

WHO WORKING GROUP MEETING ON METHODS OF ASSESSING EXPOSURE TO HAZARDS RELEASED FROM WASTE LANDFILLS

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Potential risk to health from hazardous waste disposal in landfills remains public concern. This concern is based on scarce scientific evidence. A WHO meeting, convened in Bilthoven on 22 October 1998 to review the available research information, concluded that present data do add to a suspicion that exposure to emissions from hazardous wastes may pose a risk to the population's health. However, these data were insufficient for reliable risk assessment mostly due to the weakness of exposure assessment methods applied in the completed studies.

With the aim to improve exposure data a WHO Working Group was convened by the Bilthoven and Rome Divisions of the WHO European Centre for Environment and Health in co-operation with The Nofer Institute of Occupational Medicine in Łódź, Poland, the host of the meeting. The task of the Working Group was to recommend appropriate methodological approaches to assessing exposure to hazards released from waste landfills. The methods should be applicable both in epidemiological studies and in risk assessment of the existing landfills. The use of these standardised methods in the future research should allow comparability of results produced by various studies. It should also enable their combined analysis, increasing the reliability of results and identifying specific characteristics of landfills modifying the health risk. This, in turn, should contribute to the improved design and operation of the landfills, increasing their safety and protection of public health. The recommended methods should also facilitate future monitoring and risk assessment.

The Working Group consisted of the invited international experts from the Europe and USA, working in relevant research disciplines, environmental assessment, public health and industry.

The Working Group considered the following topics relevant to the exposure assessment:

- potential release of hazardous substances from landfills;
- technical/engineering characteristics and methods of operation;

- transport of the hazards from landfills through various environmental pathways/media (determinants, modelling, measurement of environmental media contamination);

- methods of exposure assessment applicable in landfill studies (including questionnaires, environmental measurements and biomarkers of exposure);

- toxicological characteristics of contaminants/effluents potentially released from the landfills with consideration of characteristics of susceptible populations relevant to the appropriate design of exposure assessment.

The following papers, prepared by invited experts on each of the above topics were used as background materials for discussion:

- (i) Potential release of hazardous substances from landfills of various technical/engineering characteristics and methods of operation (**Leslie A. Heasman**, UK)

- (ii) Transport of hazards from landfills through various environmental pathways and media (**Christian Laurent**, Belgium).

- (iii) Methods of exposure assessment applicable in landfill studies (**Lars Jarup**, Sweden)

- (iv) Toxicological characteristics of contaminants/effluents potentially released from landfills (**Ryszard Rolecki** and **Stanisław Tarkowski**, Poland).

Based on these background papers, their review and the discussion, relevant exposure indicators and methods for their generation were proposed by the Working Group. The concise WHO guideline document have been drafted summarising these methods and discussing the feasibility of their application in various practical situations. The recommendations specify a standard set of indicators relevant to and feasible for application in most countries of the WHO European Region. Full report will be published by the WHO Regional Office for Europe.

