

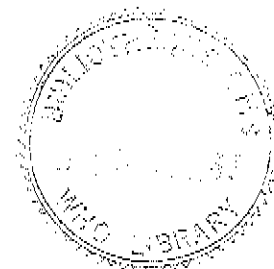
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CONTROL OF ENVIRONMENTAL HEALTH HAZARDS



A WHO STRATEGY FOR TECHNICAL
COOPERATION WITH MEMBER STATES



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A WHO Strategy for Technical Cooperation with Member States

SUMMARY

Member States are faced with a wide array of environmental hazards which may impact either acutely or chronically on human health. They include environmental pollutants and hazardous substances. If uncontrolled, the number and severity of these environmental hazards to health increase alongside industrialization, urbanization and development in general. Active national programmes which are commensurate with the level of development are indicated, but do not exist in many countries, including those currently in the midst of moderate-to-rapid industrialization. The task at hand is therefore the build-up of national capabilities to enable national authorities to identify and assess existing and potential environmental hazards and to take the necessary precautionary or abatement measures.

WHO's strategy for technical cooperation with its Member States for the control of environmental hazards to health is outlined in this document. It provides for a continuation and reinforcement of cooperation started several years ago. The strategy sets out what needs to be done to strengthen national programmes and suggests ways in which WHO technical cooperation activities can help in respect of the basic building blocks of national programmes, e.g., awareness, information systems, policy and legislation, institutional base and resource mobilization. In doing so, priority problems such as air pollution in cities, pollution of coastal areas and use of chemicals will need to be addressed. In all, eleven such problem areas are identified together with suggested approaches to be used.

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1. INTRODUCTION

Member States are faced with a wide array of environmental hazards which may have impacts on health. They vary in type and severity and are determined to a large degree by the state of economic development. WHO, through its programme on environmental health, has been and will continue to cooperate with Member States in solving environmental pollution problems affecting human health and in strengthening national capabilities in doing so. This programme of WHO, as national programmes for public health protection from environmental hazards should be, is broadly based and concerns all hazards, be they chemical, physical or biological in nature. Comprehensive programmes for the control of environmental health hazards rather than compartmentalized actions have emerged in many countries during the current decade. This is particularly pertinent to preventive approaches where policy modifications regarding land-use planning, environmental impact assessment, energy and waste handling are involved. The involvement of WHO focuses on the prevention and control of health consequences of ecological damage and environmental degradation. The effects of pollution on the environment itself are dealt with more widely by other agencies within the United Nations system. In view of the interdisciplinary nature of environmental health problems, there is a considerable need for intersectoral coordination within each country as well as at intercountry levels.

In support of national and intercountry responses to chemical pollution problems, an international programme on chemical safety was established to pool together the world's expertise and knowledge on health risks of chemicals and, at the same time, assist developing countries in using this and other health risk information for the assessment of their own problem situations. Thus, a sound basis for developing effective and affordable pollution control programmes and emergency response systems has become available.

This document is intended to outline areas of technical cooperation between Member States and WHO for controlling environmental health hazards. It highlights major problems of environmental hazards facing the Member States and outlines possible areas of technical cooperation between them and the Organization. It is recognized that work and technical cooperation are needed on two fronts. One is concerned with the steady build-up and/or strengthening of national capabilities for dealing with environmental health hazards. This includes the strengthening of the basic programme elements such as awareness, information systems, policy and legislation, institutional capacity and financial and human resources. On the second front specific and current environmental health problems must be tackled. They range from the clean-up of air pollution in cities and pollution of coastal waters to mitigation of chemical poisonings. Work on one front will support that on the other, i.e., comprehensive sector approach and problem-oriented cooperation will go hand in hand.

This document is divided into five sections. Section 2 contains a brief account of the current situation regarding environmental hazards and national capabilities for dealing with them. Section 3 sets out some basic principles which should be considered when planning and programming technical cooperation activities and projects.

Sections 4 and 5 contain the strategy for technical cooperation. In section 4, the basic elements are described together with suggestions for the activities which could be pursued in strengthening national capabilities. Section 5, on the other hand, is concerned with current environmental problems and outlines possible solutions. Section 6 summarizes the delivery of WHO technical cooperation.

2. BACKGROUND

2.1 Situation analysis

In developing countries, biological and microbiological pollution of water courses and drinking-water supplies remain widely prevalent, to which must now be added chemical pollution and certain physical factors such as noise and radiation. Also, the production, storage, transportation, manipulation, use and disposal of chemicals carry with them risks of human and environmental exposure. All the latter problems arise principally through rapid urbanization and industrialization, as well as from the use of production technologies which are often not compatible with environmental requirements.

It is clear that the battle against environmental hazards cannot be won easily, for as old problems are solved, new ones appear as the unwanted by-products of industrialization and economic development. This has been seen in the industrialized countries where microbiological pollution of water supplies and massive pollution of cities by smoke and the other common air pollutants have been largely solved, only to find 'new' potential hazards in the form of minute quantities of various chemical compounds and certain physical factors with a potential threat to the health and well-being of the people. Much of the chemical contamination found in air, water, food, etc., is due to inadvertent releases during production, storage, transportation, manipulation and use of chemicals, as well as due to inconsiderate discarding of waste materials.

A number of well-known endemic diseases have a chemical etiology, such as fluorosis and venoocclusive disease, and many others are strongly suspected as having one, such as the Kashin-Beck disease. Several naturally occurring chemicals are toxic under certain circumstances and cause poisoning in man and animals. Exposure to certain chemicals may exacerbate diseases of other origins. It is the developing countries which are more frequently subjected to endemic diseases of chemical etiology, but they are the least equipped to identify and deal with them.

The long-term task at hand is the build-up of national and local capabilities to enable the national authorities to identify and assess existing and potential environmental hazards as they occur and to take the necessary preventive and control measures. Naturally, the gradual build-up of national capabilities requires substantive commitment and resources, and long-term planning, all of which are of limited political attraction due to the fact that much time will pass until investments will bear tangible and visible results.

The current status of programmes on the control of environmental health hazards is extremely variable among regions, among countries and in some cases even within national borders. They range from very comprehensive and active programmes in some of the most developed countries to countries where there has been essentially no programme development at all. It is clear that comprehensive and sophisticated programmes are not needed everywhere, since the need for them arises only with development. There should be, however, at least a minimal programme on the control of environmental health hazards in each country which must expand its capabilities as required. This is not currently the case.

A survey of the status of national environmental pollution control programmes in 1984 identified the status of national pollution control programmes in relation to the country's socioeconomic development level.¹ The results (Table 1) showed that of the 59 countries which are in the midst of moderate-to-rapid industrial development, only ten were deemed to have met most of the programme requirements, 29 have only some of the requirements in hand, while 20 have very little or no capability at all. The situation in countries of relatively little developmental activity shows that almost all have essentially no capability to address environmental hazards problems at all. In these countries, however, only a basic programme is needed to deal with environmental problems of national priority.

¹ Preliminary Assessment of National Programmes for Health Protection against Environmental Hazards, WHO document PEP/85.8.

Table 1. Capability of national programmes to control environmental pollution

<i>Assessment indicators</i>	<i>Number of countries</i>		
	<i>Highly industrialized</i>	<i>Moderately to rapidly industrializing</i>	<i>Low development activity</i>
Most requirements met	31	10	0
Some requirements met	0	29	9
Few or no requirements met	0	20	67

Source: WHO document PEP/85.8.

The results of the survey showed that countries fall into three general categories or groupings when the status of their current programmes for environmental hazards control is related to the stage and pace of development reached. They are:

- (i) industrialized countries with mostly well-developed and functioning programmes;
- (ii) moderately-to-rapidly industrializing countries with some but mostly limited programmes;
- (iii) developing countries with still basically non-industrialized economies and with essentially no programmes for environmental hazards control.

WHO's strategy for technical cooperation has to take this distinction into account in order that such activities are consistent with national needs and priorities. In practice, of course, there is considerable overlap between the groupings of countries since countries are marked by rather uneven economic development and with different needs at a given time for environmental controls.

The survey also revealed that ministries of health and other health agencies at different levels often do not exercise the standard setting, enforcement and surveillance function which the potential risks associated with environmental pollution and hazardous chemicals would mandate them to assume. Strengthening their respective capabilities emerges as an important requirement for WHO's technical cooperation.

The problems concerning environmental hazards to health and their solutions are constrained by a number of overriding factors among which the most important are:

- **lack of sufficient data on health effects on a wide range of potential hazards in general as well as in country-specific situations** (with the exception of microbiological contamination and a handful of chemicals and physical factors, information on suspected long-term effects is rather limited, and also the capacity of many countries to utilize those data and to add the necessary local exposure assessment data is not yet developed);
- **perceived conflict between development aims on the one hand and environmental goals on the other** (while understanding of the interdependence of economic development and health of the people and the environment has increased, environmental protection measures are still wrongly perceived as delaying economic development and thus suffer from low priority and lack of resources);
- **fragmentation of responsibilities for environmental hazards prevention and control** (these responsibilities are normally vested in a multitude of governmental agencies, making coordination difficult and progress slow; nor are health agencies given the role which environmental health concerns would demand).

2.2 Scope and focus of the strategy

Environmental hazards control focuses on prevention or controlling the effects on the health of the general population of environmental pollution (chemical, biological and physical) and the use of chemicals. This involves both the control of discharges of waste materials into the environment as well as safe production, handling, transport, storage, use and ultimate disposal of a large variety of industrial, agricultural and domestic chemicals. It also includes the clean-up of accidental spills, industrial accidents releasing chemicals and radiation into the environment, as well as dealing with individual poisonings. It further includes prevention and mitigation of the health effects of environmental chemicals of natural origin.

Environmental health, perhaps more than any other programme, is intersectoral in nature in that it concerns all parts of the human environment. Environmental hazards control is but one programme area which is concerned with environment and health. There are others, such as water supply and sanitation (linked to drinking-water quality), housing hygiene (linked to indoor air pollution and noise), food safety (linked to food additives, pesticide residues, contaminated soils and water), occupational health (linked to chemicals and physical factors in the work place), all of which emphasize different but specific aspects. Environmental hazards control has linkages to all of these and possibly several others, e.g., environmental aspects of vector-transmitted diseases, environmental factors involved in heart disease, cancer, etc. The emphasis, however, is on the general population and on the effects of biological, chemical and physical factors present in the environment which form a threat to human health.

The delineation of the boundaries of a programme area for environmental hazards control and its linkages with other programme areas, as outlined above, have often not been entirely the same at the national level in all countries where programmes and institutional environments may be structured differently. This aspect needs to be considered carefully when planning technical cooperation activities at the national level.

Consequently, the design and initiation of comprehensive national programmes should bear in mind the ultimate goal of effectively controlling any environmental hazards (air, water, food, etc.) to which populations are predominantly exposed. Assessment studies of the various exposure routes and patterns will allow for identifying the most cost-effective hazard control strategy and, consequently, identify the governmental agency most suitably placed to implement relevant action programmes competently.

3. GUIDING PRINCIPLES FOR TECHNICAL COOPERATION

In order to ensure a consistent and effective delivery of WHO's technical cooperation programme, some guiding principles have been suggested. These principles will also help to ensure that the limited resources at WHO's disposal for technical cooperation are used to maximum effect and where most needed.

- **Emphasis on self-reliance** (while technical cooperation and external resources will often be required to help address immediate and urgent environmental problems, the major thrust of WHO's technical cooperation will be to develop and/or strengthen the country's long-term capability at all levels for identifying and dealing with environmental problems);
- **Recognition of socioeconomic development status** (technical cooperation must be in line with the requirements as determined by the level of development and severity of environmental problems; the provision of knowledge and capabilities which are too complex and sophisticated should be avoided and country realities duly taken into account);
- **Orientation towards action** (WHO should promote cooperative activities on environmental problems when this is warranted, rather than wait until damage has occurred);
- **Promote prevention of environmental hazards** (the impact of most environmental problems can be diminished or prevented altogether through adequate planning and introduction of pollution control measures at an early stage of development);
- **Foster environmental considerations and awareness at the policy level** (environmental problems generally involve several economic sectors such as health, energy, agriculture, etc., and appropriate environmental considerations should be included in national policies so that adequate support is given for the appropriate technical and/or legal actions);
- **Follow environmental programme development approach** (programme development should be achieved step by step through an incremental integrated approach, since information on health risk without appropriate institutional base, or legislation and standards without monitoring and enforcement does not make much sense);
- **Optimize intersectoral coordination** (there are usually several environmental activities in each country that are part of different international programmes; these should be closely coordinated at the national and international level in order to optimize the use of resources);
- **Use and transfer of appropriate technology** (identification and application of existing, proven and relatively low-cost technologies for the control of environmental pollution);
- **Technical cooperation among developing countries** (areas for technical cooperation among developing countries need to be identified, supported and developed as necessary);
- **Environmental education** (development of public education to build up positive behaviour and attitudes towards environmental health and active participation in environmental health promotion);
- **Recognition of transfrontier aspects** (cooperative activities among neighbouring countries to be supported in order to achieve an effective and coherent approach to the control of environmental pollutants which migrate across borders, and hazardous chemicals which are subject to international trade).

4. ELEMENTS OF INFRASTRUCTURE DEVELOPMENT

The overall aim of WHO's technical cooperation is to increase the capacity of Member States to protect the health of their people against environmental health hazards and pollution. To achieve this aim national authorities must have at their disposal an effective infrastructure and organizational capability to fulfil the various essential functions in this area.

In the following, an outline of the major elements of national programmes for environmental hazards control is provided which is structured in accordance with each country's needs. The various components and building blocks of a national programme on environmental hazards control are presented under six main topics²:

- (1) awareness and promotion;
- (2) information systems;
- (3) policy and legislation;
- (4) planning and programme development;
- (5) institutional strengthening;
- (6) resources (human and financial).

In view of the varying scope and intensity of economic development and related environmental problems, the relative importance of these six categories varies from country to country. Consequently, priorities have to be set individually for the activities listed within each topic.

4.1 Awareness and promotion

An aware and knowledgeable leadership, an informed public and a general political will are essential to recognize environmental health problems, initiate activity and mobilize resources to deal with them. General information on national situations concerning the potential for environmental pollution, existing problems of pollution, and effects on human health is essential for the perception of risk and the implementation of control strategies.

Being aware of potential risks to health of environmental pollution and chemical use is a major prerequisite for action. Such awareness is needed not only on the part of the health and environmental authorities, but also by others (industry, NGOs, environmental groups and the general public). WHO technical cooperation will support awareness-raising through direct dissemination of material and through close collaboration with the appropriate national bodies. This would include:

- providing general information in non-technical language, sample posters, brochures and films for translation into local languages for the public;
- providing teaching materials on environmental health hazards for all types of training, education, and mass-media campaigns;
- supporting intercountry/national workshops for interdisciplinary reviews of common problems as a means of fostering greater awareness on the part of decision-makers and securing intersectoral cooperation;
- disseminating widely summaries of global environmental trends, newsletters and bulletins which highlight problem and programme evolutions on a broad and a sectoral basis (e.g., *Sentinel*, *Water Quality Bulletin*³).

²There are, of course, several different ways in which "national capability" for control of environmental health hazards can be subdivided and presented. The one used here illustrates WHO's main areas for technical cooperation with Member States.

³*Sentinel* - WHO/UNEP newsletter published by Monitoring and Assessment Research Centre in London; *Water Quality Bulletin* - a bulletin published by the WHO Collaborating Centre for Surface and Ground Water Quality, Canada Centre for Inland Waters, Burlington, Canada

4.2 Information systems

To be effective, the national programmes must have ready access to scientific and technical information. Where necessary their capability needs to be strengthened to ensure that action is not impeded by lack of supporting information. WHO technical cooperation will endeavour to assist by:

- making available bibliographies and catalogues and supplying, when possible, actual reference materials produced by international organizations to expand the relevant reference libraries;
- providing expert advice for the establishment of compatible computerized retrieval systems and, where appropriate, access to internationally available systems such as *IRPTC*, *Toxline* or *Medline*, and providing help in mobilizing resources for this purpose;
- identifying and supporting global/regional information centres for providing information to national authorities, and to support their establishment where needed;
- providing lists of collaborating centres, reference laboratories and individual experts in all relevant technical/scientific fields who may be contacted for information-gathering and dissemination;
- providing intensive training and assistance in the use and maintenance of the various information systems.

4.3 Policy and legislation

Political will and a defined policy are necessary for the development and implementation of the legislative and regulatory means by which environmental hazards are to be dealt with. This policy must give full recognition to national political, social and economic structures. It must include the roles and functions which are to be assigned and recognize the importance of mechanisms and coordination. Those defining the policy need also to be aware of the national problems, resources and capabilities to ensure that the policy is capable of being implemented.

The political process of developing a national policy and enabling legislation for control of environmental health hazards is clearly dependent on each country's administrative structure, its priorities and its existing capabilities. While WHO's technical cooperation must be careful not to infringe upon each country's wants, it can contribute to the process by:

- disseminating recommendations of expert committees, scientific groups and policy fora such as the WHA and Regional Committees to the relevant national authorities;
- requiring intersectoral coordination at country level in collaboration with other UN bodies (e.g., ILO, FAO), intergovernmental organizations such as CEC, CMEA and OECD, and other regional bodies (e.g., Mediterranean Action Plan);
- investigating means whereby protection against environmental health hazards can be linked with primary health care in the activities of the health sector and other environmentally relevant sectors (public works, industry, etc.);
- making available global guidelines and 'models' of legislation regarding environmental concerns such as hazardous wastes, drinking-water, land-based sources of marine pollution, safe use of chemicals, poison control, etc.

4.4 Planning and programme development

In support of national policies and respective legislation, responsible health and environmental agencies within the government have to formulate programmes and elaborate detailed plans for the achievement of environmental goals. Within this multi-stage process there are several areas for technical cooperation by WHO.

Information on methods and approaches tried and/or implemented elsewhere is considered useful to better judge the benefits, advantages, disadvantages, costs and social implications of planned pollution control measures. This transfer of experience can best be achieved through:

- collaborating with national health leadership and responsible environmental agencies in identifying and quantifying environmental threats to health and in discussing possible preventive or control programmes within the context of socioeconomic development and health promotion;
- providing expert advisory services in the formulation of national environmental plans, programmes and pollution control strategies;
- providing guidelines on control options, including regulatory measures, and relationships among governmental agencies and the private sector to allow for programme formulation within given sociopolitical frameworks;
- supporting workshops and seminars to discuss shared problems and common policies and approaches towards more harmonized programmes for environmental hazards control;
- collaborating with national authorities in the formulation and implementation of projects for the prevention and control of environmental health hazards.

4.5 Institutional strengthening

Implementation of a national strategy requires a considerable level of country-wide infrastructure which includes an administration capable of issuing and enforcing regulations, laboratories capable of research, forecasting and compliance monitoring, scientists capable of undertaking the necessary hazard assessments and advising their government, engineers and operators capable of applying the necessary control technology and equipment, and communication services which allow for effective and reliable control of existing and new environmental health hazards. As stated previously, the greater the level of development the greater the need for more comprehensive machinery.

Ministries of health, in particular, should play an important role in safeguarding the well-being (health) of the people in relation to environmental deterioration which affects health and should develop the appropriate infrastructure to support such action. They should also be influential with and supportive to environmental agencies and others whose actions bear on health. There is also a need to involve all levels of government, e.g., federal, provincial and local.

Industrializing countries, in particular, have to rely on an organizational structure in the environmental health field which keeps pace with the establishment of new sources of pollution and hazards associated with industrial activities and the use of chemicals in manufacturing and by the consumer. There are five main areas in which sound national institutional arrangements are indispensable. WHO technical cooperation will support the following activities in these areas of a national programme.

4.5.1 Assessment and forecasting

- supporting inventories of pollution sources, transport ways and user-endpoint discharges allowing for the identification of priority areas for action;
- providing mechanisms for identification of chemicals which are imported into countries as well as those transported, produced and formulated in a country;

- assisting in the identification of potential sources of hazardous chemicals and industries, including the risk of accidents;
- assisting in the identification of populations at risk from environmental health hazards;
- disseminating information on health and environmental risks of specific chemicals or groups of pollutants and chemicals;
- supporting environmental health impact assessments to determine the scope of potential hazards;
- promoting collaborative research on the development and validation of methods used for evaluation of environmental health hazards;
- providing epidemiological forecasting methods for the evaluation of pollution control measures.

4.5.2 Standard setting and regulations

- providing evaluated information on health and environmental risks of specific or groups of pollutants and assisting in their application, e.g., environmental health criteria documents, WHO Guidelines for Drinking-Water Quality, etc.;
- providing information on international standards and regulations regarding safety in manufacture, trade, transport and the use of hazardous chemicals;
- supporting meetings and workshops to review and advise on possible regulatory and enforcement approaches as well as the use of evaluated information in setting regulations and standards;
- providing expert advisory services to help in preparing background and support information as well as in establishing coordinating mechanisms for setting regulations and standards.

4.5.3 Monitoring

- strengthening the analytical capabilities and monitoring programmes of Member States;
- providing methodology for sampling and analyses, and for network design, installation, operation and maintenance;
- stimulating the local development of low-cost instruments which are appropriate for tropical and sub-tropical climates;
- providing a means for participating in interlaboratory testing programmes, including analytical quality assurance procedures within laboratories;
- supporting workshops, seminars and meetings to foster harmonization of monitoring approaches and methods;
- providing consultant advisory services in development of data-handling procedures and assisting in applying data in national programme implementation.

4.5.4 Implementing controls and prevention

- supporting identification of low-cost control and prevention technologies, with special emphasis on appropriate technological solutions;
- providing "case study" information;
- fostering TCDC among countries in identifying possible control approaches for common pollution control problems.

4.5.5 Emergency responses

- promoting capabilities for toxicovigilance and prevention of poisonings, accidents, and other emergency situations;
- supporting development of national capabilities and plans to deal with accidental releases of environmental hazards and other emergency situations;
- supporting workshops for exchange of information on appropriate national response mechanisms for accidents involving chemicals.

4.6 Resources (human and financial)

Human resources, in the form of trained manpower, are essential. To achieve this involves the development at the national level of teachers and trainers, training institutions and a wide range of educational materials ranging from the highly academic to the extremely practical. The development of the national capability for providing teachers and trainers is extremely important. Continued reliance on outside sources for trained manpower makes this input into strategy and control development liable to collapse if circumstances compel the withdrawal of non-nationals.

Funding is always a difficult area both nationally and internationally. In the development of a strategy and its implementation, the simplest and most cost-effective solutions must be identified and used. This applies equally to individuals, institutions and equipment. A well-developed and clearly formulated strategy will not only make the best use of national resources, but will facilitate the provision of funds by other national and international donor agencies. Developing countries will continue to look to outside organizations to provide positive assistance, not only in the form of advice, but as finance, technology, equipment, and training of manpower with the ultimate goal of national self-reliance.

Outside organizations, in turn, must remain aware of the need to improve the effectiveness of their assistance on an ongoing basis. This entails understanding the country's specific situation and socioeconomic constraints, allowing for effective development of the human resources without which pollution control programmes could not come into effect.

A major obstacle to programme development has been the shortage of trained manpower and of financial resources. While such resources must come from national sources, WHO can assist in the following ways:

4.6.1 Training of manpower

- conducting studies on the need for human resources and identifying manpower requirements;
- supporting national and intercountry training courses for scientists, medical and other health professionals, administrators, operators, volunteers, community workers, etc.;
- providing guidelines and instructional material for all levels of training;

- providing facilities for the training of trainers;
- providing consultant services for training national staff;
- providing for participation of national staff in intercountry consultations and task groups;
- providing fellowships for study abroad.

4.6.2 Mobilization of financial resources

- identifying opportunities and supporting the development of project proposals for external funding and internal national financing;
- informing possible donor agencies of potential projects;
- convening of consultations between donor agencies, national authorities, WHO and other relevant international organizations;
- preparing guidance documentation on possibilities and requirements for the use of international and bilateral donor funds;
- developing new approaches for assisting countries in the development of human resources and the acquisition of monitoring facilities through, for example, large-scale water resource development projects.

5. MAIN PROBLEMS, REQUIREMENTS AND POSSIBILITIES FOR TECHNICAL COOPERATION

The range of hazards is extremely wide. One of the most important issues which national authorities must resolve is the relative priority of the existing environmental problems and thereby to decide what actions to take when. This, of course, differs widely among the Regions, among countries and within national boundaries also. What action to be taken is dependent not only on the problems themselves but on the capacity of the authorities to respond.

In the past, WHO has successfully collaborated with a number of Member States in the implementation of activities to control and prevent environmental hazards. These activities range from the collaboration in the broad aspects of air- and water-quality management to highly specialized subjects such as hazardous waste disposal. Traditionally, the environmental health offices of WHO at all levels have dealt with basic sanitation issues, including community water supply, urban sewage and sanitation, and solid waste disposal in municipalities. Those programmes are ongoing under different programme area headings and, therefore, not the subject of the present strategy paper.

Experience gained from these collaborations and those implemented by other international organizations provides the basis for the identification of problem areas which are the most common and in most need of attention. Naturally, in any given country there may be other environmental priority concerns (e.g., acid rain, noise, desertification) and the WHO technical cooperation programme has to be tailored to the needs of each country. On the following pages the selected main problems are briefly described together with a short outline of what needs to be done. Those areas where WHO's programmes on Control of Environmental Health Hazards can be the most helpful are highlighted.⁴ Some of the problems are common to countries undergoing intensive industrial development, while others may be more relevant to less developed regions.

It must be emphasized that environmental hazards control includes, besides environmental pollution and its control, those activities which are required to ensure that chemicals are used in such a way so as not to cause personal harm. Risks of human and environmental exposure can arise in several ways, e.g., during the production, storage, transport and use of anthropogenic chemicals, including deliberate deployment in the environment, such as the application of pesticides in agriculture and the use of additives in food.

5.1 ENVIRONMENTAL CONSIDERATIONS FOR DEVELOPMENT

5.1.1 Problem

Industrial, agricultural and urban developments continue to take place without giving adequate consideration to the adverse consequences they may have on the environment and human health. Opportunities are lost for taking care of the accompanying environmental problems in the most cost-effective way, e.g., by incorporating effluent controls at the design stage, by locating industrial plants and complexes with due regard to water supplies and residential areas, by prohibiting hazardous activities in certain populated zones. Although it is generally acknowledged that prevention of environmental health hazards is the best and cheapest way for protecting the environment and public health, this approach is largely being ignored in many countries. The major contributing factors are insufficient cooperation between the development sectors and those responsible for environmental and health protection, inadequate appreciation of the preventive approaches available including the associated economic benefits as well as the costs involved, and the lack of convincing information on and public perception of adverse side-effects that the new developments may have.

5.1.2 Requirements

The overall aim must be to generate the necessary political commitment, to introduce adequate environmental health considerations into national and regional policy and programme development, and to prevent the adverse impact of industrialization and urbanization on the environment and the health of people. This responsibility was also recognized by the World Commission on Environment and Development which stipulated that "Governments must begin now to make

⁴All WHO technical cooperation activities related to infrastructure development (e.g., training of human resources) have been covered globally in Chapter 4 and therefore will not be repeated in Chapter 5.

the key national, economic, and sectoral agencies directly responsible and accountable for ensuring that their policies, programmes, and budgets support development that is economically and ecologically sustainable."⁵ More specifically, this implies the following requirements:

- (i) increase of public awareness and acceptance of measures which need to be taken to preserve the environment and protect human health;
- (ii) strengthen the input of environmental and health sectors in the planning and implementation of development plans, including major socioeconomic development projects;
- (iii) increase capacity to apply suitable environmental health impact assessment, land-use planning and integrated pollution prevention techniques in conjunction with source control and licensing programmes;
- (iv) develop and adopt appropriate enabling legislation to make use of such techniques mandatory.

5.1.3 WHO technical cooperation

WHO technical cooperation will endeavour to increase national capabilities to prevent the adverse impact of industrial and urban development through a number of ways. It will concentrate on the following areas:

- (i) provision of information and guidance on integrated environmental planning strategies such as land-use planning, location of industries, new urban developments and environmental health impact assessment both at the policy and project levels;
- (ii) supporting the development of appropriate environmental legislation covering planning approaches;
- (iii) raising the awareness of the non-environmental and non-health sectors to the adverse impacts certain development projects may have and to the possible solutions available;
- (iv) conducting regional and national workshops for the development and promotion of appropriate strategies;
- (v) stimulating the interest of international banks and other financial assistance organizations in the use of environmental health impact assessment and other environmental safeguards in the conception and implementation of major development projects.

⁵From *One Earth to One World*, Oxford University Press, 1987.

5.2 DRINKING-WATER QUALITY

5.2.1 *Problem*

Although the number of people being adequately supplied with drinking-water has drastically increased during the first half of the International Drinking Water Supply and Sanitation Decade, there is much less progress on the safeguarding of the quality of the water provided. Communicable water-related diseases, with diarrhoeas in first place, are still the most widespread health problem, particularly in the under-served rural areas of developing countries. Appropriate measures to protect drinking-water quality, not only from microbiological contamination, but also from chemicals, are still needed in many countries. Lack of human and financial resources hamper severely the public health and public works authorities to discharge their responsibilities with regard to drinking-water quality surveillance and control. National drinking-water quality standards, where they exist, are often not supported by the necessary laboratory services to monitor their compliance or to stimulate improvements in the safety of the water supplied.

Even in urban areas where major improvements have been made in the production and distribution of good-quality water, contamination of water supplies occurs frequently within the dwellings of high-rise apartment buildings. Similarly, in the rural areas contamination occurs within the household itself during handling and storage.

5.2.2 *Requirements*

There should be a dual target regarding drinking-water quality. Firstly, where the existing infrastructures and resources permit, national drinking-water quality standards should be formulated to support country-wide improvement of drinking-water quality. The implementation of such standards must be accompanied by practical and feasible surveillance activities and with the provisions and means to take remedial action when required.

Secondly, in rural areas and small communities where standards as such have little meaning, action plans need to be developed and implemented to improve the protection of water supplies from bacteriological contamination. This will require regionally or locally based systems linked to primary health care for raising public awareness of the problem and possible solutions, and for implementing a minimal water-quality surveillance and providing remedial measures with reliance on appropriate technology and community participation. National/local programmes are needed to aim at reducing the contamination of water supplies within the dwellings themselves. This will require health education, guidelines, surveillance, etc.

5.2.3 *WHO technical cooperation*

WHO's technical cooperation is based on the application at country level of the recently issued WHO Guidelines for Drinking-Water Quality. It will concentrate on:

- (i) promotion of its translation (volumes 1 and 3) and use at national level by public health and water agencies;
- (ii) conducting regional and national workshops, followed by consultant/staff missions, to support the development and application of national standards for drinking-water quality;
- (iii) support of national demonstration projects on managerial and technical approaches for instituting drinking-water quality protection in rural areas, including the training of staff;
- (iv) strengthening the institutional and manpower capabilities of health agencies to fulfil their function as surveillance agencies;
- (v) providing guidance through pertinent agencies and, where applicable, primary health care for coping with the problems of water contamination within the dwellings.

5.3 FRESHWATER QUALITY

5.3.1 *Problem*

Water pollution is most pronounced in the large watersheds where millions of people live and where industrial and agricultural development is most intensive. In these areas, in particular, stretches of rivers and some lakes and groundwater aquifers are being contaminated by vast amounts of sewage and a myriad of industrial and agrochemical wastes. The greatest dangers to public health occur in situations where these water courses are used as drinking-water supplies with no or only minimal treatment. In addition, area-wide pollution sources lead to soil contamination with groundwater quality deterioration and/or the contamination of edible crops as the ultimate consequence. Freshwater fish often show contaminant levels and sometimes even tumours due to the highly polluted river waters in which they are caught. Furthermore, the development of river and lake basins, mostly for irrigation and hydropower, have often created severe ecological changes in the environment with important health consequences.

5.3.2 *Requirements*

The prime goal is to ensure that the intensive development of water resources for other purposes does not create conflicts for their use as drinking-water sources. National authorities should have the capabilities and means to assess the environmental and health impact that urban, industrial, agricultural and water resources developments have on water quality and to take the necessary protective measures. This requires them to have (i) the necessary legislative mandate including standards and regulations, (ii) adequate monitoring and laboratory facilities, (iii) information on potential environmental and health risks, (iv) availability of appropriate control and treatment technology, and (v) adequately trained staff. Since concerns about water resources are typically shared by many national and provincial agencies and there may often be international responsibilities, strong intersectoral coordination is essential. Of special importance are international water basins calling for coordinated action by Member States involved.

5.3.3 *WHO technical cooperation*

WHO technical cooperation will concentrate on the environmental health aspects of water pollution. It will emphasize:

- (i) a better understanding of the health issues involved through information and workshops on the health effects associated with water pollution;
- (ii) building up health-related water-quality monitoring systems through the Global Environmental Monitoring System (GEMS) or other means;
- (iii) supporting the development and the application of national standards and regulations for the protection of rivers, lakes and groundwater;
- (iv) cooperation with other relevant international agencies, supporting intersectoral national projects for assessment of water quality in entire watersheds and industrial/urban development regions including the establishment of areal inventories of pollution sources, environmental factors, etc.;
- (v) supporting the inclusion of environmental health considerations in the water resources development planning process;
- (vi) designing and implementing national projects on water pollution control including the mobilization of resources and technical inputs;
- (vii) promotion of cooperation among Member States especially in respect of water pollution control within international water basins.

5.4 COASTAL WATER QUALITY

5.4.1 *Problem*

Rapidly expanding coastal cities, industrial waste discharges into coastal waters, and booming tourism in coastal resorts are not only signs of a prospering economy, they also carry environmental stresses and pollutants which have affected many coastlines and their people. Microbiological and epidemiological studies have revealed the linkage between infectious diseases and the pollution of coastal bathing waters and shellfish grounds. Chemical contaminants are being found in marine biota and edible seafood near marine outfalls of municipal and industrial wastes. Ecological as well as human health concerns are preoccupying all countries where coastal development is under way.

5.4.2 *Requirements*

Coastal areas being developed for multiple uses are the prime target in this programme area. Assessment of the direct and indirect health effects of waste discharges and programmes for their control are a pressing need of developing countries situated at the seaside. Due to the complexity of the problem area, a number of strategic elements are required, including: assessment of land-based sources of pollution; assessment of health impacts of waste input and contaminated seafood; legal and regulatory measures to cope with the situation; technical solutions to control discharges and monitor the coastal waters. Special attention is given to major regional water bodies (Mediterranean, Caribbean Basin, etc.) of high economic and touristic value, and where international cooperation is most needed and the potential for TCDC is the greatest.

5.4.3 *WHO technical cooperation*

WHO's efforts in cooperation with UNEP and other international agencies will continue to concentrate on marine water bodies that are shared by several coastal countries and where joint action plans need to be implemented to cope with the consequences of pollution. In specific terms, WHO's technical cooperation emphasizes:

- (i) assessment and quantification of land-based sources of pollution based upon approaches and methods developed already;
- (ii) monitoring of coastal bathing waters, shellfish grounds and edible marine organisms for microbial contamination, including epidemiological studies for evaluation of health effects;
- (iii) monitoring and exposure assessment of heavy metals in edible marine organisms, including biological monitoring techniques, dietary intake surveys, and epidemiological studies;
- (iv) development of guideline values and standards for the microbial quality of coastal waters and shellfish for human consumption;
- (v) development and promotion of appropriate technical solutions for wastewater treatment and disposal into nearshore waters;
- (vi) the preparation of draft legal instruments, including technical provisions.

5.5 URBAN AIR QUALITY

5.5.1 *Problem*

Air pollution already is or soon will be a significant environmental health problem in most urban areas where appropriate control measures are not taken. At present, this is the case in most of the major cities in the industrializing countries and still so in some areas of the developed countries. The predominant air pollution problems in these cities, depending on meteorology and topography, are still the ubiquitous pollutants - particulate matter, sulfur dioxide, oxides of nitrogen, carbon monoxide and perhaps photochemical oxidants and lead, although in specific locations other air pollutants may be important also. The number of the main sources of pollution - industries, energy facilities, waste incineration, domestic heating, automobiles - increases as populations grow, worsening the problems. The crowding of hundreds of thousands of people in close proximity to these sources make them vulnerable to high exposure.

5.5.2 *Requirements*

Adequate legislation and activities should exist in these countries/cities to work towards preventing air pollution from increasing further and reducing it to acceptable levels where required. This implies abilities and actions to (i) assess existing and future conditions, (ii) collect and utilize information on health risks, (iii) establish legislation, standards and regulations, (iv) develop control strategies employing cost-effective measures, and (v) implement and enforce the strategies. The target might be industrialized urban areas with current populations of more than one million, although smaller agglomerations suffering from intensive industrial gaseous emissions could be considered.

5.5.3 *WHO technical cooperation*

WHO technical cooperation is geared to support the development and strengthening of the requisite capabilities and to initiate action. It will especially support:

- (i) conducting inventories of sources and emissions;
- (ii) provision of information on health risks and its application;
- (iii) development of monitoring capabilities through the GEMS programme and other means, assisted by epidemiological studies where needed;
- (iv) development of legislation and health-based air quality standards and regulations for prevention and control purposes;
- (v) development of alternative control strategies.

5.6 DOMESTIC COMBUSTION OF BIOMASS FUEL AND COAL

5.6.1 *Problem*

Biomass fuels (wood, crop residue, manure, etc.) are used by about half the world's population as the major, often only, source of domestic energy. Coal is also widely used for heating and cooking, particularly in those countries where an adequate domestic supply is available such as in China. These fuels are mostly burned under primitive inefficient conditions producing large quantities of indoor pollution which is harmful to health. The most important known adverse effects are various forms of respiratory disease. Recent WHO statistics have shown that acute respiratory infections are one of the major causes of infant mortality in developing countries. Preliminary estimates indicate that as many as 600 to 800 million people are affected by indoor air pollution from combustion of biomass fuels and coal.

5.6.2 *Requirements*

National, provincial and/or local programmes need to be developed through which action could be taken to attempt to curb the problem. While the possibilities are limited, solutions include (i) venting of smoke and fumes to the outside, (ii) improving the design of the stoves to lessen the generation of toxic fumes, and (iii) changing to cleaner fuels. Governmental programmes are needed to:

- (i) make the rural communities aware of housing hygiene and hazardous indoor air pollutants and promote solutions through primary health care and other means;
- (ii) undertake projects to improve and demonstrate better stove design using appropriate technology;
- (iii) investigate means of improving fuel quality, and to evaluate alternative approaches to improving the efficiency of the combustion process;
- (iv) ensure that this problem is adequately dealt with in new rural and urban development schemes.

5.6.3 *WHO technical cooperation*

WHO technical cooperation will concentrate on:

- (i) improving and disseminating the information regarding the exposures and health effects associated with burning of biomass fuels and coal, and on appropriate control technology;
- (ii) raising awareness of these problems among health and other officials through workshops and other means;
- (iii) providing information on appropriate technology for indoor air pollution control, including improved housing designs;
- (iv) stimulating research into ways of improving the efficiency of the fuel combustion process.

5.7 HAZARDOUS WASTE MANAGEMENT

5.7.1 *Problem*

Industrialization inevitably brings with it the generation of wastes by the production processes and, once products have been used, their accumulation as wastes. From a number of industrial sectors, e.g., petrochemical, fertilizer and electroplating, wastes toxic to environmental biota and to human health are typically produced. Most developing countries are struggling with the safe disposal of municipal wastes, in general, and only a few have minimal regulations for the safe disposal of harmful solid and liquid wastes. As a consequence, uncontrolled disposal is a common practice with the attendant potential risks to health and the environment. Organizational and technical solutions to the problem which are adapted to the needs and possibilities of developing countries are badly needed.

5.7.2 *Requirements*

At national level, activities need to be developed which, within their mandates and capabilities, would have to provide for safe disposal of hazardous wastes. As a first priority, industries producing highly hazardous wastes need to be catalogued and their waste disposal practices assessed. There are also needs for proper legislation and regulations, their enforcement and implementation of feasible and cost-effective disposal practices. Long-term policies and practical plans for dealing with hazardous wastes must be a programme goal.

5.7.3 *WHO technical cooperation*

Based upon currently ongoing reviews to identify suitable managerial and technical solutions, technical cooperation with Member States will concentrate on the following issues and aims:

- (i) provide evaluated information on health effects of hazardous materials;
- (ii) support of pilot and case studies for inventories, testing and demonstrating different waste-disposal schemes;
- (iii) support the preparation of the necessary regulatory and monitoring measures to allow for the effective implementation of national plans for waste disposal;
- (iv) encourage, in particular, TCDC among countries within the same region to solve hazardous waste problems of certain industrial generators which are common to them.

5.8 LOCALIZED HAZARDOUS ENVIRONMENTAL POLLUTION SOURCES

5.8.1 *Problem*

There are situations existing world-wide where individual or a small group of pollution sources endanger the health of the populations residing in their vicinity. Some of these are obvious and are known, others are not. They may include mines, smelters, hazardous waste sites, etc. If they are located in urban areas the high population density may lead to a large number of people being affected and if in rural areas, the pollution of agricultural soil may lead to an accumulating and persistent health hazard. Secondary effects due to groundwater and foodcrops contamination may also be observed. Many existing industrial plants, such as metal refineries, cement factories and fertiliser plants, were built without adequate environmental protection. The health effects of pollution in such localities have sometimes taken many years to develop and they were only identified after specific investigations were carried out.

5.8.2 *Requirements*

There is a need for identification of these situations and rapid assessment of their effects so that remedial action can be taken. This involves follow-up of complaints from the local population by preliminary epidemiological studies using available data or rapid assessment techniques. Effects on ecological systems may in some cases be important indicators of a situation that is also hazardous to the health of the local population. There is a need to identify specific control measures that can be taken in order that the health hazard can be controlled as soon as possible. In some cases detailed health-effect studies and monitoring may be required before appropriate control action can be taken.

5.8.3 *WHO technical cooperation*

WHO technical cooperation will aim at the strengthening of infrastructure at national level for the identification, measurement and control of pollution and the associated health effects. It will focus on:

- (i) making information available, at national level, regarding potential pollution problems, health effects and available control technologies for specific types of industry;
- (ii) building up and/or strengthening of local capability for monitoring of emissions, environmental contaminant levels and human exposures;
- (iii) strengthening of national resources for epidemiological studies including the provision of scientific/technical advice for the study of specific health problems;
- (iv) establishing health-effects monitoring programmes for populations in risk areas;
- (v) technical advice for the application of state-of-the-art pollution control technologies and the development of appropriate technology for specific pollution sources.

5.9 SAFE USE OF CHEMICALS

5.9.1 *Problem*

All countries use chemicals, particularly those for the agricultural, industrial and domestic sectors. Trade in chemicals is universal and a growing number of developing countries are preparing products for their domestic market as well as manufacturing certain chemicals. Many of these countries have neither the capabilities for fully assessing the potential toxicity of these chemicals nor the facilities for controlling the nature and purity of substances imported; they have no legislation (or only embryonic) concerning the storage, transport, use or disposal of the chemicals they import or produce.

Certain segments of the population are at greater risk than others of exposure to chemicals via their daily activities, such as agricultural workers using pesticides and certain industrial workers. A number of traditional endemic diseases are known to have an environmental chemical etiology, such as fluorosis and venoocclusive disease, and many others are strongly suspected of having one, such as the Kashin-Beck disease. The high-risk circumstances vary among countries depending on local socioeconomic and other conditions, such as chemical-use patterns, and it is the developing countries which are more frequently subjected to endemic diseases of chemical etiology, but which are least equipped to identify and deal with them.

5.9.2 *Requirements*

Capabilities need to be developed in each country in order to identify various high-risk circumstances involving chemicals under local socioeconomic conditions, chemical-use patterns and environmental chemical occurrence. Countries need guidance on options (administrative, technological and educational) for preventing or reducing the risks, and capabilities are needed to establish options and choose solutions which are most appropriate for the local conditions. Adequate legislation and active programmes should be established in these countries to enable them to have effective mechanisms for the control of importation of chemicals and safety procedures for the manufacture, storage, transportation, use and ultimate disposal of chemicals, as well as measures for responding to accidental exposures and for clean-up and decontamination. Epidemiological and other studies should be carried out to better identify risks to health and the environment due to chemicals (including those in food) as well as sections of the population at special risk under specific circumstances. Regulations are needed in order to ensure safety in the use of chemicals and they should be adapted to the specific circumstances in various countries. There are a number of essential elements of national activity in this field.

5.9.3 *WHO technical cooperation*

WHO's efforts, primarily through the International Programme on Chemical Safety, will be directed towards:

- (i) collaborating in the collection, evaluation and dissemination of information on health and environmental risks of priority chemicals under specific circumstances in countries; providing guidance on use of this information in implementing regulatory measures;
- (ii) collaborating in the collection of data, assessment of situations and undertaking of epidemiological, health monitoring and other studies to better identify high-risk circumstances, and promoting methodologies appropriate to situations in different countries;
- (iii) development and promotion of the implementation, at national level, of guidelines and plans for chemical safety, suitably adapted for local conditions, and providing guidance in developing various options (administrative, technological, educative and social) for reducing risks to human populations of particular chemicals under specific conditions;
- (iv) promoting the use of educational and training material for improved awareness of legislators, managers, workers and the public of the issues related to safety of chemicals.

- (v) promotion of health and safety guides to be used by managers and administrators, and of international chemical safety cards on the main priority chemicals in developing countries to be used by workers and other users of chemicals;
- (vi) helping establish administrative mechanisms for ensuring chemical safety, including intersectoral, where possible using existing structures in countries.

5.10 CHEMICAL ACCIDENTS

5.10.1 Problem

A growing number of countries are expressing concern about the hazards to the environment arising from chemical accidents which affect health. The increasing incidence of poisonings due to overexposure and/or misuse are also of concern. Several recent accidents in both developed and developing countries involving the massive exposure to chemicals of local populations have accentuated the realization by governments of the need to prevent accidents involving chemicals and to provide facilities for treatment of poisoned patients, as well as to rehabilitate and restore the environment after such accidents. Agricultural workers in developing countries are particularly vulnerable to poisonings by misuse of pesticides. It has recently been estimated that the global annual incidence of accidental pesticide poisonings is about one million cases, with a fatality rate of 0.5 - 2.0%⁶. Moreover, developing countries have a vast range of natural toxic chemicals to which local populations may be exposed. The more rapidly industrializing countries are also facing a situation similar to that of the developed countries with very large numbers of products (mixtures of chemicals - up to a million products) on the local market. Formulations of these products, including the nature of solvents, change quite frequently (about one-third each year), and this may alter dramatically the toxicity of the final product.

5.10.2 Requirements

Mechanisms to respond to chemical accidents need to be established in each country with contingency plans involving the appropriate national authorities, as well as facilities for a response to chemical poisonings and a well-coordinated poison control programme. The facilities needed will depend on the circumstances and types of chemical accidents. All countries should use their primary health care services and local dispensaries as a basis for response to poisonings. The rapidly industrializing countries may need additionally more sophisticated facilities, including a poison control centre. Facilities are needed for diagnosis of poisonings (information and medical advice services, analytical laboratories) and their treatment (basic clinical toxicological facilities). Besides these facilities a poison control programme must also provide a mechanism for response to major accidents involving chemicals and means for rehabilitation of both patients and exposed areas. Toxicovigilance and prevention are also key elements in such a programme. Many developing countries have at least one hospital and possibly an intensive care unit and some laboratory analytical services on which a poison control programme could be based. However, usually those countries do not have the information services nor the toxicovigilance and prevention programmes.

5.10.3 WHO Technical Cooperation

Efforts should be directed towards:

- (i) helping to develop information systems on the diagnosis and treatment of intoxications by chemicals, including provision of a list of evaluated essential antidotes;

⁶See WHO/VBC/86.926.

- (ii) developing and promoting the implementation of guidelines on poison control programmes, directed towards conditions in developing countries and giving guidance on the minimum facilities required for poison control programmes;
- (iii) providing the mechanisms for collecting and analyzing case data on poisonings with a view to improving the human toxicological information base, improving diagnosis and treatment, and encouraging toxicovigilance;
- (iv) collaborating with countries, including regional groups of countries, to set up the necessary administrative and technical infrastructure for diagnosis, treatment and prevention of poisonings, for medical response to major accidents involving chemicals, as well as for the rehabilitation of exposed areas;
- (v) developing guidance on response to chemical emergencies and identifying emergency response resources available on a regional and international basis, including specialized training programmes, emergency teams, special treatment centres at hospitals, etc.

5.11 RADIATION PROTECTION

5.11.1 *Problem*

The use of radioactive materials in energy production, industry, agriculture and medicine is increasing continually. Although stringent safeguards are taken in respect of such facilities and uses, by the producers and users themselves, a certain degree of capability must also exist in the health sector to provide an oversight function as regards releases to the environment under normal as well as accidental conditions. To date, such capability is extremely limited in most developing countries. Consequently they are constrained in taking the necessary actions when such occasions arise.

5.11.2 *Requirements*

The health/environmental sectors should attain at least a minimal capability for dealing with radioactive releases. While such capabilities are already indicated for countries with nuclear energy facilities and with widespread use of radioactive materials in industry, agriculture and medicine, there is a need for such capabilities in other countries also, because of the transboundary nature of major releases. Such countries should have available the information on the sources of radioactive substances, and to be able to monitor environmental media and recommend and implement precautionary measures when needed.

5.11.3 *WHO technical cooperation*

WHO, in collaboration with the International Atomic Energy Agency, will be prepared to support Member States through:

- (i) advice on intervention levels in case of emergencies
- (ii) support in the development of surveillance systems;
- (iii) assistance in drafting requisite legislation and regulations;
- (iv) support in the development of emergency preparedness plans and provision of medical assistance during emergencies.

6. DELIVERY OF WHO TECHNICAL COOPERATION

Technical cooperation at national level is provided by WHO on request from Member States. Ideally, requests should be formulated as an integral part of a coherent national programme of environmental health by the individual Member State in collaboration with WHO representatives, national liaison officers and regional/HQ staff.

The primary responsibility for the delivery of WHO's technical cooperation is that of the Regional Offices, under the supervision of the director/coordinator of the regional environmental health unit. At national level, there are few instances of WHO field staff assigned to specific projects in this area. In general terms WHO's technical cooperation activities are channelled through the WHO representative, who in many cases will be supported by WHO environmental health field staff assigned to the programme even though in other areas of environmental health, i.e. community water supply and sanitation. In most instances, however, the WHO representative must play an integral role in the process of delivering technical cooperation in the area of environmental health, particularly in the light of the complex multisectoral nature of environmental problems.

At the regional level, programmes are carried out under different arrangements. In the Regional Office for Africa, the Programme Manager for General Health Protection and Promotion has overall responsibility for the environmental health programme, with support by a regional adviser who is also responsible for the programme of food safety and rural and urban development. In the Region for the Americas, the Environmental Health Programme Coordinator has technical support from a regional adviser for environmental pollution prevention and control. In addition, there are two regional centres, the Pan-American Centre for Sanitary Engineering and Environmental Sciences (CEPIS) in Lima, Peru, which undertakes projects related to the control of environmental pollution, and the Pan American Centre of Human Ecology and Health (ECO) in Mexico, which is dealing particularly with environmental hazards and chemical safety. At the Eastern Mediterranean Regional Office, the Chief of Environmental Health has one regional adviser who is responsible for this work and for food safety. The Regional Centre for Environmental Health Activities (CEHA) in Amman, Jordan, which has recently been established, will participate on an increasing basis. In the European Regional Office, where the subject has a high priority, the Director of Environmental Health is supported by five staff members responsible for various aspects of the programme. In the South-East Asia Regional Office responsibility is with the Chief for the Promotion of Environmental Health, with support from his intercountry project staff and regional advisers as required. At the Western Pacific Regional Office, the Director of Drug Policy, Environmental Health and Health Technology has programme responsibility, with technical support provided by regional advisers and the Regional Centre for Promotion of Environmental Planning and Applied Studies (PEPAS) in Kuala Lumpur, Malaysia.

At headquarters, the programme is supported by two units — the Unit for the Prevention of Environmental Pollution (PEP) and the Central Unit for the International Programme on Chemical Safety (ICS) — each of which assumes relevant tasks in respect of:

- (i) preparing and providing technical and managerial information and guidelines;
- (ii) supporting Regional Offices in carrying out technical cooperation as required;
- (iii) conducting interregional technical cooperation activities, particularly in areas of manpower training and information exchange;
- (iv) coordinating work with other relevant international organizations, including mobilization of extra-budgetary resources.

Other programme activities from headquarters support technical cooperation indirectly. These include global assessments, methodology development and testing, scientific evaluations of health risk and promotion of research. These tasks are often supported or carried out by WHO Collaborating Centres and Participating Institutions established under the International Programme on Chemical Safety.

There are very important linkages to other programme areas with substantive mandates for specific environmental health aspects. One such area concerns chemicals in food which are covered by the food safety unit (FOS) at HQ and Regional Office levels. The working environment is of particular relevance with regard to air quality and chemical exposures. Occupational health units (OCH) or responsible officers are, therefore, closely collaborating with the relevant CEH offices. Control of disease vectors being largely based on the use of pesticides, programme linkages with the vector biology control programme (VBC) are equally of substantive importance.

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