OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.

DISCLAIMER

FAIR USE POLICY

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org

21465

Project No.: XP/RAS/94/135
Contract No.: 95/030

International Symposium on TRANSFER OF BIOTECHNOLOGIES FOR SUSTAINABLE DEVELOPMENT

2 & 7 September 1995
NGO Forum on Women
UN Fourth World Conference on Women
Huairou, Beijing

Preliminary Report

Sponsored by:

UNIDO
(United Nations Industrial Development Organization)

Organized by:

APPROTECH ASIA
(The Asian Alliance of Appropriate Technology Practitioners, Inc.)

Philippine Social Development Center Building
Magallanes corner Real Streets
Intramuros, Manila 1002
Philippines

International Symposium on
"TRANSFER OF BIOTECHNOLOGIES FOR SUSTAINABLE DEVELOPMENT"

2 & 7 September 1995
NGO Forum on Women
UN Fourth World Conference on Women
Huairou, Beijing

Executive Summary

Biotechnology inroads continue to provide potentially great benefits to still largely agricultural-based economies of developing countries. Promotion of biotechnology and acquisition of technologies from developed countries for sustainable development has been prioritized. Biotechnologies with traditional applications which has provided women with enough food, source of income, self-confidence and has largely contributed to the utilization of agricultural and industrial wastes and biodiversity conservation has been pushed to the side by the profit and market-driven economy.

To address the issue of identifying and transferring biotechnologies which has been the source of sustainable income and livelihood of village women in the Asian countries, the "International Symposium on Transfer of Biotechnologies for Sustainable Development" was organized by Approtech Asia and sponsored by the United Nations Industrial Development Organization (UNIDO) on September 2 and 7, 1995 at the NGO Forum on Women during the Fourth World Conference on Women in Beijing.

The symposium aimed to provide basic scientific and biotechnological information and training in mushroom and bioconversion technologies, and information and communication of relevant data on biotechnology as opportunities for generating enterprises, incorporating biosafety component in the technology.

The resource persons from Fiji, Malaysia, the Philippines, Sri Lanka and Thailand, with a contribution from China, presented their biotechnology research and application activities on mushroom production, bio-fertilizer, plant tissue culture and vegetable fermentation with emphasis on women's involvement in small and medium scale biotechnology industries. Each presentation was followed by a sharing of experiences and discussion on the possibility of future exchange of information.

The focus of each presentation were on the following: for mushroom production, mushroom biotechnology and its potential application in food and income generation for women; for bio-fertilizer, organic fertilizer production through bioconversion of agricultural and industrial waste materials; for plant tissue culture, biodiversity conservation; and, for vegetable fermentation, fermentation technology and its potential in food and income generation for women.

Presentors on bio-fertilizer stressed the importance of minimizing pollution from agro-industrial and related wastes by making them into compost, and processing and converting the wastes into organic fertilizers for food production. Large volume of wastes are being discarded continuously in the rural areas having no ready takers as they have unknown practicable uses. One of the most practical means of disposal of these wastes is through bio-conversion into composts or organic fertilizers.

In Fiji, kitchen refuse and other waste materials are kept in separate containers, mixed with soil or rock materials and made into compost. Earthworms (vermiculture) are grown in a small box of soil placed under the sink or in a corner in the kitchen for soil conditioner and for food.

The experience of Centre for Environment, Technology and Development in Malaysia, through experiment and simple farm research, developed the *Bokashi* (fermented fertilizer) using a mixture of 25 percent soil, 60 percent chicken dung, 10 percent rice bran, and 5 percent oil cake exposed to a temperature of 40 to 45 degrees centigrade.

Another topic discussed was mushroom production in the Philippine setting. The technology to successfully produce mushroom under the constraint of Philippine economic and environmental conditions is available. Although the technologies are available, still the most common cause of failure in mushroom venture is technological. Many of those who engaged in the business and failed did not seek expert assistance at all.

One successful community-based mushroom cooperative experience is the Gabay-Kaunlaran ng Bulacan Multi-purpose Cooperative, Inc. which trained un-employed housewives in spawn and mushroom culture, provided the trainees with small capital and organized them for marketing of products. Mushroom production has been an income generating project of the members of the cooperative which has given them 60 percent margin. The cooperative has provided technical and financial assistance to some families, contract growers, to meet the increasing demand of supermarkets for fresh mushroom.

The discussion on plant tissue culture for biodiversity conservation is a global environmental concern. There is a call to support sustainable development by conserving and using biological resources in ways that the world's genetic resources and biodiversity are maintained.

In Thailand, the government came up with policies, measures and plans aimed to protect ecological process and ecosystem to acheive the conservation and sustainable utilization of biodiversity. Strategies formulated includes among others, capacity building of institutions and their staff, enhancing efficiency in the management of protected areas, improving incentives for the

conservation of biodiversity at the local level, and promoting cooperation both the national and internation agencies and institutions in the conservation and sustainable utilization of biodiversity.

With the use of plant tissue culture technology, Thailand has been exporting volumes of cutflowers to Japan and Europe. Cutflowers have generated high revenues to the country.

In Sri Lanka, food processing has provided village women with employment, stable sources of income and food for the family. The most common income generating activities of housewives in the village of Sri Lanka are the traditional methods of pickling and natural fermentation using lactic acid and "sauerkraut" or acid cabbage.

In China, Professor Hongliang Sun contributed a paper on "The Amaranth Soysauce - A New Product of Fermentation Technique". The soysauce brewed with soybean and grain amaranth appears red-brown, bright colour with a strong flavour of soysauce and ester. The successful manufacture of the soysauce of soybean and grain amaranth improved the quality of soybean soysauce, strengthened the nutrition and health function of soysauce, and promoted the comprehensive utilization of soybean. The processing technique is so simple that even housewives can prepare the soysauce for home consumption and for small business enterprise.

Some of the benefits generated by rural women in the adoption of appropriate biotechnologies include women's productivity and economic independence, improvement of the health and nutritional status of the family especially the children, and increased self-confidence and women's active participation in community development activities.

The resource persons and the partcipants discussed the follow-up activities on transfer of biotechnologies for sustainable development to include the following: (1) an exchange of information on the biotechnologies used by village women in the home and in their small business as means of livelihood as well as recent advances in the field, (2) in the transfer of biotechnologies, it is imperative to look at the cultural and social context of the technology, and (3) biotechnologies with traditional application should be viewed with optimism.