

The Environmental Health Officer in an Industrial Society

Report on a WHO Consultation

Copenhagen
20–23 November 1979

REGIONAL OFFICE FOR EUROPE
World Health Organization
COPENHAGEN
1980



ISBN 92 9020 168 1

© World Health Organization 1980

Publications of the World Health Organization enjoy copyright protection in accordance with the provisions of Protocol 2 of the Universal Copyright Convention. For rights of reproduction or translation, in part or *in toto*, of publications issued by the WHO Regional Office for Europe application should be made to the Regional Office for Europe, Scherfigsvej 8, DK-2100 Copenhagen Ø, Denmark. The Regional Office welcomes such applications.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

The views expressed in this publication are those of the participants in the Consultation and do not necessarily represent the decisions or the stated policy of the World Health Organization.

PRINTED IN DENMARK

CONTENTS

Page

1.	Introduction	1
2.	The role of the environmental health officer	3
3.	Environmental health systems in different countries	5
3.1	France	5
3.2	German Democratic Republic	6
3.3	Federal Republic of Germany	6
3.4	Hungary	7
3.5	Netherlands	8
3.6	Poland	8
3.7	Sweden	9
3.8	United Kingdom	9
3.9	USSR	10
3.10	Yugoslavia	10
4.	Training and education	11
5.	Further training and continuing education	15
6.	Employment opportunities	16
7.	Relationships with other professionals	17
8.	Conclusions	18
9.	Recommendations	19
Annex I	Training of environmental health officers (or their equivalents) in nine countries of the European Region	21
Annex II	Liaison between the environmental health officer and other professionals in specific activities	28
Annex III	List of participants	30

WHO CONSULTATION ON THE ENVIRONMENTAL HEALTH OFFICER IN AN INDUSTRIAL SOCIETY

Copenhagen, 20-23 November 1979

1. INTRODUCTION

A Consultation on the Role, Functions and Training Requirements of Environmental Health Officers (Sanitarians) in Europe,^a held in December 1977, stressed the importance of developing a specialist category of personnel, to be termed "environmental health officers", who would carry out the well established duties of sanitarians/sanitary inspectors, including inspection of housing and food hygiene. However, in industrialized countries, such as most of the Member States of the WHO European Region, many new and complex problems are being encountered which logically could be dealt with by the same type of personnel, provided that adequate training and an appropriate career structure are developed. Such problems include the environmental health aspects of air and water pollution, the disposal of wastes and the chemical contamination of food. This work calls for familiarity with industrial and agricultural processes involving a considerable degree of technical competence.

The promotion of environmental health is essentially a multi-disciplinary task, but the need has been felt in many Member States for a particular type of professional officer who would be trained to deal specifically with the various environmental factors affecting human health. Consequently, a study on professional profiles has been included as a priority item in the medium-term programme of environmental health of the WHO Regional Office for Europe.

^a See: WHO Regional Office for Europe. *Role, functions and training requirements of environmental health officers (sanitarians) in Europe: report on a consultation.* Copenhagen, 1978 (ICP/BSM 004).

The purpose of this follow-up Consultation, held in Copenhagen from 20 to 23 November 1979, was to establish a professional profile for the environmental health officer in an industrial society.

The meeting was attended by 10 temporary advisers, 3 observers, 7 staff members of the WHO Regional Office for Europe and 1 from WHO headquarters.

Opening the meeting, Dr M. Postiglione, Director, Disease Prevention and Control, WHO Regional Office for Europe, on behalf of the Regional Director, Dr Leo A. Kaprio, emphasized the need to meet changes in the environment by ensuring that properly trained personnel were available to deal with situations as they arose. While it was hoped that the discussions would lead to the definition of the profile of a professional able to cope with environmental situations causing concern, it had also to be borne in mind that the role of such a professional also encompassed the protection and promotion of health.

Mr J.I. Waddington, Director, Promotion of Environmental Health, referred to the needs of industrial societies in which economies were based on industrial and commercial processes. The noncommunicable diseases had grown in importance as compared with communicable diseases, which had been the chief scourges in the past. These developments had created a need for trained manpower, legislation and an effective administrative structure, but these did not exist to a satisfactory degree in all countries. Food hygiene, the complex problems of chemical safety, occupational health, the long-term effects of air pollution and the relationships between life-styles and environmental problems were examples of the problems to be faced. In some countries where legislation did exist there was evidence of inadequate enforcement. In spite of legislation, political motivation, technology and financial resources, the problems would not be dealt with properly unless personnel with the necessary skills were available for surveillance, monitoring and management.

Dr K. Grzybowski was elected Chairman and Mr R.D. Brogden Vice-Chairman; Mr K.J. Tyler acted as Rapporteur.

The list of participants is given in Annex III.

2. THE ROLE OF THE ENVIRONMENTAL HEALTH OFFICER

As new industries develop, existing industries expand and new technology is introduced, the environment is increasingly placed at risk and hazards to human health arise. History has shown that industrial innovation is rarely matched in speed with corresponding protection of the community and its environment.

It may be the case that in some countries legislation has been enacted applying certain minimum standards for environmental health without ensuring the personnel to enforce it effectively. This may be due to the particular philosophy of law enforcement, but it is essential when introducing law designed to raise environmental health standards to ensure that personnel are available who can check that the law is being observed and, when necessary, take the appropriate enforcement measures.

It is therefore necessary to consider staffing needs for enforcement and monitoring. Environmental health officers working at community level with other professionals can give an assurance to legislators that the law they introduce can be made to work and be effective.

The need is for a professional officer capable of developing and exercising professional standards in his own work in relation to that of nonprofessionals involved in environmental health. Also, his role would obviously touch on aspects with which the physician, veterinarian, toxicologist, engineer, nurse and others deal in a more specialized manner.

If the concept of the professional environmental health officer as a field health worker is accepted, his role in relation to other professionals is more easily understood and his training needs more obvious. He will obviously not possess the expertise of the physician in personal health, of the veterinarian in animal health, of the microbiologist in microbiology, or of the sanitary engineer in the provision of water supplies. He will, however, have background and practical knowledge in these areas sufficient for him to understand the principles involved and he may develop some specialist expertise. He will be able to work easily with the other professionals. His wider experience will enable him to formulate an approach on a broader base

to contribute to the decisions to be made, or to make these decisions alone in cases where he has the necessary authority.

Responsibilities may vary to some degree in different countries, but the basic functions of an environmental health officer within the public service should be:

- (a) improving human health and protecting it from environmental hazards;
- (b) enforcing environmental legislation;
- (c) developing liaison between the inhabitants and the local authority and between the local and higher levels of administration;
- (d) acting independently to provide advice on environmental matters;
- (e) initiating and implementing health education programmes to promote an understanding of environmental principles.

Because of the wide range of his functions, the environmental health officer will operate in a managerial capacity and in collaboration with other environmental agencies and services.

In recent times there has been, in the industrialized societies, a shift of emphasis from traditional problems of sanitation to the new hazards arising from intensive industrialization, for example, pollution by chemical and physical agents potentially harmful to the health of a community. The monitoring and control of these hazards are important, but there is a need to develop the preventive role of the environmental health officer in these matters. His level of knowledge must enable him to understand the problems which are the concern of other professionals so that he may contribute to their solution.

The environmental health officer acts as a public arbiter of environmental health standards, maintaining close contact with the community. He must at all times be aware of the general environmental circumstances in his district and must know what hazards to health may arise within his district because of the industry and processes that exist there, and what resources are available to him in the event of emergency.

3. ENVIRONMENTAL HEALTH SYSTEMS IN DIFFERENT COUNTRIES

Many of the problems relating to the protection of the environment and health of a community are common to the industrial societies of the WHO European Region. However, the contributions made by the participants in this Consultation demonstrated that there are not only different environmental health administrative systems, but also a variety of professional disciplines engaged in this work. While the aims and objectives are similar, the means of achieving them vary.

The following brief summaries illustrate the variations which exist.

3.1 France

The Ministry of the Environment coordinates environmental protection activities in which many administrations and special agencies are involved.

Many categories of personnel at different levels are employed and belong to the different administrations concerned, e.g., Ministry of the Environment, Ministry of Agriculture, Ministry of the Interior and Ministry of Health and Social Security. These categories include engineers of different specializations, including sanitary engineers, as well as veterinarians, physicians, chemists, microbiologists and others. They work at different levels, central, regional or local (i.e., department or municipality).

The implementation of legislation is generally the responsibility of the local authorities (departmental and municipal authorities).

Being concerned with the health aspects of environmental protection, the Ministry of Health and Social Security has been developing over the past few years a new structure especially for use at local level. In addition to medical doctors there are sanitary engineers, *techniciens supérieurs de génie sanitaire* (the equivalent of environmental health officers), *inspecteurs de salubrité* (public health inspectors) and personnel for sampling and disinfection operations.

There is a tendency to increase local responsibility.

3.2 German Democratic Republic

The Ministry for Protection of the Environment and Water Resources coordinates environmental measures by collaborating with ministries responsible for agriculture, health, food, etc. The Ministry of Public Health is responsible for food and institutional hygiene, communal hygiene (water and waste; housing and city planning; air pollution; noise and other physical factors, poisons and toxic substances), communicable diseases and occupational health.

Hygiene services are provided as part of the public health service at central, regional and district level; some 6000 co-workers are involved and some 30 research institutes provide laboratory and surveillance support.

The main categories of personnel are medical doctors with a 5-year postgraduate education in hygiene or labour hygiene; scientists such as food chemists, chemists, physicists and microbiologists, with a 4-year postgraduate specialist education; hygiene or labour hygiene engineers who, after matriculation or education in a distinct profession (mainly medical), receive a 3-year technical/professional education with subsequent opportunities for specialization in, for example, food hygiene or communicable diseases; hygiene or labour hygiene inspectors, who after school, receive a 2-year education in medical schools for their subsequent duties.

3.3 Federal Republic of Germany

Numerous laws relating to environmental health are the responsibility of different federal ministries, for example the Ministry for Youth, Family Affairs and Health and the Ministry for Interior Affairs.

Enforcement of Federal legislation is the responsibility of the *Länder* (provinces) and the local authorities. According to the specific organization of administration in the *Länder* there are administrations, singly or in combination, for health, environment, public order, veterinary affairs and others.

Highly qualified officials such as physicians, engineers, food chemists and veterinarians work in the *Länder* and are generally

responsible for all important decisions in their sphere of activity. Such officials have, or gain, a good specialization in the specific subject in which they work.

The officials are supported by technical assistants such as health inspectors (*Gesundheitsaufseher*), disinfectors (*Desinfektoren*), food inspectors (*Lebensmittelkontrolleure*) and meat inspectors (*Fleischbeschauer*). These carry out work comparable to that of an environmental health officer but they do not have as much training and responsibility as the latter.

Well equipped laboratories such as medical, chemical and veterinary units support the work of authorities and officials.

3.4 Hungary

The local public health facilities include branches of the public health and epidemiological network which operate at local level in district seats, towns and town districts. They are headed by doctors with co-workers who include public health and epidemiological controllers, health workers and administrators.

Public health and epidemiological stations operate in Budapest as well as in Hungary's 19 counties. These latter stations also operate as county supervisory bodies; the staff include specialist hygienists, epidemiologists and doctors, supported by assistants in various disciplines.

Several public health stations carry out regional assignments covering several counties. These may relate to noise, air pollution and radiation matters.

There are a number of national institutes which, together with the Ministry of Health, can give professional guidance on public health and epidemiology.

In Hungary the public health environmental health officer is authorized to exercise official and controlling rights, but public health is a multidisciplinary assignment and relationships are necessarily wide. The spheres of work of public health specialist doctors, hygienists, epidemiologists and those of engineers, chemists and others are well defined and regulated. The local, county and national institutions have been modernized to develop team work and expand public health activities.

3.5 Netherlands

The Ministry of Health and Environmental Protection coordinates political decisions on environmental affairs. National Councils for Health, Environmental Protection, Air Pollution, Water, Food and Nuclear Energy have advisory roles.

The Ministry consists of 2 main divisions (Directorates-General), for Health and for Environmental Protection. The National Inspectorate for Health and Environmental Protection has a vital role in advising the Government, provincial and municipal authorities. The provinces play an important part in implementing environmental legislation; there are 11 of these and 240 municipalities.

The National Inspectorate consists of a central staff of specialists and there are 9 regional inspectorates. The inspectors are fully qualified specialists with university education. Each regional inspectorate consists of from 5 to 10 inspectors (Ph.D. or equivalent) and about the same number of technically trained persons with Bachelor degrees. The provinces have environmental protection departments with specialists and university trained staff. The larger cities have set up their own municipal environmental protection departments.

While there is a centralized approach, with coordination through Government departments and the National Inspectorate, it is the provincial and municipal authorities that are generally responsible for enforcement.

3.6 Poland

The Ministry of Administration, Land Resources and Environmental Protection is responsible for the management of natural resources, general planning and the environment. This involves planning and state control for the abatement of air and water pollution and noise control. The Ministry collaborates with the Ministries of Agriculture and of Health and Social Welfare.

This latter Ministry is responsible for the control of infectious diseases, occupational diseases, environmental health surveillance and the initiation and organization of health education.

The Ministry of Agriculture provides the veterinary inspection service, and exercises control over food production and the processing of foods of animal origin, but not over the retail sale of foods.

It is a state-controlled service, but in every county and larger towns with "county status" there are branches or stations which are responsible for the environmental health services.

3.7 Sweden

Environmental protection legislation is relatively modern, in that many of the laws were introduced in the 1960s and 1970s.

At government level the main responsibility is vested in the Ministry of Agriculture. Public health is the responsibility of the Ministry of Social Welfare and occupational health is a function of the Ministry of Labour.

Central administrative authorities in the environmental health sector consist of a number of National Boards, such as those Boards dealing with Health and Welfare, Environmental Protection, Food Administration, Fisheries and Urban Planning.

The main responsibility for environmental protection at regional level rests with the county administration, which can act as an enforcement authority. Local responsibility rests with the municipalities, for which the public health committees are the enforcement authorities.

The Swedish environmental health officer works in the office of the public health committee and receives a 3-year university education oriented towards public health and environmental protection. There is now a strong tendency to decentralize to the local level responsibilities which can or should be administered at this level.

There are some 800 environmental health officers in Sweden (population approximately 8 000 000).

3.8 United Kingdom

The principal government departments involved are the Department of Health and Social Security and the Ministry of Agriculture, Fisheries and Food. The role of central government is to prepare legislation for introduction by Parliament. Administration and enforcement of the legislation is the responsibility of the local authorities. Environmental health is primarily a responsibility of, in England and Wales, the 402 district councils. In almost all districts there is a separate environmental health department headed by a chief environmental health officer.

Although various disciplines are involved in environmental health, it is the environmental health officer who occupies the central position in this work. There are approximately 6000 established posts.

Environmental health officers are supported by technical staff and are qualified to be "general practitioners" in environmental health matters. When required, specialist advice is available from other professionals and agencies and within the local health departments. Environmental health officers have opportunities for subsequent specialization.

The two recognized qualifications are the Bachelor of Science degree in environmental health (4 years) and the Diploma in Environmental Health of the Environmental Health Officers Education Board (3 years).

3.9 USSR

A fully developed state-controlled system exists in the USSR, with a regional health organization offering a comprehensive service through the public health service. Environmental, preventive and curative services are combined within the main structure. Environmental sanitation and the control of communicable diseases are dealt with by a network of sanitary and epidemiological stations.

A special profession, the sanitary doctor, has responsibility for environmental health matters; a special system of postgraduate (medical) education in environmental health is provided for such doctors and continuous updating of this specialist knowledge is ensured. The duties are similar to those of the environmental health officer.

The sanitary doctor is assisted by feldsher sanitarians who, working from the sanitary and epidemiological stations, help in vaccinations, controlling epidemics, conducting health surveys and performing other duties such as disinfection. They generally work under the supervision of the sanitary doctor.

3.10 Yugoslavia

The main central departments concerned are the Ministries of Public Health and Social Insurance; Work; Urbanization and Utilization of Space; Water Protection and General Administration.

In addition, there are institutes of public health, specialized hygiene-epidemiological and sociomedical health institutions, and other specialized institutions performing analyses of the human environment.

At the level of Republic, physicians who have undergone postgraduate environmental health training are employed. At the regional level (groups of communes), there are physicians, pharmacists and veterinarians, while at the commune or municipality level sanitary technicians are employed.

4. TRAINING AND EDUCATION

It is possible that some problems relating to the protection of the health of the population from environmental hazards and the protection of the environment may be dealt with by the specialist. Many of the problems necessitate an integrated analysis involving a broader approach than the more narrow sectional solution by the specialist in environmental health.

The environmental health officer performs the generalist role and therefore needs to have training in a wide area of activities. A balance has to be struck between the depth of instruction given on specific subjects, the desirable amount of knowledge to be aimed at, and the practical application of that knowledge.

For admission to training courses a standard of general education equivalent to university entrance level should be required. Training should lead to university graduation or an equivalent qualification. Professional or practical training integrated with the academic course provides the student with sound technical and administrative experience; it encourages self-reliance and initiative and produces an officer capable of identifying and solving environmental health problems. Provision should also be made for appropriate postgraduate specialization.

In view of the wide range of activities to be carried out by environmental health officers, the following basic concepts should be incorporated in the planning of their training:

(a) general – to include the natural and social sciences, scientific bases for understanding environmental health effects and relevant health and environmental aspects;

(b) task-oriented fundamentals of environmental health – planning, management, legislation, surveillance systems, cost-effectiveness, information, documentation, data collection and processing and environmental health education of the public;

(c) task-oriented education in specific environmental health problems – this can vary according to the administrative structure and control systems of a particular country. The following subjects were recommended as a model curriculum for this section:

1. *Water quality management*
 - 1.1 Drinking-water supply
 - 1.2 Water for other uses, e.g., recreational, agricultural, industrial, emergency purposes
 - 1.3 Water pollution control (inland and coastal)
2. *Food safety*
 - 2.1 Food production: (a) of animal origin; (b) of vegetable origin
 - 2.2 Food distribution, sale and consumption
 - 2.3 Microbiological and chemical control
3. *Waste management*
 - 3.1 Solid wastes – municipal and industrial
 - 3.2 Liquid wastes – municipal and industrial
 - 3.3 Recycling of solid and liquid wastes
4. *Principles of urban and regional planning*
 - 4.1 Analysis of projects
 - 4.2 Zoning
 - 4.3 Specially protected areas (coastal zones, parks, etc.)
5. *Housing*
 - 5.1 Permanent dwellings
 - 5.2 Temporary dwellings, including tourist camping sites and caravan dwellings
 - 5.3 Community institutions, e.g., schools, hospitals, etc.
6. *Air quality management*
 - 6.1 Planning and zoning
 - 6.2 Sources of pollution
 - 6.3 Control devices

7. *Control of noise and other physical factors (vibrations, microwaves, etc.)*
 - 7.1 Planning and zoning
 - 7.2 Sources
 - 7.3 Control devices
8. *Radiation*
 - 8.1 Protection against radioactive pollution of drinking-water, food, soil, air and building materials
 - 8.2 Radioactive waste disposal
9. *Potentially hazardous substances*
10. *Epidemiology*
 - 10.1 Communicable and parasitic diseases
 - 10.2 Control measures
 - 10.3 Vector control (rodents, insects)
 - 10.4 Noncommunicable diseases
11. *Occupational health*
 - 11.1 Hygienic conditions for work places
 - 11.2 Hazards to workers' health
12. *Application of International Health Regulations*
13. *Environmental health education*
 - 13.1 Enlisting community participation in environmental health projects
 - 13.2 Encouraging voluntary compliance with environmental health legislation
 - 13.3 Education of food handlers
 - 13.4 Encouraging the community to adopt an improved environmental health life-style.

While the range of activities and responsibilities of environmental health officers will depend upon the national legislation and administrative structure of the country concerned, the curriculum should include the basic functions listed in Annex I to the 1978 report,^a with the following additions:

(a) promotion and enforcement of environmental health quality standards;

^a See: WHO Regional Office for Europe. *Role, functions and training requirements of environmental health officers (sanitarians) in Europe: report on a consultation.* Copenhagen, 1978 (ICP/BSM 004).

(b) collaborative efforts with other disciplines to study the health effects of environmental hazards;

(c) environmental impact assessment.

The training programme must cover all the activities with which the environmental health officer will be concerned. As it is training leading to graduation (or an equivalent qualification) it must clearly go beyond professional training and include "education". In environmental health both the quantity and pace of change are high. The fundamental principles of education, such as basic concepts, clear and logical thought, principles before techniques, etc., which promote the ability to adapt to change cannot be ignored.

Consideration was given to the recognition necessary for those working as environmental health officers but who, having qualified under earlier schemes, were not graduates as envisaged by this and the 1977 Consultation.

In Sweden and the United Kingdom the gradual raising of the professional qualifications have not created different grades of officers. No differentiation exists in the local government service in the United Kingdom between those who hold the Diploma in Environmental Health of the Environmental Health Officers Education Board and those who graduate with the degree of Bachelor of Science in environmental health. No real problems have arisen in the development of the higher qualification.

In France, when the post of *techniciens supérieur de génie sanitaire* had been introduced, the public health inspectors had been given the opportunity of attending a two-year course at the National School of Health to obtain a certificate enabling them to progress to *technicien* level.

It was agreed that this situation of differing levels of qualification in those countries employing environmental health officers should be noted.

The training of environmental health officers (or their equivalents) in nine countries of the European Region is described in some detail in Annex I.

5. FURTHER TRAINING AND CONTINUING EDUCATION

The objective of environmental health programmes is that of protecting human health through environmental management. While the correction of hazards will remain important, the emphasis must now be directed towards prevention rather than cure.

The increasing complexities of environmental health problems require a continuing development of expertise and an updating of knowledge. To maintain a leading role in dealing with environmentally related health problems, environmental health officers must be in a position to respond to challenges presented by new hazards in the environment.

The level at which the environmental health officer carries out his work will influence the type of further training and continuing education he should receive. The following main sources of such training are envisaged:

(a) *postgraduate specialization courses* on particular topics at universities or similar educational institutions. The topics could include environmentally related subjects such as:

- air quality management,
- control of noise, vibration and other physical factors,
- water and waste water management,
- food safety,
- environmental legislation,
- environmental data processing,
- toxic and hazardous chemicals in the environment,
- occupational health,
- health education,
- solid waste management,
- urban planning and environmental impact analyses;

(b) *overview courses* of one month or more at university or an equivalent level, to update and widen perspectives on environmental health subjects, singly or in combination;

(c) *refresher courses* lasting one day to one week, organized by government departments and professional associations. As they

are relatively easy to organize, these short courses will be the ones most frequently used. In addition to dealing with a specific environmental health topic, refresher courses can consider case-related problems and their critical evaluation; new developments in specific subjects can be effectively discussed at these shorter courses.

While basic professional training and subsequent experience provides the community with a competent officer, his degree of competence must be maintained in both breadth and depth by further training and continuing education.

6. EMPLOYMENT OPPORTUNITIES

Due to the breadth of the environmental health officer's professional training and the subsequent specialist training he may undertake, a wide range of employment opportunities exists.

Opportunities in the public service depend largely on the way in which the environmental health administration is structured in each country and, in particular, on the role undertaken by other related professions. These variations will clearly influence the numbers of environmental health officers required.

In some of the countries that commenced the expansion of their environmental health services around a decade ago many of the posts then established are now becoming filled. In the public service sector some posts have been established within government departments involved in environmental health activities and this trend is to be encouraged. By far the largest proportion of posts are to be found at the local or community level, where the environmental health officer can exercise the greatest influence in promoting and regulating environmental health activities.

There exist, however, several levels at which the environmental health officer can work in the public service sector. These range from the national to the local level with, in some countries, an intermediate or provincial level. The environmental health officer's training should equip him with the necessary expertise to act at any appropriate level.

In many countries environmental health officers are recruited by industry and commerce to apply their skills in these areas. Industry and commerce have to observe environmental health legislation and need environmental control specialists to interpret legislation, to promote and maintain standards and to solve the problems which may arise through, for example, a system of internal control or "self-inspection".

Certain industries, such as the food and drink manufacturing industry, and major retailing companies already employ environmental health officers. With the increasing awareness of environmental health hazards in other manufacturing processes such as the asbestos, chemical, cement, ferrous and non-ferrous metal industries it is expected that employment opportunities outside the public service sector will increase.

The tasks environmental health officers undertake in industry and commerce will vary considerably according to the type and size of the undertaking, and although the work is based on the officer's professional qualification and expertise it cannot be simply defined. It frequently necessitates specialization for which postgraduate training may be appropriate.

7. RELATIONSHIPS WITH OTHER PROFESSIONALS

The environmental health officer must be able to plan and co-ordinate activities between different professional disciplines, official agencies and authorities. He needs to have continuing links with other professionals involved in environmental and health-related work and this is particularly necessary in an industrial society. The other professionals with whom liaison will be appropriate in some matters include physicians, physicists, microbiologists, chemists, civil/building/sanitary engineers, veterinarians and lawyers.

In some countries and situations the environmental health officer will initiate the collaboration, whereas in others he will provide the information and advice which is sought. His liaison role will extend beyond the other professionals to technicians and a range of other specialists, including those concerned with the public health laboratory services.

For an effective degree of cooperation between the many varied disciplines and the environmental health officer to be achieved, each must understand the role of the other and optimize the use of his expertise.

Annex II gives examples of the liaison necessary between the environmental health officer and other professionals in a number of environmental health activities.

8. CONCLUSIONS

Referring to the conclusions and recommendations of the 1978 report,^a the group suggested additional functions which should be incorporated in view of the special role of the environmental health officer in the industrialized society.

1. In particular, the conclusion contained in the 1978 report, that the environmental health officer should have a university degree or equivalent qualification in the field of environmental health, including practical training, was confirmed.

2. Training should cover scientific, health and environmental aspects, followed by training in the specific knowledge, skills and attitudes required for environmental health management.

3. The environmental health officer will need further education and training at intervals throughout his professional life, depending on career development and the changing nature of his duties.

4. Considering that there has been a shift of emphasis from traditional sanitation problems to the new hazards occurring as a result of intensive industrialization, the professional profile of the environmental health officer should place even greater emphasis than in the past on the concept of his preventive role in relation to environmental hazards which could lead to an impairment of health.

^a See: WHO Regional Office for Europe. *Role, functions and training requirements of environmental health officers (sanitarians) in Europe: report on a consultation.* Copenhagen, 1978 (ICP/BSM 004).

5. Although the environmental health officer should, on the basis of his education and experience, be able to act independently either in enforcement or advisory capacities, he should be able also to function as a member of a team with other professionals in implementing environmental health programmes.

9. RECOMMENDATIONS

1. Since the environmental health problems of an industrialized society cannot be solved in a fragmented manner, the training of the environmental health officer should enable him to take a comprehensive view on the basis of the profile developed here. His basic training and experience fits him for the role of "general practitioner" in serving the community's environmental health needs, particularly in the fields of technical advice, education and environmental health legislation enforcement.

2. Curricula for the professional training of environmental health officers should be structured to provide them with the necessary knowledge, attitudes and skills.

3. Facilities for further training and continuous education of the environmental health officer should be provided according to his career development and the changing needs of the society he serves.

4. If the work of the environmental health officer is to be effective, it should be supported by strong legislation capable of practical implementation and adaptable to local circumstances. A carefully designed administrative structure is essential to provide the officer with the necessary authority and also technical resources, including surveillance facilities and an adequate information system.

5. In view of the wide range of expertise expected of the environmental health officer, the appropriate authorities should encourage the greatest possible use of his expertise, whether this be at local, regional or central government levels.

6. Steps should be taken to promote and maintain proper collaboration and understanding between the environmental health officer's profession and the other professional disciplines involved in environmental health and related activities.

7. This report should be given the widest possible distribution among government departments, institutions and authorities concerned with the environment.

8. Those receiving this report should be encouraged to send comments and suggestions relating to its implementation to the WHO Regional Office for Europe.

9. After two years the WHO Regional Office should initiate an assessment of the progress being made in the different countries of the European Region in implementing the recommendations made in this report.

Annex I

TRAINING OF ENVIRONMENTAL HEALTH OFFICERS (OR THEIR EQUIVALENTS) IN NINE COUNTRIES OF THE EUROPEAN REGION

France

Technicien supérieur de génie sanitaire

After they have completed their course of training at the National School of Public Health, Rennes, officers in this category are recruited by the external services of the Ministry of Health and Social Security.

This training is provided:

(a) for public health inspectors already serving in public health structures; training usually lasts two years. The level of recruitment of public health inspectors is determined by regulations. Such officers are recruited by means of open competition and should possess the *baccalauréat* or any equivalent qualification. Upon completion of this training they resume their duties in the health services to which they belong.

(b) for students with diplomas from university institutes of technology specializing in hygiene or biology and who have received training in mathematics, physics, biology, statistics, mechanics, hydrology, etc. Some of these institutes of technology specialize in environmental health problems, especially those relating to water, solid and liquid wastes and air pollution.

Training in university institutes of technology lasts two years following the *baccalauréat*.

These students may follow a course of instruction lasting one year in the "*Techniciens supérieurs*" Department of the National School of Public Health. Training is oriented towards the study of environmental factors which may affect the health of populations (excluding occupational environment problems which are the responsibility of the Ministry of Labour).

This second category of *technicien supérieur* may be recruited by the services of the Ministry of Health, by other public services or by the private sector.

The problems dealt with in the course of the training provided by the National School of Public Health are those referred to in Annex I of the 1978 report.^a The training received by these officers equips them with the appropriate knowledge to develop liaison with other disciplines concerned with environmental health questions.

Finally, *techniciens supérieurs* who have received their diplomas from university institutes of technology specializing in hygiene or biology may be recruited by the Ministry of Health without having taken the one-year course of instruction provided by the National School of Public Health; their training is thus limited to two years following the *baccalauréat*.

German Democratic Republic

The State Hygiene Inspectorate, as a part of the public health service, is responsible for environmental health at the central, regional and district levels.

In the State Hygiene Inspectorate the main categories of staff are:

- physicians with a five-year postgraduate specialization in environmental health (*Hygiene-Arzt*), and
- sanitary engineers. A standard of education equivalent to university entrance level is necessary for admission to the technical school for sanitary engineers. Training is full-time, covers three years and includes practical training. Courses follow a detailed curriculum, the activities listed in Annex 1 to the 1978 report^a being included. Specialization in epidemiology, food hygiene and community hygiene is possible after qualification.

Both categories carry out the role and functions of environmental health officers, the *Hygiene-Arzt* as the chief officer of the State Hygiene Inspectorate at the different levels, the sanitary engineer as the most important co-worker of the physician.

^a See: WHO Regional Office for Europe. *Role, functions and training requirements of environmental health officers (sanitarians) in Europe: report on a consultation*. Copenhagen, 1978 (ICP/BSM 004).

Hungary

Public health epidemiological officers

These officers are physicians; their training lasts six years. Upon completing their studies at the medical university they work in the public health service (local, county or national) and then attend a compulsory four-month course of training as hygienists. This course is organized by the Postgraduate Medical School, the body which compiles the curriculum. At the end of the course, students take an examination.

After four years spent in the public health service, public health officers (hygienists, epidemiologists) may take specialist examinations.

Every four to five years, physicians engaged in the public health epidemiological network attend special compulsory post-graduate courses. These are organized, in conjunction with the Ministry of Health, by the Postgraduate Medical School.

The public health epidemiological officers perform all the activities listed in Annex I to the 1978 report.^a In addition, they enforce official regulations and maintain contact with the appropriate authorities.

Public health epidemiological controllers assist public health epidemiological officers (hygienists, epidemiologists) in their work. They carry out control activities, prepare reports, etc. Their training lasts three years and takes place at the College of Health, following matriculation.

After their studies they are employed in the public health service (local, county and national), or in factories. Every five to seven years they attend compulsory training courses organized by the College of Health.

Netherlands

Environmental health inspectors working at the central government level are located either at the Ministry of Health and

^a See: WHO Regional Office for Europe. *Role, functions and training requirements of environmental health officers (sanitarians) in Europe: report on a consultation.* Copenhagen, 1978 (ICP/BSM 004).

Environmental Protection or in regional inspectorates. They are generally recruited as university graduates in biochemistry, chemistry, biology, microbiology and chemical engineering. These courses last at least six years.

Environmental health inspectors are assisted by technical engineers (four years technical school training). Persons with university or technical qualifications are also employed at provincial or municipal level. The emphasis in the national inspectorates and in the Ministry is on university-trained scientists; while at the provincial and municipal levels the emphasis is on the technical engineers.

At some universities and technical schools there are special training programmes in environmental science and environmental hygiene.

Postgraduate training courses in specific environmental subjects are available at various universities, and technical schools provide refresher courses.

The Ministry of Health and Environmental Protection organizes annually a special training course on general environmental protection for the new graduates and for technically trained personnel.

Food hygiene is the responsibility of a special inspectorate of the Ministry of Health and Environmental Protection.

Spain

Environmental health administration is the responsibility of physicians, pharmacists and veterinarians, whose university studies last five to six years and lead to a Master's degree. These three professional categories within the administration require membership of the corresponding professional society; the entrance examination and number of vacancies being determined periodically by the Ministry of Public Health and Social Security. The public sector employs staff in these and many other categories in the scientific and engineering fields.

Until very recently sanitary engineering was not specifically included in the university curricula. Some schools of civil engineering have now included this field in their study programmes, and an Environmental Engineering Institute has been set up. This Institute started operating in 1979, providing two to three years of post-graduate education in the environmental engineering field to students already possessing a Master's degree in science or engineering.

The National School of Public Health has organized for 1980 a full-time course leading to the diploma of *Agente Sanitario*. The course will provide environmental health training for assistant personnel at present working in environmental health services throughout the country. The course programme follows basically that established by WHO consultants in 1975 during a pilot course experiment. Secondary education is required for participation in the course.

Sweden

Public health inspectors

The course of studies in hygiene and environmental control at the University of Umeå lasts three years and provides professional training for public health inspectors in local government, central government departments or in industry.

The first year embraces natural sciences and social science. This includes biology, chemistry, physics, hygiene, geology, energy, ecology, etc. Administrative law, central and local government, administrative processes, and economic and physical resource planning are included.

The second year courses relate to specific environmental health subjects and project work.

In the third year there are studies in social planning, an optional advanced course in a selected subject, and practical training with local and regional authorities.

The university degree course in environmental health was established in January 1977; previously a certificate qualification was the method of entry to the profession.

United Kingdom (England and Wales)

Environmental health officers

There are two recognized qualifications: the Diploma in Environmental Health of the Environmental Health Officers Education Board and the Bachelor of Science degree in environmental health awarded by certain universities and polytechnics. In both cases the training syllabus and arrangements are approved by the Education Board.

A standard of education equivalent to university entrance level is necessary for admission to the diploma training scheme.

Training is full-time and covers a period of three to four years. Part of the training is in college and the rest is practical training provided by the local authorities and their officers. Every student is examined each year and is not allowed to proceed to the next part of the course if he has not made satisfactory progress.

At the end of their training students sit the Board's final examination, which is in five parts, comprising five three-hour written papers, an oral examination, a practical examination in meat and other food inspection together with the submission of a project study on an environmental health subject.

Currently there are 1006 students in training, of whom 331 are undergraduates studying for B.Sc. degrees. Ten educational establishments offer courses for the diploma and six universities and polytechnics provide courses for the degree. The ultimate aim is for entry to the profession to be by degree.

The syllabuses cover all aspects of environmental health activities.

USSR

In the USSR a special category of professional, the "sanitary doctor", has responsibility for environmental health. The post is based on the "sanitary station" and forms part of the public health service system.

To receive the diploma of sanitary doctor, candidates must undergo six years of training at a "sanitary-hygienic" faculty of a medical institute (university equivalent). Training covers the basic natural sciences (physics, chemistry, biology, etc.), medicine and environmental health (environmental quality management, health aspects of sanitary engineering and technology, etc.).

A special system of postgraduate education exists and continual updating of environmental health education follows. There are three principal stages of postgraduate education: specialization, advanced courses and advanced courses in special subjects.

Specialization (four months) and advanced courses (three months) are intended for training in different fields of hygiene: communal hygiene, occupational hygiene, food hygiene and radiation hygiene. Advanced courses in special subjects include, for

example, communal hygiene, hygiene of air, water or soil, housing and town planning. Such courses last from one to two-and-a-half months.

Each sanitary doctor must undergo specialization after three years of practical work, and take advanced courses after five years and after each subsequent five-year period of professional work. Advanced courses in special subjects are followed in addition to advanced courses, depending on local problems.

Yugoslavia

While in some fields of environmental health expert manpower is readily available, in others it is scarce. There is a lack of "general environmentalists" to be in charge of the surveillance of environmental health hazards, including monitoring and health education of the public.

At the postgraduate level new programmes have been developed. It is envisaged that every candidate will hold a degree in engineering, chemistry, physics, medicine or veterinary medicine. The programme, covering a wide range of environmental health subjects, is designed to lead to a diploma after two and a Master's degree after four semesters. There is an emphasis on practical aspects of the work.

A three-year postgraduate specialization programme leading to the degree of specialist in environmental health has been developed and is equivalent to specialization in any other recognized branch of clinical medicine or public health.

At undergraduate level a curriculum for food health engineers has been developed. This course lasts four years.

A two-year programme of training for sanitary technicians is provided.

Annex II

LIAISON BETWEEN THE ENVIRONMENTAL HEALTH OFFICER AND OTHER PROFESSIONALS IN SPECIFIC ACTIVITIES

1. *Water quality management*

Civil/building/sanitary engineers

Public health laboratory: chemist, microbiologist, biologist, technicians

2. *Food safety*

Veterinarians

Chemists

Food technologists

Process engineers

Public health laboratory: chemist, microbiologist, biologist, technicians

3. *Waste management*

Civil/sanitary engineers

Public health laboratory: chemist, microbiologist, biologist, technicians

4. *Principles of urban and regional planning*

Building/design/sanitary engineers

Architects and planners

5. *Air quality management*

Meteorologists

Chemists and physicists

Engineers in various professional groups

Physicians

Statisticians

6. *Control of noise and other physical factors*

Physicists

Engineers in various professional groups

7. *Radiation and chemical hazards*

Physicists

Physicians

Chemists

Engineers

8. *Epidemiology*

Physicians

Toxicologists

Public health laboratory: chemist, microbiologist, biologist,
technicians

9. *Occupational health*

Physicians

Security/safety engineers

Sanitary and other engineers

10. *Environmental health education*

Teaching professionals

Sociologists

Physicians

Professors active in public relations

Annex III

LIST OF PARTICIPANTS

Temporary advisers

- Professor K.A. Buštueva, Chair of Community hygiene, Central Institute for Advanced Medical Studies, Moscow, USSR
- Dr S. Dittmann, Deputy Director, State Hygiene Inspectorate, Ministry of Public Health, Berlin, German Democratic Republic
- Dr K. Grzybowski, Provincial Sanitary Inspector, Sanitary and Epidemiological Station, Katowice, Poland (*Chairman*)
- Dr F. Heuner, Head of Section, Federal Ministry for Youth, Family Affairs and Health, Bonn-Bad Godesberg, Federal Republic of Germany
- Mr M. Jouan, Sanitary Engineer, Directorate-General of Health, Ministry of Health and Social Security, Paris, France
- Mr R.A. Karlsson, Swedish Association of Local Authorities, Stockholm, Sweden
- Dr H.M. Klouwen, Head, Regional Inspectorate for Health and Environmental Protection, Groningen, Netherlands
- Dr R. Mujeriego, Sanitary Engineer, Sub-Directorate-General of Environmental Health, Madrid, Spain
- Dr Z. Skurić, Professor of Industrial Hygiene, Andrija Štampar School of Public Health, University of Zagreb, Yugoslavia
- Dr S. Takács, Director-General, Borsod County Sanepid Services, Miskolc, Hungary

Observers

- Mr R.D. Brogden, Swedish Public Health Inspectors Association, Helsingborg, Sweden (*Vice-Chairman*)

Mr J.E.G. Smith, Local Government Training Board, Luton,
United Kingdom

Mr K.J. Tyler, Secretary, Environmental Health Officers
Association, London, United Kingdom (*Rapporteur*)

World Health Organization

Regional Office for Europe

Dr N.O. Akmanoglu, Sanitary Engineer, Sanitary Engineering
Centre, Rabat

Mrs B. Blomberg, Regional Officer for the Food Safety Pro-
gramme

† Mr C. Ferrullo, Regional Officer for Environmental Health
Planning and Management (*Secretary*)

Mr E. Giroult, Regional Officer for Basic Sanitary Measures

Mr P. Jolly, Sanitary Tutor, Ankara

Dr R. Manrique de Lara, Regional Officer for Fellowships-
Promotion of Training

Mr J.I. Waddington, Director, Promotion of Environmental
Health

Headquarters

Mr R.F. Davies, Scientist, Environmental Health Criteria and
Standards

