



WHO/PEP/92.13  
DISTR.: LIMITED  
DISTR.: LIMITÉE

40294

**PREVENTION OF  
ENVIRONMENTAL POLLUTION**  
List of Technical Documents

**PRÉVENTION DE LA  
POLLUTION DE L'ENVIRONNEMENT**  
Liste de Documents Techniques



**WORLD HEALTH ORGANIZATION, GENEVA, 1992**  
**ORGANISATION MONDIALE DE LA SANTÉ, GENÈVE 1992**

## TABLE OF CONTENTS/TABLE DES MATIERES

	Pages
General/Général	1
Air quality/Qualité de l'air	2
Environmental control technology/Technologie de contrôle de l'environnement	3
Environmental epidemiology/Eco-épidémiologie	4
Human exposure assessment/Evaluation de l'exposition humaine	6
Radiation	7
Water quality/Qualité de l'eau	9
Staff papers/Articles	11

## FOREWORD

This list provides bibliographic and descriptive information for technical documents concerned with the ways in which protection of the environment can promote human health.

These documents reflect the activities of the Prevention of Environmental Pollution Unit of the WHO Division of Environmental Health, which range from hazardous waste management to climatic change, from indoor air pollution to health effects of nuclear accidents.

The following abbreviations are used in bibliographic entries to indicate the availability of language editions:  
E=English, F=French, S=Spanish.

This list will be regularly updated.

For copies of documents and information, please write to:

The Manager  
Prevention of Environmental Pollution  
Division of Environmental Health  
WHO  
1211 Geneva 27  
Switzerland

## PRÉFACE

Cette liste présente les descriptions bibliographiques de documents techniques qui traitent des moyens par lesquels la protection de l'environnement peut promouvoir la santé humaine.

Ces documents reflètent les activités de l'Unité de Prévention de la Pollution de l'Environnement, Division de l'Hygiène du Milieu de l'OMS, qui vont de la gestion des déchets toxiques aux changements climatiques, de la pollution de l'air à l'intérieur des habitations aux effets des accidents nucléaires sur la santé.

Les abréviations suivantes indiquent les langues dans lesquelles les documents sont disponibles :

E = anglais, F = français, S=espagnol.

Cette liste de documents sera mise à jour régulièrement.

Pour obtenir les documents ou des informations complémentaires, prière d'écrire à:

Monsieur l'Administrateur de l'Unité  
Prévention de la Pollution de l'Environnement  
Division de l'Hygiène du Milieu  
1211 Genève 27  
Suisse

---

## GENERAL

---

### **Preliminary assessment of national programmes for health protection against environmental hazards**

1985 (E)  
PEP/85.8

Because of the health issues involved, WHO's programme in environmental health has for some time been concerned with the promotion of national policies and programmes for the health protection of people against environmental hazards. To guide national programme development and WHO's cooperation activities with Member States in this area, an assessment of existing national environmental pollution control programmes was made in 1983 and 1984. The results of this survey are presented in this report.

### **Approaches to hazardous wastes management**

1987, 15 pages (E)  
WHO/PEP/87.3

The purpose of this paper is to provide a brief overview of the hazardous wastes problem and to the solutions which are available. The first section is concerned with definition and classification of hazardous wastes. In the second section, the major environmental and health effects arising from improper management of hazardous wastes are highlighted. Management options and technological solutions are dealt with in section three while section four makes a few observations about the current status of the control of hazardous wastes.

### **The quality of the environment : a health-based global assessment.**

Report of a meeting of WHO/UNEP Government-designated experts, Geneva, 12-16 September 1988  
1988, 37 pages (E)  
WHO/PEP/88.15

Health-related environmental monitoring is one of the four major components of the Global Environment Monitoring System (GEMS). It includes the global assessment of urban air quality, freshwater quality and food contamination. The present meeting of Government-designated experts was convened with the expressed purpose of evaluating and drawing conclusions on the environmental quality and health risks based on the data which had been assembled since the beginning of the GEMS programme.

### **Assessment and management of environmental health hazards: evaluations and recommendations by a working group**

Geneva, 2-3 December 1987, 24-25 March 1988  
1989, 17 pages. (E)  
WHO/PEP/89.6

Risk assessment and management is an integral part of the efforts needed to deal with environmental hazards to health. WHO has been and continues to be actively involved in risk assessment and management of environmental hazards. Because the activities are so diversified and dispersed, there is a great need for coordination to ensure that they are planned and addressed collectively and efficiently. In order to develop a sharper focus for these activities both at the international and national levels, and in order to more efficiently utilize the available resources, the WHO Division of Environmental Health established an informal ad hoc working group on this topic. This report summarizes the work and the conclusions of this working group.

### **Management and control of the environment**

by H.W. De Koning  
1989, 153 pages (E)  
WHO/PEP/89.1

This book contains a shortened version of the Rapid Assessment Procedure of Sources of Air, Water and Land Pollution published in 1982. Additional chapters describe various air and water models that can be used in conjunction with the Rapid Assessment results and different

approaches that can be used in developing appropriate control strategies. Manpower requirements and the preparation of a management survey report are also addressed.

### **The safe disposal of hazardous wastes: the special needs and problems of developing countries.**

A joint study sponsored by the World Bank, the World Health Organization and the United Nations Programme

R. Batstone, J.E. Smith, Jr. and D. Wilson, editors

(World Bank Technical Paper No. 93)

1989, 3 vol. (E)

### **Potential health effects of climatic change**

Report of a WHO task group, Geneva, 2-6 April 1990

1990, 58 pages (E)

WHO/PEP/90.10

This document is designed to assist decision-makers and public health planners in determining the potential health problems that may arise in their region from global climatic changes caused by an increase in "greenhouse gases" and a decrease in the ozone layer. Not all regions will be confronted with the same health problems and only general guidance can be provided. National health authorities need to decide which of the health effects described are most likely to occur in their region, and to take the most appropriate planning action to mitigate these effects.

### **Global networks to strengthen education, training and research in environmental health: a long term initiative in support of sustainable development**

1990 (E)

PEP/90.17

The objective of this long-term initiative is to strengthen education, training and research on environmental hazards in developing countries. Local activities in the countries will be encouraged and facilitated by networks of four

different categories of key professionals in the environmental health field and by improved access to training and information materials via WHO-sponsored environmental health reference centres in existing libraries.

### **Combating environmental pollution: national capabilities for health protection**

by Morris Schaefer

1991, 38 pages (E)

WHO/PEP/91.14

The effects of pollution on the natural and man-made environments are being dealt with by a number of agencies of the US system. Through its programme on environmental health, WHO cooperates with Member States in solving environmental pollution problems affecting human health and in strengthening national capabilities to deal with them. The present document has been prepared to help strengthen the basis for technical cooperation. Subjects discussed include: i) the health implications of environmental pollution in the context of development; ii) the basic elements required to establish a pollution control programme; and iii) the extent to which countries are meeting such requirements.

---

## **AIR QUALITY**

---

### **Biomass fuel combustion and health**

1984, 41 pages (E)

EFP/84.64

Biomass fuels are used by about half the world's population as a major, often the only, source of domestic energy for cooking and heating. The emissions from these fuels are an important source of indoor air pollution, especially in rural communities in developing countries. In these countries exposure to biomass fuel emissions is probably the single most important occupational health hazard of women. To achieve the goal of Health for All by the Year 2000, this major public health problem must be brought under control.

**Human exposure to carbon monoxide and suspended particulate matter in Beijing, People's Republic of China**  
1985 (E)  
PEP/85.11

This document presents the results of a survey conducted in 1984-85 in Beijing by the Institute of Health, China National Centre for Preventive Medicine. Twenty non-smoking volunteers from the staff of the Institute of Health were selected according to their housing conditions as the subjects for the study. The outdoor, indoor and personal air exposure was monitored simultaneously during one week, for each subject in summer and in winter.

**Air pollution in African villages and cities/Pollution de l'air dans les villes et villages africains**  
1988, 25 pages (E, F)  
WHO/PEP/88.8

The purpose of this document is to present to policy and decision makers at the national level, and to scientists, health officials and educators, a brief summary of the main air pollution issues in Africa, together with some supporting technical information. The aim is that the more important air pollution issues outlined in this document, affecting the health of large segments of the population, will be given due attention in the programming of national health and development schemes.

*L'objet du présent document est de donner aux responsables de l'élaboration des politiques et aux décideurs au niveau national, ainsi qu'aux scientifiques, aux fonctionnaires chargés de la santé et aux éducateurs sanitaires, un aperçu des principaux problèmes de pollution de l'air qui se posent en Afrique, en même temps qu'un certain nombre de renseignements techniques. Il vise à faire en sorte que les problèmes de pollution les plus graves qui y sont exposés, qui affectent la santé de segments importants de la population, reçoivent désormais l'attention voulue dans l'élaboration des plans de santé et de développement nationaux.*

**Assessment of urban air quality.**  
UNEP/WHO, 1988, 100 pages (E)

The main part of this report is based on GEMS/Air data from 1981-1984 for sulfur dioxide (SO<sub>2</sub>) and Suspended Particulate Matter (SPM). Additional analyses are presented for nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO) and lead (Pb). Indoor air pollution has been considered separately in Appendix I, both in respect to the situation in industrialized countries and in developing countries. The remainder of this report is divided into a number of sections, the first of which deals with sources, effects, and control of the pollutants selected for consideration in this report. The next five sections deal with SO<sub>2</sub>, SPM, NO<sub>2</sub>, CO and Pb. In each of these an attempt is made to link trends of emissions with those of ambient levels and the associated control strategies.

**GEMS/Air data handling activities**  
Report of a Consultation, Research Triangle Park, North Carolina, USA, 26-29 September 1989  
1990, 46 pages (E)  
PEP/90.3

The purpose of the meeting was to review the current procedures for GEMS/AIR data collection, handling and reporting and to propose ways in which the implementation of these activities could be improved in the future.

**Urban air pollution monitoring**  
Report of a meeting of UNEP/WHO Government-designated Experts, Geneva, 5-8 November 1991  
1992, 56 pages (E)  
WHO/PEP/92.2

The present document contains the report of the meeting which purpose was multifold. In addition to conducting a thorough review of the GEMS/Air Programme and to advise on its further development, the Government-designated Experts were also asked to review four recent technical reports which had been prepared by the Programme. These were: GEMS/Air data report, Urban air pollution in megacities of the world, Urban air quality monitoring - methodology and quality assurance implications.

Representativeness of GEMS/Air stations in the national network - methodology.

---

## **ENVIRONMENTAL CONTROL TECHNOLOGY**

---

### **One-week training workshop in Environmental Control Technology: a tutor's guide**

(draft)  
1991, 82 pages (E)  
PEP/91.20

This curriculum has been developed for use by instructors in a workshop on environmental control technology which goals are to provide an overview of the field, an introduction to control design in selected areas and to facilitate a planning process to improve control technology in a specific country or region. Rather than provide intensive training in one specific area, the workshop introduces participants to key concepts in control technology and highlights the steps for planning and implementing environmental controls.

### **Enquiry of engineering professionals about the need for information and teaching materials**

1991, 26 pages  
PEP/91.13

In an effort to assess the need for information and teaching materials among potential members of the Global Environmental Technology Network, WHO administered a survey to engineering professionals currently enrolled in a post-graduate training programme at the Institute for Hydraulic and Environmental Engineering in the Netherlands. This report summarizes the results of the survey.

---

## **ENVIRONMENTAL EPIDEMIOLOGY**

---

### **Health monitoring in the prevention of diseases caused by environmental factors**

Report of a WHO/CEC Workshop organized by MARC in collaboration with the Institute of Hygiene and Epidemiology, Brussels, 23-26 November 1987  
1989, 28 pages (E)  
PEP/89.23

This document is an initial step by WHO and CEC in increasing the role of health monitoring in identifying and assessing the effects of environmental health hazards on health. It provides an overview of what health monitoring is and what it can do in helping to solve environmental problems affecting health.

### **Users' manual for the Cardbox read- only software**

1989, with diskette (E)  
PEP/89.27

This reference manual for the read-only CARDBOX-PLUS has been reprinted for the users of WHO reference information data files created with this software.

### **Inventory of human resources and training courses in environmental and occupational epidemiology in Europe : Part 1. European members of WHO Global Environmental Epidemiology Network**

1990, 46 pages (E)  
PEP/89.29.1

This inventory has been developed as a cooperative project between the World Health Organization programme on Control of Environmental Health Hazards and the Health and Safety Directorate of the Commission of the European Communities.

**Inventory of audiovisual materials/Inventaire de matériel audiovisuel**

1990, 75 pages (E, F, S)  
PEP/90.14

This inventory aims at encouraging the use of audiovisuals in teaching environmental and occupational health. Local adaptation may be necessary in many countries, but the audiovisuals in the inventory may serve as models. The inventory has drawn heavily on information sources in UK and USA.

*Cet inventaire vise à encourager l'utilisation de documents audiovisuels dans l'enseignement de l'hygiène de l'environnement et de la médecine du travail. De nombreux pays devront certainement adapter ces documents, qui peuvent toutefois servir de modèles. Cet inventaire est largement conçu à partir de sources britanniques et américaines.*

**Global Environmental Epidemiology Network (GEENET): list of participants/GEENET: liste des participants**

1991, 144 pages (E, F, S)  
PEP/91.07.A.

This list of participants in the Global Environmental Epidemiology Network includes institutions and individuals from all over the world who are actively involved in research and training on environmental and occupational epidemiology, i.e. the measurement and evaluation of health effects of environmental and occupational hazards.

*La liste des participants du Réseau mondial d'Eco-épidémiologie comprend des institutions et des particuliers du monde entier activement engagés dans la recherche et la formation en éco-épidémiologie et en hygiène du travail, c'est-*

*à-dire dans la mesure et l'évaluation des effets qu'exercent sur la santé les risques environnementaux et professionnels.*

**Users' guide for the GEENET database**

1991, 34 pages (E)  
PEP/91.15.

This manual is intended as a guide to the facilities which Cardbox Read-Only provides and as an introduction to its operation with GEENET (Global Environmental Epidemiology Network).

**Inventory of ongoing research in occupational health and environmental epidemiology in developing countries,**

**1990-91/Inventaire des recherches en cours sur la médecine du travail et l'éco-épidémiologie dans les pays en développement, 1990-91**

prepared by the Program on Environment and Health, Management Sciences for Health, Boston, Massachusetts, USA  
1991, 64 pages (E, F, S)  
PEP/91.03-A

This inventory contains 500 descriptions of research projects on environmental and occupational health being carried out in over 70 developing countries.

*Cet inventaire décrit 500 projets de recherche en matière d'hygiène de l'environnement et du travail en cours dans plus de 70 pays en développement.*

**Inventory of basic textbooks in epidemiology, environmental and occupational health/Inventaire des manuels de base en épidémiologie, salubrité de l'environnement et médecine du travail**

1991, xii+39 pages (E, F, S)  
WHO/PEP/91.16

The aim of this inventory of titles, descriptions

and tables of contents of basic textbooks in epidemiology for undergraduate teaching is to serve as a reference for teachers of epidemiology, environmental and occupational health.

*Le présent inventaire des titres, descriptions et tables des matières des manuels de base en épidémiologie pour l'enseignement universitaire doit servir de référence à ceux qui enseignent l'épidémiologie, la salubrité de l'environnement et la médecine du travail.*

### **Inventory of newsletters/*Inventaire de bulletins d'information***

1991, 20 pages (E,F,S)  
WHO/PEP/91.29

A number of newsletters are produced by international and national agencies involved in the environmental and occupational health field. This inventory provides basic information on available material in this field. The aim is to encourage and facilitate a wider distribution of these materials. The addresses of publishers of newsletters and some other brief information are given.

*Un certain nombre de bulletins d'information sont produits par des institutions internationales et nationales dont les champs d'activité sont l'hygiène de l'environnement et la médecine du travail. Le présent inventaire contient des renseignements de base sur les bulletins d'information existants. Il a pour but d'encourager et de faciliter une distribution plus large de ce matériel. L'adresse de l'éditeur de chaque bulletin d'information est donnée ainsi que quelques informations succinctes.*

### **Report of the WHO Consultation on Environmental Epidemiology Training**

Geneva, 2-4 June 1991  
1991, 25 pages (E)  
PEP/91.30

This informal consultation was held to take stock of the training activities within the Global Environmental Epidemiology Network so far, and

to give a lead for the continuation of the work within the project.

### **Reference information for environmental health training and research/*Bibliographie pour la formation et la recherche d'hygiène de l'environnement***

1991, xv+34 pages (E, F, S)  
PEP/91.33

The purpose of this reference document is to consolidate the most significant current literature on environmental health which exists within the United Nations system and related institutions. The majority is WHO's literature, by virtue of its specialization in health matters. Key items covering environmental or occupational health produced by sister organizations have also been included.

*Ce document a pour but de rassembler les documents actuels les plus importants sur l'hygiène de l'environnement détenus dans les institutions du système des Nations Unies et les organismes apparentés. Il s'agit, pour la plus grande part de documents de l'OMS, ce qui est normal compte tenu de la spécialisation de l'Organisation dans les questions de santé. On a également fait figurer dans le présent document des publications d'organisations sœurs sur des problèmes fondamentaux d'hygiène de l'environnement ou du travail.*

### **Investigating environmental disease outbreaks: a training manual**

1991, 70 pages (E)  
WHO/PEP/91.35

This manual provides a framework of epidemiological concepts and techniques whereby environmental health investigations may logically be pursued. It moves from considerations of descriptive epidemiology, through analytic epidemiological approaches, to public health action and associated intervention epidemiology, and finally, to evaluation of strategy and future planning.

**Problem-based training exercises for environmental epidemiology: instructor's guide**

1991, 88 pages (E)  
WHO/PEP/92.05A

This document provides a teaching resource for instructors of environmental health epidemiology. Although developed primarily for use in developing countries, the teaching exercises are equally appropriate for use with students in environmental health, epidemiology, and international health in developed countries. The main purpose of the teaching exercises is to encourage the application of epidemiology in the prevention of disease and the promotion of health.

**Group practice exercises for students**

1991 (E)  
WHO/PEP/92.05B

The student practice exercises include a number of environmental epidemiology studies that have been reported during the last decade. The collection presented in this document emphasizes beginning level epidemiological concepts and is intended to supplement classroom lectures and the WHO manual "Basic Epidemiology".

---

**HUMAN EXPOSURE  
ASSESSMENT**

---

**Global Environmental Monitoring Programme**

Report of a Consultation on the Human Exposure Assessment Location (HEAL) Project, Geneva, 29 April-3 May 1985  
1985, 18 pages (E)  
EFP/HEAL/85.6. Unpublished.

This document presents the proceedings of a meeting which objectives were to review the

HEAL project development, to discuss which pollutants should be selected for the environmental monitoring components and to prepare a timetable and workplan for the following 18 months.

**Design criteria and information for HEAL project**

1986 (E)  
PEP/86.6

**Statistical guidelines for quality assurance in human exposure assessment studies**

1992 (E) (in preparation)

**Guidance on survey design for human exposure assessment location (HEAL) studies**

1992, (E) (in preparation)  
WHO/PEP/92.6

This document provides guidance on designing human exposure monitoring studies as part of the World Health Organization's Human Exposure Assessment Location (HEAL) project. This guidance is intended to assist HEAL Member States in designing studies using accepted statistical procedures and principles.

**Report of the Coordinators Meeting on the Human Exposure Assessment Location (HEAL) Project**

Geneva, 28 February - 3 March 1989  
1989, 35 pages (E)  
PEP/HEAL/89.19

**Human Exposure Assessment Location (HEAL) Programme: report of the Coordinators Meeting**

Zagreb, 10-14 Septembre 1990  
1990, 25 pages (E)  
PEP/HEAL/90.15

This document contains the report of the meeting which purpose was to review the current status of

programme implementation and to agree on future directions that the programme should take.

**Human Exposure Assessment Location (HEAL) Project : indoor air pollution study, Maragua Area, Kenya**

1987, 29 pages (E)  
WHO/PEP/87.1

This document presents the results of an indoor air pollution study carried out in Maragua, Kenya. Repeated 24-hour measurements of respirable suspended particles and nitrogen dioxide were carried out in 36 randomly selected houses where most of the cooking was done on open fires using firewood or crop residuals as fuels.

**Exposure monitoring of nitrogen dioxide: an international pilot study within the WHO/UNEP Human Exposure Assessment Location (HEAL) Project**

Hidetsuru Matsushita and Kiyoshi Tanabe, National Institute for Public Health, Tokyo, Japan  
1991, 109 pages (E)

A pilot project has been undertaken to establish and validate a methodology for measuring in a standardized way personal exposures of volunteer subjects to NO<sub>2</sub> in general, concentrations of NO<sub>2</sub> indoors were lower than outdoors when no internal sources of NO<sub>2</sub> were present and higher than outdoors when internal sources of NO<sub>2</sub> were present. Despite the differences in geography, economic conditions and cultural norms, the pilot phase results have shown that the HEAL NO<sub>2</sub> methodology is a valid tool for carrying out comparable exposure studies internationally.

**Exposure monitoring of lead and cadmium : an international pilot study within the WHO/UNEP Human Exposure Assessment Location (HEAL) Programme**

edited by M. Vahter and S. Storch  
1990, 82 pages (E)

This document contains the results of an international integrated human exposure monitoring study for lead (Pb) and cadmium (Cd), involving the sampling of duplicate diets, airborne particles, blood and faeces. The first phase of the project consisted of an analytical training phase. The second phase consisted of a pilot exposure monitoring study for Pb and Cd including an extensive quality control component

---

## RADIATION

---

**Coordination Meeting of Existing and Prospective WHO Collaborating Centres on Radiation Emergency Medical Preparedness and Assistance,**

Le Vesinet, France, 30-31 March 1987 and  
Southampton, United Kingdom, 1-2 April 1987  
1987, 22 pages (E)  
PEP/87.7

This document presents the report of the meeting which main objectives were for the participants: a) to inform each other about the main capabilities and recent developments in their centres; b) to get acquainted with the WHO Collaborating Centre in France, the International Centre of Radiopathology; c) to outline a plan of coordinated actions for the period 1987-1988; and to acquire up-to-date scientific information at the seminar on "Nuclear Reactor Accidents: Preparedness and Medical Consequences", conducted by the British Congress of Radiology on 2 April 1987

**Basic principles of the WHO/UNEP Global Environmental Radiation Monitoring Network/***Les principes fondamentaux du Réseau mondial de Surveillance OMS/PNUE des Rayonnements de l'Environnement*  
WHO/UNEP Expert Meeting, Le Vesinet, France,  
15-18 December 1987  
1988, 26 pages (E)  
PEP/88.8

After the accident at Chernobyl, USSR, in 1986, attempts were made to improve radiation monitoring capabilities and the exchange of information, at both national and international levels. As part of this effort, WHO and UNEP are promoting the further development of existing international cooperation in monitoring radioactivity in the environment and considering the establishment of a global network of national institutions for environmental radiation monitoring. To this end, a meeting of experts was convened the results of which are presented in this document. The report contains an overview of the existing national and international programmes, and makes suggestions about the structures and operational arrangements which should be considered in the development of a global system.

*Après l'accident de Tchernobyl, en 1986, on a essayé d'améliorer la capacité de surveillance des rayonnements et l'échange d'informations, au niveau national comme au niveau international. C'est dans le cadre de cet effort que l'OMS et le PNUE travaillent à élargir la coopération internationale actuelle pour la surveillance et la radioactivité dans l'environnement et envisagent de créer un réseau mondial d'institutions nationales pour la surveillance des rayonnements présents dans l'environnement. A cette fin, une réunion d'experts a été convoquée, dont les conclusions sont présentées dans ce rapport. Après une revue générale des programmes nationaux et internationaux actuellement en vigueur, le rapport offre des suggestions sur la structure et les dispositions opérationnelles à envisager dans le cadre d'un système mondial.*

### **Second Coordination Meeting of Existing and Prospective WHO Collaborating Centres in Radiation Emergency, Medical Preparedness and Assistance**

Oak Ridge, Tennessee, U.S.A.,  
17-19 October 1988  
1989, 32 pages (E)  
PEP/89.15

WHO is developing a network of Collaborating Centres for Radiation Emergency Medical Preparedness and Assistance. Its purpose is to

promote amongst Member States medical preparedness for radiation accidents which lead to acute exposure and to provide advice and medical assistance to Member States in the event of an accident. This document contains the report of the Second Coordination Meeting of the WHO Collaborating Centres

### **Ecological features and medico-biological consequences of the Chernobyl accident**

1989, 41 pages (E, Russian)  
PEP/89.20

The main hazard in the early phase after the accident was due to radiiodine. Doses to the thyroid were estimated separately for (i) zones of strict control, (ii) the most contaminated provinces and (iii) the whole central European region of the USSR. Distinction was made between the children under the age of 7 years at the time of the accident and the rest of the population. In the later phase the main concern is whole-body exposure to radiocaesium. Doses were calculated for the same areas and age groups as in the case of radiiodine. The following consequences were considered: thyroid malignancies, leukaemia, other types of cancer, genetic defects and teratogenic anomalies. A statistically significant excess over the spontaneous level is unlikely to be detectable for these effects. A possible exception may be thyroid disorders. The risk of health effects was greatly reduced by preventive measures taken, in particular the lifetime doses have been restricted by the establishment of a limit of 0.35 Sv.

### **Third Coordination Meeting of WHO Collaborating Centres in Radiation Emergency Medical Preparedness and Assistance**

Leningrad, USSR, 21-24 May 1990  
1990, 74 pages (E)

The meeting accomplished the structure and functions of REMPAN (Radiation Emergency Medical Preparedness and Assistance Network). The report describes the WHO Collaborating Centres that participate in REMPAN. Medical information on the Goiania accident was updated.

The accident in El Salvador was depicted in detail. Particular issues of the Chernobyl accident were considered.

**The WHO/UNEP Global  
Environmental Radiation Network  
(GERMON) Scientific Advisory  
Committee Meeting**

Suzdal, USSR, 28-30 May 1990  
1990, 15 pages (E)  
PEP/90.19

The meeting accomplished the structure and functions of the network and recommended necessary actions to put it into operation. Minimal requirements for participation in GERMON were finalized and a form for transmission of data was elaborated.

**WHO Meeting of a Group of Experts on the  
Theoretical and Experimental Basis for the Best  
Estimate of Low Level Radiation Risk 1991, 28  
pages (E)**  
PEP/RAD/91.6

In view of the restraints of epidemiological studies on radiation health, theoretical and experimental research might make a major contribution to scientific knowledge regarding the effects of low-level exposure. Three promising areas of studies are microdosimetry, cellular mechanisms of radiation carcinogenesis and adaptive response. Better estimates of radiation risk depend on the progress of these studies.

**International Programme on the  
Health Effects of the Chernobyl  
Accident (IPHECA): technical  
description**

1991, 9 pages (E)  
PEP/91.12

The Chernobyl accident was the largest radiation disaster in the nuclear industry and involved millions of people. Review of the experience to minimize the health consequences of such a large-scale accident is of great value not only for the USSR, but also for other countries. This is why the research on the health effects of the

accident and development of a set of practical measures on the health care of the population requires the joint efforts of scientists, specialists and physicians from many countries, integrated into an international programme which is described in the present document

**General support activities for the  
pilot projects**

Report of the Working Group, Obninsk,  
11-15 March 1991  
1991, 13 pages (E)  
PEP/91.24

From 7 to 11 January 1991 a Task Group was convened by WHO in Obninsk, USSR to assist in the initiation of IPHECA. The Group recommended that three pilot projects of IPHECA be started immediately as unique information on possible health effects which might otherwise be irretrievably missed. These projects are "Hematology", "Thyroid" and "Epidemiological Registry". The implementation and maintenance of these projects depends on the development of indispensable support activities common to all of them. These activities include physical and biological dosimetry, means of communication, training, library services and strengthening of general diagnostic services.

**Pilot project "Hematology"**

Report of the Working Group, Obninsk, USSR,  
11-15 May 1991  
1991, 17 pages (E)  
PEP/91.21

The "Hematology" project is one of the three pilot projects of IPHECA. It should deal with all cases of leukaemia, other hemoblastoses, hemopoietic depression, myelodysplasia etc. in the strict control zones of Byelorussia, Russia and the Ukraine. It should be emphasized that the incidence of radiation-induced leukaemia may be now close to the maximum and this accounts for a high priority given to this project

**Pilot Project "Thyroid"**

Report of the Working Group, Obninsk, USSR,  
11-15 March 1991

1991, 12 pages (E)  
PEP/91.22

The "Thyroid" project is one of the three pilot projects of IPHECA. It should deal with the identification and treatment of thyroid disorders and illnesses in the strict control zones of Byelorussia, Russia and the Ukraine. The importance of such a study was emphasized for children as they may well be particularly sensitive to radioiodine.

### **Pilot Project "Epidemiological Registry"**

Report of the Working Group, Obninsk, 11-15 March 1991  
1991, 7 pages (E)  
PEP/91.23

This project is one of the three pilot projects of IPHECA. It should deal with the management of health and dosimetric data, especially in the strict control zones of Byelorussia, Russia and the Ukraine, in the State Registry of individuals who have been exposed to radiation as a result of the Chernobyl accident.

---

## **WATER QUALITY**

---

### **Controlling fluoride levels : a literature survey**

1985 (E)  
PEP/85.12

Excessive levels of fluoride are not uncommon for small water supplies in a number of countries. In such situations the need for appropriate control measures is important and this brief guide reviews many of the available options. Although reference is made to the requirements of developing countries, various procedures used worldwide to remove fluoride from small water supplies are reviewed. An outline of each method is described for treating supplies where the level of fluoride continuously and significantly exceeds the levels recommended by WHO.

### **Establishing and equipping water laboratories in developing countries**

1986, 54p, tabs. (E)  
PEP/86.2

Water laboratories are the essential cornerstones of any effective water quality surveillance programme. To this end a number of developing countries are in the process of or planning to establish new laboratories or to expand existing capacities. When planning to establish such laboratories government authorities often require handy information with regard to suitable space, equipment, chemicals, capital and recurrent costs, etc., in relation to the intended number of samples to be analysed and type of tests to be carried out. The present guide is intended to facilitate this search for relevant advice and indicative figures

### **Training course manual for water and waste water laboratory technicians**

1988 (E)  
WHO/PEP/88.11

The WHO guidelines for drinking-water quality were published in 1984 and have since raised considerable interest in many Member States to review their national regulations for safeguarding drinking-water quality. Competent laboratories are, however, a prerequisite for any effective drinking-water quality control programme. The present manual has been prepared in support of training courses for laboratory technicians. It covers not only drinking-water but also wastewater quality since laboratories are usually charged to deal with both.

### **Water quality monitoring: national needs and international challenges**

by R. Helmer.  
1990, 14 p (E)  
PEP/90.5

The first part of this document presents the procedures and methods to follow when initiating a water quality management programme. In section two are discussed the objectives of water

quality measurements, and in section three is addressed the design of water quality monitoring systems. Finally, the Global Environmental Monitoring System (GEMS) and the Global Water Quality Monitoring Project (GEMS/WATER) are described in section four.

### **Drinking water supply surveillance**

published by the Robens Institute

1990, 14 pages (E)

Since 1985, the Robens Institute and the World Health Organization have supported the development of strategies for promoting the optimisation of activities and investments for improving water supplies. This is based on a simple but comprehensive evaluation of drinking water supply services. It is known as water supply surveillance. This booklet summarizes: what surveillance entails; who needs to be involved; how surveillance leads to improved water supplies and what resources are needed to undertake surveillance. It also outlines, with examples, how surveillance is carried out and provide sources of further information for those interested in meeting the challenge

### **WHO/UNEP Report on water quality. Progress in the Implementation of the Mar del Plata Action Plan and Strategy for the 1990s**

1991, 79 pages (E)

Fresh water is a finite resource, essential for agriculture, industry and for human existence. Water pollution and wasteful use of fresh water threatens socio-economic development and make costly water treatment essential to satisfy increasing needs for drinking water. This document is a report on the progress achieved in the area of water quality since Mar del Plata. It also includes a strategy for the 1990s.

### **Freshwater pollution**

UNEP, 1991, 36 pages (E)

UNEP/GEMS Environment Library No.6

The purpose of this publication is to make available the results of GEMS assessments on water pollution in a form that can be easily understood by those without technical qualifications

### **GEMS/WATER: the challenge ahead!**

prepared by NWRI on behalf of GEMS/WATER co-sponsoring agencies.

1991, 8 pages (E)

This 8-page illustrated brochure presents GEMS/WATER activities during its first phase (1977-1990), the objectives of phase two (1990-2000) as well as the programme components and outputs

### **GEMS/WATER 1990-2000: the challenge ahead/GEMS/EAU 1990-2000: le défi à venir**

1991, 24 pages (E)

WHO/PEP/91.2

With the end of the Water Decade in 1990, a revised global strategy on water quality management is required. This also entails revising the objectives for GEMS/WATER with a shift in emphasis from monitoring to interpretation of data and assessment of water quality issues and trends. Implementation plans for Phase Two are outlined in the present paper, including operational procedures, planned meetings and publications.

*La fin de la Décennie de l'Eau en 1990, rend nécessaire l'élaboration d'une nouvelle stratégie mondiale de gestion de la qualité de l'eau. Ceci implique donc la révision des objectifs de GEMS/EAU, l'accent étant porté désormais sur l'interprétation des données et l'évaluation des tendances en matière de qualité de l'eau, plutôt que sur la surveillance. Les plans relatifs à l'implantation de la phase II sont décrits dans le présent document, y compris les procédures opérationnelles, les réunions et les publications prévues.*

---

## STAFF PAPERS

---

### **Drinking-water quality and health.**

by H. Galal-Gorchev.  
1986, 9 pages (E)

### **Safe drinking-water for small communities**

by H. Galal-Gorchev  
1986, 6 pages (E)

### **Safeguarding water quality**

by R. Helmer and G. Ozolins  
1986, 9 pages (E)

### **Biomass fuel combustion and health/Combustion de biomasse et santé**

by H W de Koning and al.  
Bulletin of the World Health Organization 1985 ;  
63 (1) : 11-26 (E,F)/*Bulletin de l'Organisation mondiale de la Santé* 1985 ; 63 (2) : 215-232

### **Improving environmental quality**

by Tord Kjellström  
Health sector priorities review, The World Bank  
1989 (E)

This paper is chapter 33 of a World Bank review which core is a series of chapters on the public health significance of major clusters of diseases in the developing world and on the cost and effectiveness of currently available technologies for their prevention and case management.

### **The role of environmental and occupational hazards in the adult health transition/Le rôle des risques environnementaux et professionnels dans la transition sanitaire chez les adultes (résumé)**

T. Kjellström and L. Rosenstock

World Health Statistics Quarterly 1990 ; 43  
(3) : 188-196

### **Evaluation des risques liés aux substances chimiques dans l'eau de boisson: élaboration des valeurs-guide**

H. Galal Gorchev.  
1991, 9 pages (F)

*En 1984, l'OMS a publié les Directives de Qualité pour l'Eau de Boisson. Les valeurs-guide recommandées sont fondées sur une évaluation à l'échelle internationale des risques pour la santé humaine que comporte la présence de certaines substances chimiques dans l'eau de boisson. Ces valeurs-guide indiquent des concentrations tolérables mais ne constituent pas des normes. Les Directives sont en train d'être mises à jour sous les auspices du Programme International sur la Sécurité des Substances chimiques. L'évaluation des effets sur la santé de quelque 106 substances chimiques est en cours.*

### **Public health criteria for the aquatic environment: recent WHO guidelines and their application**

by R. Helmer, I. Hespanhol and L.J. Saliba  
Wat. Sci. Tech. 1991 ; 24 (2) : 35-42 (E)

Over the past decade, WHO has developed a series of microbiological guidelines covering different aspects of the aquatic environment. This article presents a comparative evaluation of these guidelines.

### **A comparison of the direct and indirect methods of human exposure assessment**

D. Mage  
in : New Horizons in Biological Dosimetry,  
New York : Wiley-Liss, Inc., 1991.