committee has recently renewed for its second term, extending to 74 members. This Committee, by recommendations to MoA on a scientific base, is powerful to decision-making for GMOs commercialization.

22. Recently, SEPA enhanced National Biosafety Office by adding more staff and National BCH (Biosafety Clearing-house) under SEPA has been enlarged for its capacity and linkages. A biosafety lab located in NIES (Nanjing Institute of Environmental Science) under SEPA has been improved during the past years. In 2006, a cooperation agreement was signed between NIES and Genok (Norway) for collaborating research on GMOs biosafety and capacity building on the lab in NIES. To implement CPB efficiently, SEPA is underway to organize an advisory expert committee consisted of different fields. Also SEPA is planning to establish a cross-departmental committee to coordinate CPB implementing activities nationwide. However, it might be somewhat overlapped to the existing Ministry-jointly Agro-GMOs Conference which was established in 2001, headed by MoA, joined by other 6 ministries of SEPA, MoST, Ministry of Health, Ministry of Commerce, State Inspection and Quarantine Administration and State Development and Reforming Commission. However, this Ministry-jointly Conference is limited to Agro-GMOs issues, while SEPA wants to set up a comprehensive coordinating mechanism for all kinds of GMOs.'

Biosafety Projects and Perspectives

23. Chinese government is initiating an ambitious program on biotechnology by developing more varieties of Agro-GM crops and GM livestock animals for commercialization, in order to increase yields for food security. It will be a large investment, probably over 1 billion USD during the next 5 years or more. However, the program is proposed that about 20% investment will be input to biosafety researches and capacity building for labs and facilities. Comparing with the total input of 10 millions USD on biosafety capacity building during the last 10 years, this investment of this new program is exciting. It will greatly promote the GMOs biosafety capacity in China.

24. China just finished the UNEP/GEP Demonstration Project for National Biosafety Framework Implementation in early 2006 and got an award for its successful conduction from UNEP. The project has produced a lot of outcomes on capacity building, including initiative work on biosafety legislation and technical standards developments. Also the national BCH has been improved and several training workshops and courses were conducted for officials from different departments.

25. Another project is Sino-Germany Project on Biosafety Capacity Building in China, funded by Germany government via GTZ. The project has achieved a great success in expertise exchange, public awareness and public participation, GMOs database establishment and communication with government. Two international workshops on biosafety were held in China in 2005 and 2006 respectively, participated by all kinds of stakeholders of governmental officials, biotechnological experts, industries, NGOs and media people. Till 2006, the Biosafety Newsletter, one part of the GTZ project, special for international information was published for 26 terms and the copies were delivered to all kinds of stakeholders. The project also translated all EU regulations on GMOs biosafety and introduced to Chinese government and public, resulting in a significant impact in China on decision-making for GMOs governance. However, the most significant characteristic is that the project is co-organized by governmental institutions and NGOs such as Greenpeace and TWN, while other projects in China are most oriented by government. Now, it is expected that Germany government and GTZ could continue the project for the second phase.

GOVERNMENT OF ESTONIA [24 FEBRUARY 2007]
[SUBMISSION: ENGLISH]

26. Estonia has currently two parallel capacity building initiatives running – UNEP/GEF Project on Implementation of National Biosafety Framework under Tallinn Technical University and Ministry of the Environment, and EU Twinning project with Germany and Austria under Ministry of Agriculture on

developing of coexistence rules for conventional and GM crops. Additionally, UNEP/GEF project on BCH is expected to start soon for developing national node for BCH in Estonia, interoperable with BCH central portal and also with EU relevant database.

27. All three Baltic countries – Estonia, Latvia, Lithuania are active in Baltic cooperation project on GMO issues, financed by Nordic Council of Ministers and governments of countries. The project was initiated by Finland and Finland is also the main leading country for this project. Under this project, regular meetings (once a year starting from 2006) have being organized where Baltic countries, but also most of the Nordic countries and many EU member states participate and share their views about the most emerging issues and try to harmonize their views.

GOVERNMENT OF MALAYSIA

[24 FEBRUARY 2007]
[SUBMISSION: ENGLISH]

Update on Malaysia's Biosafety Activities and Capacity-Building Initiatives

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28. Malaysia played an important role in the early days of the CBD negotiations to introduce provisions on biosafety in the text of the convention. Since ratifying the CBD in 1994, Malaysia launched the National Policy on Biological Diversity in 1998. The policy has 15 strategies and 87 action plans to give direction to the nation on biodiversity management, where there is one strategy (Strategy XI) dedicated on biosafety which among others calls for the need for a national framework on biosafety. In 1996, the Government established the Genetic Modification Advisory Committee (GMAC) which came up with administrative guideline on the release of GMOs to the Environment (1997). This guideline is voluntary by nature and is an administrative procedure which has no legal implication. Malaysia started drafting her National Biosafety legal framework since 1997 known as the Biosafety Bill (when it is approved by the Parliament it will be known as the Biosafety Act). The Bill was developed with consultation of various stakeholders. The Bill was tabled in Parliament in November 2006 and is expected to be passed by mid 2007. Once the Bill is passed, Malaysia will have a legal framework on Biosafety which not only intends to safe guard biodiversity, environment and human health but also to complement the nation's biotechnology agenda.

29. In the absence of a legal framework, Biosafety measures are done administratively, where GMAC advises the Ministry of Natural Resource and Environment, Malaysia (NRE) on any application on LMOs for contained use, introduction into the environment of for FFP. With the view of having the legal Biosafety framework in place soon, Malaysia has taken some steps in developing her capacity. Malaysia through the Chemistry Department has facilities for GMO testing and this facility has been accredited as ASEAN Reference Centre for GMO testing. The Malayan University (Universiti Malaya) with assistance from UNIDO has started to offer Post Graduate Diploma in Biosafety eLearning course since August 2006. The first intake has 10 students from all over the region. Malaysia too sends participants for the UNEP/ GENOK Holistic Foundations for Assessment and Regulation of Genetic Engineering and Genetically Modified Organisms workshop which are carried out in an annual basis to build up capacity on biosafety. In August last year together with the assistance from UNDP we organized a one day seminar on NRE/UNDP Policy Dialogue on Liability and Redress under the Cartagena Protocol on Biosafety. This policy dialogue was to enhance capacity and understanding among various stake holders such as scientist, private sector and NGOs on this very important issue. It too served as a platform to get feedback and views from the various stakeholders on this issue. Among others, we had experts from International Environmental Law Research Centre (IELRC), Geneva and Universiti Malaya, Malaysia at this event.

30. Malaysia still needs to build up her capacity further in various aspects of biosafety especially in GMO testing, risk assessment & management and other technical as well as legal areas. This capacity has to be build especially once the legal framework is in place and also to meet our obligations under the Cartagena Protocol on Biosafety. In this light, GEF has is mid 2006 approved for Malaysia to implement the GEF/UNDP on Capacity Building for Implementation of Malaysia's National Biosafety Framework. We have just appointed the CTA for this project and will start in March 2007. To build capacity on legal issues with regard to Biodiversity including Biosafety, under the 9th Malaysian Plan (2006-2010), the Malaysian Government established a Centre of Excellence on Biodiversity Law located in Universiti Malaya.

31. In 2007 Malaysia will play host to the 3rd Compliance Committee meeting of the CPB from 5-7 March and from 16-18 April will be hosting the Second International Meeting of Academic Institutions and Organizations Involved in Biosafety Education and Training.

GOVERNMENT OF THE NETHERLANDS

[12 FEBRUARY 2008]
[SUBMISSION: ENGLISH]

32. The Netherlands spends annually 0,8% of its GDP on capacity building in developing countries, 1% of which for environmental protection. The Netherlands is convinced that capacity building in the field of biosafety is most effective when country-driven and with focus on regional co-operation. In the period 2002-2008 the Netherlands spent annually approximately €1 million on capacity building for implementation of the Biosafety Protocol.

33. The Ministry of Development Cooperation finances the Regional Agricultural and Environmental Initiatives Network (RAEIN) since 2002. Mid 2008 the project will entering its second stage and is open for co-sponsoring from other organizations and countries. RAEIN is a regional initiative in 14 southern African countries aiming at empowerment of the Southern African communities to understand, establish and use innovation systems approaches in developing appropriate emerging technologies and addressing their governanance in order to meet their obligations to international agreements, and contributing to poverty reduction and sustainable development. This project is a an example of successful country driven capacity building and the only regional initiative in Southern Africa addressing implementation of amongst others the Biosafety Protocol.

34. The Ministry of Housing, Spatial Planning and the Environment in cooperation with the Ministry of Foreign Affairs and the Netherlands Biosafety Authority COGEM provided financial contribution and substantive input to the Risk Assessment and Risk Management workshops in Africa and Eastern Europe in 2007 and to the informal meeting on Liability& Redress in March 2008 in Cartagena, Colombia in response to the COP/MOP 3 call for voluntary contributions by Parties for these meetings.

NORWEGIAN INSTITUTE OF GENE ECOLOGY (GENØK)

[25 FEBRUARY 2007]
[SUBMISSION: ENGLISH]

Biosafety Activities and Capacity-Building at GenØk

35. The Norwegian Institute of Gene Ecology (GenØk) was founded in 1998 and is a non-commercial independent foundation located in the research environment of the University of Tromsø and the Tromsø Science Park (www.genøk.org).

36. GenØk is engaged in research and teaching in the field of Gene Ecology. The Foundation focuses in particular on the environmental and health related consequences of the application of Genetic engineering (GE) and genetic modifications (GM). GenØk is also engaged in the broad dissemination of information and offers courses, training, advisory and consulting services in its field of expertise. The activity of GenØk is therefore of special importance for issues linked to the UN Cartagena Protocol on Biosafety under the Convention on Biodiversity.

37. GenØk is part of a national and international co-operative network that encompasses Norwegian research institutions as well as internationally recognised research environments and independent NGO's. The present activity at GenØk can be summarised under the three following main areas:

(a) Scientific research; including; e.g. GMO feeding experiments in rats and Daphnia; studies on horizontal gene transfer, comparative studies of transgene stability and characteristics of transgene products; genomic, proteomic and metabolomic research on GM maize expressing Cry (Bt) toxins; persistence and effects of DNA vaccines on salmon; genetic stability and environmental effects of GM virus vectored vaccines for medicinal and veterinary use; ethical, philosophical and social studies linked to biosafety

(b) Biosafety capacity building funded by NORAD and inspired by the action plan of the Cartagena Protocol; including; e.g. the annual international holistic biosafety course, regional courses, development of the Biosafety Forecast Service at the New Zealand Centre for Integrated Research in Biosafety (INBI); development of a course book/CD-ROM; development of the M.Sc and PhD study in collaboration with the University of Tromsø, United Nations University (UNU) and the Global Virtual University (GVU).

(c) Technical and scientific advice on biosafety issues to relevant ministries, regulatory authorities and international organisations.

38. Exchange of staff between research institutions is given high priority at GenØk, and the Gateways institutes will formalize this important aspect of capacity building. Exchange of researchers is currently taking place between the National Institute for Scientific and Industrial Research (NISIR) of Zambia and GenØk, under the main program of the Norwegian Fredskorpset (the Norwegian Peace corpse).

39. During 2006 GenØk has arranged one of its international holistic biosafety courses in Tromsø, with 56 participants from 45 countries, and one regional biosafety course at the Agricultural University of Bogor in Indonesia with 50 participants from the South East Asian region. From the start of the biosafety course activities in 2003 the total number of participants has been approximately 260 from more than 120 countries. Genøk will in collaboration with the Third World Network (TWN) and the Agriculture University of Lima in Peru arrange a biosafety course for the South American region in March 2007, but also arrange the annual course in Tromsø in July/August 2007. GenØk will in collaboration with the University of Tromsø and GVU/UNU also start the MSc and PhD education activities in biosafety during the autumn of 2007.

40. GenØk is also set to become the "Norwegian National Competence Centre in Biosafety" in accordance with the Norwegian government's declaration of assent from 2005. All the biosafety capacity building activities currently taking place at GenØk, or in collaboration with GenØk, is due to the financial support of the Norwegian Government through their agency NORAD and the Royal Norwegian Ministry of Foreign Affairs.

SWISS FEDERAL INSTITUTE OF TECHNOLOGY (ETHZ)

[12 FEBRUARY 2007]
[SUBMISSION: ENGLISH]

International Project on GMO Environmental Risk Assessment Methodologies (GMO ERA) Project

Main achievements 2006 – 2007

41. *ETT workshops:* The project carried out capacity building activities to create Expert Training Teams (ETT) in the focal regions of the project to develop and validate teaching tools that use the methodologies for environmental risk assessment from the first phase of the project. The first Vietnam ETT workshop was held in May 2006, and Brazil ETT workshops have been held in June 2006, and February 2007, with further workshops planned for 2007. In East Africa, the project is contributing to the development of expertise and training capacity in the BiosafeTrain project, which included contributing to a workshop in Nairobi in September 2006.

42. *Outreach meetings:* Led by the Brazil group, the project held meetings with representatives of Brazilian non-governmental organisations and with representatives of international biotechnology companies.

43. *External review:* During 2006 the project was reviewed by an external team on behalf of the funding agency (Swiss Agency for Development Cooperation). The review report highlighted amongst other points the contributions of the project to a South-South dialogue, the contribution to capacity building, the development of scientifically sound environmental risk assessment methodologies, and the building of a wide network of scientists from the public sector. Recommendations included seeking greater involvement of representatives of Ministries of Environment, Health etc., as well as Agriculture, in advisory positions, making greater efforts to inform and train scientist regulators, initiating the more systematic use of the teaching materials in academic curricula, and strengthening collaboration and/or partnerships with similar projects implemented at the regional level. The project is acting on these in current planning (see below).

Lessons learned

Joint development of teaching material:

44. ETT members are developing the teaching tools in collaboration with other project experts, and validating them by training other scientists involved in the GMO regulatory process, thus current project activities are building teams of experts in the focal countries who have a solid grasp of the ERA approach such that they can effectively teach it to others, expanding the base of experts. The development of the teaching material and the teaching is being led by local experts and leading national training institutions. This process has been important for clarifying the key uncertainties, and consolidating joint understanding, because you can only teach material well that is thoroughly designed and applicable. The project methodologies on which the tools are based have themselves been developed jointly by groups of scientists from northern and southern countries in the first phase of the project, and ETT members are applying their own expertise to further adapt the methodologies to their regional situation.

45. The joint work on the teaching tools has been facilitated by the use of a group shareware software called Basic Support for Shared Work (www.bscw.de/english/), which enables group members to jointly work on (large) documents via a protected environment on the Internet. We are using this to

counteract the restrictions of limited funding available to organise meetings for joint work. However, the limited time availability of public sector scientists in research institutes is still a constraint.

Teaching by local experts, with long term training perspective, and integration of biosafety /ERA teaching into academic curricula:

46. The project has already stimulated use of the teaching materials in academic courses, notably the intensive post-graduate training course taught by the Brazil team at the University of Viçosa. This course will be expanded next year, and another project member is developing a course at the University of São Paulo (ESALQ). A Vietnamese project member has used the project material to teach at Ho Chi Minh University. BiosafeTrain project members used the teaching materials in a course in Niger. An important factor is that the finished teaching tools will be in local languages. The finished teaching materials will be published on the internet as pdf files.

South-South dialogue:

47. Scientists from each of the three regions have contributed to activities of the other regions, building confidence and networking, which is already contributing to more formal agreements for collaboration (see below). We strongly urge that funding and support is maintained nationally and internationally for South-South exchange between scientists with expertise in biosafety.

Building confidence and knowledge to carry out environmental risk assessment of transgenic crops:

48. Strengths of the project teaching approach are that it is based on participatory and experiential learning, involving small group activities dealing with concrete, applied scientific problems. In Vietnam the scientists were able to draft resistance management plans for some key transgenic crops for Vietnam as a result of the training. Joint writing of the Vietnam book, to be published soon in the CABI series, is also significantly increasing confidence and knowledge of Vietnamese co-authors. In Brazil, project activities have strengthened biosafety initiatives particularly in gene flow risk management and resistance management.

Collaborations with other projects and current plans:

49. *Collaboration with* BiosafeTrain *project in East Africa*: Building on the successful partnership, the BiosafeTrain project is discussing future collaborations with the Brazil team.

50. *Collaboration with two projects in South America* (World Bank funded project "Multilateral " and IAB funded project "Agrofuturo"): Both these projects include funding for training and other capacity building initiatives that will be coordinated by project members, and that will use the project teaching materials.

51. Collaboration *with UNEP GEF Implementation project in Vietnam / South East Asia:* The project is working on a collaboration with the project for the second workshop in Vietnam in 2007.

52. *Problem Formulation and Options Assessment (PFOA) handbook and training:* PFOA was developed by the project and provides a framework for identifying the crucial societal need that could be satisfied by introducing a GM crop into an agricultural system, comparing the GM crop to other possible alternatives for meeting that critical societal need, and ensures that public debate informs scientific risk assessment and vice versa. It is a methodology that both strengthens the science of risk assessment while strengthening deliberative democracy in risk decision-making and policy formation.

53. The project is developing a PFOA Handbook which will:

(a) Introduce and explain the substance, theory, and practice of the PFOA methodology;

(b) Provide guidance about the integration of a PFOA into a country's environmental risk assessment (ERA) procedures for genetically modified organisms (GMO);

(c) Examine considerations, techniques, and resources that can assist in designing, implementing, and conducting a country-specific PFOA.

54. The PFOA Handbook is written for an international audience of the principal parties to be involved in the ERA of GMOs at a national level. It is designed to accommodate users in different countries having unique needs and facing distinct challenges in trying to customize the PFOA process to particular cultural, political and environmental contexts. It will be peer reviewed and used for training during 2007. The project has funding to distribute a number of free copies of the handbook on CD, and is looking for opportunities to offer training in its use.

AFRICAN UNION

[04 FEBRUARY 2007]
[SUBMISSION: ENGLISH]

AUC-GTZ Biosafety Capacity-Building Project: "Support to the African Union in Matters of Biosafety"

Department of Human Resources, Science and Technology
Biosafety Unit, African Union Commission
http://www.africa-union.org/root/au/AUC/Departments/HRST/biosafety/AU_Biosafety.htm

1- Background

55. Following the adoption of the Cartagena Protocol on Biosafety in January 2000, the African Union Commission (formerly called Organization of African Unity) developed the African Model Law on Safety in Biotechnology (AMLSB), which was adopted by the Council of Ministers in July 2001, in order to address the challenges of implementing the Protocol and dealing with its weaknesses. The aim of the model law was to assist the Member States in developing comprehensive national biosafety frameworks.

56. At its third ordinary session, held 4-8 July 2003 in Maputo, the Executive Council of the African Union adopted Decision EX/CL/Dec.26(III), which *inter alia* stressed the need for Member States to equip themselves with human and institutional capacities to deal with biosafety issues within the framework for the implementation of the Biosafety Protocol. The decision also endorsed steps taken by the AU Commission to put in place an Africa-wide Biosafety System as well as an Africa-wide Capacity Building Programme in Biosafety to strengthen the abilities of Member States to deal with biosafety issues. The Chairperson of the AUC was also requested to convene a meeting and come out with proposals for an African common position, and ensure sustainability of capacity building and keep the Council informed on annual basis.

57. The AUC-GTZ Biosafety Project was initiated within the above context to provide the African Union (AU) with the necessary capacities and effective instruments to support its Member States in implementing the Cartagena Protocol on Biosafety and the African Model Law on Safety in Biotechnology. Implementation of the first substantive activities of the project started in January 2006.

2- Objectives, strategies, tools and approaches

58. The objectives of the project include the following:

(a) Development of an AU Strategy to implement the provisions of the Cartagena Protocol on Biosafety and the African Model Law on Safety in Biotechnology and its application on national and regional levels;

(b) Maintenance of a network of continuous information exchange between the AU Biosafety Unit and the National Focal Points of the Cartagena Protocol on Biosafety will be maintained;

(c) Provision of strategic options to strengthen the existing technical and laboratory capacities at regional, sub-regional and national levels to identify GMOs and products thereof.

59. The planning workshop held in December 2005, to discuss the action plan of 2006 adopted the following as **key performance areas of activities** for the project:

(a) Establishment of the Biosafety Unit and its staff empowerment,

(b) Organization of a preparatory meeting for African Delegates on international negotiations (the COP-MOP 3),

(c) Establishment of the Technical Advisors Committee on Biosafety,

(d) Development of an African Strategy in Biosafety and the revision of the African Model Law on Safety in Biotechnology to be discussed at regional meetings

60. The **activities** implemented and achievements made so far are:

(a) The establishment of the Biosafety Unit within the AUC Department of Human Resources, Science and Technology (HRST),

(b) The Preparatory Meeting of African Delegates held from 11-12 March 2006 in Curitiba, Brazil, for the Conference of the Parties serving as Third Meeting of Parties (COP-MOP 3) to the Cartagena Protocol on Biosafety,

(c) The Technical Advisors Committee (TAC) on Biosafety has been established and held two meetings,

(d) A regional experts meeting held to discuss the African Strategy on Biosafety and the African Position on GMOs for Food and Agriculture,

(e) The African Strategy on Biosafety, which has been developed and adopted by the Extraordinary Conference of African Ministers Council on Science and Technology, and

(f) The revision of the African Model Law on Safety in Biotechnology is still on process.

3- Practical experiences, best practices and lessons learned

61. The Project is operating within the AUC-HRST Department and the funds are managed through the AUC global account. This has some impact on the project implementation because all the procedures

are done through the AUC system this caused some delay in project staff completion, consultant recruitment, equipment purchase and financial reporting.

62. The regional approach would have been the best way to deal with biosafety issues in Africa but it needs time and very adequate preparation.

63. Communications within Africa through telephone, fax and email still needs a lot of improvement.

64. The problem faced in the Technical Advisors Committee and the Experts meetings is the lack of attendance of all members and all countries.

4- Advantages/benefits

65. The regional approach is the most reasonable for the African region due to the porous nature of borders between the countries. This approach also helps to maximize the use of resources and to make more efficient the biosafety measures within the continent.

5- Communication, coordination, networking and collaboration

66. The project has utilized two approaches for communications with the National Focal Points of the CPB:

(a) The first one was through the use of the AUC formal procedure i.e. through sending Note Verbal the Embassies of Member States in Addis Ababa, to the Ministries of Foreign Affairs of the States and to the Ministries in Charge of Biosafety,

(b) The second one was direct contact from the HRST-Biosafety Unit to the NFPs-CPB by telephone, fax and email.

67. For more efficiency using both methods of communication has proved to be beneficial.

68. The Project had a joint departmental Experts Meeting (the Rural Economy and Agriculture and the Department of HRST) to discuss two documents: the “African Biosafety Strategy” from the HRST Department and the “African Position on GMOs for Food and Agriculture” from REA Department. The underlying challenge faced in this regard was the extreme position held by participants on the issues of biosafety and biotechnology. This difficulty however helped in development of balanced documents as concerns from both angles were duly reflected.

6- General views and recommendations

69. Common positions on biosafety and biotechnology could be a big challenge to attain within the continent. The best that could be done would be to have some general guidelines on biosafety and biotechnology and put strong emphasis on information sharing. The two issues definitely have to deal with together.

ORGANISATION OF AMERICAN STATES (OAS) [04 FEBRUARY 2007]
[SUBMISSION: ENGLISH]

OAS Initiatives in Biotechnology and Biosafety

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70. The products of modern biotechnology, most notably genetically engineered agricultural crops and foods derived from them, are becoming increasingly common in Latin America and the Caribbean. Brazil and Argentina are among the world's five leading developing countries that have approved and adopted biotech crops. Capacity building initiatives in Biosafety and Biotechnology have been supported by the Organisation of American States in two projects initiated in 2002 and in 2004 respectively. These have been oriented to reinforce the national and regional capacities in Biosafety and Biotechnology in the Region specially in : the evaluation and handling of GMOs risks, the management and innovation of the agri-food biotechnology industry, public awareness about GMOs and the generation of information for national and international networks in Biosafety that include the public and private sector and universities. The participants countries are: Argentina, Brazil, Colombia, Chile, Costa Rica, Ecuador, El Salvador, Grenada, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, and Trinidad & Tobago. Venezuela and Uruguay although not formally participating in the Project have also joined in some activities.

71. The project's activities are: organization of training courses and seminars; publication of reports, papers and books on the topics covered by the project; implementation of a web page; as well as advising to parliaments in the discussion of Biotechnology and Biosafety laws. During 2004-2005, five Regional Courses and six International Seminars were organized in biotechnology fields such as: risk assessment and risk management of GMO food and plants with novel traits; DNA analysis and traceability in GMOs and derived food; innovation and management in biotechnology. These activities held in Panama, Argentina, Venezuela, Brazil, Colombia and Chile were lectured by internationally recognized experts, thus ensuring a high quality standard training. A total of 74 training fellowships were awarded to 17 countries, 181 professionals were trained in courses (42 in experimental and 139 in theoretical courses), representing over 100 institutions To the seminars attended 790 professionals. During 2006 the activities were centred on Biotechnology Public Awareness.

72. Project activities have been disseminated by 5 papers in peer review journals and 2 books. The project activities are a good example of practical synergies and complementary between Biosafety capacity building initiatives at the country and at the regional level. The project has strengthened North-South cooperation in biosafety training through the collaboration with institutions recognized world wide, such as: CFIA and Health Canada from Canada, USDA-APHIS and ILSI USA, Institute Pasteur, France, University of Leipzig, Germany, University of British Columbia, Canada. Similarly the South-South interactions have been strengthened through working with institutions from different countries such as: Argentina (SAGPyA, SENASA, INIA and CONABIA), Brazil(EMBRAPA); Colombia(ICA), Venezuela(IDEA), Chile(CONICYT, CORFO, Ministries of Health and Economy and University of Chile). In addition regional synergies have also been implemented with UNU-BIOLAC Program as well as with GEF.

73. A low level of awareness and understanding about biotechnology is characteristic of Latin American and the Caribbean countries, as elsewhere, efforts to remedy poor public perception often seem inadequate and do not reflect a well-designed strategy.

74. In order to improve the understanding of the Biotechnology and their applications, a strategic plan for public communications in the region has been proposed as one of the project objectives. Specific objectives for this initiative, include: (1) to make evident to decision makers that modern biotechnology can be an effective tool for increasing agricultural productivity, and thereby economic growth, without imposing unacceptable risk to the environment or human and animal health; (2) to enable members of the public to make informed decisions about appropriate uses of biotechnology by providing accurate information about benefits, risks and impacts; (3) to incorporate modern biotechnology into science curricula for secondary schools, university and college students, and agriculture extension officers.

75. These actions need a variety of specialized expertise, including communication specialists, technical writers, graphic artists and illustrators to design information materials and conduct training. Ideally, members should provide expertise in biotechnology and biosafety, public communications and project management. The plan will need to identify scientists and technical experts who can provide expertise in science writing for general audiences, advertising, graphic arts, public opinion polling and media communications. These professionals can provide basic information about the techniques of modern biotechnology; the products now available and those being developed; what is known about the nature, probably and consequences of potential risks. Governments, industry, universities and media must play an important role to improve public perception about biotechnology, this is an urgent requirement to help to develop biotechnology in Latin-America and Caribbean Region.

76. In this project some strategies to promote effective regional cooperation included the following:

(a) The trainees were selected according to quality of their curriculum as well as the country and institutions training priorities. A selecting committee for each activity included, the general coordinator project and the coordinators in each country, which were professionals well recognized for their knowledge about biotechnology in his own country.

(b) Support from OAS was only seed money, about 36 % of the project budget was provide for OAS, the rest came from contributions of the countries that host the activities as well as from contributions of the private sector or international institutions or agencies.

(c) Differences in the level of Biotechnology and Biosafety development were observed within different countries. Thus, institutions, professors and specialist from the most advances regional countries were used for capacity building oriented to the less developed.

(d) Government officials, authorities, decision makers, producers association, universities, member of the parliaments or parliamentary advisers were formally invited to joint project activities.

(e) A network of specialist in different areas of biotechnology has been built.

(f) Paper published in peer review journals and books published disseminated regionally the project activities.

(g) Cooperation with other financial agencies was stimulated.

FOOD AND AGRICULTURE ORGANIZATION [04 FEBRUARY 2007]
[SUBMISSION: ENGLISH]

Regional Project "Capacity Building in Biosafety of GM Crops in Asia"

77. The 25th FAO Regional Conference for Asia and the Pacific, held in Yokohama, Japan, in 2000, noted that countries were encouraged under the Cartagena Protocol on Biosafety to the Convention on Biological Diversity to establish mechanisms for assessing and managing the potential environmental risks associated with genetically modified organisms (GMOs). It recommended that "FAO provide capacity building support to developing countries in this endeavor. International donors were invited to provide the necessary financial support for this work". Considering the importance and urgency of the implementation of the recommendations, the Japanese Government pledged to provide financial support to FAO for the execution of a regional project on biosafety capacity building.

78. The donor input was equivalent to 1,234,701 US$. Ten countries participated in the project: Bangladesh, China, India, Indonesia, Malaysia, Pakistan, Philippines, Sri Lanka, Thailand and Vietnam. The desire to become a member of the project, expressed in a second moment by non-participating countries in the region, such as Lao PDR, Cambodia, Myanmar and Nepal, could not be accommodated because of funding restrictions.

79. The overall goal of the project was to generally enhance food and livelihood security in Asia through sustainable and environment-friendly increases in the yield and quality of agricultural products, including, where appropriate, the safe and judicious harnessing of modern technology. The following three specific objectives were designed to significantly contribute to this overall goal:

(a) To build national capacities: human resources, research and technology development, infrastructures, regulations and policies for assessing and managing biosafety risks of GM crops;

(b) To establish an Asian Network on biosafety for legislations and policies;

(c) To assist and promote research and technology development for assessment and management of biosafety risks of GM crops.

80. The Project started in May 2002 and had duration of three years. Progress of the project was initially delayed due to some difficulties in obtaining nominations of national focal points from participating countries, a situation that was exacerbated by the occurrence of SARS. Its duration was thus extended up to December 2005 to compensate for the delayed beginning.

81. The major activities regarding the national capacity building (objective 1) included the publication of a "Benchmark Document" and the hosting of a series of national stakeholder workshops. The draft of the Benchmark Document was first presented at the Second Focal Points Meeting in March 2004, revised in consultation with participating countries and published in October 2004 after receiving the endorsement from participating countries. The document indicates that the participating countries vary greatly in their biosafety capacities, but suggests that most of the countries still require considerable efforts to build up their biosafety system. Some countries in the region made some progress in this direction and can offer assistance to the other participating countries. The document outlines the following areas as needing strengthening: 1) human resources, 2) infrastructures (e.g. detection and monitoring of GMOs, biosafety clearing house), 3) regulatory mechanisms (biosafety guidelines, biosafety acts, enhancement of inter-ministry coordination, establishment of national biosafety committees and institutional biosafety committees, and harmonization of regulatory mechanisms), 4)

policies and programmes (accountability for international negotiations, policies for undertaking risk assessment and risk management, and commitment to raise institutional and public awareness), 5) financial requirements (provide adequate funding for training, workshops, seminars, infrastructures for biosafety research), 6) regional collaboration (capacity building, consultations, training, collaborative research, harmonization of risk assessment and management protocols and strengthening of quarantine systems). Nine national workshops were held in collaboration with participating countries on specific themes matching identified national training needs. The workshops were attended by a total of 431 members of regulatory bodies, NGOs and the private sector, as well as decision makers and scientists.

82. The major activities regarding the establishment of the Asian network on biosafety (objective 2) included the organization of three focal points meetings, two regional consultations and the establishment of the Asian Bio-Net website. The meetings and workshops enhanced the solidarity and friendship between participating countries and other stakeholders and produced a positive atmosphere for promoting regional harmonization of biosafety measures. The project website was launched in November 2003. It contains information related to the project, to the status of biosafety in the participating countries, photo gallery, resource documents and useful links. It was continuously improved and updated based on suggestions and recommendations of the national focal points.

83. The major activities regarding the supporting research and technology development (objective 3) included the organization of three regional training workshops on the following topics: DNA detection of GM crops (in Thailand), public awareness and participation (in Philippines), and risk assessment and management (in Japan); and the publication of: a training manual on GMO detection, a training manual on Public Awareness and Participation concerning GM crops with emphasis on risk communication, and the proceedings of the *Regional Training Workshop on Risk Assessment and Risk Management of GM Crops*, in collaboration with the Ministry of Agriculture, Forestry and Fisheries of Japan.

84. The activities of the project were implemented in coordination and, whenever possible, collaboration with other existing projects on biosafety capacity building both at national or sub-regional level. The project has been widely recognized as a model of regional collaboration in the field of biotechnology and biosafety.

85. The final regional consultation concluded that the project effectively assisted the participating countries to promote national capacity building on biosafety of GM crops; emphasized that the new phase of implementation of the so far developed National Biosafety Frameworks generates new challenges and therefore requires renewed efforts and endeavours; recognized that the responsibility of biosafety-related decision making rests on the respective national authorities and that it is therefore essential to strengthen the national biosafety capacity of each country; underlined that regional collaboration and harmonization, where appropriate and to the extent possible, on biosafety can offer important opportunities of mutual benefit for the countries in the region; and requested FAO to formulate a project and to seek funding opportunities to continue of the Asian Bio-Net activities.

THE WORLD BANK [22 FEBRUARY 2008]
[SUBMISSION: ENGLISH]

Summary of The World Bank Biosafety Projects

86. As an Implementing Agency for the GEF, the World Bank has a track record of supporting countries in the area of biodiversity and with a portfolio of projects worth US $2.8 billion, is in fact, the largest financier of biodiversity. Since 2002, the Bank has worked with countries on biosafety capacity building which is one of the four strategic priorities under the GEF biodiversity portfolio. As of early

2008, cumulative GEF financing approved is over US $11 million for a total of four biosafety projects for ten countries. Combined with Bank IDA financing and other co-financing, cumulative commitments for these biosafety projects rise to an estimated US $38.7 million.

87. The World Bank also provides assistance for biosafety activities in its normal lending within the context of biotechnology issues in the health, agricultural and veterinary areas. According to a World Bank portfolio review concluded in April 2007, an estimated US $113.6 million in commitments were provided to partner countries for biotechnology research and biosafety over the last twenty years through lending. These commitments are concentrated among more recent years (2002-2006) due to a steady climb in country demand for capacity development in biotechnology and biosafety.

GEF Biosafety Project Portfolio

88. The World Bank has provided GEF assistance to two of the twelve countries that implemented demonstration projects for implementing the CPB. As these projects were reaching completion, the Bank initiated work on two regional projects in Latin America and West Africa upon country request. Both of these projects have received recent GEF approval and will begin implementation in 2008.

Demonstration Projects on Capacity Building for the Implementation of the Cartagena Protocol

89. Both India and Colombia undertook biosafety implementation projects to, among others, strengthen institutional and regulatory capacity, build capacity for risk assessment and risk management and establish a BCH. The projects successfully completed in June and September 2007 respectively.

Regional Biosafety Projects

90. West Africa Regional Biosafety Project: The purpose of the project is to build biosafety capacity to implement the CPB in cotton producing countries using a sub-regional approach. It will enable the countries (Benin, Burkino Faso, Cote d'Ivoire, Mali, Senegal, Togo, Guinea Bissau, and Niger) to collectively assess and manage the potential environmental risks of agricultural biotechnology and ensure adequate levels of protection in the transfer, handling, and use of transgenic crops through a regional biosafety framework. Project launching is expected the first half of 2008, however, several key analytical reports, including environmental and economic impact studies were completed during project preparation.

91. Multi-country Capacity-Building for CPB Compliance in Latin America: The project also aims to build capacity for the effective implementation of the CPB. Utilizing Centers of Excellence in four countries (Brazil, Colombia, Costa Rica and Peru) and their complementary technical skills, the project will further develop technical capacity for risk assessment and risk management (with a focus on a group of targeted crops), while strengthening capacity for socio-economic and cost-benefit assessment.

GEF Biosafety Project Pipeline

92. On behalf of the four countries participating in the multi-country biosafety project in Latin America, the World Bank recently submitted a US$1.9 million proposal (with $900,000 from GEF) to strengthen public awareness and communication capacity on biosafety in Latin America in general and in the project countries specifically. This will be achieved through piloting communication and public awareness strategies and sharing the results across the region.

Lessons Learnt

93. The main lessons learned from ongoing and previous World Bank biosafety projects include the following:

(a) There is a need for strengthening inter-institutional coordination at the highest level in order to allow key components to a biosafety framework to be prioritized such as inter-institutional political agreements is the major lesson learned in this project. Utilizing technical working groups promotes inter-institutional cooperation from the bottom-up and facilitates, over time, high level coordination.

(b) Civil society should be included in capacity building components of NBF implementation projects in order to enrich the debate and extend the social base of the national biosafety strategy. Capacity building training should include customs and port authorities, judges and other legal personnel.

(c) A training needs assessment helps address the challenge of linking human capacity with organizations and institutions affected by or overseeing the meeting of the obligations under the CPB.

(d) Awareness and holistic understanding of issues and policies related to LMOs is specific to concerned personnel in line ministries and needs to be strengthened on an institutional level.

(e) Coordination between the different line ministries and between central and state level administrations needs to be strengthened to work towards alignment of different policy and institutional solutions proposed by different ministries.

CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURE RESEARCH (CGIAR) [16APRIL 2008] [SUBMISSION: ENGLISH]

Biotechnology and Biosafety Capacity-building, Outreach and Communication Activities of the CGIAR Centres

Prepared by the System-wide Genetic Resources Programme (SGRP) on behalf of the International Centres of the CGIAR for COP-MOP 4[1]

94. The CG Centres are engaged in strengthening institutional and human capacity in the area of biosafety, through training; technical advice; public awareness; the generation of models for analyzing the potential flows of transgenes through populations, and measuring the socioeconomic impact of the introduction and use of LMOs.

95. Two Centres (Bioversity International and IFPRI) and the CGIAR System-wide Genetic Resources Programme (SGRP), recently published a module for the training of trainers, entitled Law and Policy of Relevance to the Management of Plant Genetic Resources; Learning Module with Review of Regional Policy Instruments, Developments and Trends. The module includes training materials addressing, among other areas, phytosanitary and biosafety regulations designed to assist genetic resource managers with understanding relevant global and regional laws. In 2006 six regional and/or national workshops were held in Asia, Latin America and Sub-Saharan Africa, using the module. In 2006 the module was made available in both French and Spanish.

96. Five of the Centres are partners in the consortium “Program for Biosafety Systems” (PBS), a project funded by USAID and managed by IFPRI[2]. PBS seeks to increase ability of countries to

1 Most of this information included in this section was reported to the Third Coordination Meeting for Governments and Organizations implementing and/or funding Biosafety Capacity-building Activities, held in Lusaka, Zambia, 26 - 28 February 2007.

implement national biosafety systems and make biosafety decisions based on scientific evidence. Its mission is to support partner countries in Africa and Asia in the responsible development and safe use of agricultural biotechnology. PBS has five main components: (1) Supporting risk assessment research in Africa and Asia; (2) Policy development and implementation; (3) Regulatory advisory services for biotechnology product development; (4) Education/training in biosafety and food safety; and (5) Communication strategies and outreach. PBS assists national governments in designing and implementing the policies and procedures necessary to evaluate and manage the potential harmful effects of modern biotechnology on the environment and human health.

97. CG Centres are increasing their participation in regional biosafety capacity development initiatives. Currently CIAT, together with CIP and the Brazilian Agricultural Research Corporation (EMBRAPA)3, is preparing a regional initiative to further strengthen the biosafety technical capacity of countries (Mexico, Costa Rica, Colombia, Brazil and Peru) regarding the safe deployment of transgenic crops. This is being supported by the Global Environmental Facility (GEF) /World Bank

98. IRRI, CIAT, IFPRI and IITA have participated in activities organized by the Public Research and Regulation Initiative (www.pubresreg.org), an alliance of public sector researchers that seek to represent public research interests in the ongoing activities concerning the implementation of the Cartagena Protocol on Biosafety and to provide scientific expertise and training for Parties and other participants in COP/MOP4 Meetings and Ad Hoc Committees.

99. The following section presents some examples of capacity building efforts by the CG Centres individually:

CIAT

100. Since 1999 and with the support of the Federal Ministry for Economic Cooperation and Development of Germany (BMZ), USAID, the Rockefeller Foundation and CIAT core resources, CIAT has organized workshops and courses on biosafety (16 in total). Capacity-building has focused on researchers from NARS (breeders and non-biotechnology specialists from the Latin American and Caribbean region), some of them being directly hired in CIAT by the respective projects. Another target audience has been the national authorities responsible for regulating the introduction and management of transgenic crops (members of Technical Biosafety Council), and other government officials (i.e. senators, members of Ministry of Environment, Health and Agriculture). A high priority has been media coverage (radio, newspapers), TV programmes/videos (4 workshops). Since 2003, CIAT has been participating in a Global Environmental Facility (GEF)/World Bank funded project for the implementation of the Cartagena Protocol in Colombia by giving Colombia technical assistance and training, and establishing research capacity on environmental safety.

CIP

101. CIP management and research scientists approved guiding principles for the development and deployment of genetically engineered organisms in 2001. CIP developed and distributed information pamphlets on biosafety and biotechnology research in 2002 and 2003. In 2000 CIP established, and continues to maintain, a communication and information website on potato genetic engineering PotatoGENE (www.potatogene.org). Finally, in collaboration with the communication department, CIP

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2 Detailed information about this programme can be found in the document UNEP/CBD/BS/CM-CB/3/INF/1 of the Third Coordination Meeting for Governments and Organizations implementing and/or Funding Biosafety Capacity-building Activities, held in Lusaka, Zambia, 26 - 28 February 2007, entitled *Update on the Ongoing Biosafety Capacity-Building Projects and Other Initiatives: A compilation of submissions from Governments and Organizations*.

3 Empresa Brasileria de Pesquisa Agropecuária

4 The Conference of the Parties to the Convention on Biological Diversity serving as the meeting of the Parties to the Protocol

held an event on genetically engineered crops for the Peruvian press journalists and communicators in 2007.

102. Participation and contribution to the debate over transgenic crops has been an important activity of CIP scientists involved with biotechnology research, as part of the Latin American network REDBIO. CIP, together with the United Nations Industrial Development Organization (UNIDO), the Canada-Latin America Initiative in Biotechnology for Sustainable Development (CAMBioTech), and the Peruvian Ministry of Foreign Affairs, convened an important international conference in 2001, to discuss the potential of modern biotechnology for food and agriculture. During the Generation Challenge Program meeting in Nairobi in 2004, CIP organized and led a workshop, involving CG Centres, NARS, and ARIs, on gene technology. More recently, CIP organized a seminar, with support from the Rockefeller, McKnight and Syngenta Foundations, to discuss bottlenecks and solutions to make the benefits of biotech crops available to resource-poor farmers in Africa. These conferences and seminars have been important elements to develop the global strategy for CIP's research programme and product development for transgenic technologies.

ICARDA

103. ICARDA has actively promoted the development and establishment of national and regional biosafety regulations in dry areas and especially in West Asia and North Africa (WANA). Together with other national and international organizations and donors, ICARDA has organized a number of regional workshops on biosafety, which include:

(a) A workshop on biosafety, 29 August – 1 September 2003, Damascus, organized in collaboration with the General Commission for Scientific Research (GSCAR), Syria, and the Syrian Atomic Energy Commission (SAEC), and with the financial support of FAO. This was followed by another three day workshop at ICARDA, Aleppo, for selected participants to demonstrate practical detection of GMOs using a variety of methodologies.

(b) A policy dialogue meeting, entitled Harnessing Biotechnology and Genetic Engineering for Agricultural Development in the Near East and North Africa (NENA), 12-14 February 2006, Cairo, Egypt. This meeting was attended by a number of eminent scientists as invited speakers and country representatives from NENA countries.

(c) A Third Country Training Programme (TCTP), entitled 'Genetic transformation of plants and detection of GMOs', 28 May - 8 June 2006 at ICARDA, Aleppo. This was a practical, 'hands-on' training course involving 15 scientists and administrators dealing with the development, introduction and testing of transgenic crops in their respective countries.

ICRISAT

104. Training activities for NARS scientists and students from several universities have received major attention at ICRISAT. Interactions with media personnel in the form of media workshops have been very productive and have created a positive impact in the news media (both print and television). Media workshops, organized by ICRISAT, were carried out in India, Bangladesh and Niger, in 2005 and 2006. The aim of the workshops was to create greater awareness and understanding in the media of technical issues concerning GM crops. Another workshop is planned for Kenya in the future. ICRISAT, in collaboration with the Southern Asian Biosafety Program (SABP) and the Asia Pacific Consortium on Agricultural Biotechnology (APCoAB), also conducted training of trainers workshops in 2005, and a workshop on "Biosafety regulations for transgenic crops and the need for harmonizing them in the Asia-Pacific region" in 2006. These activities have also resulted in the publication of a sourcebook for journalists entitled "Genes are Gems: Reporting Agri-Biotechnology" in 2006.

IFPRI

105. The IFPRI-managed Program for Biosafety Systems (PBS) contributes to the implementation of the Cartagena Protocol by supporting partner countries as they develop the policy and legal framework, administrative procedures, technically qualified personnel and outreach mechanisms integral to their national biosafety systems. PBS work emphasizes sound science-based decision making and research, while also addressing socioeconomic considerations. PBS works with partner countries in Africa (Ghana, Mali, Nigeria, Kenya, Uganda, Malawi, Mozambique, South Africa) and Asia (the Philippines, Indonesia) to develop and implement a program of activities tailored to biosafety needs identified by local collaborators. In addition, PBS works with regional policy-making bodies on subjects of common interest, such as GM commodity trade and the development of regional technical guidelines. The scope of activities includes the following:

(a) *Policy and regulatory development through stakeholder participation*: The PBS policy component analyzes the implications of different country and regional regulatory approaches for genetically modified organisms and develops new decision models to assist regulatory agencies. Choices regarding biosafety policies and objectives are evaluated for their implications for agricultural growth, trade, and food security.

(b) *Technical training in environmental and food risk assessment*: PBS maintains an active program of training and outreach activities. The overall aim of such activities is to ensure that the people involved in biosafety decision-making are competent and confident to assess planned releases of GMOs and GM food products using the best available science.

(c) *Strategic planning for communications and outreach*: Clear and consistent communications about biotechnology and biosafety are key to the success of biosafety capacity development in partner countries. Improving the understanding of biotechnology and biosafety in a wide array of audiences is essential to achieving this goal.

(d) *Grants for scientific research on environmental risk issues*: The focus of the Biotechnology-Biodiversity Interface (BBI) grant program, managed by PBS, is on the need to better understand the interaction between genetically engineered crops, agriculture, and the environment. Environmental risks and benefits, and their applicability to the agricultural realities of different ecological regions, must be assessed on a case-by-case basis. Through BBI, competitive grants fund biosafety research aimed at addressing the effects of agricultural biotechnology, particularly genetically engineered crops, on natural biodiversity as it occurs in developing countries.

(e) *Assistance with regulatory documentation for proposed field testing*: For the benefits of agricultural biotechnology to reach farmers and consumers in developing countries, specific agricultural products must be developed, tested, and deployed. Each step along this process must be carried out following good biosafety practices and in conformity with national biosafety regulations. This component of PBS aims to help public sector R&D institutions to incorporate biosafety into their product development efforts and to comply with regulatory requirements. It also aims to help regulatory agencies to carry out their roles effectively in the review, approval, and inspection processes.

ILRI

106. ILRI is hosting Biosciences eastern and central Africa (BecA), an initiative endorsed by the New Partnership for Africa's Development (NEPAD), based in Nairobi. BecA is a capacity-building and research platform for Africa to enhance the application of biosciences, including biotechnology and biosafety, and address agricultural constraints in Africa. As part of the design of BecA, a comprehensive environmental impact assessment (EIA) was conducted leading to an environmental management plan approved by both the Kenyan regulators (National Environment Management Authority) and the

Canadian government. This process included a unique strategic environmental assessment, in which regional biosafety concerns were addressed. Applications for the research work have been made to the regulators in Kenya thus the Kenya Plant Health Inspectorate Services (KEPHIS) – for plant related research; the Department of Veterinary Science – for livestock related research; and the National council of Science and Technology – for research related to genetic engineering (GE) and genetic modification (GM). The regulators have approved the design of the facilities, which has been judged to be appropriate for the research proposed. ILRI has also re-established a fully functional Biosafety Committee, whose task is to review the risk assessment forms related to any work involving genetic modifications among other biological research activities taking place in the institute. The membership of the Committee includes scientists from a number of CG Centres working with plants and animals as well as micro-organisms. These reviews provide ILRI management with on-going information on biosafety issues associated with the research programme on the ILRI campus.

IRRI

107. IRRI continues to participate in regional deliberations, including: the The Association of Southeast Asian Nations (ASEAN) – United States Roundtable on Agricultural Biotechnology Policy and Strategy; the Asia Pacific Economic Cooperation (APEC) Biosafety Conference; the APEC Working Group on Research, Development and Extension on Agricultural Biotechnology; and the APEC High Level Policy Dialogue on Agricultural Biotechnology. Within the Philippines, IRRI has continued its longstanding role in helping the development of local biosafety rules and regulations, and to this end, IRRI was an active participant in the national consensus for the Philippine National Biosafety Framework; providing advice to the Senate Foreign Relations Committee, by invitation, during its deliberations prior to the ratification of CBD and the CBP; and has engaged in the national consensus led by the Department of Agriculture to revise the application forms and dossier requirements for field testing, propagation approval and for deregulation approvals of transgenic crops. In addition, IRRI provided an instructor for the course entitled "Commercialization of Biotechnology Crops in Asia", in 2006, which included participants from the Philippines, Malaysia, and Vietnam. As part of its ongoing research and in special bilateral relationships, IRRI routinely hosts junior and other scientists from other countries in its biotech labs and projects and provides on the job training on local and relevant international biosafety requirements as part of this experience. IRRI has been asked by Vietnam to help train its scientists in agricultural biotechnology.

WorldFish Center

108. With partners, the WorldFish Center has been a leading voice in promoting biosafety measures in the development and use of aquatic alien species and LMOs5. WorldFish Center staff members have been major contributors to a new multi-authored state-of-the-art publication, '*Environmental Risk Assessment of Genetically Modified Organisms: Methodologies for Transgenic Fish*' (CABI, 2007). The Centre has agreed to purchase and distribute 150 copies of the book to developing country NARS, libraries and scientists. The Centre continues to support workshops where such matters are debated, including the next International Symposium on Tilapias in Aquaculture that will be held in Egypt in 2008. Biosafety issues are highlighted in all genetic improvement training courses and materials that the WorldFish Center delivers.

5 For example, see the following publications: WorldFish Center (2003) Dhaka Declaration on Ecological Risk Assessment of Genetically Improved Fish, http://www.worldfishcenter.org/Pubs/Dhaka%20booklet/Dhaka_booklet.pdf.

WorldFish Center (2002) Nairobi Declaration on aquatic Biodiversity and Use of Genetically Improved and Alien Species for Aquaculture in Africa. http://www.worldfishcenter.org/cms/list_article.aspx?catID=39&ddlID=109.

Conclusions

109. In carrying out LMO development activities, the CGIAR Centres meet or exceed the requirements and standards of national and international law. In most of the cases, LMO development is accompanied by gene flow studies and other research (including socio-economic research) relevant to assessing the potential impacts of LMOs. The results of these studies are made publicly available to the international community and can be taken into consideration by national governments and international fora when designing biosafety policies.

110. The CGIAR Centres are increasing their levels of involvement in capacity-building with respect to the development of biosafety policies and regulations. Most of this work is firmly grounded in the biological and socioeconomic scientific expertise of the Centres and their experiences as international public sector research organizations dedicated to the production and distribution of public goods. The Centres look forward to further strengthening their work in this field by forging connections with other organizations and placing their capacity-building work within the larger global framework.

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

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The Program for Biosafety Systems (PBS)

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URL: http://www.ifpri.org/themes/pbs/pbs.htm

111. The Program for Biosafety Systems (PBS) contributes to the implementation of the Cartagena Protocol by supporting partner countries as they develop the policy and legal framework, administrative procedures, technically qualified personnel and outreach mechanisms vital to their national biosafety systems. PBS work emphasizes sound science-based decision making and research, while also addressing socioeconomic considerations. PBS works with partner countries in Africa (Ghana, Nigeria, Kenya, Uganda, Malawi, Mozambique, South Africa) and Asia (the Philippines, Indonesia) to develop and implement a program of activities tailored to biosafety needs identified by local collaborators. In addition, PBS works with regional policy-making bodies on subjects of common interest, such as LMO commodity trade and the development of regional technical guidelines.

Project activities

112. The scope of PBS activities includes the following:

(a) *Policy and regulatory development:* The PBS policy component analyzes the implications of different country and regional regulatory approaches for genetically modified organisms. Choices regarding biosafety policies and objectives are evaluated for their implications for agricultural growth, trade, and food security. Legal expert advice is provided to countries drafting legal instruments and implementing regulations.

(b) *Grants for scientific research on environmental risk issues:* The focus of the Biotechnology-Biodiversity Interface (BBI) grant program, managed by PBS, is on the need to better understand the interaction between genetically engineered crops, agriculture, and the environment. Through BBI, competitive grants funded biosafety research aimed at addressing the effects of agricultural biotechnology, particularly genetically engineered crops, on natural biodiversity as it occurs in developing countries.

(c) *Assistance with regulatory documentation for proposed field testing:* This component of PBS provides public sector R&D institutions with the support they need to incorporate biosafety into their product development efforts and to comply with regulatory requirements. It also aims to help regulatory agencies to effectively carry out their roles in the review, approval, and inspection processes.

(d) *Technical training in environmental and food risk assessment:* PBS maintains an active program of training and outreach activities. The overall aim of such activities is to ensure that the people involved in biosafety decision-making are competent and confident to assess planned releases of GMOs and GM food products using the best available science.

Main achievements

113. Selected PBS achievements include:

(a) *Contributing to (regional) policy making:* A number of African governments are in the process of drafting, or revising overall guiding policies on biotechnology and biosafety, usually backed by laws or decrees stipulating the specific procedures for GM applications and products. PBS supports national policy development where needed, notably in countries who are in the process of defining their national biosafety systems, e.g., in Malawi, Ghana and Uganda. In Malawi, PBS has supported a process of grassroots consultations in key agricultural zones, providing inputs into a draft policy on biotechnology and biosafety developed by a multi-stakeholder Biotechnology Policy Taskforce. The final policy document will be submitted to Cabinet in early March 2007. In the meantime, work has started to revise the Biosafety Act (2002) to better define regulatory roles and responsibilities among relevant government agencies. The government of Malawi gazetted the revised Law in August 2007, enabling the appointment of a National Biosafety Regulatory Committee.

(b) Regional policy research projects in collaboration with ECAPAPA[6], ACTS[7] and FANRPAN [8] aim to inform the policy process in sub-Sahara Africa. For example, the Regional Approach to Biotechnology and Biosafety Policy in Eastern and Southern Africa (RABESA) initiative, supported by the COMESA Secretariat, in its first phase analyzed the likely trade implications of planting GM crops for selected countries in East and Southern Africa. Based on the outcomes of the study (available at: http://www.acts.or.ke/pubs/monographs/index.html), the COMESA Secretariat drafted a set of guidelines on regional trade flows of GM commodities, which will be elaborated in a follow-up phase of the initiative.

(c) In addition, detailed legal analysis and review has been done on (drafts of) laws and regulations, and recommendations made to ensure such documents establish workable, understandable and transparent regulatory systems that are consistent with international obligations. In Eastern Africa, this work has been review through regional policy seminars organized by the East African Community (EAC).

(d) *Establishing the BBI competitive grants program*: Scientific data are essential for assessing environmental risks and benefits of transgenic organisms, particularly in centers of diversity. Impacts will differ from one ecological region to another and should be evaluated on a case-by-case basis, in and by developing countries. The focus of the Biotechnology Biodiversity Interface (BBI) grants mechanism, managed by PBS since 2003, is on the need to better understand the interaction among transgenic crops and animals, agriculture, and biodiversity. To date, 11 project proposals (see Table 1 below) have been awarded, with scientific leadership by developing-country research institutes. PBS

6 ECAPAPA: Eastern and Central Africa Programme for Agricultural Policy Analysis

7 ACTS: African Centre for Technology Studies

8 FANRPAN: Food, Agriculture and Natural Resources Policy Analysis Network

regional coordinators and advisory groups are instrumental in identifying BBI priorities, launching calls for proposals and supporting potential grantees. Findings from the BBI projects are being reviewed through regional technical review meetings and international conferences.

(e) *Integrated Confinement System for GM plants*: Confined field trials (CFTs) play a critical role in the evaluation and development of new technologies intended to improve agricultural productivity. General guidelines for assessing and deciding on CFTs have been adopted in most partner countries. However, their implementation must be carefully managed in order to assure that the experimental material remains confined, so that no effect on the environment and human or animal health is allowed. Aware of the need for a comprehensive and encompassing approach —comprising the development of detailed guidelines, tailored training and technical assistance— in the critical area of biosafety for confined field trials, PBS and partners in developing countries have developed an 'Integrated Confinement System' applicable to confined field trials as well as contained glasshouse experiments. The system has been developed through collaborative work in East Africa, and has the following elements: (a) CFT Guideline; (b) Containment Manual; (c) Confinement Manual; (d) Regulatory Procedures; (e) Trial Managers handbook; and, (f) Inspectors' handbook.

(f) In partnership with the Uganda National Council for Science and Technology, PBS developed detailed guidelines and standard operating procedures (SOPs) for confined field trials, adopted by the government of Uganda under existing legal authority. This work enabled the Uganda National Biosafety Committee to review and approve field trial applications for GM fungal-resistant banana and Bt cotton.

(g) *Towards an integrated approach to biosafety training*: So far, PBS training and education events have been primarily organized in response to needs and challenges expressed by partners in Asia and Africa. This has been a valid approach in order to establish a strong training component, and to develop and test training materials and methods. PBS agreed on a set of common principles to be followed in the design, implementation and evaluation of training and education activities. They were derived from a review of past events in partner countries, drawing lessons from successful approaches. As a result, PBS continues to move toward targeted training interventions supporting a clearly defined goal, with less emphasis on introductory, generic training activities (however recognizing these are still needed for most partner countries). As a result, recent training events focused on, for example, reviewing actual field trial applications; developing GM food safety regulations in line with international (Codex) standards; developing training curriculum and materials by African universities. These activities were complemented by a PBS "train the trainers" initiative, the first of which took place during the summer of 2007.

RAEIN-AFRICA

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The Southern African Biosafety and Environment Programme

Preamble

The Regional Agricultural and Environmental Initiatives Network (RAEIN-Africa) was formed in 2002, after a regional biosafety and biotechnology needs assessment carried out in Eastern and Southern African regions in 2001 and 2002. After realising that that there was need for a SADC regional coordinating body on emerging technologies and policies that govern their safe use participants of this exercise endorsed the formation of RAEIN-Africa.

RAEIN-Africa will be established as a leading organisation in facilitation of an innovative systems approach in technology and policy development for sustainable development. RAEIN-Africa will thrive to enhance the livelihood of the marginalized citizens in the region through their participation in technology development and policy formulation for sustainable development.

The RAEIN-Africa secretariat is in Namibia where it works in collaboration with the Ministry of Education, Directorate of Science and Technology, University of Namibia and the Namibian Biotechnology Alliance (NABA)

The regional Board of Trustees is composed of eminent professionals from the region who are leaders in research and development, technology development and promotion, capacity building, rural development and agricultural research and economics, policy development, sustainable development and project management. The network is therefore well governed.

The Biosafety and Environment Programme

114. The RAEIN-Africa has been implementing "Southern African Biosafety and Environment Programme" (BEP) funded by the DGIS of the Netherlands. The programme started in October 2004 and is ending in June 2007. The focus of the programme is biosafety and the environment. The broad objective of the programme is to promote and foster good governance through public involvement in decision making on biosafety and the environment. The specific objectives are to facilitate development and implementation of biosafety systems and harmonise them with environmental laws; build legal, technical, and socio-economic expertise for development of biosafety systems; initiate research on biosafety data generation for backstopping decision making processes; create a database on science and non-science biosafety issues and link with other regional and international databases; and to promote and foster networking, cooperation and collaboration. Programme activities include policy support, networking and capacity building. Capacity building is implemented in a three pronged approach which includes public education, awareness and participation, data generation and short courses.

115. In implementing its activities the network enjoyed a lot of support in form of both technical and other contributions from government institutions, NGOs and other stakeholder groupings in the region including NEPAD, the SADC Biodiversity support Programme and the AU other International organisations such as the UNEP/GEF Biosafety programme.

116. Below are some of the programme achievements to date:

(a) The BEP's work plan was drawn by representatives of eleven SADC countries, in a consultative planning workshop in Lusaka, Zambia in 2004.

(b) Taking into account the fact that capacity building activities have to clearly link with policy process if biosafety is to become an integrated part of science and technology and innovation policy, RAEIN-Africa, under the BEP, carried out a study on "Capacity Building for the Sustainable Management of Legal and Policy Aspects Related to Biotechnology and Biosafety in the SADC Region". The study confirmed the limited human and infrastructural capacities in the region and highlighted that South Africa had the most human and infrastructural capacity endowment, which could be instrumental in facilitating capacity building in other countries in SADC. The study also recommended a number of short courses that the network could embark on to compliment the limited capacity in the region. Some of these courses were implemented in 2006 as highlighted in this report.

(c) The programme supported public awareness activities in Botswana, Namibia, Mozambique, Swaziland, Tanzania and Zimbabwe. Activities carried out in these countries range from national consultations on biosafety frameworks, national public awareness surveys, Public awareness workshops and production of public awareness materials.

(d) Supported three research projects in – The distribution, molecular variation and assessment of gene flow between wild varieties of sorghum; a study on the distribution of GMOs in selected SADC countries; and genetic diversity of pearl millet and cowpeas in Namibia. Three MSc students were funded through these research works – all of whom have finalised their thesis and are graduating in 2007.

(e) Implemented a regional workshop on "Public Education, Awareness, and Participation in Biosafety" in collaboration with the Department of Agricultural Research in Botswana, 35 participants from 9 SADC countries participated. These were representatives of the media both electronic and print, scientists, civil organisations (NGOs) and policy makers (including Members of Parliament). The workshop attempted to bring these various stakeholders to educate each other on issues of biotechnology, biodiversity and biosafety areas of consensus were noted and so were concerns from each of the stakeholder groups. Implementers of public awareness activities could use the issues raised by each of the stakeholder group as priority information gaps.

(f) Other training workshop held were: Training on Negotiation Skills – Thirty-Five participants were present which covered Biosafety Focal Points representatives, Scientists, legal and policy makers nominated by the focal points from the following SADC countries; Botswana, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe. There were also invited speakers from the UNEP/GEF, NEPAD, SADC and experts in Liability and redress, Risk assessment and risk management and handling, packaging , transportation and identification which came from Kenya, South Africa and Switzerland. This training workshop was held in readiness for the COP/MOP3 meeting held in Brazil in March 2006. The workshop aimed at developing common understanding on the main issues on the COP/MOP agenda. It thus discussed the following key issues; Liability and Redress; Handling, transportation, packaging, and identification; and Risk Assessment and Risk Management. Day 2 and 3 were reserved for training on negotiation skills by a South African Advocate – Henk Botha. Sixteen out of the 35 trained participated at the COP/MOP meeting in Brazil.

- Training on identification of GMOs was hosted by the Tobacco Research Board and the University of Zimbabwe – Twenty-Six scientists, lecturers and technicians, from Botswana, Lesotho, Mozambique, Malawi, Namibia, Swaziland, Zambia and Zimbabwe were exposed to the theory and practice on GMO testing. The course covered topics on: Overview of Biotechnology and Issues/Concerns, Introduction to plant transformation techniques, Isolation of Genomic DNA from plants, Principles of the polymerase chain reaction (PCR), Qualitative and quantitative GMO analyses using both PCR and ELISA techniques, The Cartagena Protocol on Biosafety and Status of Biotechnology in selected SADC countries, Food Safety evaluation and case studies MON810

- A workshop on "Biodiversity, Biotechnology, Biosafety and Law" was held in collaboration with the Swaziland Environment Authority and University of Swaziland. It attempted to educate the participants on the interface between science and Law. The workshop was attended by twenty-eight scientists, policy makers and environmental lawyers from 8 SADC countries. The major recommendations were the need for a manual on Biotechnology, Biosafety and Law to be built into a three to four week staggered on site and on line course; and a network of legal experts on biosafety to be established at regional level.

- A National Biosafety workshop was held in collaboration with the South African Department of Agriculture, with thirty-three participants from all the SADC countries except Tanzania and Angola attending. The major focus of the workshop was role of biosafety committees in the development and implementation of NBFs. Among the major issues discussed was the need for a coordinated biotechnology and biosafety activities including capacity building in the region.

Lessons Learnt and Recommended Way Forward

117. Some of the main lessons learned relate to the following:

(a) The need to involve stakeholders in all stages of development of capacity building initiatives, from needs assessment to designing the interventions and implementing them was noted. Transparency is important to build trust and true participation by stakeholders in this process. A holistic approach for sustainable capacity to be achieved should be considered. Training human capacity alone without equipping the individual institution to be able to use the skills imparted to them, is not sustainable. The multi-stakeholder approach enhances sustainability and ensures that the efforts at national level are harmonised. Sustainability should therefore be an issue in building capacity for developing countries.

(b) The issue of Institutional- capacity building remains a priority in the region. Most countries highlighted that they lack comprehensive national policies and legal frameworks on biosafety. Were these are available countries highlighted lack of capacities to implement and enforce them, lack of infrastructural and administrative capacities. Some of the already existing international and regional programmes are aiming at addressing this priority need.

(c) There is need to work with established capacity building institutions and influence the inclusion of the designed short courses into their institutional programme of work. This can substantial increase the chances of sustainable provision of the relevant skills on a cost recovery basis. Short courses should be very focused and targeted to the relevant institutions that will use the learnt skills in their day to day activities. There is need to develop a pool of trainers at regional level on specific needy areas as identified by the needs assessment carried out in the region. Linkages to other regional and international institutions working in Biosafety are a must.

(d) The issue of capacity building in regulatory aspects of systems of innovation of emerging technologies such as biotechnologies need a more coordinated effort at national, regional and international levels. This will not only reduce duplication of efforts but will also enable interventions to plan from a holistic point of view i.e. capacity building that feeds into each other. e.g. technical capacity to link up with infrastructural capacity building and be supported by a coherent policy system.

118. As an initiation phase the BEP has a short programme life span hence most activities were to initiate the network's future programmes and give basis for the focus of the network. The BEP's major achievement was the establishment of a good networking relationship among the various stakeholders across SADC that include government departments, parastatal organisations, NGOs, consumer and farmer organisations, academic institutions and private companies. Currently the initiative is seeking for strategic partnership in addressing some of the identified priority constraints in the development and implementation of biosafety systems.
