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TO THE CONVENTION ON THE PROHIBITION
OF THE DEVELOPMENT, PRODUCTION AND
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JAPANESE COOPERATION IN THE FIELD OF BIOTECHNOLOGY

Working Paper submitted by Japan

1. The Government of Japan provides wide ranging assistance to developing countries in the field of biotechnology which falls under the provision of Article X of the BWC.

Japan's official development assistance (ODA) is, in principle, classified into two parts, bilateral assistance which covers 71.2% of the total ODA in 1993, and aid through international organizations accounting for 28.8%. Japan's bilateral ODA is divided into ODA loans, grant aid, and technical cooperation. Recently, Japan also started giving subsidies in support of NGO activities and grant aid to grass-roots projects. A breakdown of Japan's bilateral ODA in 1993 by region shows that Asia accounted for 59.5% of the total (65.1% in 1992). Asia remained the largest recipient of Japan's bilateral aid. As for other regions, the order of recipients in the amount of aid was the same as in the previous year: Africa 11.8% (10.1% in 1992), Latin America 9.0% (9.1%), Middle East 6.4% (4.3%), Oceania 1.7% (2.0%), Europe (Eastern Europe, etc.) 1.5% (1.2%).

2. Japans bilateral assistance in the field of biotechnology is conducted through various channels. Typical examples of the assistance are as follows:

(1) ODA Loans

In response to a request from Indonesian Government, Japan extended in 1989 a total of ¥6.946 billion in ODA loans to finance the first phase of the Bogor Agricultural University Development Project in Indonesia.

Today, the University has grown to one of the leading universities in Indonesia, boasting seven faculties: agriculture, veterinary medicine, fisheries, animal husbandry, and forest, etc. -- and an enrollment of 12,00 students. The Japanese government has also decided to extend ODA loans in FY 1994 to help the university expand and refurbish its departments of agriculture and veterinary medicine.

In addition to these ODA loans, Japan has been extending technical cooperation and grant aid to Bogor Agricultural University. During the years from 1977 to 1984, Japan received a total of 27 faculty members for training at Japanese universities, gave grant aid in

1984 to finance an expansion of the facilities of the agricultural engineering department, dispatched specialists to the university for training its faculty members of those departments under project-type technical cooperation from 1988 to 1993.

Given the importance of agriculture employing 60% of its population, the social role this university plays has been taking on a growing importance with each passing year.

(2) Grant Aid

Japan provides grant aid mainly to countries with relatively low incomes among developing countries. Japan decides the recipient countries of its grant aid, after having made necessary surveys, on the basis of overall consideration of socio-economic circumstances, development needs, their bilateral relationship with Japan, and the content of their requests for assistance.

Japanese grant aid primarily covers basic human needs such as medical and health care, water supply, rural and agricultural development, as well as human resources development. In particular, Japan attaches importance to cooperation in education and research sectors, which are vital to the development of human resources in developing countries.

Recent typical grant aid examples in biotechnology are the project for Improvement of Equipment for the Tibet Tuberculosis Control Centre in Tibet.

(3) Technical Cooperation

Japan provides technical assistance through a variety of organizations. Most government-to-government technical assistance under intergovernmental commitments is implemented through the Japan International Cooperation Agency (JICA). Government-to-government technical assistance takes the form of the acceptance of trainees, the dispatch of experts, the provision of equipment, project-type technical cooperation which combines the three above-mentioned elements, development studies and the dispatch of Japan Overseas Cooperation Volunteers. Illustrative examples of technical assistance in biotechnology are as follows:

(i) Trainee Acceptance Programme

"Gene Manipulation for Agriculture" is one of the typical group training courses.

The main themes of this course are (a) culture of microorganisms, (b) nucleic acid extraction and separation techniques, (c) electrophoresis techniques of nucleic acid and proteins, (d) transformation methods, (e) DNA enzyme treatment techniques, (f) detection and identification techniques for transformed products, (g) DNA

amplification by the PCR method, (h) sequence analyses of nucleic acid and protein, (i) computer skills for genetic engineering.

Participants are expected to master advanced biotechnology by learning fundamental technology of gene manipulation containing Agrobacterium. Participants will experiment on the extermination of pest insects with microbial insecticides, elimination of mercury-containing and slowly-decomposing compounds using recombinant microorganisms, breeding using cell fusion technology with yeast or cells of higher plants.

The course will be conducted from July 31 to December 1, 1995 and 12 participants are expected from India, Indonesia, Philippines, Malaysia, Argentina, Colombia, Chile, Iran, Egypt, Turkey, Pakistan, Sri Lanka, Kingdom of Nepal, Kingdom of Thailand and Federative Republic of Brazil.

(ii) Dispatch of Experts

Experts are classified into two types depending on the period for which they are assigned overseas: long-term experts who stay overseas for more than a year and short-term experts who stay overseas for less than a year. Both types of experts are sent according to the request of the recipient countries. In 1995, Japanese experts are dispatched or to be dispatched to Malaysia, Nepal, Egypt, Ghana, Argentina, Chile, Costa Rica, Dominican Republic, Uruguay and Poland. Their instructing areas cover poultry diseases control, biotechnology for horticultural plants, vaccine quality control and polio diagnostic procedures, biological control of phytopathogenic fungus, management and utilization of plant genetic resources, basic research for control of infectious diseases, biotechnology in fungal degradation of ligninocellulose and its potential application to production of feed and food, etc.

(iii) Equipment Supply Programme

The individual equipment supply programme forms part of Japan's technical assistance activities. It is aimed at providing equipment required for the transfer of technology, and to enhance the effectiveness of technical assistance through the combination of human and material resources. Specifically, they include the supplying of: (a) equipment to increase the efficiency of such activities as technology transfer by dispatched experts and training activities by Japan Overseas Cooperation Volunteers, (b) equipment necessary, following the return of experts, for the execution and continuation of work utilizing Japanese technology which has already been transferred to recipient countries, and (c) equipment necessary, following the return of trainees, to effectively utilize the knowledge and skills learned in Japan. From 1990 to 1995, Japan provided various equipment such as genetic research equipment, medical research equipment, etc., to India, Costa Rica, Colombia, Philippines, Syria, Guatemala, Nicaragua, Paraguay, Uruguay, Tunisia, Poland, Mauritius, Zambia and Samoa.

(iv) Project-Type Technical Cooperation

Project-type technical cooperation involves the implementation of technical cooperation over a period of several years (usually five years) through organic combinations of the three basic formats of technical cooperation: acceptance of trainees, dispatch of experts, and supply of equipment and machinery.

Recent assistance under this type of cooperation are as follows:

(a) Development of the Department of Biotechnology at the Faculty of Food Science and Biotechnology, University Pertanian Malaysia.

(b) Chiang Mai University Plant Biotechnology Research Project, Thailand.

(c) Genetic Resources Preservation and Research Laboratory Project, Pakistan.

(d) Project of the Centre for Plant Genetic Resources, Sri Lanka.

(e) Plant Virus Research Project, Argentina.

(f) Plant Genetic Resources Conservation Project, Chile.

(g) Fundamental Technology Transfer Project for Production of Live Attenuated Measles and Poliomyelitis Vaccines, Indonesia.

(h) Project of Development and Evaluation of Quality Control on Biological Products, Turkey.

3. Aid through international organizations

(1) Japan has steadily increased aid through international organizations in recent years. Japan's scale of assessment to the UN regular budget is 13.95% in 1995 and the second largest next to the US share (25.00%). In accordance with the United Nations scale of assessment adjusted to take into account differences in membership between the United Nations and specialized agencies, Japan naturally contributes to the specialized agencies concerned such as WHO, FAO, etc.

(2) The following are also some typical examples of Japan's assistance through international organizations in the field of biotechnology:

(i) CGIAR

Japan is the largest bilateral donor country to the Consultative Group on International Agricultural Research (CGIAR), a network of 16 international agricultural research centres. Japan contributed $35 million to the Group in FY94, and plans to contribute some $44 million in FY95, which will place Japan's share at about 14%. Some centres of the CGIAR, such as the International Plant Genetic Resources Institute and the International Rice Research Institute, are playing a leading role in the field of biotechnology.

(ii) AVRDC

Japan is the second largest donor country to the Asian Vegetable Research and Development Centre, a centre for study on vegetables as well as conservation and distribution of vegetable genetic resources. Japan contributed $1,343 thousand in FY95.

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