

**INTERNATIONAL WORKSHOP ON
TECHNOLOGY OF APPLICATION OF PESTICIDES
Kandy (Sri Lanka), June 23-26, 2003,**

PARTICIPATING COUNTRIES: 13 MEMBER COUNTRIES OF THE NAM S&T CENTRE

*NUMBER OF PARTICIPANTS: 119 (INCLUDING 103 SCIENTISTS, RESEARCHERS AND
INDUSTRY MANAGER FROM SRI LANKA)*

Chemical pesticides have contributed greatly to the increase of yields in agriculture by controlling pests and diseases and also towards the control of insect-borne diseases like Malaria in the human health sector. However their continued use is resulting in many problems. The development of resistance is reducing their usefulness leading to a constant search for other chemical pesticides that may be more toxic and expensive. The rise in cost has economic consequences both to the individual farmer and the nation. Through over-use and misuse there is considerable waste, adding to the cost and contributing to the adverse environmental and health consequences. The impact on health is also a matter of serious concern. Despite the lack of proper data, in countries like Sri Lanka acute pesticide poisoning is among the first five causes of hospital mortality. Acute poisoning is associated with lack of care by the user resulting in accidental deaths, while the free availability of pesticides lends itself to intentional deaths contributing to the rising levels of suicide.

A more serious health impact is due to chronic pesticide poisoning. This not only affects the user of pesticides but also the population in general by entering the food chain and polluting the water table and surface water. It has serious environmental impacts like the destruction of fish, wildlife and the quality of the habitat. The increase of cancer, chronic kidney disease, suppression of the immune system, sterility among males and females, endocrine disorders, neurological and behavioral disorders, especially among children, have been attributed to chronic poisoning. These effects probably extend to farm and other animals.

In this context the NAM S&T Centre with the approval of its Governing Council organized a 4-day international workshop on Technology of Application of Pesticides at Kandy, Sri Lanka during June 23-26, 2003 in association with the National Science and Technology Commission (NASTEC), Ministry for Economic Reform, Science & Technology of Sri Lanka.

Scientists from thirteen member countries of the NAM S&T Centre attended the workshop. These included Dr. M. A. Malek of the Institute of Food and Radiation Biology of the Atomic Energy Research Establishment, Dhaka, Bangladesh; Dr. Laverde Luis Antonio Gomez, Chief of the Integrated Pest Management Project, National Sugarcane Research Centre (CENICANA), Colombia; Dr. Yasser Wahid Abdel Fattahy El-Sheikh of the Central Agricultural Pesticide Laboratory of the Agricultural Research Centre in Cairo, Egypt; Mr.

Sanjay Bajpai from the Department of Science and Technology (DST), Government of India; Mr. Priyo Wahyudi of the Bio-Pesticide Department of the Agency for the Assessment and Application of Technology (BPPT), Indonesia; Mr. Subramaniam L. S. David of the Pesticide Control; Division of the Department of Agriculture, Malaysia; Mr. Deovruth Abeeluck from the Entomology Division of the Agricultural Research and Extension Unit of the Ministry of Agriculture, Food Technology and Natural Resources of Mauritius; Dr. San San Yu of the Biotechnology Department, Ministry of Science and Technology, Yangon, Myanmar; Mrs. Neesha Rana (Basnyat) of the Royal Nepal Academy of Science and Technology (RONAST), Kathmandu, Nepal; Mrs. Tahera Syeda Khatoon of the Pakistan Council of Scientific and Industrial Research in Karachi, Pakistan; Dr. Ibrahim Borro Head of Pesticide Division, Ministry of Agriculture and Agrarian Reforms of Syria; Dr. Lionel Nugaliyadde, Entomologist, Rice Research and Development Institute, Batalagoda, Sri Lanka and Mr. Patrick Chiza Chikoti from Mt. Makalu Central Research Station, Chilanga, Zambia, besides 103 scientists, researchers and industry managers from Sri Lanka. Colombo, Jaffna, Kelaniya, Peradeniya, Rahuna, Sammanthurai, Sabaragamuwa, Eastern and Open Universities and Tea Research Institute, Industrial Technology Institute, Horticulture Crop Research & Development Institute, Rice Research and Development Institute and Rubber Research Institute were some of the organizations, whose researchers attended the workshop. The industries, which participated in the event, included Mackwoods Ltd., Oxfam GB, A. Baur & Co. Ltd., DTW (International) Pvt. Ltd, Chemical Industries (Colombo) Ltd., J. L. Morison Son & Jones (Cey) Ltd., and SGS Lanka Pvt. Ltd.

During the inaugural session Prof. Tissa Vitarana, Chairman, NASTEC welcomed the participants. After a brief introduction to the workshop and NAM S&T Centre by its Director, Prof. Arun P. Kulshreshtha, Dr. Sarath Weerasena, Director General, Department of Agriculture of Sri Lanka and Prof. Kapila Gunasekera, Vice Chancellor, University of Peradeniya addressed the distinguished gathering. A 219-page publication entitled 'Biological Control of Pests and Weeds for Sustainable Development', which is based on the Workshop and Project Planning Meeting on this subject held at Bangalore during January 17-20, 2001 with partial financial support from Perez Guerrero Trust Fund (PGTF) of G-77 was released by Dr. Sarath Weerasena. This was followed by a Vote of Thanks by Dr. M. C. N. Jayasuriya, Director/CEO of NASTEC.

The Workshop was divided into three plenary sessions during which various participants presented the country status papers. Dr. Vasant Gowariker, Ex-Secretary to the Government of India and Ex-Science Adviser to the Prime Minister of India delivered the keynote address at the beginning of the technical sessions. The theme papers in the technical sessions were presented by Prof. Ravindra Fernando, Head, National Poisons Information Centre of the National Hospital and Professor of Forensic Medicine and Toxicology in the University of Colombo, Sri Lanka on 'Usage of Pesticides and Occupational Health'; Dr. Mrs.

Seema Wahab, Adviser, Department of Biotechnology (DBT), Government of India on 'Eco-Friendly Alternate Strategies for management of Crop Pests, Diseases and Weeds through a Biotechnological Approach'; Dr. Gamini Manuweera, Registrar of Pesticides, Department of Agriculture, Sri Lanka on 'Legislation governing the Use of Pesticides'; and Mr. M. R. Bheda, Secretary, Human Settlements Environment and Youth Centre, Chennai, India on 'Effects of Pesticides on Environment'.

On 25th June 2003 discussions were held in six panels respectively chaired by Prof. Upali Samarajeeva (Application of Pesticides – Effects on Food Chain and Nutrition); Prof. W. A. J. M. de Costa (Application of Pesticides – Effects on Occupational Health); Dr. G. K. Manuweera (Application of Pesticides – Legislation); Prof. Sarath Bandara (Application of Pesticides – Alternate Technologies); and Prof. Rohan Rajapakse (IPM and Best Management Options Available), which formed the basis of the Recommendations adopted by the workshop.

At the end of the workshop the participants unanimously adopted a Kandy Declaration, which is reproduced below.

KANDY DECLARATION

We, the participants of the International Workshop on the Technology of Application of Pesticides held from 23rd to 26th June, 2003 in Kandy, Sri Lanka, organized by the National Science & Technology Commission of Sri Lanka (NASTEC) and the NAM S&T Centre,

Realizing: the need for scientific and technological management of the use of pesticides for increased productivity of crops,

Recognizing that:

while chemical pesticides have contributed greatly to the increase of yields in agriculture by controlling pests and diseases, and towards the control of some insect-borne diseases like Malaria in the human health sector, their continued use is resulting in many problems. The development of resistance is reducing their usefulness leading to a constant search for other chemical pesticides that may be more toxic and expensive. The rise in cost has economic consequences both to the individual farmer and the nation. Through over-use and misuse there is considerable waste, adding to the cost and contributing to the adverse environmental and health consequences.

The impact on health is a matter of serious concern. Despite the lack of proper data, in countries like Sri Lanka acute pesticide poisoning is among the first five causes of hospital mortality. Where it appears to be less, the real incidence is probably masked by under-reporting. Acute poisoning is associated with lack of

care by the user resulting in accidental deaths, while the free availability of pesticides lends itself to intentional deaths contributing to the rising levels of suicide.

A more serious health impact is due to chronic pesticide poisoning. This not only affects the user of pesticides but also the population in general by entering the food chain and polluting the water table and surface water. It has serious environmental impacts like the destruction of fish, wildlife and the quality of the habitat. The increase of cancer, chronic kidney disease, suppression of the immune system, sterility among males and females, endocrine disorders, neurological and behavioral disorders, especially among children, have been attributed to chronic poisoning. These effects probably extend to farm and other animals.

Having reviewed the issues and problems concludes that this grave situation calls for urgent remedial measures

Strongly recommends that:

Application of chemical pesticides must be made more rational, disciplined, well targeted and carefully regulated. Applicators should be well trained and registered. The availability of chemical pesticides should be effectively restricted to farmers who actually need to use them. Proper guidelines should be provided for the use of a restricted number of essential pesticides from a Recommended List, which is regularly monitored and updated. To ensure optimal use of pesticide effective extension services must be provided and the dependence on information supplied by aggressive commercial marketing interests must be curbed and countered. Farmer organizations should be activated and along with educated village youth volunteers instructed on the proper use of pesticides and their dangers. Regulations must ensure that highly toxic pesticides are banned and their entry into the country and their use must be effectively prevented.

The safer, cheaper and more efficient application equipment and technologies should be developed. Safer containers should be designed and properly labeled. Protective attire suitable for warm climates should be introduced. Farmer behaviour should be modified to prevent chronic poisoning of the user and the population by ensuring that pesticide levels in the food chain and surface and ground water are reduced to safe levels. There must be regular checking of water sources and of locally produced and imported food for pesticide residue levels. The State has the main responsibility to actively intervene to implement these and other measures to ensure the protection of the farming community and all its citizens.

There is a pressing need for safer alternative technologies for pest control and the development of safe and effective transgenic resistance to pests in plants, which are part of the Integrated Pest Management (IPM) approach, that has already been introduced and developed in many countries. Biopesticides are safer and usually cost-effective and provide an appropriate technology for sustainable agriculture. But the lack of an immediate knockdown effect combined

with aggressive marketing has made farmers reluctant to give up established chemical pesticides. The State, together with NGO's and farmer organizations, must actively campaign to promote the use of biopesticides. To make biopesticides and biological control effective much R&D is required to recognize and forecast prevailing pests and future trends. National R&D programmes to isolate local strains of biopesticides/agents and to monitor progress have to be set up by the State. The requisite data banks should be established. Effective technology transfer and entrepreneur encouragement policies for the production of bio-pesticides should be established.

As there are many concerns regarding transgenic protectants incorporated in plants, such activities should be conducted so as to ensure the safety of other plants and carefully monitored, and they should be included in Register of Pesticides. Organic farming combined with biopesticides and biological control undoubtedly offer the safest approach from the point of view of protecting health and the environment. It also has the advantage of offering profitable niche markets internationally. Governments should actively encourage this approach and help by overcoming the financial and other constraints.

Pesticides, their application and disposal must be carefully regulated by the enactment of laws and regulations and their effective implementation. There must be active support by all governments and international organizations to ensure maximum agricultural productivity and effective control of pests and diseases, while ensuring the safety of the community and the eco-system.

We call upon all governments to develop suitable national policies and standards for the development, application and control of pesticides, in accordance with standards that relate to pesticides established by international organizations like FAO, WHO, ILO and ISO. There should be effective collaboration between NAM member countries and others to exchange information and share developments for the more effective, safer and less expensive control of pests.