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# USE OF DDT IN VECTOR CONTROL

Conclusions of the WHO Study Group  
on Vector Control for Malaria and  
other Mosquito-Borne Diseases

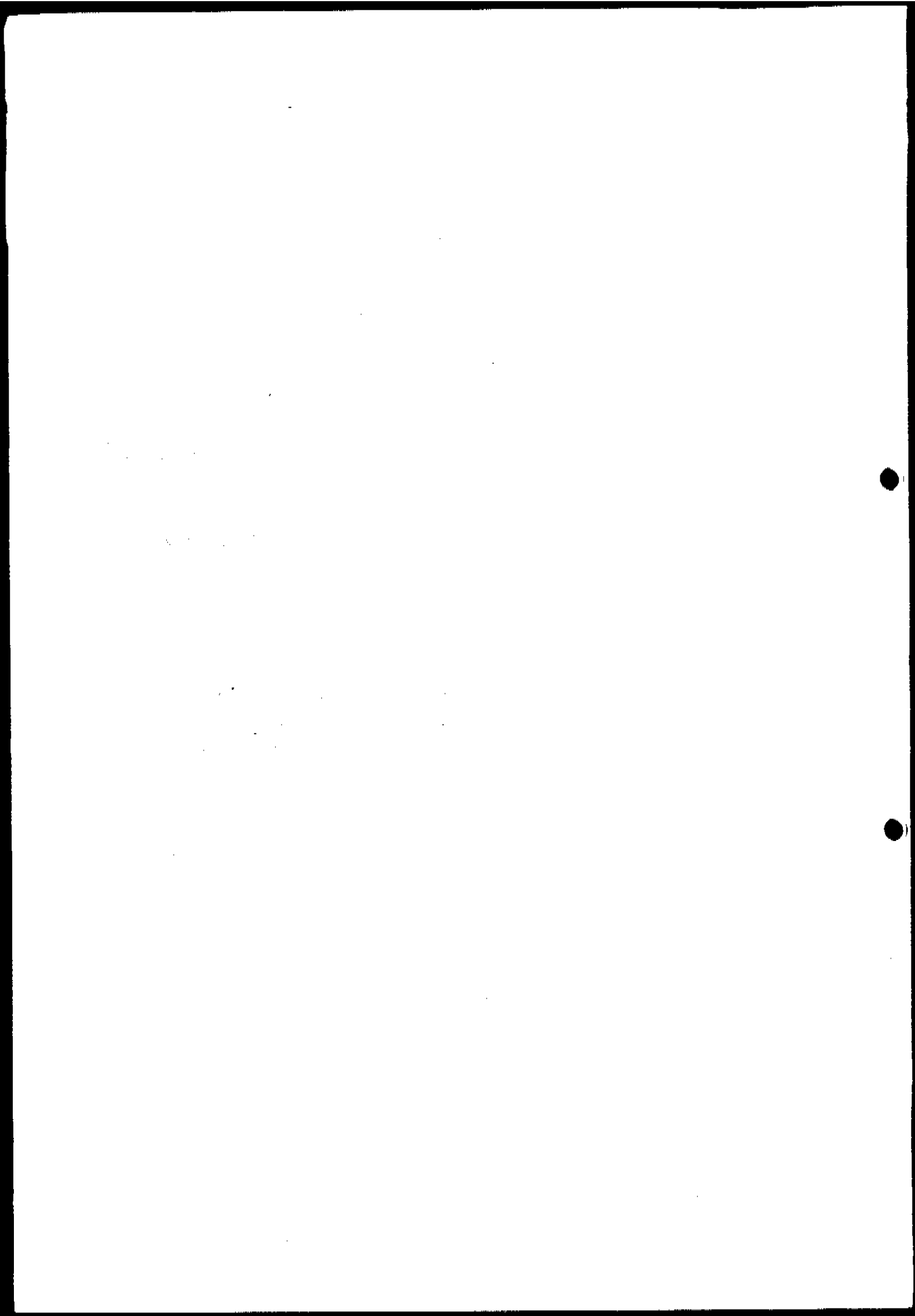
Geneva, 16-24 November 1993

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## USE OF DDT IN VECTOR CONTROL

Many countries rely on the use of DDT for the control of both malaria and visceral leishmaniasis. Recently, however, it has been suggested that there is an association between use of DDT and the occurrence of human cancers;<sup>1,2</sup> a report on the presence of DDT in breast milk has appeared;<sup>3</sup> and two general reviews on the use of DDT in vector control have been carried out.<sup>a</sup> The WHO Study Group on Vector Control for Malaria and other Mosquito-borne Diseases, which met in Geneva on 16-24 November 1993, was asked as a specific additional task to review the current situation in the light of these recent developments. For this purpose, two expert toxicologists were invited to participate.<sup>b</sup> Based on the discussions of all the participants at the meeting, the conclusions of the Study Group with regard to the use of DDT for vector control are summarized below.

- The information presented does not provide sufficient and convincing evidence for the adverse effects of DDT exposure as a result of indoor residual spraying as carried out in malaria control activities.
- There is therefore, at this stage, no justification on toxicological or epidemiological grounds for changing current policy towards indoor spraying of DDT for vector-borne disease control.<sup>4</sup>
- DDT may therefore be used for vector control, provided that all the following conditions are met:
  - *it is used only for indoor spraying;*
  - *it is effective;*
  - *the material is manufactured according to the specifications issued by WHO,<sup>5</sup> and*
  - *the necessary safety precautions are taken in its use and disposal.*
- In considering whether to use DDT, governments should take into consideration the following additional factors:
  - *the costs involved in the use of insecticides (DDT or alternatives);*
  - *the role of insecticides in focal or selective vector control, as specified in the Global Malaria Control Strategy;<sup>6</sup>*

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- *the availability of alternative vector control methods, including alternative insecticides (in view of the availability of alternative insecticides for indoor residual spraying, some of which may compete with DDT in terms of epidemiological impact, public acceptability, logistic suitability and compliance with specifications issued by WHO, DDT no longer merits being considered the only insecticide of choice);*
- *the implications for insecticide resistance, including possible cross-resistance to some alternative insecticides; and*
- *the changing public attitude to pesticide use, including public health applications.*
- In view of the paucity of data suggesting adverse effects of indoor house-spraying, further epidemiological investigation using rigorous scientific protocols is to be encouraged.
- Further studies should also be carried out on the following:
  - *examination of the health effects of DDT in breast milk on breast-fed infants, including any resulting behavioural changes;*
  - *thorough investigation of any suspected association between the use of DDT in routine malaria control activities and an increased incidence of cancer(s); and*
  - *clarification of the significance of the reduction in muscarinic receptor density caused by DDT.*

## References

- 1 Garabrant D. H., *et al.* DDT and related compounds and risk of pancreatic cancer. *Journal of the National Cancer Institute*, 1992, 84, 764-771.
- 2 Wolff, M. S., *et al.* Blood levels of organochlorine residues and risk of breast cancer. *Journal of the National Cancer Institute*, 1993, 85: 648-652.
- 3 Bouwman H., *et al.* Levels of DDT and metabolites in breast milk from Kwa-Zulu mothers after DDT application for malaria control. *Bulletin of the World Health Organization*, 1990, 68: 761-768.
- 4 The place of DDT in operations against malaria and other vector-borne diseases. In: Executive Board Forty-seventh session, Geneva, 19-29 January 1971, Part II. *Report on the proposed programme and budget estimates for 1972*. Geneva, World Health Organization, 1971 (Official Records of the World Health Organization, No. 190): 176-182.
- 5 *Specifications for pesticides used in public health - Insecticides; DDT*. Unpublished document. WHO/CTD/WHOPES/93, 1993. Specifications WHO/SIT/1.R7 and WHO/SIF/1.R7.
- 6 *A global strategy for malaria control*. Geneva, World Health Organization, 1993.
- 7 *Implementation of the Global Malaria Control Strategy. Report of a WHO Study Group on the Implementation of the Global Plan of Action for Malaria Control 1993-2000*. Geneva, World Health Organization, 1993 (WHO Technical Report Series, No. 839).