

# **DRAFT**

- MOSQUITO COILS ■ VAPORISING MATS ■
- LIQUID VAPORISERS ■ AEROSOLS ■

Report of the WHO Informal Consultation  
3-6 February 1998  
WHO, Geneva



World Health Organization  
WHO Pesticide Evaluation Scheme  
Division of Control of Tropical Diseases



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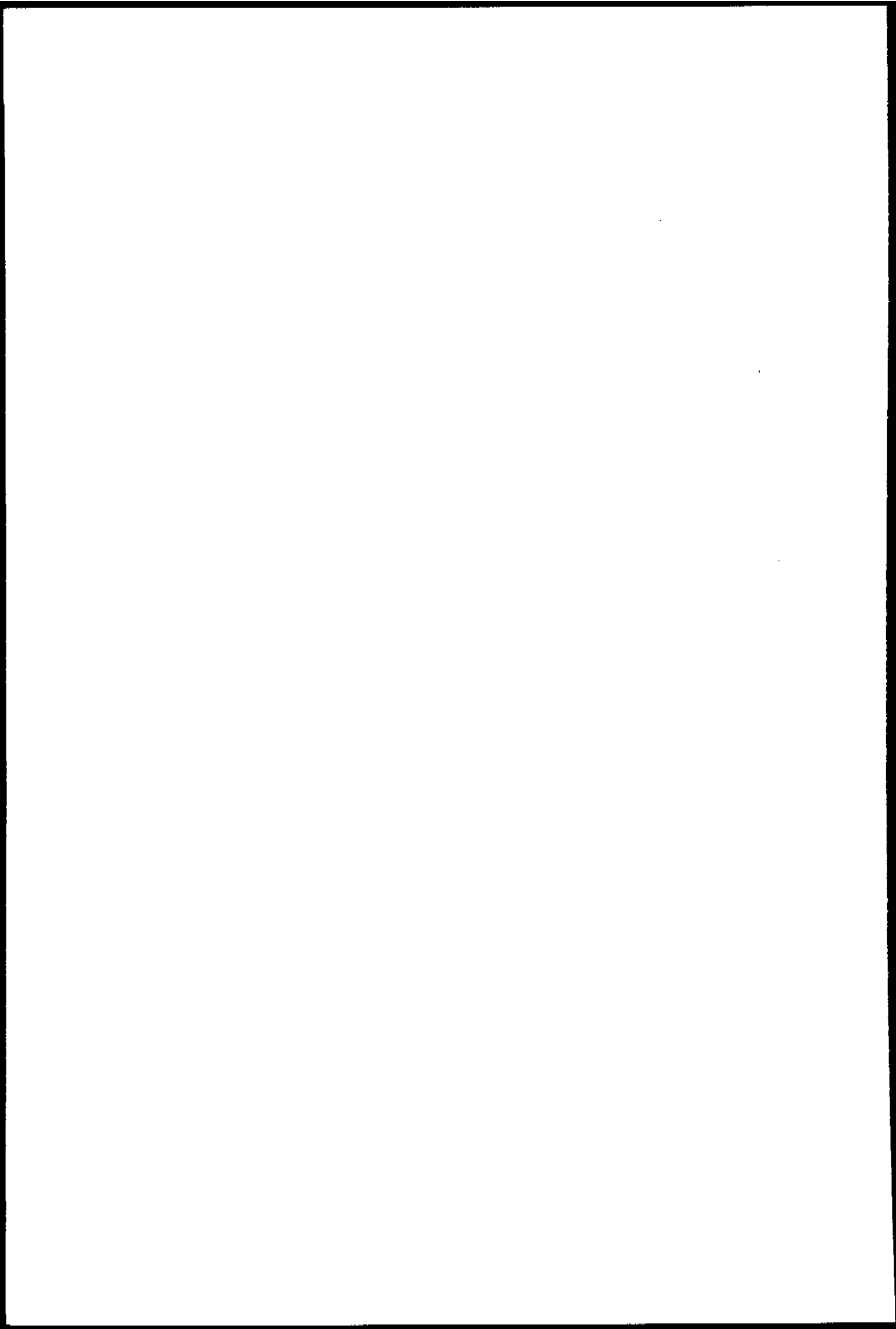
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## 1. Introduction

The consultation was opened by Dr R.H. Henderson, the Assistant Director-General of the WHO on behalf of the Director-General.

He noted that the demand for household insecticide products is on the increase particularly in many tropical developing countries and the yearly world-wide market for these pesticides is estimated to be more than two billion US Dollars.

He reiterated the need and importance for internationally agreed specifications which would assure the production of efficient and safe household insecticide products and protect both consumers and manufacturers. In addition, these specifications would promote the harmonisation of relevant national standards and thus, world trade in such pesticides. To address this need, this consultation has been convened to prepare draft guideline specifications for mosquito coils, vaporising mats, liquid vaporisers and aerosols for space and residual spraying, for consideration by the forthcoming WHO Expert Committee on Vector Biology and Control "Chemistry and Specifications of Pesticides", planned for autumn 1999.

Dr K. Behbehani, the Director of the Division of Control of Tropical Diseases, in his opening remarks expressed confidence that the objectives of the meeting would be achieved, and that the outcome of this meeting would expand the activities of WHOPES in providing more technical assistance to Member Countries. This would also result in the identification and designation of Collaborating Centres to assist WHO in the testing, evaluation and quality control of such products.

Dr Zaim presented an overview of the WHO Pesticide Evaluation Scheme (WHOPES). He highlighted the recent efforts of the WHO in strengthening WHOPES activities through the establishment of a Global Collaboration for Development of Pesticides for Public Health (GCDPP), which has a general objective to facilitate the search for alternative pesticides and application methodologies that are safe and more cost-effective.

The meeting was attended by seven representatives of national registration authorities, three scientists, eleven representatives of the pesticide industry as well as members of the Secretariat (see list of participants in Annex 1). The meeting reviewed and updated the "Guideline Specification for Household Pesticides", the report of an informal consultation held in Geneva from 18-22 June 1990. The meeting was only concerned with mosquito coils, vaporising mats, liquid vaporisers and aerosols. It did not consider other household insecticide products.

## 2. Present situation of the household insecticide product market and of specifications

### 2.1 Use of household insecticide products

Household insects which cause nuisance and contribute to sanitary and health problems are ubiquitous throughout the world. However, the household insect problems appear to be more serious in many tropical developing countries due to inherent favourable environmental conditions for the development of such pests in the tropics. In addition, the rapid uncoordinated urbanisation in many tropical areas have also aggravated the problems. The increasing awareness and the worsening situation of the household pest problems as well as the improved socio-economic conditions in many tropical developing countries have resulted in the increased demand and use of household insecticide products.

The present status concerning the worldwide usage of household insecticide products was reviewed. The annual worldwide consumption of the four major types of household insecticide products, namely aerosols, mosquito coils, liquid vaporisers, and vaporising mats, were estimated by the industrial sources to be around 0.986, 28.75, 0.070, and 6.21 billion units (cans/pieces), respectively. Regional distribution of usage is shown in Table 1.

**Table 1**

#### **Estimated consumption of household insecticide products in 1996 (All values in billion units)**

<b>Region</b>	<b>Type and Consumption</b>			
	<b>Aerosol</b>	<b>Coil</b>	<b>Liquid Vaporisers</b>	<b>Vaporising Mats</b>
Asia	0.298	26.81	0.048	4.54
America	0.378	1.60	0.006	0.71
Europe	0.132	0.08	0.015	9.55
Middle East & Africa	0.178	0.26	0.001	9.32
<b>Total</b>	0.986	28.75	0.070	6.12

It was noted that the usage of aerosols and mats was distributed widely throughout the world. However, the use of coils was predominantly in East Asia. Synthetic pyrethroids appear to be the choice active ingredients for household insecticide products, especially in the production of coils and mats. Consumption of synthetic pyrethroids as a group was estimated to be more than 1000 tons, in the world.

The worldwide market of household insecticide products was estimated to be around 1 billion \$US at the manufacturer level, with the retail value estimated to be around 2 billion \$US. Furthermore, the value of the household insecticide market was estimated to be around 5 to 10% of the total world insecticide market. On a regional basis, the trend for household insecticide product consumption appears to be stabilised for the developed countries (e.g., North America and western Europe). In contrast, the usage of household insecticide products in the tropical developing countries is on the increase. Generally on a worldwide scale, there appears to be a more rapid increase in the use of coils and vaporising mats in comparison with aerosols.

With regard to the efficacy of household insecticide products, comparative laboratory efficacy tests of pyrethroid-based coil and mat products against common vector mosquitoes in the genera of *Aedes*, *Anopheles* and *Mansonia* indicated that they are susceptible to such products. In contrast, the *Culex* species, especially *Culex quinquefasciatus*, indicated a high degree of tolerance.

Moreover, small-scale field efficacy trials indicated that coil and mat products provided overall protection of 70% and 50%, respectively, against indoor biting mosquitoes.

## 2.2 Existing specifications

The existing specifications for certain household insecticides are based on standards set/initiated by national or international organisations such as: Chemical Specialities Manufacturing Association (CSMA) in the United States of America, the British Aerosol Manufacturing Association/British Standards Institute (BAMA/BSI) in the United Kingdom, the Committee for European Normalisation (CEN) and the European Aerosol Federation (FEA, 49 Square Marie-Louise, 1000 Brussels, Belgium) in Europe, the South African Bureau of Standards (SABS) in South Africa, the National Registration Authority (NRA) in Australia, and the Standards and Industrial Research Institute of Malaysia/Malaysian Standard (SIRIM/MS) in Malaysia, and Tanzania Bureau of Standards.

## 3. Proposed guideline specifications for household

insecticide products

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