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GLOBAL INSECTICIDE USE FOR VECTOR-BORNE DISEASE CONTROL

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**WORLD HEALTH ORGANIZATION
COMMUNICABLE DISEASE CONTROL, PREVENTION AND ERADICATION
WHO PESTICIDE EVALUATION SCHEME (WHOPES)**

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INTRODUCTION

Vector control represents an important part of the current global strategy for the control of major vector-borne diseases, and chemical control remains the most important element in an integrated approach to vector control. In order to facilitate safe and judicious use of insecticides in vector control programmes and to manage insecticide resistance effectively, there is a need to develop the pesticide management system based on regular monitoring and reporting of the insecticides used in different disease control programmes.

While realizing the need for a pesticide management system, it has been noted that no comprehensive information on the insecticide use for vector-borne disease control in different countries of WHO Regions are available. Collecting such information will not only initiate the process of establishing a data base on insecticide use in the member countries, but also regular monitoring and management.

Therefore an attempt has been made to document the insecticide use at global level. The objectives of the document is to provide information on insecticide use that will form the basis for:

1. Development of guidelines on safe and effective use of insecticides;
2. Development of guidelines for resistance management;
3. Agreements for international use of insecticides (e.g. DDT, re-registration of insecticides in certain countries and how that may affect the international use);
4. Investment for development of alternative insecticides; and
5. Review and formulation of policies for insecticide use at different levels.

COLLECTION OF INFORMATION

The data on the use of insecticides in vector borne-disease control programmes were collected and validated, with the assistance of WHO Regional Offices, from the national disease control programmes, using a standard questionnaire (see Annex 1). Only, the countries having vector borne diseases as the major public health problem have been approached for such information. Attempts were made to collect information at least for the period 1995-2000. In this document only insecticide use for vector control has been considered.

The WHO Pesticide Evaluation Scheme (WHOPES) invites national disease control programmes to report regularly on insecticide use for vector control, using the questionnaire provided in the Annex 1. They are also invited to submit data on such use for the missing years, in order to obtain a better picture on insecticide use at national, regional and global level.

OBSERVATIONS ON THE REPORTING OF INFORMATION

Seventy-four member countries which include 13 from WHO Regional Office for Africa (AFRO), 23 from Regional Office for Americas (AMRO), 11 from Regional Office for the Eastern Mediterranean (EMRO), 6 from Regional Office for Europe (EURO), 9 from Regional Office for the South-East Asia (SEARO) and 12 from Regional Office for the Western Pacific (WPRO) responded to the questionnaire. While the data provided by some countries are complete and comprehensive in terms of the period for which such information are made available and the information related to the amount of insecticides used for the control of each of the vector-borne diseases prevalent in the countries, others were incomplete in these respect. There has been a wide variation between the reporting period of the countries on insecticide use. For example, some countries provided information for as much as for 10 years while some provided just for one year. Therefore, it is to be noted that the available data may be valuable in reflecting the trend of insecticide use in individual countries but it will have a limitation when the data are pooled and analysed for the global or regional situation. **One has to keep this in mind while interpreting the data and drawing conclusions based on overall analysis.**

Considering this limitation, analysis on the global use of insecticides has been carried out for the period between 1995 and 2000. More confidence can be placed on the available data for malaria vector control, since the major users of insecticides for this programme have reported in a reasonably complete form.

One of the reasons cited by the countries for not providing complete data is that, in a decentralized programme, it has been difficult to collect such information. This is a matter of major concern as it could adversely affect the insecticide management system for vector control. It is important that these countries take adequate steps for development of appropriate and effective monitoring and reporting system for insecticide use in vector-borne disease control programmes in the countries.

OBSERVATIONS ON THE REPORTING OF INFORMATION

Major vector-borne diseases reportedly controlled with insecticides:

- Malaria, caused by protozoan *Plasmodium* parasites transmitted by mosquitoes;
- Dengue, Japanese encephalitis, yellow fever and other diseases transmitted by certain mosquitoes;
- Leishmaniasis, caused by protozoan *Leishmania* parasites transmitted by phlebotomine sandflies;
- Chagas disease, caused by protozoan *Trypanosoma cruzi* transmitted by triatomine bugs;
- Lymphatic filariasis (elephantiasis), caused by parasitic roundworms transmitted by various mosquitoes.

Insecticides used against these disease vectors were mostly organophosphates, as detailed in other WHO documents by Chavasse and Zaim (2001)²:

- Organochlorines (OCs), of which DDT and HCH are the most commonly used for vector control;
- Organophosphates (OPs) such as fenitrothion, malathion, diazinon;
- Carbamates (C) such as bendiocarb and propoxur;
- Pyrethroids (PYs) such as cyfluthrin, cypermethrin, deltamethrin, cyhalothrin and permethrin;

¹ Chavasse, D.C. and H.H. Yap (1997) Chemical Methods for the Control of Vectors and Pests of Public Health Importance. Geneva. WHO document WHO/CTD/WHOPES/97.2.

² Najera, J.A. and M. Zaim (2001) Malaria Vector Control – Insecticides for Indoor Residual Spraying. World Health Organization. WHO/CDS/WHOPES/2001.3.



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