FIFTH REVIEW CONFERENCE OF THE STATES PARTIES TO THE CONVENTION ON THE PROHIBITION OF THE DEVELOPMENT, PRODUCTION AND STOCKPILING OF BACTERIOLOGICAL (BIOLOGICAL) AND TOXIN WEAPONS AND ON THEIR DESTRUCTION

BWC/CONF.V/6
26 October 2001

Original: ENGLISH

Geneva, 19 November – 7 December 2001

TECHNICAL ASSISTANCE, EXCHANGE AND COOPERATION UNDERTAKEN BY AUSTRALIA IN THE FIELD OF BIOTECHNOLOGY

Overview

1. Australia sees technical assistance and cooperation in biotechnology as one of the critical components of efforts to strengthen the Biological Weapons Convention (BWC). We remain strongly committed to international economic and social development and to sharing the fruits of scientific and technological progress. Australia aims to remain a key player in the development of biotechnology for peaceful purposes and has a consistent record of providing technical assistance, facilitating the exchange of information and co-operating in a wide range of biotechnology related activities.

2. Reflecting our geographic location and a desire to target our efforts as effectively as possible, Australia focuses its technical assistance and other activities to take advantage of Australia's strong and multilayered links with the nations of Asia and the South Pacific. However our technical assistance in the biotechnology field is not limited to this broad region. Australia contributes to the key international organisations such as the World Health Organisation (WHO) and offers specific targetted assistance in other regions. Australia's technical assistance, exchange and co-operative programmes are overseen by a number of key Federal Government agencies, such as Communicable Diseases Australia (CDA), Australia's Agency for International Development (AusAID), the Australian Centre for International Agricultural Research (ACIAR) and the Departments of Agriculture, Forestry and Fisheries and Health.

3. This paper outlines some representative examples of the cooperative activities currently undertaken by Australia in the field of biotechnology.

(a) Publication, Exchange and Dissemination of Information

4. A number of organisations and working groups are actively engaged in the publication, exchange and dissemination of information. Through a wide range of media, and by building and maintaining networks of professional contacts, these activities contribute to cooperation between States Parties.

5. Communicable Diseases Australia, which is part of the Federal Department of Health and Aged Care, publishes Communicable Disease Intelligence (CDI), both in hard copy and on the internet. The CDA website (www.health.gov.au/pubhlth/cdi/cdihtml.htm) also provides a range of information such as peer-reviewed articles relating to infectious diseases; specific annual reports; quarterly surveillance reports (including the National Notifiable Diseases Surveillance System, the Laboratory Serology and Virology Reporting Scheme, Gonococcal, Meningococcal, Rotavirus, Influenza and Australian Encephalitis Sentinel Chicken Surveillance); and disease outbreak reports for Australia and overseas.

6. The CDA website provides useful resource links to other Australian and International sites related to communicable diseases. The Communicable Diseases Australia Network also hosted a conference on harnessing new technologies, which attracted keynote speakers from the WHO and major international research centres.

7. The National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases (NCIRS) was established in 1997 to perform research and give independent expert advice on vaccine preventable diseases. In addition, it also provides surveillance of immunisation coverage. NCIRS has a regularly updated website (www.ncirs.usyd.edu.au).

8. A national animal health information service (NAHIS) has also been set up to collate findings and provide an overview of animal health in Australia, and in particular, perform animal disease surveillance and control. NAHIS is subscription funded and operated by Animal Health Australia within the Department of Agriculture Forestry and Fisheries. It aggregates summary data from a range of sources and disseminates information on Australia's animal health status. It produces a database containing up to date text, summary numerical data and maps, quarterly and annual reports, a web page (www.aahc.com.au/nahis/index.htm) and routine reports to the Office International des Epizooties, the Food and Agricultural Organisation and the WHO.

9. NAHIS contains information on a wide range of animal diseases. Sources of data include animal health authorities, diagnostic laboratories, disease surveillance programs, disease control and accreditation programs and university and research programs. Four main types of information are collected, namely the results of laboratory testing, the results of surveillance or monitoring programs, outbreak investigations and control activities.

10. Australia is committed to its international cooperation obligations under the second revised International Plant Protection Convention which provides for the exchange of information on plant pests and cooperation in providing specific technical information (www.austlii.edu.au/au/other/dfat/seldoc/1997/4522.html). The Department for Agriculture, Forestry and Fisheries is the contact point under the Convention at ippc.contactpoint@affa.gov.au.

(b) The Provision of Training and Technical Advice, Equipment and Reagents

11. Australia provided core funding of AUD11 million to the WHO in 2000. In addition, AusAID sponsors students to undertake research in biotechnology related fields.

Table 1: AusAID sponsored students studying in biotech related fields - 2000

	Level of Study		
Study Field Description	**Doctorate**	**Masters**	**Bachelors, Hons. and other**
Biochemistry	2	4	1
Microbiology, Bacteriology	7	4	1
Biotechnology	1	5	7
Medical Sciences, Medicine	6	25	43
Health Science and Technology	5	24	18
Laboratory Techniques			3
Total	**29**	**71**	**76**

(c) Improvement and Development of the Capabilities of States Parties to Monitor Emerging and Re-Emerging Diseases

12. AusAID provides voluntary funding of AUD 7 million dollars to the WHO and its Western Pacific Regional Office in Manila. This includes funding for projects on the prevention of communicable diseases (AUD 950,000) and for health technology, vaccines, essential drugs and medicines (AUD 1.79 million).

13. Communicable Diseases Australia draws upon specialist knowledge to produce policies, best practice guidelines and advice on a wide range of communicable diseases, including hepatitis C surveillance, infection control guidelines, influenza pandemic planning, meningococcal disease control guidelines, food borne diseases, antimicrobial resistance and sexually transmitted infections surveillance. The sharing of this information with interested parties is consistent with capacity-building measures designed to enhance and develop the capabilities of State Parties.

(d) Improvement and Development of Research Capabilities through Collaborative Research Programs and Projects

14. The Australian Centre for International Agricultural Research was established in 1982 to assist and encourage Australia's agricultural scientists to use their skills for the benefit of developing countries. The Centre's mandate is to improve the well-being of people in developing countries and Australia through international collaboration in research and related activities that develop sustainable agricultural systems and appropriate strategies for natural resource management. A listing of ACIAR projects that are assisting developing countries to improve and develop their own research capabilities can be found in the Annex. The ACIAR website can be found at www.aciar.gov.au.

(e) Biological Data Bases

15. Australia contributes to numerous international academic, scientific and industrial databases that facilitate access to information in the field of biotechnology. Australian Government departments and agencies also publish regular reports and bulletins, dealing with a range of biotechnological issues, which are widely disseminated within the Asia-Pacific region and the broader international community. For example, the Commonwealth Scientific and Industrial Research Organisation maintains the Australian Bibliography of Agriculture, containing bibliographic records of materials covering all aspects of agriculture, together with references to information on forestry, fisheries, food sciences and human nutrition. This database is accessible to researchers in developing countries.

16. In addition, the Office of the Gene Technology Regulator (OGTR) currently contributes to the Organisation for Economic Cooperation and Development's BioTrack/BioBin database. This is a comprehensive, publicly accessible database of field trial and general release approvals of genetically modified organisms, and is accessible through www.health.gov.au/tga/gene/gmac/ links. The OGTR is exploring further opportunities for technical assistance, exchange and cooperation in the field of biotechnology. When the Biosafety Protocol comes into force, it is likely that this Office will contribute to the Biosafety Clearing House to be established under the Protocol. Australia would be pleased to cooperate with the creation of further information networks which promote Article X objectives.

(f) International Cooperation on Disease Outbreaks and Vaccine Research and Production

17. The Australian Department of Health and Aged Care funds the Victorian Infectious Diseases Research Laboratory (VIDRL) and the Australian Paediatric Surveillance Unit (APSU). The VIDRL and APSU perform a number of important international reference roles that can assist with cooperation on disease outbreaks and vaccine research and production. The Virology Department within the VIDRL has been designated a WHO collaborating centre for virus reference and research, and the VIDRL viral identification laboratory is designated a WHO Influenza Laboratory. Furthermore, VIRDL was established as a WHO collaborating centre for biosafety training and consultative services in l984. As part of VIDRL's international training commitment, WHO-sponsored fellows have undergone training in the fields of hepatitis, HIV, tuberculosis and poliomyelitis diagnosis and reference functions. The most recent fellow (in 2000) was from Sri Lanka and studied influenza.

18. In 1991, as part of the WHO global poliomyelitis eradication initiative, the VIDRL enterovirus laboratory was recognised as the Western Pacific Regional Reference Laboratory for Poliomyelitis. In 1999 the VIDRL was designated the WHO Western Pacific Region measles reference laboratory in Australia. VIDRL is also involved in poliovirus laboratory containment activities in accordance with the WHO's polio certification requirements.

19. The APSU is involved in acute flaccid paralysis surveillance. The APSU is part of an international network of paediatric surveillance units (INoPSU), comprising 11 units worldwide. The aims of INoPSU are to encourage and facilitate communication between existing surveillance units, the development of new units, information sharing about the

surveillance process, simultaneous or sequential data collection from two or more countries, and the dissemination of information to national and international health authorities. It also works towards the increased awareness, early diagnosis and management of rare conditions, the identification of emerging disorders, and the establishment of international cohorts to support future research.

20. AusAID is providing AUD 9.5 million over 6 years to support the Malaria Vaccine Trials Project. This project is assisting the Papua New Guinea Institute of Medical Research to maintain the malaria vaccine field site in East Sepik province. It also provides AUD 6.4 million for projects, including to assist the roll-back of malaria in the Southern African Region, an expanded program if immunisation in Cambodia, an emergency response to polio program in China and an intensified national tuberculosis program in Indonesia.

21. The Northern Australia Quarantine Strategy, which aims to provide early warning of exotic pests and diseases, operates in Papua New Guinea, Indonesia and East Timor. It employs regular surveys, sentinel herd monitoring, insect trapping and activities designed to increase the probability of detecting incursion, such as public awareness programs, in these countries. This Strategy is an example of Australia's commitment to cooperation under the International Plant Protection Convention.

(g) Technology Transfers

22. Australia believes that all technology transfer programs should focus not only on the technology itself, but on capacity building of human resources, technical skills and services, institutional structures, management skills, and the protection of intellectual property. All of these skills are necessary to maximise the benefits that primary technology transfer can provide.

23. The International Network of Agencies for Health Technology Assessment (INHTA) advises governments on matters concerning public health technologies. In Australia, the assessment of medical technologies is undertaken by the Medical Services Authority Committee (MSAC). It is a member of INHTA and is developing avenues to promote international information sharing in the INHTA forum.

(h) Bilateral, Regional or Multilateral Participation in the Biotechnology Field

24. AusAID is active in supporting biotechnology-related projects involving bilateral, regional and multilateral participation. Some examples of recent projects are the ASEAN – Australia Biotechnology Project in South East Asia, the Genetic Improvement of *Acacia Mangium* in support of Indonesian reforestation activities and the provision of assistance to the Indonesian Forest Research and Development Agency. In addition, Australian Tree Seeds is working to improve tree productivity in Indonesia, Thailand, the Philippines, Vietnam, Laos and Cambodia. In the South Pacific, the Forest Genetic Resources project and the Taro Genetic Resources project are helping these countries to improve their genetic stock of Taro. AusAID is also assisting Mozambique with cashew reforestation.

25. AusAID also supports numerous biotechnology-related seminars of regional significance. Recent seminars topics have included the biotechnology of tropical and subtropical species, the fourth Asia-Pacific conference on agricultural biotechnology, the third Pacific-Rim conference

on the biotechnology of *Baccilus thuringiensis*, a symposium on hybrid breeding and genetics, an international conference on biotechnology and biodiversity and a seminar on the responsible utilization of agricultural biotechnology for crop production in developing communities.

(i) Training Programs on Diagnosis, Surveillance, Detection, Prevention and Treatment of Diseases

26. In addition to training programs conducted by AusAID (paragraph (b)), ACIAR also directs a specific training program composed of four elements:

- fellowships for postgraduate students (John Allwright Fellowships). There are currently 26 such fellows studying in Australia, with 6 undertaking biotechnology research projects;
- postgraduate returnee follow-up awards (Returnee Small Project Awards Scheme);
- non-award training (short courses and workshops); and
- support for the Crawford Fund for International Agricultural Research, both through direct contribution and sponsorship of attendees at Master classes and other selected training activities.

27. Many ACIAR projects include training components that assist countries to build local expertise. Some examples of current disease-related projects include the improved diagnostic and control methodologies for livestock diseases in Laos and China, and the diagnosis and control of plant diseases in northern Vietnam.

(j) Cooperative Research Activities

28. The Australian Joint Expert Technical Advisory Committee (JETACAR) supported the call by the WHO for a global response to antibiotic resistance. JETACAR has identified five key elements of a national antibiotic resistance management program that will lead to a better understanding of emerging antibiotic resistant bacterial diseases. These elements are regulatory controls; monitoring and surveillance; infection prevention strategies; education; and research.

29. ACIAR is also involved in numerous programs promoting cooperation in the field of biotechnology research, development and application between relevant groups in Australia and other countries. The Annex contains a list of current projects.

Conclusion

30. Australia will continue to seek new ways in which it can participate in international efforts to provide technical assistance, publish and disseminate information, build capacity and collaborate in research activities. While the majority of our efforts focus on developing countries in South East Asia and the South Pacific, Australia will also seek to cooperate with countries in other regions when our specific expertise will be useful. We welcome the opportunity to continue existing dialogues and to explore all possible avenues for further cooperation.

___

ANNEX[1]

COOPERATIVE RESEARCH ACTIVITIES IN BIOTECHNOLOGY

1. Fisheries Biotechnology

- Diagnostic tests and epidemiological probes for prawn viruses in Thailand and Australia

2. Forestry Biotechnology

- Genetic diversity and propagation of mangroves.
- Application of molecular marker technologies for genetic improvement of forest plantation species in Indonesia and Australia.
- Heart rots in plantation hardwoods in Indonesia and southeast Australia.
- Assessment of eucalyptus rust as a pathogen of Eucalyptus species and other Myrtaceae, and development of sensitive methods for its detection in germplasm.

3. Post-harvest Biotechnology

- Control of ripening in papaya and mango by genetic engineering.
- Management of Phytophthora diseases of durian.
- Monitoring mycotoxins and pesticides in grain and food production systems for risk management in Vietnam and Australia.
- Bioremediation technology for insecticide residues in horticulture.
- Reducing aflatoxin in peanuts using bio-control and agronomic management strategies in Indonesia and Australia.
- Genetic engineering of pineapples with blackheart resistance.

4. Animal Sciences

- Prolific worm-resistant meat sheep for Maharashtra, India.
- Genetic and immunological characterisation of high resistance to internal parasites in Indonesian Thin Tail Sheep.
- Increasing efficiency and productivity of ruminants in India and Australia by the use of protected nutrient technology.
- Population models and immunocontraceptive vaccines for managing outbreaking rodent species.
- Managing the rumen ecosystem to improve utilisation of thornless acacias.
- Increasing the productivity of cattle in India and Australia with rumen fugal treatments.
- Performance evaluation and genetic improvement of ruminant animals in the Philippines.
- Control of bees and bee mites in Indonesia and the Philippines Animal Health and Disease control.
- Improved diagnostic and control methodologies for livestock diseases in Lao PDR and Yunnan Province, PRC.

[1] Reproduced in English only.

- Antigenic competition and vaccine failure in small ruminant vaccines in India
- Investigations into the control of Newcastle disease in village chickens in Mozambique.
- Control of fasciolosis in cattle and buffaloes in Indonesia, Philippines and Cambodia.
- Lameness in sheep and other ruminants in Bhutan.
- Sustainable endoparasite control for small ruminants in Southeast Asia.
- Development of diagnostic and control methodologies for animal trypanosomiasis (Surra) in Papua New Guinea, Indonesia, the Philippines and Australia.
- Development of a vaccine for the control of Gumboro in village and small poultry holdings in Indonesia.
- Control of Pasteurellosis in pigs and poultry.
- Control of footrot in small ruminants in Nepal - vaccination and sero-surveillance.
- Bovine babesiosis and anaplasmosis: studies on field performance of live vaccines, diagnostic methods and host responses to infection.
- Tick-borne diseases: Delivery of user-friendly and effective vaccine and diagnostics.
- Bovine babesiosis and anaplasmosis in the Philippines: developing a research and diagnostic capability.

5. Crop Sciences

- Biological threats to Saccharum germplasm and sugar production in Papua New Guinea, Indonesia and Australia.
- Molecular tools for achieving Apomixis in rice.
- Development and conservation of plant genetic resources from the Central Asian Republics and associated regions.
- Increasing yield potential in wheat: complementing conventional breeding by application of novel physiological and germplasm strategies.
- Development and conservation of plant genetic resources from the Central Asian Republics and associated regions.
- Development of in vitro technologies for tea improvement in Indonesia.
- Virus indexing and DNA fingerprinting for the international movement and conservation of taro germplasm.
- Development and evaluation of simple tests of the cyanogenic potential of cassava flour and cassava tubers.
- Diagnosis and control of plant diseases in northern Vietnam.
- Control of Gemini virus diseases of cotton and tomato in Pakistan and Australia.
- Use of entomopathogenic nematodes in China to control chive midges.
- Biological control of Chromolaena odorata in Indonesia, Papua New Guinea and the Philippines.
- Bioherbicide development for cereals in integrated weed management.
- Identification of nematode resistance/tolerance in Vietnamese Musa germplasm for improvement of banana production.
- Liriomyza huidobrensis leaf miner: developing effective pest management strategies for Indonesia and Australia.
- Diagnosis and control of soil-borne fungal diseases of plants in Indonesia.
- Integrated disease management for horticultural crops in Vietnam.
