UNEP

CBD

CONVENTION ON BIOLOGICAL DIVERSITY

Distr.
GENERAL

UNEP/CBD/BS/COP-MOP/1/INF/2
4 December 2003

ORIGINAL:
ENGLISH/SPANISH/FRENCH*

CONFERENCE OF THE PARTIES TO THE CONVENTION ON BIOLOGICAL DIVERSITY SERVING AS THE MEETING OF THE PARTIES TO THE CARTAGENA PROTOCOL ON BIOSAFETY
First meeting
Kuala Lumpur, 23-27 February 2004
Agenda item 6.3 of the provisional agenda**

THE CAPACITY-BUILDING (ARTICLE 22 AND ARTICLE 28, PARAGRAPH 3)

Compilation of Submissions on Capacity-building and an Update on Existing Projects and Other Initiatives

Note by the Executive Secretary

1. The Intergovernmental Committee for the Cartagena Protocol on Biosafety (ICCP), at its third meeting, invited Parties, Governments, and relevant organizations to submit their views and comments to the Executive Secretary on the preliminary set of indicators for monitoring implementation of the Action Plan. At its second meeting, the ICCP requested the Executive Secretary to prepare a report on the progress made in the implementation of the Action Plan, based on submissions from Parties and Governments and relevant organizations, for consideration by the first meeting of the Conference of the Parties to the Convention on Biological Diversity serving as the meeting of the Parties to the Cartagena Protocol on Biosafety.

2. The first part of this note contains a compilation of the submissions received by the Secretariat from the following Parties, Governments, and relevant organizations as of 22 October 2003: Australia, Paraguay, Global Industry Coalition (GIC), International Centre for Genetic Engineering and Biotechnology (ICGEB) and WWF International.

3. At its first meeting, the ICCP invited Parties and Governments and relevant organizations to submit to the Secretariat information regarding their capacity-building needs, priorities and existing initiatives and requested the Executive Secretary to compile that information. The information submitted is maintained in the capacity-building projects database in the Biosafety Clearing-House, available at: http://bch.biodiv.org/Pilot/CapacityBuilding/GettingStarted.aspx.

* The contributions in the present compilation are reproduced in the language and form that they were received by the Secretariat.

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

/…

4. The Executive Secretary has the honour to circulate herewith, for the information of participants, a summary description of the major on-going biosafety capacity-building projects and other initiatives registered in the projects database as of 22 October 2003. The list of projects described herein is by no means exhaustive. The projects are categorized according to the type of the lead organization(s) implementing or coordinating them, i.e. United Nations agencies, international organizations, bilateral agencies and programmes, regional organizations, industry, non-governmental organizations and private foundations.

CONTENTS

SUBMISSIONS FROM PARTIES, GOVERNMENTS AND RELEVANT ORGANIZATIONS

AUSTRALIA [22 September 2003]
[SUBMISSION: ENGLISH]

Submission of views on the preliminary set of indicators for monitoring implementation of the Action Plan (paragraph 9, recommendation 3/5)

Australia provides the following comments on the preliminary set of indicators for monitoring implementation of the Action Plan, contained in annex IV to this recommendation.

Performance indicators should be objective and be able to be measured. The indicators should be restricted to measuring how the Protocol has achieved its environmental objectives as outlined in Article 1 of the Protocol.

1a) Indicators *of results*

Australia questions the use of "*Better* biosafety policies in place", preferring "Transparent, rigorous science based risk assessment and management procedures in place".

Indicators of impact

Australia rejects the proposal that fewer incidences of illegal transboundary movements of living modified organisms (LMOs) is a suitable indicator of impact given the current absence of documented illegal transboundary movements of LMOs in international LMO trade.

Australia's submission on compliance procedures and mechanisms proposes a facilitative, rather than judicial or adversarial approach, designed to assist those Parties which, in spite of best endeavours, are experiencing difficulty in meeting their obligations under the Protocol.

The proposal for an indicator of *fewer or no cases of non-compliance* prejudges the implementation of the Protocol and assumes that cases of non-compliance will arise.

1b) *Indicators of impact*

In keeping with comments in relation to 1a), Australia questions the references to motivating exporters to avoid illegal transactions as there is no evidence that there is currently any illegal LMO international trade.

Similarly, the reference to non-compliance presupposes non-compliance.

1e) *Indicators of impact*

In keeping with comments in relation to 1a), Australia questions the references to illegal importation of LMOs as there is no evidence that there is currently any illegal LMO international trade.

PARAGUAY [22 September 2003]
[SUBMISSION: SPANISH]

Borrador de documento a ser presentado a la Secretaría del Convenio para el 22 de septiembre de 2003, para la preparación de la reunión de la Conferencia de las Partes en el Protocolo de Cartagena sobre Seguridad de la Biotecnología.

Elementos considerados del Informe del Comité Intergubernamental para el Protocolo de Cartagena sobre Seguridad de la Biotecnología documento UNEP/CBD/ICCP/3/10 :

Ítem ¾ Lista de Expertos en Seguridad de la Biotecnología

I. Situación de la aplicación de la lista de expertos sobre Seguridad de la Biotecnología
En Paraguay se ha realizado un llamamiento a través del Punto Focal del Protocolo de Cartagena a las diferentes entidades tanto gubernamentales como no gubernamentales para difundir y recabar información de los diferentes especialistas, pero se ha tenido poca respuestas en este sentido.

Será importante que del listado existente la Secretaría del Convenio solicite a los diferentes expertos que actualicen sus datos.

II. El fondo fiduciario de carácter voluntario consideramos una muy buena oportunidad para los diferentes especialistas que pudieran aportar en los procedimientos para la aplicación e implementación en reuniones futuras y ser así la participación equitativa principalmente de los países menos adelantados.

Ítem 3/5 Creación de capacidad (Art. 22 y párrafo 3 del Art. 28)

Estamos haciendo los esfuerzos en la creación de capacidad aunque son todavía asilados, esperamos centrar estos esfuerzos para mejorar la capacitación y la conciencia de los especialistas y los diferentes sectores como aduanas, puerto, aeropuerto, importadores, para el logro del cumplimiento.

Esperamos que a través de la Secretaría del Convenio y del Centro de Intercambio de Información faciliten la información sobre las asistencias para organizar cursos prácticos sobre creación de capacidad, para acceder a ellos.

Anexo I Pág. 67

Mecanismo de Coordinación para la aplicación del Plan de Acción sobre creación de capacidad para la aplicación eficaz del Protocolo de Cartagena sobre Seguridad de la Biotecnología.

C. Administración del mecanismo de coordinación

2. Elaborar y mantener una página del Centro de Intercambio de Información sobre Seguridad de la Biotecnología, en los países puedan acceder fácilmente a la información sobre el apoyo disponible para la creación de capacidad y, en la que las entidades que precisan apoyo puedan especificar sus necesidades.

Sería conveniente agregar al texto …a través de sus Centros Nacionales de Coordinación del Centro de Intercambio de Información. Esto apunta a la organización interna de la Partes en cuanto a trabajar de manera coordinada entre las instituciones involucradas del gobierno, las organizaciones no gubernamentales y el sector privado a fin de centrar las acciones en el plan de acción de creación de capacidad a nivel nacional y poder cumplir con el Protocolo de Cartagena.

Anexo II Pág. 69

La función de las diversas entidades en cuanto a prestar apoyo a la creación de capacidad.

La función de la Secretaría y del Centro de Intercambio de información con respecto a informar a las Partes principalmente a través de los Puntos Focales, Centros Nacionales de Coordinación del BCH sobre las posibilidades de acceder a los fondos disponibles tanto para la creación de capacidades, marco

legislativo y administrativo son de suma importancia para el cumplimiento del Protocolo en los países menos adelantados.

Anexo III

Guía práctica para la aplicación

I. Tareas Administrativas:

1. Se ha designado a la Secretaría del Ambiente como Punto Focal, Centro Nacional de Coordinación del Centro de Intercambio de Información del Protocolo de Cartagena Sobre Seguridad de la Biotecnología.
2. Esta designación como autoridad competente no se ha establecido, aunque sí propuesto a las anteriores autoridades de la Secretaría del Ambiente, esperando la aprobación del anteproyecto de ley de Bioseguridad, en la que se establece a nivel nacional las autoridades competentes: Secretaría del Ambiente, Ministerio de Agricultura y Ganadería, Ministerio de Salud Pública y Bienestar Social.
3. Estas informaciones no se han proporcionado a la Secretaría, esperamos remitirlo antes de la Primera Conferencia de las Partes, se espera la ratificación del Protocolo.
4. Este punto no se ha dado en nuestro país.
5. Este punto no se ha dado en nuestro país.
6. Esta información se remitirá para el 22 de Septiembre de 2003
7. El Centro de Coordinación Nacional del Centro de Intercambio de Información del Protocolo de Cartagena asume esta función.
8. Se insistirá a la Secretaría del Convenio que actúa en el Protocolo de Cartagena que deberán suministrar ejemplares impresos de las notificaciones para asegurar la recepción de información.
9. Estas informaciones no se ha proporcionado a la Secretaría, se espera antes de la Primera Conferencia de las Partes.

10. Esta información no se ha proporcionado.

11. La Secretaría del Ambiente se encuentra realizando las gestiones para la ratificación así como ver los mecanismos para su cumplimiento.

12. Se realizará a través del Centro de Coordinación Nacional la Unidad de Bioseguridad.

II. Requisitos y/o actividades jurídicos

1. La Secretaría del Ambiente se encuentra realizando las gestiones para con las instituciones encargadas del transporte de mercaderías como puerto, aduanas, aeropuerto, para considerar mecanismos y procedimientos acordes con el Protocolo de Cartagena. Se espera que con la Ley Nº 294/93 de Evaluación de Impacto Ambiental y la Evaluación del riesgo que realiza la Comisión de Bioseguridad Decreto Nº 18481/97 se eviten o reduzcan los riesgos para la diversidad biológica, teniendo en cuenta los riesgos para la salud humana. Se espera que con la Comisión de Bioseguridad y la pronta aprobación del anteproyecto de Ley de Bioseguridad se establezcan mecanismos acordes con el Protocolo de Cartagena.

2. Con una declaración jurada del exportador se podrá vincular jurídicamente con respecto a la exactitud de la información proporcionada para exportaciones de OVM- AHAP a otros países.
3. En este punto se solicita a las demás instancias, organismos gubernamentales involucrados en las decisiones de introducción de OVM que exista una concordancia con las notificaciones remitidas a los importadores, exportadores y que se estipulen los procedimientos del Acuerdo Fundamentado Previo del Protocolo en tanto que Paraguay logre la ratificación.

4. La Secretaría del Ambiente solicita a las demás instancias y el público en general a ser supervisores, evaluadores del cumplimiento no solo del Art. 15 del Protocolo de Cartagena.
5. La Secretaría del Ambiente solicita a las demás instancias y el público en general a ser supervisores, evaluadores del cumplimiento no solo del Art. 10 del Protocolo de Cartagena.
6. Se espera que con la creación de capacidades, concienciación de las autoridades, financiamiento de proyectos que nos conduzcan a cumplir con el Protocolo de Cartagena se logre establecer y mantener los mecanismos, medidas y estrategias adecuadas para regular, gestionar y controlar los riesgos identificados en las evoluciones del riesgo respecto del uso, la manipulación y el movimiento transfronterizo de OVM.
7. La Secretaría del Ambiente solicita a las demás instancias y el público en general a ser supervisores, evaluadores del cumplimiento no solo del Art. 16 (3) del Protocolo de Cartagena.
8. Ídem punto 6 para dar cumplimiento con el Art. 16(4)
9. A través del Centro Nacional de Coordinación del Centro de Intercambio de Información se realizarán estas comunicaciones.
10. La Secretaría del Ambiente está realizando las gestiones pertinentes para adoptar medidas principalmente por aduanas, puerto, aeropuerto con respecto al transporte con respecto al Art. 18(1).
11. La Secretaría del Ambiente está realizando las gestiones pertinentes para adoptar medidas principalmente por aduanas, puerto, aeropuerto con respecto al transporte con respecto al Art. 18(2)(a)
12. La Secretaría del Ambiente está realizando las gestiones pertinentes para adoptar medidas principalmente por aduanas, puerto, aeropuerto con respecto al transporte con respecto al Art. 18(2)(b)
13. La Secretaría del Ambiente está realizando las gestiones pertinentes para adoptar medidas principalmente por aduanas, puerto, aeropuerto con respecto al transporte con respecto al Art. 18(2)(c)
14. Este punto es importante que se divulgue a los importadores y exportadores para adecuarse a lo dispuesto en el Protocolo Art. 21(1)(6).
15. Las consultas deberán realizarse a través de la Secretaría del Ambiente y la Comisión de Bioseguridad, Art. 21(2) del Protocolo.
16. y 17. La Unidad de Bioseguridad ha sido establecida para dar cumplimiento como Centro Nacional de Coordinación del Centro de Intercambio de Información y velar por que la información confidencial no se utilice con fines comerciales sin consentimiento por escrito del notificador Art. 21 (3)(5).
18. Se están realizando consultas a través del grupo de trabajo permanente conformado para el Protocolo de Cartagena sobre Seguridad de la Biotecnología, con diferentes sectores de la sociedad involucrados con la transferencia, la manipulación y el uso seguros de OVM, teniendo en cuenta los riesgos para la salud humana.
19. Ídem
20. Este punto tiene relación con el anteproyecto de ley de Bioseguridad en la que se establece consultas con el público en relación a la adopción de decisiones en el marco del Protocolo Art. 23(2).
    A la fecha las consultas con el público han sido escasas.

21. La Secretaría del Ambiente ha facilitado la información a los organismos gubernamentales y no gubernamentales, está realizando sus esfuerzos para lograr que mayor número de personas accedan al Centro de Intercambio de Información Art. 23 (3).
22. Se está realizando las gestiones para adoptar las medidas necesarias para cumplir con el Art. 25 (1).
23. Ídem

III. Requisitos de Procedimiento: Acuerdo Fundamentado Previo

1. Las comunicaciones se harán conducto Centro Nacional de Coordinación del Centro de Intercambio de Información, vía correo electrónico cuando se trate de la introducción por primera vez en el país de un OVM. Esto se encuentra estipulado en el anteproyecto de Ley de Bioseguridad Art. 22.
2. Las tareas estipuladas en los Artículos 9,10 y 12 del Protocolo de Cartagena se espera cumplir a través de la Comisión de Bioseguridad una vez aprobada la Ley de Bioseguridad.
3. La Secretaría del Ambiente como Centro Nacional de Coordinación del Centro de Intercambio de Información (BCH) del Protocolo de Cartagena recibirá las informaciones proporcionadas por la Comisión de Bioseguridad a fin de remitir al BCH.

IV. Requisitos de procedimiento: Organismos vivos modificados para uso directo como alimento humano o animal o para procesamiento

1. La adopción definitiva de una decisión sobre el uso interno, incluyendo la comercialización de los OVM que puedan ser objeto de movimientos transfronterizos para uso directo como alimento humano o animal o para su procesamiento, se informará a través del Centro Nacional de Coordinación del BCH sobre la decisión adoptada, en un plazo de 15 días, Art. 11(1)
2. Las decisiones se podrán remitir vía correo electrónico a través del Centro Nacional de Coordinación del BCH. Art. 11 (1)
3. Este punto se establecerá a través del Centro Nacional de Coordinación del BCH. Art. 11 (3)
4. La decisión definitiva de importación se comunicará vía el Centro Nacional de Coordinación del BCH. Art. 11 (4) (6)

ORGANIZATIONS

GLOBAL INDUSTRY COALITION (GIC) [22 September 2003]
[SUBMISSION: ENGLISH]

Capacity-Building: Action Plan and Coordination Mechanism

The following provides the views and comments of the users and developers of biotechnology concerning the preliminary set of indicators for monitoring implementation of the Action Plan on Building Capacities for the Effective Implementation of the Cartagena Protocol on Biosafety. Given ongoing activities to address the gaps in implementation of priority elements of the Action Plan, using as appropriate, the implementation toolkit, general comments concerning the content of the Action Plan and Coordination Mechanism also are provided.

General Comment concerning the Capacity-Building and Information Sharing

The Need to Include Biosafety Research

As more Governments develop regulatory systems and engage in science-based risk assessments following entry into force of the Protocol, they will require not only information about the regulatory status of LMOs and risk assessment undertaken by other Governments but also *concrete and reliable information about biosafety research.* It is therefore remarkable that no where in the capacity-building and information sharing framework does one find a place or mechanism for promoting information exchange on the results of actual biosafety research. This is true notwithstanding the fact that one of the indicators identified in Annex IV of decision 3/5 is the growth rate in expenditures on biosafety research.

Awareness of the nature and results of the extensive and growing body of biosafety research through facilitated information exchange will be critical to build the capacities necessary for the effective

implementation of the Protocol. These include the following key capacity-building elements identified in the Action Plan:

- *Legislative and Policy Frameworks*: Knowledge of the results of biosafety research conducted to date and ongoing efforts in this regard are fundamental to formulating sound, science-based policies and regulatory systems.
- *Monitoring and Assessment Mechanism*: Effective and efficient risk assessment and establishment of appropriate monitoring requirements can only be accomplished when those responsible for such activities are well informed about the results of state-of the-art biosafety research. As reflected in Point 5 of annex III of the Protocol, this includes scientific evidence about the nature, characteristics and risks of LMOs as well as the consideration of these risks "in the context of the risks posed by the non-modified recipients or parental organisms in the likely potential receiving environment."
- *Human Resources Development and Training and Scientific, Technical and Institutional Collaboration*: Building human capacity in biosafety as well as ensuring scientific collaboration includes the need to ensure awareness of and access to results and, ultimately, involvement in ongoing biosafety research. Ensuring that capacity-building includes undertakings related to information sharing and collaboration in the field of biosafety research also will facilitate the transfer of technology and know-how to countries desiring it.
- *Information Exchange and Data Management*: For all of the foregoing reasons, it is important to ensure that biosafety research is among the information shared by the international community.

Coordination of Biosafety Research Information Exchange, Dec. 3/5, Annex I

The omission of biosafety research information exchange as a basis for capacity-building also is reflected in the Coordination Mechanism for the Action Plan in which "lessons learned" focuses exclusively on what can be learned from capacity-building exercises such as workshops on regulatory systems, not what can be learned through sharing technical knowledge. This aspect should be addressed as part of the Coordinating Mechanism. While the Secretariat need only play a procedural role with respect to the posting of information on the Biosafety Clearing-House by countries concerning their regulatory frameworks, decisions and other information required by the Protocol, an effective information exchange mechanism for biosafety research results would require a well-managed quality control mechanism. Several options exist for such a mechanism, whether it is created as part of the Biosafety Clearing-House or is accomplished through a link from the Biosafety Clearing-House to another appropriate site. One approach could be to establish an editorial board of reputed scientists to ensure scientific integrity of posted results and exchanges of views. Ideally, the space of the Biosafety Clearing-House devoted to biosafety research would allow for scientific experts to submit not only results of research but scientific view points as is done, for example, in the correspondence pages of publications by Nature and Science. The PRELEX system of the European Commission also provides a good model for establishing an issue-based system that allows for new information and exchange of views.

Role of Different Entities, Dec. 3/5, Annex II

The Role of the ICCP

Annex II of ICCP decision 3/5 describes the role of the ICCP in capacity-building. Given the status of the Protocol today, this raises the question whether an ongoing role is foreseen for the ICCP or whether the tasks outlined in Annex II, including the important task of revising and updating the capacity building framework in light of developments, will be reassigned to another body.

The Role of the Secretariat

The role assigned the Secretariat also appears to require revision as the Biosafety Clearing-House moves from the pilot phase into full operation. As its role is revisited, it would be useful to clarify what is

meant by item (a), which refers to "providing an administrative framework for creation of technical and scientific capacity." It also is unclear what is envisaged under item (h) concerning the facilitation of the functioning of the roster of experts.

With respect to item (d), a question that arises is what assistance is provided countries to help them with needs identification in the first place. What can be observed happening in ongoing capacity-building projects in which little to no support for conducting the needs assessment is provided, is a tendency to identify needs in quantitative terms with respect to equipment, computers or workshops. Successful capacity-building may require provision of technical and legal expertise to assist with the needs assessment, rather than mere synthesis and analysis of the identified needs.

Role of the Private Sector

The private sector has been assured that the revised description of its role in capacity building outlined below, which was invited by the Chair of the responsible ICCP working group but was omitted from the final report, will appear in the documentation for the first meeting of the Conference of the Parties to the Convention on Biological Diversity serving as the meeting of the Parties to the Cartagena Protocol on Biodafety.

Revised description of the potential roles of industry in capacity-building

a. Participating in and assisting in national and regional efforts to implement the Protocol;

b. Creating confidence with consumers;

c. Provision of technical advise concerning identification, detection and analytical assessment and for monitoring;

d. Provision of technical advice concerning proposed systems for labelling, traceability and unique identifier;

e. Improving capabilities of accessing and handling electronic information;

f. Undertaking risk assessment, and addressing information needs and concerns of industry;

g. Associating with initiatives on capacity-building and sharing experience with risk assessment and management of LMOs;

h. Providing co-financing for capacity-building activities;

i. Cooperating in consensus-building and assisting in raising public education and awareness;

j. Participating in and assisting in national and regional efforts helping to implement the Biosafety Clearing-House;

k. Contributing to guidance on Protocol implementation issues;

l. Representing specialist or sectoral interests in relation to risk assessment and risk management issues;

m. Reinforcing collaboration among capacity-building projects on biotechnology and biosafety in order to avoid duplication and to efficiently use the limited resources available; and

n. Associating with capacity-building initiatives, ensure public participation and promote public awareness on biosafety issues.

Implementation Toolkit, Dec. 3/5 Annex III

The Implementation Toolkit is useful for countries in ascertaining and implementing their obligations under the Protocol. Because the Toolkit provides a checklist of obligations (as opposed to

describing what is permissible under the Protocol or as a matter of national sovereignty as stricter domestic measures), the final item, which concerns LMO-FFPs should be revised. While the current wording is an improvement over the original version adopted in July 2001 in Cuba, this item still requires amendment because it is misleading to present it, as currently worded (a Party "may take a decision"), as an "obligation." A suggested rewording is: "If a Party requires a decision for the import of LMO-FFPs under its domestic legislation, such legislation must be in conformity with the Protocol. Where a decision is required pursuant to a declaration under Article 11(6) in the absence of domestic legislation, the decision must be made on the basis of a risk assessment in accordance with annex III within no more than 270 days."

Preliminary Set of Indicators, Dec. 3/5 Annex IV

The following comments concern the preliminary set of indicators for capacity building prepared by the Secretariat as reflected in annex IV of decision 3/5. It is understood that comments already provided at the November 2002 meeting of the Liaison Group on Capacity Building for Biosafety also will be taken into account in preparing a revised version of the indicators for consideration at the first meeting of the Conference of the Parties to the Convention on Biological Diversity serving as the meeting of the Parties to the Cartagena Protocol on Biodafety.

Focus of Indicators

The preliminary set of indicators tends to blur the line between capacity-building for biosafety in general – which is a very broad field - and biosafety for LMOs that may have an adverse effect on the conservation and sustainable use of biodiversity, taking also into account risks to human health. It should be understood by the audiences for this document that ensuring an adequate level of biosafety for genetically modified crops, for example, is only a small part of biosafety. Many other biosafety concerns, including pathogens in foods, contamination of drinking water or toxic components of food (e.g., mycotoxins in cereals) also must be addressed by Governments as part of biosafety, even though they are not relevant to the Biosafety Protocol.

Care should also be taken to ensure that the indicators focus, *a priori*, on ensuring capacity--building with respect to the transboundary movement of LMOs as that is the primary business of the Protocol and the core of the obligations countries have undertaken.

"Indicators of Impact"

Throughout annex IV one repeatedly finds as "indicators of impact" loaded language and baseless statements concerning "incidences of illegal transboundary movements," "cases of illegal importation and use of LMOs," and "incidences of 'disguised' importation of LMOs with potential risks." All such statements need be removed from the document.

Funding

The input/output indicators related to funding are exclusively quantitative without any attempt to measure or ensure efficient or even productive use of resources. Use of such indicators is common in highly bureaucratic capacity building programs at the international level but does not provide a good measure of success. Moreover, such a quantitative focus tends to further promote projects that result only in more workshops (often repeating what is already known), the creation of more manuals (whether or not useful or ever utilized), purchasing more equipment (whether or not it is necessary), etc. Indicators that attempt to measure whether funds are effectively utilized would be more appropriate. Another concern with respect to funding is the suggestion that funding and the ratio of resources spent on biosafety – compared to other activities apparently – increases. Such an approach fails to reflect that reallocation of resources towards biosafety inevitably reduces funding for other critical work and objectives. Care

should be taken not to inflate concerns about biosafety with such statements given the wide range of environmental and developmental challenges and priorities facing countries.

Awareness, Education and Participation

Once again one finds an emphasis on quantity – the number of organizations involved, the number of workshops, the number of news agencies, the number of news articles, the volume of awareness materials, etc. One could argue that a high number of newspaper articles, for example, indicate a problem with public awareness and education rather than success. Similarly, a multitude of workshops or production of voluminous documents, guides, brochures, etc. does not necessarily lead to a better informed and more knowledgeable public. Attention should be given to substantially revising the indicators to better ensure a correlation between capacity-building activities and improved awareness, education and participation. The same comment applies to the section on Human Resources Development and Training.

INTERNATIONAL CENTRE FOR GENETIC ENGINEERING AND BIOTECHNOLOGY

[22 September 2003)
[SUBMISSION: ENGLISH]

The forthcoming entry into force of' the Cartagena Protocol on Biosafety (adopted in 1000 by the Conference of the Parties to the Convention on Biological Diversity) is shaping the activities on biosafety implemented by Governments, international agencies and biotechnology stakeholders. Accordingly, there is an increased interest in acquiring specific scientific expertise in this area, which has led to formal requests for access to information and capacity-building activities offered by the ICGEB and for extending its co-operation with other international organizations involved in this subject. In 1997, the ICGEB has established a Biosafety Unit within the Directorate to provide institutional services related to genetically modified organisms (CMOs) and their environmental release to Member States. The Unit is involved in three major sectors, namely: (i) information dissemination and the establishment of a biosafety clearing-house; (ii) scientific training in risk assessment for the environmental release of GMOs (capacity building and technology transfer), and (iii) international co-operation with other international agencies involved in biosafety. The following is a brief update of the activities implemented by the Biosafety Unit in the last year, as well as an outlook of possible new programmes that may involve ICGEB and its constituency in the future.

Capacity-building in biosafety

Organization of workshops and training courses: The Centre continues to provide its constituency with the technical instruments and qualified information required in biosafety and risk assessment for Member States to gain advantage from biotechnology and to be informed as to its benefits and potential risks. Since 1991, more than 630 scientists from over 65 different countries have attended the ICGEB annually biosafety workshops. The course held in 2002 has been jointly organised by ICGEB and the UNEP Global Environment Facility (GEF) Biosafety Project and has been attended by thirty scientists, from 22 countries, selected among ICGEB Member States or countries participating in the UNEP-GEF Project (an initiative implemented by UNEP and financed by the GEF, that aims at enabling up to 100 developing countries to implement the Biosafety Protocol at regional and national levels). In 2003 two workshops on biosafety and risk assessment have been organized by the Centre: in addition to the traditional workshop for scientists involved in biosafety-related research, a second workshop has been designed, aimed at officers in governmental agencies and/or designated experts working in risk assessment of GMOs at the official level (Governments, scientific institutions, private sector, etc.). This event co-organized by ICGEB and the Overseas Agronomical Institute (IAO) of the Italian Ministry for

Foreign Affairs, held in Florence, aimed to provide a dedicated forum for advanced discussion and information sharing to scientists with expertise in risk assessment and /or biosafety regulations.

Collaboration with local authorities: The Centre remains available for direct collaboration with its Member States, to provide assistance and specific expertise in the implementation of the Cartagena Protocol, such as the activities being implemented with the Italian Ministry for the Environment. This collaboration commenced in 1999 with the elaboration of a report on the topics of concern related to the environmental release of GMOs and has continued in the course of 2002: in addition to the development of the Risk Assessment Searching Mechanism described above, the Ministry and the ICGEB have recently finalised an informative booklet on GMOs, to be widely distributed in Italy.

Moreover, this collaboration (an excellent example of direct assistance to local authorities in an ICGEB Member State, a service that could be available to other Member States in the future), has led to the publication of the first "Collection of Biosafety Reviews", a compilation of scientific studies on areas of major interest for biosafety and risk assessment, to be prepared by internationally recognized scientists specifically for ICGEB, which will feature scientific reviews summarizing the state of the art in their fields of expertise. The first issue, is dedicated to: (i) biosafety considerations relevant to virus-resistant transgenic plants (M. Tepfer, Laboratoire de Biologie Cellulaire INRA-Versailles); (ii) fate and effects in soil of the insecticidal toxins from Bacillus thuringiensis in transgenic plants (D. Saxena and G. Stotzky, Laboratory of Microbial Ecology, New York University); and (iii) an assessment of factors affecting the likelihood of horizontal transfer of recombinant plant DNA to bacterial recipients in the soil and phytosphere (K. Nielsen, Norwegian Institute of Gene Ecology). The second issue will focus on specific examples of GMO release (e.g. the release of transgenic fish and related environmental risks), on problems of more general magnitude (e.g. risks connected to horizontal gene flow from GMO crops or potential impacts of herbicide-tolerant plants) as well as on theoretic aspects (e.g. the possible use of predictive models for the invasiveness and impact of introduced alien species for GMO risk assessment).

Establishment of an ICGEB Biosafety Outstation for training and research on biosafety: This project aims at setting up an ICGEB facility for training and research in risk assessment and management of the environmental release of GMOs. The Outstation, equipped for studies in molecular genetics and with a high-containment greenhouse, will be located in Ca' Trop, close to Venice, in two buildings that will host the new laboratories and guesthouse for trainees, which have been totally refurbished and equipped by the "Fondazione Cassamarca", an Italian non-profit organization. The research programmes will aim at investigating as yet undefined areas in scientific knowledge related to the safe use of agricultural products derived from biotechnology. The buildings should be available to the ICGEB by fall 2003 and the ICCEB Secretariat has recently entered into an Agreement with the "Fondazione Cassamarca" to regulate the implementation of the activities and the financial aspects of the Biosafety Outstation.

The main activities foreseen by this new laboratory (which falls under the scientific supervision of the Director of the Trieste Component, with close collaborative links with the Plant Biology Groups at the New Delhi Component), will include: (i) research and definition of appropriate procedures for risk assessment (horizontal gene flow**,** persistency, allergies, induction of resistance, susceptibility, etc); (ii) research aimed at the identification of new environment-friendly technologies and/or methodologies for plant transformation; (iii) definition of new protocols for the identification of GMOs in food, feed and seeds and their products thereof; (iv) the set-up of an "observatory" for monitoring GMO stability and possible biodiversity or cultivar reductions; and (v) training activities, constituted by courses on risk assessment as well as long-term training (initially at the post-doctoral level) of fellows originating from ICCEB Member States, to be incorporated in the research programmes of the Outstation.

Sustainable biotechnology and agriculture in Africa: A three-year project for the establishment of an African Resource and Training Regional Centre for Biosafety and the Protection of Biodiversity has

been earmarked for funding by the Government of Italy, and presented, together with ICGEB, at the World Summit on Sustainable Development (Johannesburg 26 August - 4 September 2002).

The initiative, expected to start in 2003, will involve 16 Governments of the African Region, Italy and several intergovernmental organizations, and will be implemented by ICGEB. It aims at ensuring a thorough involvement of African countries, through their competent ministries, officers and research institutions, in the activities implemented by the Biosafety Unit, and is directed at providing direct assistance in the following areas: (i) protection and exploitation of genetic resources; (ii) technical co-operation in the framework of the Convention on Biological Diversity; (iii) identification of research priorities (definition of the priority traits for viable crops: improvement of the nutritional value, resistance to insects, pesticides, high salinity and other stresses); (iv) testing facilities and field trials (containment, availability of land); (v) genetically modified organisms: procedures for risk assessment and management, national legislation(s) and public information; and (vi) access to the main international instruments (the Cartagena Protocol, the Biosafety Clearing House, Risk Assessment Searching Mechanism, etc). The expected results of this project will be a feasibility study for an African Regional Centre for Biosafety and the Protection of Biodiversity, the organization of three regional training courses on risk assessment and management and conservation of biological diversity, the preparation of work-plans and strategies at national/ regional levels, at well as the implementation of several national research projects, to be funded by the ICGEB in the framework of its Collaborative Research Programme, in coordination with the activities carried out by the Biosafety Outstation.

International Co-operation

Both present and future activities implemented by ICGEB in the field of Biosafety require a number of combined actions directed to enhance environmental standards and biotechnology management. Collaboration with other entitles, and in particular with other international organizations, in this respect, is of the greatest importance. In fact, the ICGEB Board of Governors has recommended the close cooperation by the ICGEB with other international organizations and agencies where issues on biosafety are addressed at the scientific level, and the Centre actively participates in the Inter-Agency Network for Safety in Biotechnology (IANB), chaired by the OECD, in which several organizations have identified a good synergism with ICGEB's renowned experience in advanced research and training in molecular biology and biotechnology. The needs expressed by developing countries in the framework of several international conventions, for capacity-building and technology transfer in the specific fields of risk assessment and management of GMOg, represents a challenge whereby reciprocal advantage of the expertise and technical competence of the various relevant international organizations involved in this issue may be taken, while avoiding an overlap of activities.

Among the many International Organizations (within or outside the UN System) involved in the five-year negotiations for the adoption of the Cartagena Protocol on Biosafety, ICGEB is certainly the one with the most relevant scientific and technical expertise in biotechnology: its active participation in this arena has therefore been sought at various levels, as it can provide the desired full and fair implementation of the Protocol with an essential added value, from the technical and scientific points of view. As the responsible entity for the implementation of the Cartagena Protocol, the Secretariat of the Convention on Biological Diversity remains the most important partner in this field and the interoperability criteria to ensure that the informatic tools developed by the ICCEB are available to the Biosafety Clearing-House have now been finalized. This field has also been recognized as one of the main topics for collaboration between the United Nations and the ICCEB: the Co-operation Agreement entered into by the two Secretariats in March 2001 specifies that the United Nations and the ICGEB may decide to co-operate on activities related to the sustainable and safe use of genetic engineering and biotechnology, as well as in the implementation of the international co-operation programmes foreseen by the Convention on Biological Diversity and its Cartagena Protocol on Biosafety (Article VI.2 of the UN-ICGEB Co-operation Agreement).

ICGEB activity in the field of information dissemination and, more specifically, the usefulness of its bibliographic database are widely recognized. This has led to the involvement of the ICGEB Biosafety Unit in the European initiative to enhance communication regarding GMO biosafety research. The project has been funded within the fifth European framework programme "Quality of Life and Management of Living Resources" (QLK3-2001-30037), named GMO RES COM. One of the aims of the project is to contribute to greater transparency in the area of GMO biosafety research by providing improved access to information to all stakeholders world-wide. A GMO-biosafety communication network is being created with centers in France, Germany, Italy and Hungary. ICGEB will lead the creation of a Europe-wide, Web-based, public-access database of projects and researches active in GMO biosafety research.

Table 1.: ICGEB Biosafety Database: records as at 30 June 2003. Total authors: 7,322; Total descriptors: 5,991; Total articles: 3,821;
Count of records per year and per category of risk

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	TOT
Animal and Human Health	10	46	40	57	116	73	88	54	33	50	96	160	157	29	1010
Environment	31	55	63	73	140	99	74	76	51	68	139	179	153	39	1240
Agriculture	9	39	42	79	130	108	133	53	41	60	108	109	98	18	1027
General Concerns	52	120	98	151	137	89	76	119	107	116	199	273	260	42	1840
Interaction with non Target Organisms	13	16	17	27	59	51	48	48	66	73	77	62	47	6	610
Genetically Modified Micro-organisms	33	56	52	73	128	75	84	45	29	11	24	37	28	5	680
Aquaculture		2	2	2	12	15	8	4	1	6	9	10	10	1	82

Table 2: ICGEB Risk Assessment Searching Mechanism (RASM): records as at 30 June 2003. Statistics (General): 213 records; 8 countries (Australia, Bulgaria, Canada, EU, New Zealand, Switzerland, UK, USA); 9 national competent authorities.

	Plant Species (Common Name)	Number of varieties
	Chicory	1
	Cotton	5
	Flax	1
	Maize	22
	Oilseed rape	18
	Papaya	1
	Potato	7
	Rice	3
	Soybean	5
	Squash	2
	Sugar beet	3
	Tobacco	1
	Tomato	6
	Wheat	2
TOTAL		77

Table 3.: ICGEB Risk Assessment Searching Mechanism (RASM): 213 records as at 30 June 2003. Statistics (Traits): Herbicide tolerance: 51%; Insect resistance: 29%; Male sterility: 7%; Virus and fungal resistance: 8%; Others: 5%.

Traits	Records
Bromoxynil herbicide tolerance	14
Coleopteran insect resistance	25
Cucumber mosaic virus (CMV) resistance	2
Fruit ripening altered	8
Fungal (Ustilago maydis) resistance	1
Glyphosate herbicide tolerance	44
Higher amylopectin starch content	2
Imidazolinone herbicide tolerance	9
Lepidopteran insect resistance	58
Male sterility	21
Oil profile altered	5
Papaya ring spot virus (PRSV) resistance	1
Phosphinothicin (Glufosinate ammonium) herbicide tolerance	78
Potato leaf roll virus (PLRV) resistance	9
Potato virus Y (PVY) resistance	3
Sethoxydim herbicide tolerance	1
Sulfonilurea herbicide tolerance	3
Watermelon virus 2 (WMV2) resistance	4
Zucchini yellow mosaic virus (ZYMV) resistance	4

WWF INTERNATIONAL [30 September 2003]
[SUBMISSION: ENGLISH]

Item 6.3 - Capacity-building (Article 22; Article 28, para.3)

The current capacity-building programme is extremely important for helping countries to establish basic capacities and frameworks for dealing with biosafety and implementing the provisions of the Protocol. As countries that participated in the earlier pilot programme on biosafety capacity-building, which ran during the period in which the Protocol was being negotiated, have found, there is a need for further capacity-building activities beyond these first steps. WWF urges the first meeting of the Conference of the Parties to the Convention on Biological Diversity serving as the meeting of the Parties to the Cartagena Protocol on Biodafety to address how to provide further capacity-building activities to countries once they complete the capacity-building activities supported by the current GEF Biosafety Capacity-Building Projects. In particular, WWF suggests that further capacity-building activities should include ecological and socio-economic expertise, public awareness raising and participatory skills.

WWF supports the recommendation to the first meeting of the Conference of the Parties to the Convention on Biological Diversity serving as the meeting of the Parties to the Cartagena Protocol on Biodafety that is set out in ICCP decision 3/5, and decision 3/5 annex I, on adoption of the Coordination Mechanism for the implementation of the Action Plan for Building Capacities for the Effective Implementation of the Cartagena Protocol on Biosafety.

Roster of Experts

Regarding the Roster of Experts, WWF calls for the first meeting of the Conference of the Parties to the Convention on Biological Diversity serving as the meeting of the Parties to the Cartagena Protocol

on Biodafety to recommend that information required for each person listed on the roster of experts should include details of their experience and of their present and past affiliations and funding, and that this should be made publicly available. At present provision of such information is optional, and the format in which it is provided by those choosing to do so, is variable. WWF also urges the first meeting of the Conference of the Parties to the Convention on Biological Diversity serving as the meeting of the Parties to the Cartagena Protocol on Biodafety to promote inclusion on the roster of experts of appropriately qualified individuals from civil society.

Indicators of Capacity-Building

Indicators of capacity-building are important as a way of systematically assessing capacity, the need for and effectiveness of capacity-building. At the same time, indicators need to be focused on factors connected to effective implementation of biosafety, and should be simple to collect. It might be beneficial to seek to select some core indicators from amongst the large number of indicators proposed in the preliminary set.

Indicators of results and indicators of impact are both essential for understanding the actual progress that is being made on achieving effective performance of biosafety regimes at National level. These two categories of indicator rely primarily on qualitative and comparative indicators, and it would be helpful to describe how qualitative indicators are to be assessed and how baselines are to be established for comparative indicators.

In relation to point 3, Risk assessment and other scientific and technical expertise, WWF suggests that the specific skill areas required be identified by separate indicators (e.g. ecological and socio-economic expertise, public awareness raising and participatory skills, as well as specific areas of scientific expertise - see Box below) so that any imbalances in availability of required skills can be assessed and in relation to point 4, Risk management, that indicators be included on capacity to monitor and enforce effective implementation of risk management measures that Parties may set under Articles 10 and 16.

BOX: Examples of specific areas of scientific expertise that are relevant to risk assessment may include:

Agronomy	Pathology
Biochemistry	Plant biology/botany
Ecology	Population genetics
Entomology	Process technology
Epidemiology	Taxonomy
Forestry	Toxicology
Marine biology	Veterinary science
Microbiology	Virology
Molecular genetics	Zoology
Nucleic acid technology	

This list is not intended to be comprehensive, and the necessary areas required will vary according to the specific LMO for which a risk assessment is to be carried out.

EXISTING BIOSAFETY CAPACITY-BUILDING PROJECTS/ INITIATIVES

UNITED NATIONS AGENCIES

1. GEF Initial Strategy for Assisting Countries to Prepare for Entry into Force of the Cartagena Protocol on Biosafety/"Development of National Biosafety Frameworks"

This is an initiative by the Global Environment Facility (GEF) aimed at providing financial assistance eligible countries to prepare for its entry into force of the Cartagena Protocol on Biosafety through the establishment of national biosafety frameworks. Its specific objectives are: 1) to assist countries with the development and implementation of national biosafety frameworks with a wide degree of stakeholder participation; 2) to promote information-sharing and collaboration at the regional and sub-regional level and among countries that share the same biomes/ecosystems and 3) to promote identification, collaboration and coordination among other bilateral and multilateral organizations to assist capacity-building for the Protocol and explore optimization of partnerships with such organizations.

Under the Strategy, the GEF, through the UNEP/GEF project on "Development of National Biosafety Frameworks" is providing assistance to more than 121 countries to prepare their NBFs. The GEF is also supporting 12 demonstration projects for assisting countries with the implementation of their NBFs. The experience gained with these demonstration projects will be used in considering new proposals for assistance with the implementation of NBFs. The GEF is also considering a project submitted by UNEP and Secretariat entitled "Building Capacity for Effective Participation in the Biosafety Clearing-House (BCH) of the Cartagena Protocol", which will cost about US$ 4.965M (including US$ 4.615m from GEF and US$ 0.35M in co-financing). The overall objective of the project is to assist eligible countries in building and strengthening national capacity needed to enable access and use of the Biosafety Clearing-House in order to implement their obligations under the Protocol and also ensure that the Biosafety Clearing-House is fully operational and utilized by Parties. In the new GEF Strategic Business Plan, capacity-building for the implementation of the Cartagena Protocol on Biosafety is listed as one of the four pillars of the strategic priorities in the biodiversity focal area for the new decade.

2. UNEP/GEF Project on Development of National Biosafety Frameworks (2001-2004)

This is a global project funded by the Global Environment Facility (GEF) and implemented by United Nations Environment Programme (UNEP) in more than 120 developing countries and countries with economies in transitions. Its overall objective is to prepare countries for the entry into force of the Cartagena Protocol on Biosafety and strengthening national capacity to implement biosafety procedures in order to maximize the potential for the safe use of biotechnology and enhance environmental management. Its specific objectives are: 1) to assist eligible countries to prepare their national biosafety frameworks; 2) to promote regional and sub-regional collaboration and exchange of experience on issues of relevance to the national biosafety frameworks; and 3) to provide information, advice and support at the global level to the project countries.

The project consists of three main components, namely:
1) preparation of national biosafety frameworks, including: a) national surveys of the status of biotechnology applications; b) identification of any existing legal instruments or guidelines that might impact on the use, import or export of living modified organisms; c) identification of all stakeholders and mechanisms for their participation in the national frameworks;
2) Promoting regional and sub-regional collaboration on biosafety related issues by assisting in setting up regional networks for supply and exchange of biosafety information and systems to enable relevant authorities to oversee the development of biotechnology within the region and harmonization of guidelines, methodologies, and procedures for rapid assessment and management of risks;

3) Establishment of a global biosafety support programme to ensure that all project national focal points have ready access to appropriate assistance, a dedicated website, and an e-mail list server and to coordinate public awareness-raising activities through the publication of relevant materials and articles.

By October 2003, the project had organized 4 regional workshops to promote understanding of the process and elements of the NBFs, six sub-regional training workshops on "Risk Assessment and Management & Public Awareness and Participation" and the first, in a series of six, sub-regional training workshops on "Development of Regulatory Regime and Administrative Systems for NBFs". The project is also helping to promote regional collaboration and exchange of experience on issues of relevance to NBFs.

3. GEF Demonstration projects to support the implementation of National Biosafety Frameworks

These are projects coordinated by the GEF Implementing Agencies, i.e. UNEP (covering eight countries - Bulgaria, Cameroon, China, Cuba, Kenya, Namibia, Poland and Uganda), UNDP (Malaysia and Mexico) and the World Bank (India and Colombia). The eight projects that are managed by UNEP started in September 2002 and will end in September 2005. The project in Mexico started in 2003 while and those for Malaysia India and Colombia are yet to begin. The overall objective of the projects is to strengthen national capacities for the implementation of the National Biosafety Frameworks in order to realize the objective of the Cartagena Protocol on Biosafety. The specific objectives are: 1) finalizing the national legislative/ administrative frameworks; 2) strengthening human capacity, national facilities and the information systems; and 3) promoting public awareness and public participation. The twelve demonstration projects are carried out in order to gain experience and to develop good practices that may promptly and effectively be used for GEF projects to assist Parties after the entry into force of the Protocol. They are separate individual country projects addressing each country's specific needs. The target is to have in each country a biosafety framework "up and running" by the end of the three year project period so that each participating country will able to routinely implement the Biosafety Protocol. In concrete terms this means that each country will have in place: (1) a regulatory regime of laws and/or regulations consistent with the Protocol and other relevant international obligations; and (2) workable and transparent implementing systems for handling notifications or requests for approvals (including administrative handling, risk assessment and decision making), enforcement and monitoring, as well as public information and public participation.

The practice of the UNEP-GEF Projects can be summarised under the following steps: (a) laying a firm foundation for each country project; (b) providing continuous expert advice and support to the participating countries; and (c) ensuring close collaboration and coordination with Governments and national and international organizations. The UNEP-GEF Implementation Team offers the following support to the project countries: (1) collecting existing information on the NBFs, (2) compiling a list of international experts available to review the draft legislation and to act as resource persons in workshops; (3) developing a program outline for the workshops, (4) preparing workshop training materials, (5) preparing a structured work plan and reporting format, (6) training national coordinators in the use of the reporting formats as a tool of project management, and (7) preparing a technical manual on the NBF components. Detailed information about the execution of the UNEP-GEF Projects on Implementation of National Biosafety Frameworks can be found on www.unep.ch/biosafety/implementation.

4. UNEP/GEF Project on Implementation of the National Biosafety Framework for Bulgaria

This project started in September 2002 and will end in September 2005. Its total budget is 504,259 USD, of which 96,280 USD is co-financed by the Government of Bulgaria. The project is executed by the AgroBioInstitute (ABI) in Sofia, Bulgaria. The specific targets of the project are: (1) development of a strategy document on biosafety in the course of 2003-2004, after the submission of the

Law on GMOs to the Bulgarian Parliament; (2) finalization of the draft Law on GMOs and its enactment by early 2004; and (3) preparation and finalisation in the course of 2003–2004 of the implementing Ordinances on information requirements for notifications and requests for permits, requirements for containment levels and on risk assessments for contained use, deliberate release, placing on the market, and import of GMOs.

The other outcomes of the project will include the following: (a) first review of the functioning of the regulatory regime in 2005; (b) formats for notifications and requests for permission for the contained use, deliberate release, placing on the market and import of GMOs; (c) a system for efficient administrative handling of notifications and requests for permits; (d) a mechanism for reviewing risk assessments by the Commission; (e) a compilation of existing approaches for monitoring GMO; (f) a programme and manual for inspections; (g) relevant inspectors duly trained; (h) at least one existing laboratory selected, certified and assigned with detection and identification of GMOs and a programme for ensuring its sustainability drawn up; (i) 3 to 4 conferences held to raise public awareness; (j) a register of non-confidential information about decisions on notifications and requests for permits for activities involving GMOs developed; (k) a website that provides general information about the NBF of Bulgaria, and a link to the Register established; (l) a brochure on the potential benefits and risks of modern biotechnology and the Bulgaria NBF; and (m) a short training course in biotechnology for journalists.

5. UNEP/GEF Project on the Implementation of the National Biosafety Framework for Cameroon

This project started in September 2002 and will end in September 2005. Its total budget is USD 671,400, of which USD 111,100 is co-financed by the Government of Cameroon. It is executed by the Ministry of Environment and Forestry, which is also the national competent authority. As of October 2003, the following activities had been accomplished: (a) a trainers training workshop on the implementation of the Cameroon NBF was held from 8 to 11 April 2003 in Kribi, Cameroon; (b) the Cameroon Biosafety Law N°. 2003/006 of 21st April 2003 was promulgated; and (c) a roundtable conference was on the 22 May 2003. The specific targets of the project are: (a) develop a general policy in the field of biotechnology, (b) finalize the Implementing Decrees on GMOs including the various administrative procedures for handling requests and submit them to Prime Minister's Office for signature by June of 2004; and (c) prepare and finalize in the course of 2003-2004 the implementing Regulations which will address, *inter alia*: (i) information requirements for notifications and requests for permits for contained use, deliberate release, placing on the market, and import of GMOs; (ii) requirements for containment levels; and (iii) Risk assessments.

Other outcomes of the project will include the following: (a) finalization of the remaining procedural issues; (b) First review of the functioning of the regulatory regime in 2005; (c) electronic formats for notifications and requests for permission for the contained use, deliberate release, placing on the market and import of GMOs; (d) a system for efficient administrative handling of notifications and requests for permits, (e) mechanisms for reviewing risk assessments by the National Committee for Biosafety; (f) approaches for public participation, worked out in consultation with the relevant stakeholders; (g) a compilation of existing approaches for monitoring GMOs; (h) a programme and manual for inspections; and (i) a survey of the current and/or planned activities involving GMOs in research institutes and private sector organizations to provide insight in the type of inspection capacity required.

6. UNEP/GEF Project on the Implementation of the National Biosafety Framework for China

This project, which is executed by the State Environmental Protection Administration, started in September 2002 and will end in September 2005. Its total budget is USD 1,266,400, of which USD 269,000 is co-financed by the Government of China. The specific targets of the project are: (a) to produce a report of biosafety strategy on implementation of the Protocol and China's entry into the WTO; (b) to develop draft Law "Biosafety Regulation of the People's Republic of China" according to the Cartagena Protocol

and Chinese needs in 2004, reflecting all aspects of the Protocol and biosafety management requirements at the national level; (c) to develop draft management rules for the implementation of above Biosafety Regulation in 2004, including (i) rule of AIA for the transboundary movement of LMOs, (ii) Environmental Impact Assessment (EIA) for environmental release of LMOs; (iii) emergency plan for the prevention and control of potential adverse impacts caused by environmental release and use of LMOs; (iv) liability and compensation for environmental accidents caused by LMOs; (v) public participation; and (vi) Packaging, transportation, waste handling of LMOs, (d) outline of an effective and integrated biosafety administrative system in 2004, including: (i) responsibilities and duties of related ministries in the integrated biosafety administrative system;(ii) procedures of handling of notifications and requests for permits.

Other will outcomes include: (a) guidelines for risk assessment and risk management of LMOs; (b) training of officials involved in the implementation of the NBF; (c) proper monitoring parameters/indicators and methods to monitor environmental release of LMOs; (d) training of scientists in monitoring and inspections of LMOs; (e) strengthening of key national laboratories on Biosafety; (f) training courses for custom officials, managers, and inspectors; (g) collection of data and information about the current status of contained use, environmental release, commercial production and transboundary movement of LMOs; (h) a Biosafety Database system to serve for the purpose of Biosafety Clearing-House and to facilitate information sharing among decision-makers, managers, scientists and the public; (i) international workshops; and (j) dissemination and public education of biosafety related issues, through public media.

7. UNEP/GEF Project on Implementation of the National Biosafety Framework for Cuba

This project is executed by National Center for Biosafety (NCBS), Havana, Cuba with a total budget of USD 930,642, of which USD 284,142 is co-financed by the Government of Cuba. By October, the following activities had been implemented: (a) a national workshop on legal aspects was held on November 13-15, 2002, in Morón, C. Avila, Cuba; (b) a national workshop on information exchange was held on November 16 to 17, in Moron. C. Avila to inform regional specialists about approaches of information exchange, including database and the Biosafety Clearing-House; and (c) a course on biosafety was held from 25 to 29 November 2002 in Havana to train the specialists in Biosafety-related issues, facilities design, and risk assessment of GMO's and exotic species. Specific targets of the project are: (a) development of a Government policy document on biosafety as well as a strategy document outlining the activities that will be carried out in the period up to 2010; (b) a review, by 2005, of the entire regulatory regime for efficiency and effectiveness, taking into account the experience gained since 1999 and the Biosafety Protocol; and (c) development of resolutions on: containment requirements for genetically modified plants and animals, on inspections, and on accountability and control of biological agents, equipments and technologies.

Other targets include: (a) development of relevant technical norms and standards; (b) translation, reproduction and distribution of the Decree and resolutions; (c) development of formats for contained use, releases and placing on the market for genetically modified plants, micro-organisms and animals; (d) a manual with technical guidelines for risk assessment; (e) workshops for stakeholders involved in risk assessment; (f) a manual with guidance on monitoring and a compilation of existing approaches for monitoring procedures; (g) an inventory of the facilities and release areas; (h) a programme and manual for inspections of activities involving GMOs; (i) training of inspectors; (j) strengthening of one existing laboratory to handle detection and identification of GMOs in the context of inspections; (k) strengthening the existing system for information exchange including websites, databases and connection to the Biosafety Clearing-House; and (l) implementation of a program for public awareness and education, including surveys on the public perception on issues around biotechnology and biosafety, expert roundtables and public workshops and TV/radio programs.

8. UNEP/GEF Project on Implementation of the National Biosafety Framework for Kenya

This project is executed by the Kenya National Council for Science and Technology (NCST), in collaboration with the other relevant agencies. The total budget for the project is US$ 619,537, of which US$ 108,658 is co-financed by the Government of Kenya. During 2003, the biosafety bill, the biotechnology policy and the biotechnology strategy document were prepared and the existing interim regulations and guidelines were revised. In addition, the start up workshop on "Implementation of national biosafety frameworks" was also held from 14 – 18 April 2003, in Nairobi. The specific future targets of the project are to: (a) prepare by the end of 2003 a policy document, (b) finalize the draft Biosafety Bill and; (c) prepare the implementing regulations which will address, among other things: information requirements for notifications and requests for permits, requirements for containment levels and risk assessments; and (d) review of the functioning of the regulatory regime in 2005.

Other targets include: (a) revision of the existing formats and making them available in electronic format; (b) establishment of a system for efficient administrative handling of notifications and requests for permits; (c) development of a mechanism for reviewing risk assessments including internal rules of procedure, manuals for risk assessment and access to relevant databases; (d) training of the NBC, its secretariat and regulatory agencies in risk assessment and risk management; (e) compilation of existing approaches for monitoring of GMOs; (f) surveys of current and planned activities involving GMOs in research institutes and private sector organisations; (g) a program and manual for inspections of activities involving GMOs; (h) selection and certification of laboratories for detection and identification of GMOs; (h) development of a register for non-confidential information about decisions on notifications and requests for permits; (i) Establishment of a website to provide general information about the Kenya NBF and a link to the Register, and (h) organization of workshops/conferences to raise public awareness for the developments.

9. UNEP/GEF Project on Implementation of the National Biosafety Framework for Namibia

This project started in September 2002 and will end in September 2005. Its total budget is US$ 911,000, of which US$ 239,000 is co-financed by the Government of Namibia. Its national executing agency is the Namibian Biotechnology Alliance (NABA) housed in the Ministry of Higher, Education, Training and Employment Creation. The specific targets of the project are to: (a) Translate the biosafety policy in to 6 main local languages; (b) Finalize the interim measures to deal with GMO applications while awaiting the adoption of the draft bill; (c) Finalize the draft Bill; and (d) Prepare and finalize the implementing Regulations, which will address, *inter alia*: (i) information requirements for notifications and requests for permits for contained use, deliberate release, placing on the market, and import of GMOs, (ii) requirements for containment levels; (iii) for risk assessment.

Other targets include: (a) First review of the functioning of the regulatory regime in 2005; (b) training personnel in all the sections dealing with the processing of applications and import of GMOs, (b) establishment of a system for efficient handling of applications; (c) establishment of a system for efficient administrative handling of notifications and requests for permits; (d) development of a mechanism for reviewing risk assessments (rules of procedures and manuals for risk assessment); (e) access to relevant databases such as the Biosafety Clearing-House, Gene Files and Botanical Files, Genbank; (f) compilation of guidelines and approaches for monitoring using existing and accepted procedures for monitoring and their adaptation to the Namibian environment; (g) development of procedures for inspections; (h) establishment of a standard reference laboratory; (i) survey of the level of public awareness will be carried out; (k) production of brochures and newsletters for biotechnology and biosafety; (l) establishment of a website under the national biodiversity programme linked to NABA and the Ministry responsible for Science and Technology; (m) organization of workshops to raise public awareness on biosafety and biotechnology; and (n) identification of NGOs to participate in the workshops and other meetings related to biosafety and biotechnology.

10. UNEP/GEF Project on Implementation of the National Biosafety Framework for Poland

This project is executed by the Plant Breeding and Acclimatization Institute (PBAI) Radzikow, alongside the twinning project of the European Union on establishing a national biosafety system established between Poland and Germany. Its total budget is USD 548,100, of which USD 88,100 is co-financed by the Government of Poland. The specific targets of the project are: (a) elaboration of a Biosafety Strategy Document; (b) amendment of the GMO Act; (c) finalization of the implementing decrees; (d) development of formats for notifications; (e) establishment of a system for efficient administrative handling, including: a manual for the administrative handling of requests, a database for tracking applications, means to protect confidential information and a system to track dossiers. Other targets include: (f) establishment of a mechanism for reviewing risk assessments; (g) compilation of existing approaches for monitoring; (h) development of a program for inspections and training of the inspectors involved; (i) equipping of reference laboratories; (j) establishment registers of applications and risk assessments; and development of a website.

11. UNEP/GEF Project on Implementation of the National Biosafety Framework for Uganda

This project, which is executed by the Uganda National Council for Science and Technology (UNCST), has a total budget for this project is USD 642,000, of which USD 82,000 is co-financed by the Government of Uganda. Its specific targets are to: (a) develop a national biotechnology and biosafety policy, (b) finalize the draft biosafety regulations; (c) organize stakeholder workshops to create awareness on the regulations and implementation process; (d) train a cadre of lawyers on legal issues pertaining to biotechnology and biosafety; (e) develop electronic formats for all procedures regarding the handling of GMO requests, including for notifications and requests for permission for the contained use, deliberate release, placing on the market and import of GMOs; and (f) develop a system for efficient administrative handling of notifications and requests for permits, including tracking of dossiers and protection of confidential information.

Other targets include: (a) organizing a training workshop on mechanisms for reviewing risk assessments and risk management; (b) compilation of existing approaches for inspections, (c) organizing a training course on transboundary movement of GMOs for inspectors and members of the NBC; (d) selection, equipping and certification of two laboratories for detection and identification of GMOs in the context of inspections; (e) drawing up of a strategy for awareness dissemination followed by a survey to collect opinions from the general public on biotechnology and biosafety awareness, (f) organization of 4 district workshops; (g) development of a register that will contain non-confidential information about decisions on notifications and requests for permits for activities involving GMOs; (h) establishment of a website to provides general information about the Uganda NBF, with a link to the register; (i) development of an information database to maintain information on the benefits and risks of modern biotechnology, and the national biosafety framework of Uganda; (j) organizing radio and TV Programmes and posting of articles on various aspects biosafety and biotechnology developments from the project in the local newspapers; and (o) development of a curriculum in biotechnology and biosafety for schools and colleges.

12. UNDP/GEF Project on Implementation of the National Biosafety Framework for Malaysia

This project is coordinated by UNDP in collaboration with UNIDO. It is implemented by the Ministry of Science, Technology and the Environment (MoSTE) and other relevant Ministries (e.g. Health, Trade and Industry; Primary Industries; Agriculture) and other Government agencies and NGOs. Its objectives are: 1) to strengthen the legal and regulatory framework; 2) to build capacity in risk assessment and risk management; 3) to improve Institutional coordination and information sharing; and 4) to build partnerships with the private sector, other stakeholders and public. In order to fulfil her obligations under the Cartagena Protocol, Malaysia needs to build capacity in institution building, risk assessment and risk management. While she is committed to setting up a legal framework and accompanying institutional structure to implement the national Biosafety Bill, she has identified

weaknesses in national capacity related to risk assessment and management. Malaysia also needs assistance to develop a long-term plan for monitoring and evaluating the effectiveness of the risk management programme.

13. UNDP/GEF Project on Implementation of the National Biosafety Framework for Mexico

The project is implemented by the Commission for the Knowledge and Use of Biodiversity (CONABIO) in collaboration with the Ministry of Environment (SEMARNAT); the National Ecology Institute (INE); the Health Ministry (SSA); Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA); Ministry of Finance; Ministry of Economy; Ministry of Education (SEP). The main goal is to ensure that Mexico is able to implement the basic objectives of the Cartagena Protocol, including the assessment, management and monitoring of the potential risks posed by transboundary movement of LMOs to the conservation and sustainable use of biodiversity, including human health risks. Its specific objectives are: 1) to build sufficient capacity to assess and manage risks associated with biosafety through strengthening of the legal and regulatory frameworks; 2) to enhance institutional capacity and strengthen administrative framework; and 3) to establish effective awareness program and communication strategies. Within three years, the country will build sufficient capacity to assess and manage risks associated with biosafety through strengthening of the legal and regulatory frameworks, enhanced institutional capacity and effective communication strategies. Knowledge and methodologies on biosafety will be shared and transferred through the establishment of regional training programs based in Mexico. The project provides strategic, sustained and long-term support for the consolidation of Mexico's technical capacity to meet the challenges associated with the transboundary movement of LMO under the Cartagena Protocol. This national approach to capacity-building contemplates risk assessment and management, monitoring and evaluation, legal and regulatory reform/strengthening, broad social participation and a dissemination strategy in the context of the Advanced Informed Agreement.

14. World Bank/GEF Project on Implementation of National Biosafety Framework for Colombia

The objectives of the project are to: 1) to strengthen the legislative framework and operational mechanisms for biosafety management in Colombia; 2) to build capacity and establish an operational system for risk assessment and monitoring; 3) to establish the national biosafety database system and Biosafety Clearing-House; 4) to support centers of excellence and establishment of a network for research, risk assessment, and monitoring. This project builds upon the experience gained in Colombia on plant and animal health inspection services, biodiversity conservation and human health. It will help to consolidate Colombia's national capacity for the implementation of the Cartagena Protocol on Biosafety. Specifically, the project will develop national capacities in biosafety required to: (i) strengthen the legislative framework and operational mechanisms for biosafety management in Colombia; (ii) build capacity and establish an operational system for risk assessment and monitoring; (iii) establish the biosafety database system and Biosafety Clearinghouse Mechanism; (iv) support centers of excellence and a network for research, risk assessment, and monitoring; and (v) establish the Project Coordinating Unit (PCU). The development of national capacities in these areas consolidated the national framework for biosafety management.

15. World Bank/GEF Project on Implementation of the National Biosafety Framework for India

This project is funded through the World Bank and implemented by Indian Ministry of Environment and Forests; Ministry of Agriculture in collaboration with the Department of Biotechnology; Ministry of Commerce & Industry; Ministry of Health Family Welfare; Indian Council for Agricultural Resources; National Bureau of Plant Genetic Resources; Non-governmental organizations (environmental, consumers, producers) and other stakeholders (farmers etc.). Its objectives are: (1) to augment the core capacity in biosafety to enhance decision making in each of the participating Ministries;

(2) to strengthen the technical capabilities of institutions and research organizations through training and infrastructure for undertaking research and risk evaluation of LMOs; (3) to identify and strengthen laboratories for undertaking analytical evaluation of GM ingredients in products and for certification services; and (4) to establish information-sharing mechanism, including a biosafety clearing house, and creation of awareness amongst stakeholders on biosafety issues. The expected outcomes of the project include: a) strengthened institutional framework to improve capacity and coordination in decision making within and across ministries; improved capacity for risk evaluation and management; b) strengthened laboratories/institutions for analytical evaluation of GM ingredients and for certification services; c) enhanced information sharing and public awareness; and d) strengthened capacity in universities/research institutions for research support, analysis and training.

16. FAO Biotechnology Activities

This programme is aimed at assisting countries in elaborating pertinent policies and regulations related to biosafety and a main goal is to support plant biotechnology development and safe use. FAO has developed several instruments that deal with issues pertaining to biosafety including: the International Plant Protection Convention (IPPC); an established "prior informed consent" system; support for building national bio-information systems to assist countries in elaborating pertinent policies and regulations related to biosafety; a draft Code of Conduct on Biotechnology, encompassing a biosafety element; and several biotechnology networks. The networks include: the Plant Biotechnology Network (REDBIO); and the Bioinformatics Network on Biotechnology and Biodiversity, in cooperation with UNIDO and UNDP. Jointly with UNDP and UNIDO, FAO launched the Farm-Centred Agricultural Resource Management programme (FARM), which has a sub-programme on biotechnology and biodiversity. FAO also sponsored several workshops on Biosafety and Commercialization of Agri-food Bioproducts in 1998 for Latin American and Caribbean countries. The workshops focused on biosafety, public awareness, and commercialization of biotechnology innovations in plant agriculture.

17. FAO Capacity-Building Project in Biosafety of GM Crops in Asia (2002-2005)

The project, which is funded by the Japanese Government, is implemented by the FAO Regional Office for Asia and the Pacific in 10 countries namely: Bangladesh, China, India, Indonesia, Malaysia, Pakistan, Philippines, Sri Lanka, Thailand and Viet Nam. The goal of the project is to enhance food security and income of Asian people through increased productivity and quality in a sustainable and environment-friendly manner through, where appropriate, the safe and judicious harnessing of modern biotechnology. Its objectives are: 1) strengthening capacities of the participating countries in terms of human resources, research and technology development capacity, legislation, regulations, policies and programmes for biosafety, and including the assessment and management of potential risks associated with GM crop; 2) establishing an Asian Bio-Net, involving public and private sector institutions and stakeholders, to harmonize biosafety assessment and management standard, guidelines, measures and methodologies – taking into account existing international protocols, conventions, and arrangements for analysing and sharing the results of regional and country-level GM crop-related biosafety experiments – and to promote exchange and sharing of information, expertise and GM crops; and 3) supporting and promoting research and technology development for the generation of GM crops and for the assessment and management of risks to the safe and environmentally sustainable use of resources for food security.

The project seeks to achieve human-resources development and technology transfer and transfer of know-how at the national level through activities such as workshops, preparation of training manuals in relation to biosafety and risk assessment procedures and initiation of specific research and technology development activities. With funding provided by Japan, this inter-country project addresses the issues related to biosafety of GM crops such as: (a) the development and harmonization of an appropriate regulatory framework for addressing biosafety concerns on GM crops; and (b) the collection, analysis, dissemination and exchange of information on biotechnology and GM-related biosafety standards through

inventories, database and decision support system. In addition, the Asian Bio-Net has been established to facilitate information exchange and data management as well as to promote the public awareness, education and participation.

18. REDBIO/FAO – Technical Cooperation Network on Plant Biotechnology in Latin America and the Caribbean

REDBIO is a network comprising public and private laboratories and institutions in Latin America and the Caribbean devoted to plant biotechnology that started in December 1990. It has a membership of over 500 members in 27 countries. The initiative is implemented by REDBIO Foundations and FAO, in collaboration with International Centers (such as CIAT, IPC, IBPGR and IICA); the Federation of Biotechnology Enterprises; and the Global Industry Coalition. Its main objectives are: 1) to develop opportunities for collaboration and partnerships on research and transfer of biotechnologies and to facilitate assistance mechanisms (projects, joint activities, donor identification) on plant biotechnology and/or other technical areas, among the network members and with international institutions; 2) to promote and facilitate the exchange of information and research results among the network members through modern data management and communication systems and support the updating of knowledge through the organization and participation of the Network members in international forums and symposiums; 3) to promote and support the exchange of resources and biologic materials and access to new technologies throughout horizontal cooperative activities among network members and with advanced external laboratories; 4) to constitute a technical forum to support the formulation of national and regional policies and strategies in plant biotechnology and to support regional training activities through: courses, workshops, symposia, and in-service training on advanced plant biotechnology; 5) to promote the preparation and application of a Code of Conduct on Plant Biotechnology that will favour, standardize and adapt the use of concerted concepts in biosecurity, regulation, ethics and socio-economic impact of biotechnology in the countries of the Region.

The network focuses on promoting information exchange; education; capacity building and technical assistance both at technical/scientific and regulatory level on matters related to plant biotechnology, biosafety and Intellectual Property Rights. Further details can be accessed at: http://www.rlc.fao.org/redes/redbio/html/home.htm

19. UNCTAD/UNEP Capacity-Building Task Force on Trade, Environment and Development

This initiative is implemented in developing countries and countries with economies in transition by the United Nations Conference on Trade and the Environment (UNCTAD) and UNEP. The main goal is to strengthen the capacities of developing countries to effectively address trade-environment-development issues. Its objective is to enhance trade and environmental linkages, including biotechnology and biodiversity. UNCTAD is undertaking various capacity-building and policy analysis activities in the field of biodiversity and biotechnology in collaboration with UNEP. At the request of Governments, it is also providing advice on policy and issues related to genetically modified organisms. BIOTRADE initiative helps to stimulate investment and trade in biodiversity products and services.

20. UNIDO Biosafety Information Network and Advisory Service (BINAS)

This initiative is implemented by United Nations Industrial Development Organization (UNIDO), International Centre for Genetic Engineering and Biotechnology (ICGEB) and UNEP. Its objective is to build capacity for safe use of biotechnology through provision of information and technical assistance on biotechnology and risk management. It provides a comprehensive database of biosafety-related information regulations with a focus on developing countries and countries with economies in transition. BINAS also provides monthly (online) and quarterly (hardcopy) news services on global developments in

biosafety. In addition, BINAS has developed DTREE, which is an online computerized decision support system for risk assessment of GMOs as well as a Biosafety Compendium that is an intuitive multimedia compilation**.** Furthermore, UNIDO facilitated the establishment of, and provides support to, a Biotechnology Consultative Group for Latin America and the Caribbean, an independent technical expert body to provide a platform for addressing the implications of the safe development and commercialization of agri-food biotechnology.

21. UNITAR Training Programme on Biosafety

This planned project will be implemented by the United Nations Institute for Training and Research (UNITAR) in collaboration with IUCN, UNEP, and the South Center. Its main objective is to increase the capacity of a few selected developing countries in Africa, Asia/Pacific and GRULAC region to meet the requirements of the Cartagena Protocol and to harmonize legislation in each region. Specific objectives of the project are: 1) to increase awareness of biosafety among Government officials and stakeholder groups; 2) to establish appropriate institutions in selected countries in accordance with the requirements of the Cartagena Protocol; and 3) to establish biosafety legal frameworks in selected countries. The UNITAR Environmental Law Programme has initiated this project that will be implemented in cooperation with the Secretariat of the Convention on Biological Diversity. The main activities to increase biosafety capacity in selected countries will be in the area of human-resources development, institutional strengthening and public awareness, participation and education. A series of workshops and/ or training seminars will be organized to address the provisions and analyze the obligations to be fulfilled under the Protocol. Non-governmental organizations, representatives of consumer organizations and the private sector will be involved in the training activities. The project will also include a preparation and distribution of materials for a distance learning correspondence course. An important feature of the project will be the selection of regional focal countries for the training activities.

22. UNU/BIOLAC Biosafety Project on Developing Guidelines for Latin America and the Caribbean (March 2001 – November 2003)

The project is implemented by the United Nations University (UNU) and Biotechnology for Latin America and Caribbean (BIOLAC). The goal of the project is to promote proper development and implementation of regulations and knowledge required to assess and manage the safety risks involved in the commercialization of modern biotechnological products in the agricultural and agri-food sectors. Its objectives are: 1) establishing a Regional Network on Biosafety (RNBio); 2) building capacity of scientific regulators through highly technical training courses; 3) offering fellowships related to biosafety objectives and 4) organization of discussion/dissemination meetings for Government stakeholders and professionals from the media to orient public perception. Although many Latin America countries have signed the Cartagena Protocol on Biosafety, few have experience in biotechnology and bio-safety. The scarcity of human resources with high competences, and the isolation from the international community are among the most important constraints in the region. The lack of available resources, the high costs of biotechnology equipment and the multiple scientific disciplines involved in biotechnological research are constraints for capacity development. Since capacity-development is an urgent priority in Latin America and the Caribbean, the purpose of the project is to develop capacity-building and skills for research and technical institutions of the public and private sector enabling them to deal with the challenges imposed by GMOs. The full project document can be accessed at the following link: http://www.biolac.unu.edu/English/project1.htm.

INTERNATIONAL ORGANIZATIONS

23. BIONET-Africa: Network for Capacity Building in Biotechnology and Biosafety for African Universities (2001-to date)

BiONET-Africa is an interactive and impact-oriented network is implemented in Africa (Cameroon, Ghana, Kenya, Rwanda, Senegal, Uganda and Tanzania) by International Center of Insect Physiology and Ecology (ICIPE). It seeks to strengthen the capacities of national universities in Africa to undertake biotechnology/biosafety-related collaborative research and teaching to built a critical mass of university researchers that would tackle the key problems facing the region. Its specific objectives are to: (1) enhance safe biotechnology application in agriculture, medicine, environment and industry; 2) promote south-south cooperation in biotech/biosafety research and capacity-building; 3) establish a network of universities with collaborative research and training projects to implement impact-oriented biotechnology and biosafety research addressing the needs of agriculture, health, environment and industry in the region; 4) consolidate existing capacity through transdisciplinary and impact-oriented training programs for university faculty and students and 5) enhance Africa's capacity for making informed decisions. The initiative seeks to achieve: 1) institutional capacity-building through establishment of "centers of excellence" with centralized equipment for sharing and providing analytical and diagnostic services; 2) human-resources development and training through organizing an annual 3-week refresher course for young scientists, providing scholarships for MSc, PhD training and fellowships at ICIPE and Network "training centers" in Africa; 3) information exchange & data management through electronic network linking participating universities, an interactive website and on-line network publications and newsletters; and 4) scientific, technical and institutional collaboration through supporting a Scientist Exchange Programme and supporting "centres of excellence" in learning emerging techniques in biotechnology/biosafety and in use of modern equipment and data analysis.

24. CGIAR Capacity-Building for Biosafety

This is a global project implemented by the Consultative Group on International Agricultural Research (CGIAR). The main objective is to develop scientific capacities for risk assessment among CGIAR family of research institutions and its goal is to strengthen agricultural research capacities, including biotechnology and its safe use. A small number of research institutes in the Consultative Group on International Agricultural Research (CGIAR) have focused on working with regulators to establish biosafety regulations for genetically engineered plants. One of those is the International Centre for Agricultural Research in Dry Areas (ICARDA) working in a number of countries in the Maghreb and the Middle East. They have also provided more general information dissemination and training workshops on policy issues related to biotechnology development and use. A number of CGIAR institutes have contributed to capacity-building for biosafety, helped to develop scientific capacities for risk assessment and provided technical assistance to their host Governments.

25. ISNAR Biotechnology Service (IBS)

This is global initiative implemented by the International Services for National Agricultural Research (ISNAR). Its objectives are: 1) to support policy and strategy development that enhances capacity in agricultural biotechnology; 2) to assist in developing leadership skills among policymakers and research managers for integrating biotechnology in agricultural research programs and 3) to harness the internationally available expertise to respond to identified technical, policy, and management needs. The IBS provides independent advisory services to national agricultural research programmes in developing countries on matters of biotechnology policy and research programme management, including biosafety. Its new programme of work (2003-2007) focuses on four main areas: (a) economic analysis of agricultural biotechnology; (b) biosafety capacity-building; (c) management of intellectual property rights; and (d) training and outreach activities. Under the project, a BioServe, database on international agricultural biotechnology programs has been established and several publications and other resource

materials have been produced, including a recent publication entitled: A Conceptual Framework for Implementing Biosafety: Linking Policy, Capacity and Regulation (2003). In addition, numerous human-resources development activities (including policy seminars, courses and training modules covering sessions on biosafety, risk assessment & risk management, and public communication) have been implemented. ISNAR is also strengthening cooperation of North-South and South-South supports various bilateral and regional initiatives, including: the ASARECA initiative on biotechnology and biosafety (East and Central Africa) and the East African Regional Network on Biotechnology and Biosafety (BIO-EARN).

26. ICGEBNet and Biosafety Unit

The International Centre for Genetic Engineering and Biotechnology (ICGEB), through its Biosafety Unit, is providing to its 47 Member States technical support and qualified information in biosafety and risk assessment. The overall objective its biosafety programme is to promote the safe use of biotechnology dedicated to dissemination of information and biosafety capacity-building. Its specific objectives are: 1) to promote capacity-building in developing countries through training; and 2) to disseminate information through the Biosafety WebPages, including: the Biosafety Database, the Library and the Link. Since 1992, ICGEB has organized several biosafety workshops on risk assessment and biosafety in general. Furthermore, ICGEB offers pre- and post-doctoral fellowship programmes in biotechnology. ICGEB biosafety web pages have free access to most of the current available information dedicated to biosafety and risk assessment, current biosafety concerns and proceedings worldwide. ICGEB biosafety database includes scientific studies on risk assessment, bibliographic references and abstracts of scientific articles published since 1990 on international peer-reviewed journals. The library covers a collection of selected documents on biosafety and the Link a list of worldwide national agency and international organization websites related to biosafety.

27. ICGEB: African Resource and Training Regional Centre for Biosafety and Protection of Biodiversity (2003-2006)

This project is implemented in 16 countries in Africa with support from the Italian Ministry for Foreign Affairs. The overall goal of the project is to advance agricultural research and research into new technologies, including biotechnology, promoting the safe use in biotechnology and the conservation of biological resources in the African region. Its specific objectives are: 1) protection and exploitation of genetic resources; 2) technical cooperation in the framework of the Convention on Biological Diversity; 3) identification of research priorities (definition of the priority traits for valuable crops; improvement of the nutritional value, resistance to insects, pesticides, high salinity, other stresses); 4) testing facilities and field trials and 5) GMOs: procedures for risk assessment and risk management, national legislation(s) and public information. The project, which was initiated as a “Type 2 Initiative” at the World Summit on Sustainable Development aims at ensuring a thorough involvement of African countries, through their competent ministries, officers and research institutions in the ICGEB activities. It will include at least three Regional Training Courses on Risk Assessment.

28. ICGEB Biosafety Outstation

This project aims at setting up a facility for training and research in risk assessment and management of the environmental release of GMOs. Its objectives are: 1) to advance the research in the field of the safe use of agricultural products derived from biotechnology and 2) to promote the research training in risk assessment and management. The Outstation, equipped for studies in molecular genetics, will be located in Cà Tron, close to Venice. It will develop research programmes aimed at the investigation of those “grey” areas in scientific knowledge related to the safe use of agricultural products derived from biotechnology. The ICGEB Secretariat is negotiating with the “Fondazione Cassamarca”, to

establish a trust fund that will regulate the implementation of the activities and the financial aspects of the Biosafety Outstation.

29. ISAAA Biosafety Initiatives

The International Service for the Acquisition of Agri-biotech Applications (ISAAA) is implementing a number of biosafety initiatives in Africa (Kenya, Tanzania, Uganda, Zambia and Zimbabwe), Asia/Pacific (China, Indonesia, Malaysia, Philippines and Thailand) and Latin America (Argentina, Bolivia, Brazil, Chile, Costa Rica, Mexico and Paraguay). The overall objective is to support governmental commissions, policy makers, scientists, and special interest groups charged with regulatory oversight of biosafety to gain institutional capacity by sharing resource information and cumulative hands-on experience on biosafety that allow countries to formulate their own systems. The aim is to assist client countries that are recipients of donated GMO technology to build their institutional capacity in biosafety regulation, including development of their regulations, as a way of enabling the safe and effective transfer of biotechnology applications. The initiatives include four complementary components to namely: workshops; follow-up internships/fellowships; retreats and information dissemination. Since 1992, ISAAA has organized a series of national and regional biosafety workshops and developed an internship programme for individuals responsible for reviewing applications and making decisions, for an extended period of time (4-8 weeks) within an agency that reviews proposals, or within a company that prepares applications and conducts field trials. ISAAA Biosafety Fellowships for Malaysia, Thailand, Philippines and Brazil have focused on familiarizing individuals with the workings on biosafety regulatory processes. ISAAA works with other organizations in disseminating biosafety information and publishes biosafety documents for wide distribution.

BILATERAL AGENCIES AND PROGRAMMES

30. Australian capacity-building activities in the field of Biosafety - Framework

This initiative is implemented by the Australian Environment Ministry; South Pacific Commission (SPC); South Pacific Regional Environment Program (SPREP), the Agricultural Technical Cooperation Experts Group of APEC and China's State Environment Protection Administration. Its goal is to help a number of developing countries to build infrastructure to safely manage LMOs by: 1) assisting with the development of their quarantine policy; 2) building capacity to manage sanitary and phytosanitary issues; 3) enhancing risk assessment capacity and 4) strengthening environmental impact assessment capacity. Australia has supported a number of regional and sub-regional meetings, including a regional workshop on Biosafety for key Government decision makers (Fiji, December 1999) and has undertaken a range of activities to directly address biosafety issues including: presentations by regulatory experts on GMO developments and regulatory approaches. Australia has also contributed to work within the Agricultural Technical Cooperation Experts Group of APEC, which has developed a program of cooperation in research, development and extension of agricultural biotechnology, including information exchange, and capacity building aimed at facilitating the uptake of biotechnology and influencing the development of national processes and procedures for evaluating biotechnology products. The Expert Group has completed a “best-practice” guide to risk communication relating to agricultural biotechnology; compiled a series of case studies and reports on risk assessment and risk management procedures to facilitate improved regional coordination and efficient use of risk assessment resources; and has helped to increase collaboration with the IPPC Secretariat in developing standards/guidelines for biosafety risk assessment.

31. Australian Quarantine and Inspection Service (AQIS) Head Office In-House Training

Australia, through AQIS, Australia has contributed to various regional and sub-regional initiatives to build capacity in risk analysis, with financial contributions from different Government

Departments. The objective is to assist developing countries where possible: I) to develop: an effective quarantine policy and infrastructure and the ability to manage sanitary and phytosanitary issues in general; 2) to comply with international standards; and 3) to build human-resource capacities. AQIS responds to requests for training programs to help developing countries comply with international standards. It also hosts short-term visits from counterpart agencies that wish to familiarize themselves, for example, with Australian quarantine, standards or export certification agreements, or quality management systems. number of officials from the different countries, including China, Korea, Samoa, Myanmar, Malaysia, have participated in the in-House training at the AQIS Head Office. In 1997 two Chinese animal and plant quarantine officials undertook training with AQIS on quarantine decision-making and import risk analysis. In 1997/98 two Korean plant quarantine officials undertook training in areas including pest and disease identification and disinfestation treatments for fresh fruit and vegetables and grains. Other general assistance included: a training program for the Chief of the Samoan quarantine service and two Korean weed officers; and risk assessment training to officers from Fiji, Samoa, Myanmar and Malaysia. In May 1999, AQIS participated in providing training to a 16-member delegation from China as part of the APEC training program. In August AQIS provided two weeks training for four SAIQ officials from China.

32. Australian Training in non-APEC International Flora

AQIS and the Crawford Fund for International Agricultural Research provide training in New Technologies for Plant Quarantine Management and to provide risk analysis training. For example, AQIS resource officials ran an International Course for Masterclass in New Technologies for Plant Quarantine Management held in Malaysia 5 to 7 October 1998, jointly with the Crawford Fund for International Agricultural Research and the Malaysian Department of Agriculture for participants from 8 Asian courtiers. AQIS also ran a risk analysis training session, at the Pacific Plant Protection Organisation and South Pacific Commission SPS workshop that was run in Fiji, February 15 to 19 1998 for 22 Pacific Island Countries. AQIS was also involved in organization of the following training activities: APEC workshop on Pest Risk Analysis in Cairns, from 15 to 18 June 1999; APEC Training course for China for involving 15 trainees (1999-2000); and the AusAID/China Structural Adjustment Courses (1999-2003).

33. Capacity-building activities undertaken by AQIS Training Services, Sydney, Australia

AQIS Training Services, in collaboration with the Australian Agency for International Development (AusAID), the Secretariat of the Pacific Community and the European Union, has undertaken several capacity-building activities. The objectives of these activities include: 1) to provide training in quarantine regulations and practices; 2) to facilitate preparation of Quarantine Operations Manuals for many Pacific Island countries; and 3) to provide technical support in post-entry plant quarantine and to promote understanding of quarantine regulations and legislation. AQIS has responded to various requests for training and technical assistance, including from the Galapagos Islands (quarantine legislation), Ethiopia (quarantine training in Australia), Iran (quarantine training), Israel (assistance with technical support in post-entry plant quarantine), New Caledonia (quarantine training for newly appointed Chief Quarantine Officer), Papua New Guinea, Solomon Islands and Vanuatu (quarantine attachment training in Australia), Samoa (training of Chief Quarantine Officer) and Tonga (competency-based training for to officers of the Tongan Quarantine Service, including a 3 day “Train the Trainer” course, a 3-day course in “Training Workplace Assessors”; a 2-day course in “Recognition of Prior Learning” and other training in clearance of air and sea cargo, ship and yacht inspection, aircraft clearances, mail clearance, inspection of export and import fresh produce, fumigation, correct preparation and use of export documentation, use of the Quarantine and Exports Operational Manuals and understanding Legislation).

AQIS has also provided a number of technical services and consultancies, including post-entry quarantine technical advise to the Galapagos Islands, Iran and Israel. It is coordinating the management of the Tonga Quarantine Project funded by AusAID (continuing). Finally, AQIS undertook a review in

1997 of the Quarantine Service of the Pacific Island Republic of Kiribati at the request of the Australia international aid agency, AusAID.

34. Canada-Latin America Initiative on Biotechnology for Sustainable Development

The Canada-Latin America Initiative on Biotechnology for Sustainable Development (CamBioTec) is a collaborative endeavour between the biotechnology industry and Government ministries in Canada and two Latin American countries (Argentina and Chile). It is funded by the International Development Research Centre (IDRC) and Canadian International Development Agency (CIDA) and implemented by BIOTECanada in collaboration with relevant Canadian Government ministries; Canadian biotechnology firms and the respective national institutions in Argentina (Foro Argentino de Biotecnología-FAB) and Chile (Consejo Nacional de Investigaciones Científicas y Tecnológicas (CONICYT). CamBioTec's objectives are: 1) to help set national research and development priorities in biotechnology and strengthen local regulatory and research capacities in biosafety and risk assessment, including institutional biosafety procedures; 2) to strengthen the biosafety information systems in the project developing countries by linking them to relevant regional and international systems; 3) to strengthen public policies in biotechnology and the management of innovation in research and industry; 4) to promote public awareness and access to information about the benefits and potential risks in the production and use of agri-food biotechnology products among consumers, decision makers and the public; and 5) to foster strategic alliances between Latin American and Canadian agencies and companies. CamBioTec's main capacity-building activities include: the promotion and adoption of biotechnology, including biosafety regulation; public awareness of the benefits and risks of agri-food biotechnology; biosafety information systems; and development of biosafety regulatory systems including development of risk assessment and managements skills. The project has involved the participation of national regulatory agencies from Canada, Argentina, and Chile.

35. Danish Assistance to Capacity-Building in Biosafety

The Danish Government, through its agencies including the Danish Cooperation for Environment in Eastern Europe (DANCEE), the Danish Corporation for Environment in Developing Countries (DANCED), and Ministry of Energy and Environment; and other Government and Research Institutions) is providing assistance for capacity-building in biosafety includes various initiatives in different countries. The objectives include: 1) to strengthen national institutional capacities for managing GMO/LMO regulation and risk assessment requirements for LMOs; 2) to build human resource capacity; and 3) to facilitate public participation and implementation of EU-directives and the Cartagena Protocol on Biosafety. Examples of initiatives supported include the following: 1) GMO workshop for participants from Estonia, Latvia and Lithuania (January 2001); 2) Regional Baltic project on GMOs by the Danish National Environmental Research Institute; 3) Support for the development of the "Explanatory Guide to the Cartagena Protocol on Biosafety" by IUCN and FIELD (2001-2003); 4) study tour to Denmark for experts from Thailand in administration, risk assessment and research in GMO/LMO agricultural products (July 2000); 5) Danish participation in Workshop on "Improvement of Biosafety Regulation and Administration of GMOs" (Bangkok, Thailand; June 2001); and 6) A project developed to support the Malaysian Federal Ministry of Science, Technology and the Environment to develop its capacity to implement international environmental agreements, including the Cartagena Protocol on Biosafety.

36. East African Regional Programme and Research Network for Biotechnology, Biosafety and Biotechnology Policy Development (BIOEARN)

BIO-EARN was initiated in March 1999 with a grant from the Department for Research Co-operation (SAREC) of the Swedish International Development Cooperation Agency (Sida), through the Biotechnology Advisory Center (BAC) of the Stockholm Environment Institute (SEI). It is implemented in four countries namely: Ethiopia, Kenya, Tanzania and Uganda. Its objectives are: 1) to enable the

countries in the region to develop biotechnologies and policies according to their own needs, abilities and opportunities; 2) to promote collaboration in biotechnology, biosafety and biotechnology policy development to address key challenges and opportunities in the region; and 3) to foster communication between scientists, policy makers, biosafety regulatory officials and private sector, nationally and regionally and to strengthen the North-South and South-South Cooperation. The programme has contributed to building national and regional capability to assess the risks and benefits of recombinant DNA techniques and to enable countries to develop relevant policies according to their own needs, abilities and opportunities. It has supported six MSc. and 4 PhD students in biosafety-related programmes and national and regional training workshops on biosafety regulations, risk assessment and management of GMOs have been organized. In addition, a biosafety manual to assist regulatory authorities in decision-making and to serve as a research /training tool, has been developed. Details about this programme are available on its website: http://www.bio-earn.org.

37. Integrating Biosafety into Biotechnology Development: Comparative Analyses of Policies and Strategies in Asia and their implications

This project, funded by the Swedish International Development Cooperation Agency (Sida), is implemented by the Biotechnology Advisory Center (BAC) of the Stockholm Institute of Environment to study various aspects of biosafety implementation and its impact on biotechnology developments in India, the Philippines and Thailand. The main goal is to generate new knowledge and policy insights of relevance to countries in the Asia/Pacific region in the arena of biosafety and biotechnology policy development, promote information exchange and data management and contribute to institutional strengthening.

38. European Commission International Cooperative Programme (INCO)

European Commission International Cooperative Programme (INCO), initiated in 1995 to support the sound management and use of biotechnology in developing countries in Africa, Asia, the Pacific and Latin America and Caribbean, includes several activity areas relevant to biosafety. This collaboration encompasses joint research projects, the organization of workshops for exchange of information on technical issues and policy matters, including regulations and product authorization procedures for GMOs. The main activity areas relevant to biosafety include: the promotion of enabling mechanisms and capacity-building to support countries in developing risk assessment and management and broader biotechnology-oversight mechanisms; and joint regional activities with developing countries, concentrating on biotechnology applications for agriculture, health and natural resources management. Approximately 200 post-doctoral fellowships in biotechnology for researchers from developing countries have been supported.

39. EU Twinning Project PL 01/EN/IB/03 – "Biological Safety System in Poland" (2002-2004)

This Twinning Project, supported by the German Federal Ministry for Health and Social Security the Austrian Federal Environment Agency; the Spanish Institut de Recerca i Tecnologia Agroalimentariès, Barcelona and the EU PHARE Programme is intended to support Poland in the task of establishing a national biosafety system comparable to EU standards concerning the use of GMO, their deliberate release and introduction to the market. Its main components are: a) legal review and assessment of state of approximation of the Polish legislation to the Acquis Communautaire; b) strengthening of decision-making functions, including risk assessment and public participation, of the competent bodies to enable Poland to perform decision-making procedures in line with EU standards; c) inspection component designed to enable the Polish authorities to perform inspection procedures in line with EU standards, including adequate sampling, sample analysis and development of analytical methods, for contained use, deliberate release and placing on the market of GMOs; d) assistance in establishing

accredited laboratories to achieve a complete national laboratory network which shall be able to give analytical support to the inspecting authorities; e) assistance in establishing an electronic information system to ensure fast flow, processing and exchange of information, assure transparency and fulfil information requirements in order to support the decision-making and inspection authorities; and f) assistance in promoting public information and public participation to support initiation of public discourse on genetic engineering and the design and conduction of a "public awareness-campaign" including development of a website, brochures, and planning and conduction of a public symposium on biosafety aspects including beneficiary and risk potentials of genetic engineering.

The specific activities and results of the project include the following: 1) strengthening of the Polish legislation regarding GMOs; 2) formulation of guidelines for procedures concerning the handling of GMO issues; 3) training of staff in handling requests and notifications and in performing adequate inspection procedures; 4) establishment of accredited laboratories appropriately equipped for inspection and control of samples in various GMO-related fields and testing; 5) establishment of an electronic information system for activities concerning GMOs and 6) a public awareness campaign on issues related to biological safety

40. German Biosafety Capacity-Building Initiative for the Implementation of the Cartagena Protocol (2000-present)

This initiative is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) and implemented by the German Agency for Technical Cooperation (GTZ). Its main objectives are: 1) to assist countries in elaborating and implementing biosafety frameworks; 2) to provide tools for training and institutional capacity-building in the fields of public administration and the Biosafety Clearing-House; 3) to provide monitoring/evaluation/inspection services; 4) to offer policy advice for taking necessary and appropriate legal, administrative and other measures to implement the Cartagena Protocol on Biosafety; 5) to provide technical assistance and support basic and further training of decision makers, experts, and multiplicators; and 6) to provide support to enable public participation in the national biosafety discussion and decision process as well as to promote public awareness and education.

Examples of the activities supported so far include the following: strengthening capacities of partner countries in the field of environmental and health protection; establishment of new capacities where needed; assessment of the presented risk assessment documents; establishment of basic governmental decisions regarding the import of LMOs and LMO-FFPs based on the precautionary approach; strengthening of administrative units entrusted with the implementation of the Cartagena Protocol on Biosafety; further training measures for the Focal Points of the Biosafety Clearing-House and representatives of civil society in the use of EDP tools, especially the internet; technical and financial support for equipment and secondment of short-term experts to on setting up of national components of the Biosafety Clearing-House; development of decision mechanisms and structures responsible for the AIA-procedures concerning LMOs; and secondment of long-term experts to advise on the establishment national administrative units needed for the implementation of the Cartagena Protocol on Biosafety. The Initiative has also provided support of the partner country in the development of effective instruments to include civil society; established further training measures for institutions entrusted with monitoring or inspection; gave support in the establishment and further development of regional network structures and provided further development of regional network structures.

41. Implementation of National Biosafety Frameworks in Pre-Accession Countries of Central and Eastern Europe supported by the Government of The Netherlands (1999- November 2002)

This project was supported by the Dutch Government to assist 10 countries in establishing adequate, workable and transparent national biosafety frameworks (NBFs) that are consistent with

international obligations such as the Biosafety Protocol. 1/ Its specific objectives were: 1) to establish NBFs (including regulatory frameworks, systems for providing information to stakeholders, mechanisms to handle requests for permits, and mechanisms for follow up and feed back, including monitoring and inspections for compliance); 2) to strengthen regional collaboration; and 3) to support outreach activities. The project provided information to stakeholders about the NBFs and enabled them to establish the above listed mechanisms. The project also supported several regional activities including: strengthening of regional collaboration, organization of annual regional meetings, strengthening of a regional Steering Committee and establishment of regional and sub-regional centres and a regional website. In addition, it enabled participating countries to access up-to-date international knowledge and practice through seeking collaboration with experts from other countries and organizations. Furthermore, the support of the project was broadened to other countries by inviting participants from other CEE countries and from other regions to participate in the training workshops and by applying the methodologies of the project to other environmental fields in CEE. Details about the project can be accessed at: http://www.biosafety-cee.org/.

42. Indo-Swiss Collaboration in Biotechnology (ISCB)

This is a collaborative initiative between the Swiss Government (through the Swiss Agency for Development and Cooperation and Swiss Federal Institute of Technology) and the Government of India (Department of Biotechnology and the Indian Institute of Technology). The goal of the initiative is to foster partnerships between Indian and Swiss institutions and private companies in the area of biotechnology R&D within the framework of joint projects selected on a competitive basis in clearly defined research areas. Its objectives are: 1) to enhance capacity-building in the partner institutes and to help transfer technologies; 2) to develop products and biotechnological processes which have an impact on poverty alleviation and sustainable management of natural resources in India; 3) to build biotechnology research and development capacity for commercial product development; and 4) to build capacities and R&D partnerships between Swiss and Indian institutions and private companies with strong economic, social, and ecological relevance.

In order to enhance capacity building in R&D in the partner institutes and to help transfer technologies, ISCB supports not just research but all activities required in this process. Capacity-building activities have focused on curriculum, infrastructure and human resources development in biochemical engineering. These have been carried out alongside research activities, including short- and long-term training to strengthen knowledge and skills in newly emerging technologies among researchers from public, private and Government institutions; purchase of laboratory and other research tools; and provision of technical assistance on biosafety issues related to research activities. Phase 2 efforts have been broadened beyond research collaboration to include potential future users of biotechnology such as small-scale farmers, industrial producers, regulating state agencies, other authorities dealing with biosafety matters, and organizations dealing with ethical issues.

43. U.S. initiatives for capacity-building: Department of State

The initiatives implemented by the Department of State of the United States, in collaboration with the Agency for International Development and the Department of Agriculture (USDA) of the United States are aimed at: 1) building technical capacity to support science-based regulation for the safe development, application and trade in products derived from biotechnology – biosafety; and 2) building technical capacity to develop and use biotechnology in order to address economic development and food security in developing countries. The U.S. have been working internationally for many years to build capacity in agricultural biotechnology with a deliberate focus on building technical capacity to support science-based regulation for the safe development, application and trade in products derived from

1/ The project covered 10 countries namely: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia.

biotechnology - biosafety. The U.S. Government seeks to improve the regulatory and technical capacity of developing countries.

In 2000, the U.S. Government contributed $ 360,000 to help design and implement the Biosafety Clearing-House. The Department of State, in conjunction with USDA Animal and Plant Health Inspection Service (APHIS) provided funds to the Convention on Biological Diversity in order to establish the architecture of the Biosafety Clearing-House and to conduct a series of regional educational and information-gathering workshops.

44. U.S. initiatives for capacity-building by the USAID Agricultural Biotechnology Support Project, ABSP (1991-2002)

ABSP was funded by USAID and managed by Michigan State University to support research and biosafety capacity-building in the Costa Rica, Morocco, Kenya, Indonesia, Philippines, Egypt, East/Central Africa, and six Southern African countries. Its specific objectives included: 1) building technical capacity to support science-based regulation for the safe development, application and trade in products derived from biotechnology – biosafety; 2) building technical capacity to develop and use biotechnology in order to address economic development and food security in developing countries. ABSP supported a number of biosafety activities including: development of national biosafety guidelines and policy development; sensitization of policy makers on issues of biosafety; training of national biosafety committee members in biotechnology and risk assessment to support regulatory decision making; institutional biosafety policy development for research and field testing; training in the conduct of field tests under biosafety containment conditions; development of research infrastructure (laboratory and greenhouse containment facilities); and development of a biosafety manual for training in risk assessment and risk management which was published in 2003. ABSP adopted a novel integrated approach to agricultural biotechnology research and development programs, which fostered establishment of linkages between developing country public and private sectors and the US private sector.

45. U.S. initiatives for capacity-building by the USDA-NSF-NIH

The U.S. Department of Agriculture (USDA), the National Science Foundation (NSF) and the National Institutes of Health (NIH) in collaboration with International Cooperative Biodiversity Groups (ICBGs) have supported studies on the interdependent themes of biodiversity conservation, drug discovery and sustainable economic growth in 11 countries with objectives: 1) to discover natural products suited for modern medicine while securing the benefits of these discoveries for local communities and other host country organizations; 2) to help developing countries ensure sustainable long-term harvesting of biodiversity components; to build capacity for developing and safe use of biotechnology; and 3) to address economic development and food security in developing countries. The studies have been carried out by seven ICBGs, composed of a variety of public and private organizations. The focus of the program is to discover natural products suited for modern medicine while securing the benefits of these discoveries for local communities and other host country organizations. The program also helps developing countries ensure sustainable long-term harvesting, provides funding for biodiversity conservation and promotes training and infrastructure support. U.S. Federal Interagency funding ($3.75 million in 1999) is through USDA, NSF and NIH.

46. U.S. initiatives for capacity-building implemented through other international projects

The US Government is a major contributor to many other multi-lateral biosafety-related capacity-building initiatives. The objectives of some of these initiatives have included: 1) building technical capacities to support science-based regulation for the safe development, application and trade in products derived from biotechnology – biosafety; and 2) building technical capacity through collaborative projects in order to address economic development and food security in developing countries. Examples include the Global Environment Facility, GEF (e.g. the UNEP/GEF project on Development of National

Biosafety Frameworks) and the Consultative Group on International Agricultural Research, CGIAR, whose two centres namely the Global Forum on Agricultural Research, (GFAR), and the International Service for National Agricultural Research (ISNAR) are implementing a number of activities that include biosafety capacity-building. For example, ISNAR's Intermediate Biotechnology Service (IBS) provides training, tools and advisory services to research managers and policy makers and has carried out country case studies on improving national biosafety systems.

47. U.S. initiatives for capacity-building by USAID Regional Biotechnology and Biosafety Program in East/Central Africa

USAID is working with African organization of national agricultural research organizations such as the Association for Strengthening Agriculture Research in East and Central Africa (ASARECA) to build technical capacity to support science-based regulation for the safe development, application and trade in products derived from biotechnology. The objectives of this initiative include: 1) to promote biotechnology transfer and research; 2) to develop a regional strategy for biosafety capacity-building, regulatory harmonization, and regulatory cooperation; 3) to build technical capacity to develop and use biotechnology; and 4) to address economic development and food security in developing countries.

48. U.S. Agricultural Biotechnology for Sustainable Development Project (ABSD)

This initiative is implemented in different countries in Africa Asia/Pacific and Latin America and the Caribbean to improve the capacity and policy environment for the use, management and commercialization of agricultural biotechnology in those countries. ABSD is supported by the U.S. Agency for International Development (USAID), other U.S. federal agencies and U.S. Universities. The ABSD project takes an integrated approach, combining applied research, product development, and policy development - the latter primarily related to biosafety and intellectual property rights (IPR) - to help developing countries use and manage biotechnology. ABSD works with United States agencies such as the Department of Agriculture. It also provides collaborators in participating countries with advice on scientific, technical and regulatory issues related to exportation, importation, and safe handling of GMOs. To further strengthen the biosafety regulatory frameworks, two regional biosafety workshops were organized in Latin America (in 1993) and in the Middle East. The Latin American workshops were carried out in 1993 and were co-sponsored by the Bean Cowpea Collaborative Research Support Programme, and the Jamaica Agricultural Research Programme. They focused on examining the status of biosafety guidelines and regulations in the region for testing and utilization of genetically engineered food crops, and on assisting participants in developing work plans and recommendations from which to begin building the necessary biosafety policies and guidelines in their respective countries.

49. USAID Program for Biosafety Systems (2003-2008)

This is a USAID-funded US$ 15 million programme run by a consortium of institutions led by the International Service for National Agricultural Research (ISNAR). It is aimed at assisting developing countries to enhance biosafety policy, research, and capacity. It will assist national Governments in studying the policies and procedures necessary to evaluate and manage the potential harmful effects of modern biotechnology on the environment and human health. The program will work initially with Bangladesh, India, Indonesia, the Philippines, East and West Africa, and is likely to expand to other countries and regions in the future. The program has adopted a unique approach that addresses biosafety as part of a sustainable development strategy, anchored by agriculture-led economic growth, trade, and environment objectives. Its specific objectives are: 1) to improve regional cooperation on issues related to genetically modified organisms and expand management skills in the area of biosafety; 2) to assist Governments in making science-based decisions about the effects on biodiversity of introducing genetically engineered organisms into the environment; 3) to build collaboration between agricultural research and environmental conservation communities in the United States and developing countries; and 4) to assist partner countries in regulating and safely conducting experimental field trials.

REGIONAL ORGANIZATIONS

50. African-wide Capacity-Building Programme in Biosafety (2003-2006)

This programme aims at strengthening the capacity of the Member States to deal with biosafety issues. The Commission of the African Union (AU) will implement the programme at a cost of about US$ 4.2 million over 3 years. The Germany Government, through its cooperation agency, GTZ, has offered to provide financial and technical support for the programme. Its key components will include: assistance in formulation of national biosafety laws; training in risk assessment and risk management; development of technical papers, handbooks and information kits; and establishment of an analytical pilot laboratory in Africa for GMOs and strengthening, in a second phase, of existing national institutions.

51. African Agency of Biotechnology (AAB) – Plant Biotechnology Programme

The AAB Plant Biotechnology Programme is implemented in Algeria, Burkina-Faso, Burundi, Cameroon, Cote d'Ivoire, Egypt, Ethiopia, Gabon, Ghana, Mauritius, Kenya, Morocco, Nigeria, Senegal, Tunisia and Zimbabwe. Its goal it to promote a strategy for the development of modern and traditional biotechnologies to efficiently resolve the problems of development, the preservation of the environment, as well as the quality of life in Africa and to facilitate an institutional strengthening. The AAB programme's work includes the reinforcement of national capabilities of the member States in biotechnology, including: the encouragement of the production, distribution and commercialization of biotechnological products in relation to the objectives of sustainable development and the necessity of preserving the environment; and development and harmonization of regulations pertaining to biosafety, bioethics, intellectual property rights, patent rights. It focuses on several priorities, including: 1) plant biotechnology; 2) human and animal health; 3) animal production; 4) protection and conservation of nature; 5) industrial production; and 6) biodiversity-biosafety-bioethics.

52. ASEAN Activities related to Biosafety Capacity-Building

The Association of South East Asian Nations (ASEAN), in collaboration with the National biotechnology regulatory agencies of its Member Countries, has undertaken a number of biosafety-related capacity-building projects. The objectives include: 1) to promote harmonization of national guidelines and regulations on the use of biotechnology derived products among ASEAN member countries; 2) to build the capacity of ASEAN Member Countries in risk assessment and management of GMOs and other related technical issues such as the issue of substantial equivalence and of labeling; 3) to develop and coordinate common positions, strengthen ASEAN cooperation and promote joint approaches in addressing various international and regional issues relevant to biosafety; and 4) to ensure the safe transboundary movement and use of agriculture-related genetically modified organisms (GMOs) in ASEAN member countries.

The Strategic Plan of Action on ASEAN Cooperation in Food, Agriculture and Forestry 1999-2004, in particular, includes a number of activities relevant to biosafety, such as Activity 2.1.2: "Intensification of cooperation in production and processing technology development and transfer and enhancement of harmonization and adoption of quality standards for products through, among others, harmonization of regulations for agricultural products derived from biotechnology. The 21st Meeting of the ASEAN Ministers for Agriculture and Forestry (held in October 1999 in Brunei Darussalam) endorsed the ASEAN Guidelines on the Release of Agriculture-Related GMOs, which provide a common framework for assessment of risks of agriculture-related GMOs and the approval mechanisms for their release in ASEAN member countries. ASEAN has also established mechanisms, such as the ASEAN

Task Force on Codex, to develop and coordinate common ASEAN positions, strengthen cooperation and promote joint approaches in addressing other international and regional issues relevant to biosafety.

53. Southern Africa Regional Biosafety Programme, SARB (2001-present)

This programme is implemented by the South African Agricultural Council - Vegetable and Ornamental Plant Institute (VOPI). The main goal of the SARB programme is to build regional policy and technical capacity to support science based regulation of the development, commercial application and trade in agricultural products derived from modern biotechnology. Its objectives include: 1) conducting regional training related to biotechnology regulation as a means of establishing a foundation for more sound regulatory development and implementation; 2) supporting regional cooperation and harmonization of biosafety in Southern Africa. The SARB programme focuses on seven SADC countries that are most likely to make GM decisions in the near future, namely: Namibia, Malawi, Mozambique, Mauritius, Zimbabwe, Zambia and South Africa. Its activities are part of an ongoing biosafety initiative in seven countries. Each country receives SARB funds to use as they choose (with appropriate clearance) in developing biosafety protocols in their respective countries. The initial phase of the programme also included in-country biosafety capacity building events, media-training for journalists from the seven focus countries and detailed risk assessment training courses. The last two years of the programme (2002 and 2003) focused on completing the in-country capacity-building projects, setting up a risk assessment field trial to collect biosafety data on GM sorghum and raising awareness about the role to biotechnology in Government departments in the region. By taking a regional approach, the program provides a foundation for later discussions of regulatory harmonization within SADC. SARB seeks to promote science-based regulatory implementation and market access for biotechnology applications from both the public and private sectors.

INDUSTRY

54. BIOTECanada Training in Biosafety

BIOTECanada, in collaboration with Government agencies in Mexico, Chile, Argentina as well as Canadian and United States Government departments, has undertaken a series of training workshops and seminars in biosafety. The main objectives are: 1) to train regulatory officials and researchers on guidelines, policies and strategies for biosafety risk assessment and management; 2) harmonization of Biosafety Regulations in the selected countries of Latin America vis-à-vis the North American Free Trade Agreement. For example, the seminar on “Harmonization of Biosafety Regulations”, held Mexico in 1999, focused on training of Mexican regulatory officials and researchers on the need to harmonize biosafety regulations vis-à-vis the North American Free Trade Agreement. Secondly, the workshop on “Biosafety in Agricultural and Agri-Food Biotechnology” trained Argentinean regulatory officials and researchers in risk assessment and information sharing. Finally, the workshop on “Introduction to Risk Assessment and Management: Elements for Setting Policies in Environmental Health” focused on discussion of guidelines for establishing suitable policies and strategies in the risk assessment and management process.

55. Capacity-Building Efforts of Individual Biotechnology Companies

Many individual companies have undertaken different activities in support of biosafety and research, development, transfer and use of biotechnologies in developing countries and countries with economies in transition. The objectives of some of those activities have been: 1) to support research, development, transfer and use of biotechnologies in developing countries and countries with economies in transition. 2) to minimize the potential hazards in the handling of biological materials. 3) to develop capacity-building activities in risk assessment and LMO regulation. 4) to develop national capacities in biotechnology, including regulatory aspects of field trials, product development and distribution.

Examples of biosafety-related capacity-building activities undertaken by individuals companies include the following: 1) Novartis biosafety programme, which has supported research institutions in Indonesia, Philippines, Thailand and Viet Nam to develop their capacities in biotechnology, including regulatory aspects of field trials and product development and distribution; 2) Monsanto is working with selected research institutions in Kenya, Mexico, Indonesia, Philippines, Thailand, Malaysia and Viet Nam to develop biotechnology research capacity related to specific types of LMO products, with companion capacity-building activities in risk assessment and LMO regulation. Other companies working individually or through the Global Industry Coalition include: Agribiotechnologia de Costa Rica, AgrEvo GmbH, ANPROS (Chile), Asgrow Seed, Cargill, Dupont, ELM/Seminis, Mitsubishi Chemicals, Pioneer Hi-Bred International, ProAgro (India), Schering and Zeneca Plant Sciences and ICI**.**

56. EuropaBio Capacity-Building Framework

The European Association for Bioindustries (EuropaBio), within its mission to promote an innovative and dynamic biotechnology-based industry in Europe, has implemented a number of activities that have contributed to capacity-building in biosafety. For example, it has developed a framework for capacity-building requirements for biosafety in developing countries, which identifies key needs for regulation of health and safety of humans and environmental safety. One of EuropaBio's objectives is to encourage better mutual understanding of ethical and safety concerns related to biotechnology through informed dialogue and consensus. EuropaBio believes that the future of European biotechnology will be bright if public confidence and acceptance can be won and if the regulatory framework provides a stable, coherent, transparent and predictable environment that fosters its development. EuropaBio's Technical Advisory Group under the Plant Biotechnology Unit has also produced a Technical Document Series on Safety Assessment of GM Crops, reflecting current consensus of member companies of the PBU on data requirements for the risk/safety assessments submitted in accordance with Directive 90/220/EEC and Directive 2001/18/EC on the deliberate release into the environment of genetically modified organisms. Further details regarding these publications can be accessed at the following website: http://www.europabio.org/pages/eu_workgroups_detail.asp?wo_id=14

57. Global Industry Coalition projects: Institutional capacity-building

The Global Industry Coalition (GIC), in collaboration with its members, has implemented a number of initiatives aimed at strengthening biosafety-related institutional capabilities and linkages in developing countries, including the assessment of the current policies and the formulation of future policy frameworks required for developing appropriate indigenous technological capabilities. The initiatives have often been implemented in cooperation with one or more relevant international research organizations, private foundations and national agencies. Examples include the following:

1. Institutional Linkages Program (1985-1995), which focused on strengthening institutional capabilities in Thailand in various sectors related to energy and natural resource development (including biosafety). More that 14 individual linkage projects were implemented by AUCC, with funding from CIDA.

2. Strategic Industries Project (1987-1989), which focused on assessment of current policies and formulation of future policies required for developing appropriate indigenous technological capabilities in Thailand industry. Thailand Development Research Institute with funding from CIDA.

3. The Pilot Biosafety Program for an African country, which is planned by Novartis in collaboration with CIMMYT, will focus on risk assessment, risk management and information sharing. It will be used as a model for other countries.

58. Global Industry Coalition Regional Website Initiative

This initiative is implemented by the Global Industry Coalition (GIC) and other collaborating agencies including, the American Seed Trade Association, Biotechnology Industry Organization,

Monsanto Company and Syngenta, DuPont. Its overall goal is to assist developing countries in meeting their identified need for enhanced information sharing through establishment and maintenance of regional websites that allow for direct input and control of content by countries and their agreed representatives. The specific objectives are: 1) to assist with regional collaboration in the GRULAC, CEE, Asia-Pacific and Africa regions in the field of biosafety; 2) to help participating countries offer public information on the status of their domestic biosafety regulations, guidelines and other developments; and 3) to promote awareness and information-sharing.

The idea for the GIC's Regional Website Initiative is based on the successful Central and Eastern European (CEE) website, developed and supported by the Dutch Government's MATRA Project. The CEE website offers information on CEE countries' biosafety regulations, guidelines and other developments, as well as information on regional and sub-regional activities. The websites use specially-designed software to allow designated regional coordinators or facilitators as well as participating countries to post and control content on the status of their domestic biosafety regulations, guidelines and other development on the site from existing desktop computers. The GIC made available a blank regional website for each region, containing the custom-designed software. The GIC's web design consultants for this project conducted training exercises, and were available via email and telephone to regional coordinators and participating countries for a period of three months from the date of the launch of each website to answer any questions or assist with any technical difficulties. The GIC has arranged for each regional website to be maintained on a professional server for a minimum three year period.

NON-GOVERNMENTAL ORGANIZATIONS

59. IUCN Biosafety Capacity-Building Initiative in Asia

This initiative, implemented by the IUCN Regional Biodiversity Programme for Asia (RBP), aims at building capacity of the Asia region to effectively implement national and international regulations concerning biosafety, in particular the Cartagena Protocol on Biosafety, and to use the benefits of modern biotechnology wisely. Its specific objectives are to: 1) to build human resource as well as institutional capacities in dealing with issues of biosafety; 2) to provide regional and sub-regional cooperation mechanisms for sharing information and knowledge dealing with biosafety issues; and 3) to provide a platform for a regional clearing-house on biosafety issues. The initiative is part of a larger project funded by the German Federal Agency for Economic Cooperation and Development (BMZ) and Swiss Agency for Development and Cooperation (SDC). Since its inception in 2002, the project has undertaken a number of activities including: assessment of the status of biosafety and biotechnology, including existing capacities and needs, in nine countries; organization in May 2002 of the Asia Regional Workshop on Risk Assessment and Risk Management, establishment of a project website and an Information Resource Centre, dissemination of information and awareness materials; development of a 'Resource Kit' for implementing the Protocol at the national level and development of ‘media packages' on biosafety issues. Details about the initiative can be accessed at: http://www.rbp-iucn.lk/biosafety/MainPage.htm

60. The Edmonds Institute Capacity-building Initiatives

The Edmonds Institute has implemented a number of initiatives aimed at building public awareness, and promoting education and information sharing about the environment, biotechnology and intellectual property rights. It has organized workshops and lectures on biosafety and the social and ethical impacts of new technologies. These have been given to various audiences in the United Kingdom, the United States, Spain, India, Denmark, Switzerland, Denmark, Colombia, and Indonesia. It has also produced a Manual for Assessing Ecological and Human Health Effects of Genetically Engineered

Organisms, which is a biosafety handbook accessible to the public and reflective of concerns for ecological and human health.

61. Solagral Information and Training Project on Biosafety (2002-2003)

Solagral is implementing an Information and Training Project on Biosafety in Francophone Africa aimed at providing different stakeholders with objective and multidisciplinary information and upgrading their knowledge on the issues at stake with regards to GMOs, providing information on existing legal and institutional frameworks on biosafety (at the international and regional levels; and responding to technical questions on implementation of the Protocol (such as traceability, risk assessment and management, etc.). The project was developed in response to the requests made by a number of developing countries, especially from francophone Africa during the meetings of the ICCP regarding implementation of capacity-building programs supporting stronger association of the administration and civil society in formulating national legislation on biosafety. Since 2002, national training and information workshops have been organized in Burkina Faso (30 September-2 October 2003), Senegal (24-26 July 2002) and Togo (9-11 April 2002). These workshops were facilitated by the strong collaboration of the National Biosafety Focal Points. In addition, Solagral has produced several analysis and information documents on biosafety

62. TWN Biosafety Capacity-building Programme for Developing Countries

Third World Network (TWN), in collaboration with the Institute of Science in Society and the Norwegian Institute of Gene Ecology, is implementing a capacity-building programme to assist developing countries Governments to implement the Cartagena Protocol on Biosafety. Its specific objectives include: 1) to strengthen national biosafety regulation; 2) to monitor scientific and policy developments in biosafety and genetic engineering; and 3) to increase public awareness and participation in decision-making related to biosafety. The initial phase of the programme included provision of scientific, legal and policy inputs to the negotiations of the Protocol. The current phase focuses on national implementation and the further development of the Protocol through the ICCP, MOP and other processes. Emphasis is put on cooperation with developing country Governments and regional organizations. Through its electronic Biosafety Information Service established under the programme, TWN sends regular mail-outs and disseminates documents, articles and papers to a wide audience, particularly developing country Government officials. TWN also monitors, selects, analyzes and disseminates primarily scientific information and developments in biosafety that are relevant to national decision makers. The mail-outs are archived and maintained at: www.twnside.org.sg/bio.htm.

PRIVATE FOUNDATIONS

63. Rockefeller Foundation Research Capacity-Building in Agricultural Biotechnology

The Rockefeller Foundation is providing support for plant biotechnology research and development capacities in developing countries, including biosafety procedures, in a number of developing countries in Africa, Asia/Pacific and Latin America through national research institutions; CGIAR institutions; developed countries agencies and Private companies. For example, the Foundation has supported development of virus resistance in potatoes since 1991 and is assisting Mexico in developing its infrastructure and biosafety regulatory procedures for testing and introducing recombinant products. In collaboration with Novartis, the Foundation has also supported the ISAAA biosafety workshops in Costa Rica (1992), Indonesia (April, 1994) and the 1998 ISAAA biosafety workshop on the development of harmonized field trial application of transgenic papayas. Other capacity-building

activities supported include: development of capacity for regulating field trials of transgenic crops and exploring the possibility of regionalizing regulations and harmonizing approaches. Participating developing countries supported include: China, Indonesia, Malaysia, Philippines, Taiwan, Thailand, and Vietnam.

RESEARCH/ACADEMIC

64. Environnement et Développement durable: les enjeux de la biosécurité

Réseau Interdisciplinaire Biosécurité (RIBios) c/o - Institut universitaire d'études du développement (IUED), Genève and other collaborating agencies: Direction du développement et de la coopération (DDC), Berne; Réseau universitaire international de Genève (RUIG), Genève; IMédia, Interface Sciences, Médecine et Société, Université de Lausanne; UNEP-GEF Development of National Biosafety Frameworks, Geneva; Office fédéral de l'environnement, des forêts et du paysage (OFEFP), Berne.

Objective: Création d'un programme de formation continue; Contrinbuer au renforcement de capacités au niveau local dans certains pays en développement. Ce "Cours de formation continue en biosécurité" s'inscrit dans un programme de recherche sur la prévention des risques biotechnologiques, dont un des volets prévoit l'élaboration d'un programme de renforcement des capacités prévu par le Protocole de Carthagène. Les objectifs sont d'offrir un programme d'enseignement interdisciplinaire sur les principaux thèmes qui constituent le domaine de la biosécurité. Le programme de formation comprendra quatre modules de cinq jours, sous forme de cours, d'exercices individuels et en groupe, de travaux personnels et de stages et/ou visites. Le Cours de formation continue en biosécurité s'adresse aux personnes ayant une formation universitaire ou une expérience professionnelle dans un des domaines relevant ou proches de la "biosécurité". Il est ouvert aux personnes qui occupent des postes de responsabilité dans l'administration, dans une organisation non gouvernementale (ONG) dans une entreprise.

Brief description: Le développement d'un cours de formation continue en biosécurité constitue un des volets d'un programme de recherche sur les questions de la biosécurité et du développement durable (notamment le principe de précaution, l'approche interdisciplinaires des risques, le dialogue science-société, les enjeux internationaux et nationaux du Protocole). Dans le cadre de cette formation, la notion de biosécurité est envisagée selon les pluralités des savoirs développés en sciences humaines et naturelles, comme la biologie moléculaire, le droit, la sociologie, l'économie et la philosophie (éthique).

65. ISEES Biosafety Governance Program

The Institute for Social, Economic and Ecological Sustainability (ISEES) is implementing a Biosafety Governance Program in collaboration with the University of Minnesota and the Pew Initiative on Food and Biotechnology. The objective of the program is to improve U.S. environmental governance of marine GMOs in order to protect marine biodiversity from new risks posed by releases of marine GMOs, ranging from finfish and shellfish to algae. The program involves education and professional training, research and outreach on biosafety science and policy.

There are two main projects under this program, namely: I) the Safety First Initiative and; 2) the Governance of Genetically Modified Marine Organisms. The “Safety First Initiative” seeks to make human and ecological safety the first priorities in the production and use of genetically modified organisms and derived products. The “Safety First” approach combines the initiative of business with Government and consumer and public interest group involvement in shaping, reviewing, and overseeing the formulation and implementation of scientifically reliable and socially credible safety standards. The Governance of GM Marine Organisms Project aims to strengthen the "legs" of Government, industry and the public in proactive safety governance of marine GMOs. Policy briefs on marine biotechnology and a

publication on transgenic aquatic species in the US policy report have been produced as a part of the Pew Marine Conservation Fellowship.
