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OVERVIEW OF THE ENVIRONMENT AND HEALTH IN EUROPE IN THE 1990s

Cover illustration by Joanna Orlicka, 10 years old, Czaniec, Poland.
Her school participates in the European Network of Health Promoting Schools, a joint project of the European Commission,
the Council of Europe and the WHO Regional Office for Europe.

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Executive summary

WHO's European Region stretches from Greenland to the Pacific shores of the Russian Federation. With 870 million people in 51 countries, it is a complex national and international matrix of social, economic and political concerns. Nevertheless, a number of environment and health issues have emerged as common concerns across Europe.

These common concerns were highlighted at the Second European Conference on Environment and Health, held in Helsinki in June 1994. Based on a comprehensive assessment entitled *Concern for Europe's Tomorrow*,¹ ministers of health and of the environment identified the environment and health issues that were of particular common concern, as they had serious consequences in terms of unsatisfactory living, working and recreational environments for the health and wellbeing of large numbers of people in Europe. The Declaration on Action for Environment and Health in Europe, endorsed by ministers in Helsinki, outlined these priority areas: contaminated food and water; ambient and indoor air pollution; urban health; ecology and health; the consequences of armed hostilities; occupational health; and death and injuries from all forms of accident, including nuclear emergencies.

To address these priorities, the ministers endorsed the Environmental Health² Action Plan for Europe and committed their respective health and environment departments to developing joint national environmental health action plans (NEHAPs) to tackle these problems. The ministers agreed to meet again in 1999 to review the progress made in preventing, controlling and ameliorating environmental factors that adversely affect human health, especially by implementing the Environmental Health Action Plan for Europe.

In following up the ministers' request, this overview presents an objective, comprehensive analysis of environment and health in Europe in the 1990s and of the action undertaken to improve it. It provides the basis for policy-makers to evaluate the effectiveness of the programmes initiated to tackle the major environmental hazards to health in Europe in the 1990s, to examine the role of international organizations in promoting and implementing these programmes and to advise on how international activities can be best coordinated.

The first part of this document focuses on the burden of environmentally related illness. It examines the most recent available data for selected indicators of health status and the main approaches to quantifying the links between health status and environmental factors. The second part analyses the priority environment and health issues identified at the Helsinki Conference. The third part looks at the development of NEHAPs and at how they have brought together a wide range of partners to initiate action to address the priority issues identified.

¹ WHO EUROPEAN CENTRE FOR ENVIRONMENT AND HEALTH. *Concern for Europe's Tomorrow. Health and environment in the WHO European Region*. Stuttgart, Wissenschaftliche Verlagsgesellschaft, 1995.

WHO EUROPEAN CENTRE FOR ENVIRONMENT AND HEALTH. *Concern for Europe's Tomorrow. Health and environment in the WHO European Region. Summary*. Copenhagen, WHO Regional Office for Europe, 1994 (WHO Regional Publications, European Series, No. 53).

² "'Environmental health', as used by the WHO Regional Office for Europe, includes both the direct pathological effects of chemicals, radiation and some biological agents, and the effects (often indirect) on health and wellbeing of the broad physical, psychological, social and aesthetic environment, which includes housing, urban development, land use and transport." Source: *Environment and health: the European charter and commentary*. Copenhagen, WHO Regional Office for Europe, 1990, p. 18 (WHO Regional Publications, European Series, No. 35).

Health status and its relationship to environmental factors

1. In the European Region as a whole, the proportion of the population aged 65 years and over increased by 9% and the proportion aged 0–14 years decreased by 6% from 1990 to 1995. In many countries of central and eastern Europe (CCEE) and the newly independent states (NIS), socioeconomic indicators such as unemployment, inflation and gross domestic product reflected associated undesired changes in wellbeing in the 1990s. According to the *Human development report 1997*,³ the number of poor people in the countries of central Europe and the newly independent states increased from about 15 million at the start of the 1990s to about 120 million. An important marker of inequality in health is the gradient of health indicators across socioeconomic levels. The factors leading to such differences include elements of a broadly defined environment, such as exposure to poor living conditions (especially in childhood), work-related exposure to health hazards, exposure to stress and unhealthy behaviour.
2. Life expectancy in the European Region slowly but steadily increased until the beginning of the 1990s, when a sharp decline in the NIS also caused the regional average for life expectancy at birth to decline somewhat. As life expectancy in the NIS began to increase again in 1995, the regional average also started to increase again from 1995.
3. Infant mortality declined continuously in practically all parts of the Region from 1990 to 1995, but there were still vast differences between countries. Compared with the levels in countries that are members of the European Union (EU), infant mortality was more than twice as high in the CCEE and more than three times as high in the NIS. Among the various factors affecting infant mortality, insufficient access to safe drinking-water is still an important risk factor in a large part of the Region. Indoor and ambient air pollution has also contributed to an increased risk of acute respiratory illnesses and mortality among young children.
4. Cardiovascular diseases remain the most common cause of death in Europe (49%), with malignant neoplasms (18%) in second place. For both groups of diseases, environmental tobacco smoke is an important environmental risk factor, affecting wide populations in Europe. Mortality from cardiovascular diseases is also related to ambient air pollution. Between 2% and 5% of lung cancer cases can be attributed to radon accumulating indoors.
5. Injuries and poisoning were responsible for 10% of mortality at all ages in the mid-1990s, an increase from 8% in 1990.
6. Diseases of the respiratory system cause 6% of all deaths; for the Region as a whole, that proportion was roughly the same in 1995 as in 1990. Tobacco smoking is contributing to the high and rising mortality rates in the NIS. Asthma, allergy and other forms of respiratory sensitivity have increased in prevalence in many countries in western Europe. These diseases are potentially linked with environmental conditions. The high prevalence among children is of special concern.
7. In the first half of the 1990s, a number of communicable diseases re-emerged in the European Region, mainly in the NIS. Although communicable diseases accounted for only 1.3% of all deaths in the Region in this period, the mortality rates were four times higher in the NIS than in the rest of Europe. About half the communicable disease mortality in this period was

³ UNITED NATIONS DEVELOPMENT PROGRAMME. *Human development report 1997*. Oxford, Oxford University Press, 1997.

caused by tuberculosis. Insufficient access to safe drinking-water, poor food hygiene, inadequate housing and contamination of indoor air with microorganisms contribute to the disease burden.

8. Changes in the composition of the atmosphere that can be ascribed to human influence have included the accumulation of greenhouse gases, ozone depletion and air pollution. While there are local differences, the average temperature in Europe has increased by 0.8°C since 1990. Greater precipitation has been documented in the northern half of Europe, with increases ranging from 10% to 50%. In an area stretching from the Mediterranean through central Europe into the European part of the Russian Federation and Ukraine, by contrast, precipitation has decreased by as much as 20%. Above Europe, the amount of ozone in the stratosphere declined by 5% between 1975 and 1995, allowing more ultraviolet B radiation to enter the lower atmosphere and reach the Earth's surface. The total ozone over the North Pole fell to 40% below the normal level in March 1997. The health impact of climate change, when linked to ecological processes, is complex.

Discussion

9. Since the beginning of the 1990s, several health status indicators have changed significantly, especially in the parts of Europe undergoing the most rapid economic and political restructuring. A complex relationship between social, economic, lifestyle and health care factors has played a dominant role in determining these trends. The available health data do not clearly indicate the health effects of physical, chemical and microbial factors in the environment. Nevertheless, the inequality in health between the various social strata is often correlated with environmental conditions, and the widespread exposure to hazardous factors justifies the concern that environmental factors contribute to the inequality in health.

10. Improving data availability is a critical determinant of the ability to estimate and compare the disease burden caused by environmental factors and of the reliability of any assessment made. Although monitoring and assessment cannot replace action and policies aimed directly at improving environmental health conditions, they should be an intrinsic part of such programmes, focusing action on the priority issues and evaluating the effectiveness of the programmes carried out. WHO, both in the European Region and at the global level, is developing guidelines and other methodological material to help countries improve and harmonize their capability for environmental health impact assessment.

11. The links between climate change and human health are still very poorly understood. Collecting empirical data and developing methods of integrating predictive health impact assessment and new environmental bioindicators will be on the future research agenda in this field. Other necessary government action to mitigate the health effects of climate change may include making more effective use of weather and climate forecasting systems to alert the general public and health authorities; improving the surveillance of relevant diseases, in order to detect significant changes and orient public health responses; and providing the public with information about the behaviour they can adopt to prevent some of the adverse health effects.

12. The global environmental changes, including climate change in Europe, that are escalating because of human economic activity may also be responsible for triggering some of the effects on human health.

Challenges for the environment and health

Food safety

13. Salmonellosis has remained the most important foodborne disease in the period under consideration, although the number of reported cases of campylobacteriosis has been rising and in some countries exceeds that of salmonellosis. Trichinosis remains a significant cause of parasitic outbreaks in some countries.

14. Outbreaks of disease caused by chemical substances are rare, apart from intoxication caused by consuming poisonous fungi. In some CCEE and NIS with a tradition of collecting and consuming wild mushrooms, the death toll from mushroom poisoning reaches hundreds of people each year.

15. Up to March 1996, ten cases of a new variant of Creutzfeldt-Jakob disease had been reported in the United Kingdom, linked to exposure to the agent of bovine spongiform encephalopathy in meat products. Cases of bovine spongiform encephalopathy have declined since 1993, and the epidemic of bovine spongiform encephalopathy is expected to disappear in the United Kingdom by the year 2001.

16. Chemical food contamination in western Europe is thought to have been minimal in recent years, especially in the countries in which a small number of supermarket chains supply standardized food. In the CCEE, food contamination arises largely from industrial contamination of air, water and soil. In general, national data on pesticide residues in studies of the total diet show that the calculated intake levels are very low. However, most of the CCEE and NIS do not have extensive data sets.

17. With the exception of radioactivity related to the Chernobyl release in 1986, the levels of radioactivity in foodstuffs, from either natural or human sources, have not posed a hazard to health.

18. The Hazard Analysis and Critical Control Point (HACCP) system is a scientific and systematic approach to identifying, assessing and controlling hazards during the production, processing, manufacturing, preparation and use of food, to ensure that it does not present an unacceptable risk to health. The system has been promoted throughout Europe, and in some countries food control agencies have required the food industry to use HACCP-based systems.

19. The Global Environment Monitoring System – Food Contamination Monitoring and Assessment Programme (GEMS/Food) is the only international source of health-oriented, population-based information on human exposure to potentially hazardous chemicals in food. In 1992, GEMS/Food-EURO was established to reflect the specific needs and priorities of countries in the European Region. In 1993, the European Council unanimously adopted directive 93/43/EEC on the hygiene of foodstuffs, which has been fully implemented in the EU countries.

Discussion

20. With some exceptions in the CCEE and NIS, where nutritional issues and chemical contamination are also of concern, microbial contamination continues to be a major problem in the Region. Despite recent initiatives, the incidence of foodborne diseases has continued to increase. This is related to a number of complex factors.

- The mass production and distribution of the food supply system have led not only to opportunities for contamination but also to larger outbreaks. Intensive agriculture and animal husbandry practices have led to increased contamination of raw foodstuffs and increased use of pesticides and veterinary drugs. Potentially contaminated food is internationally traded and imported. Longer food chains as a result of urbanization offer greater opportunities for contamination and for the growth and survival of contaminants. The number of food service establishments in which food handlers do not necessarily have any training in food hygiene has increased rapidly.
- The health and demographic situation is marked by such features as: population growth; an increase in the number of vulnerable people, such as elderly people, immunocompromised individuals, and malnourished people; and rapid urbanization, in some areas without the necessary infrastructure.
- Concerning people's social situation, behaviour and lifestyles, there is evidence of increased consumption of food outside the home, increased travel and exposure to unsafe food, changes in food preparation habits, poverty and lack of education, lack of time, striving to increase economic profit, and lack of training and education of food handlers.
- In public health systems and infrastructure, a decrease in resources has been accompanied by a simultaneous increase in the number of businesses that require supervision, guidance and control. Weaknesses in the surveillance and investigation of foodborne diseases and the monitoring of contaminants are leading to an inability to evaluate the impact of food safety measures.
- Environmental conditions include pollution, climatic conditions and changes and changes in microbial and ecological systems.

Water for health

21. Many parts of the European Region are well endowed with freshwater resources, but shortage of water may be the most urgent environmental problem some countries face. Throughout the 1990s, the CCEE and NIS have been especially severely affected, suffering from a significant period of reduced investment in water supply in addition to organizational disruption.

22. Extensive areas of Europe have experienced extreme floods and droughts in the 1990s, and changes in climatic conditions and land use have increased the potential for further flooding.

23. Problems of microbial quality and occasional outbreaks of waterborne diseases have been reported across the Region, even from countries with high standards of supply. Systems for detecting waterborne disease are generally poor, and in practice only the larger outbreaks have been detected. Microbial pollution is especially prevalent in small supply systems and those with intermittent service. Private supplies may not have been subject to such stringent standards as public supplies.

24. The proportion of the population connected to public water supplies varies throughout the countries in the Region as well as between different areas of the same country. In most countries in the European Region, 90% of the urban population have a home connection to drinking-water, but less than 75% of the urban population is connected in a few countries. Logistical difficulties and increased cost mean that rural populations are less likely to receive piped water and have house connections.

25. In isolated situations, chemicals in drinking-water (including nitrate, lead, arsenic, fluoride, pesticides and chlorinated hydrocarbons) have been a cause of concern. Increasing pollution from chemicals used in agriculture, especially nitrates and phosphates in surface water and groundwater, is also a significant problem.

26. Data on the microbial quality of recreational waters are collected in some countries, but the quality of such data is severely limited. Microbial contamination of bathing waters, mostly in the Mediterranean, is responsible for an estimated two million or more cases of gastrointestinal disease annually.

27. Eutrophication is reported to be widespread in Europe's seas and fresh water; this affects fish stocks as well as human health and recreational use. Except for rivers in the Nordic countries, 68% of sites surveyed in all European rivers had an average nitrate concentration greater than 1 mg/litre between 1992 and 1996. The main source of nitrate is generally diffuse pollution from agriculture. Since the 1970s the concentration of organic pollution has been generally reduced and the oxygen concentration increased, especially in the previously most impacted rivers.

28. The aquaculture industry has expanded in both fresh and coastal bodies of water, raising concerns about water pollution. Agricultural water use, mainly for irrigation and livestock, has increased in most European countries, giving rise to concern about imbalances between supply and demand and the degradation of water resources. Experience shows that wastewater may safely be used for irrigation provided that modest precautions are taken.

29. Recognized water management policies and trends include:

- the reaffirmation of the importance of drinking-water supply and sanitation for human health;
- an emphasis on holistic approaches requiring intersectoral coordination, reconciliation of competing uses and catchment-level management;
- recognition of the importance of securing stakeholder participation and providing a role for nongovernmental organizations and civil society;
- an emphasis on the need to protect and conserve the aquatic environment upon which multiple beneficial uses depend; and
- the call for increased international cooperation and coordination.

Discussion

30. Emphasis on microbial quality has been renewed in the 1990s, and previously unrecognized and re-emerging microbial and other hazards have been acknowledged. Some countries have improved access to adequate supplies of safe drinking-water and improved pollution control, but additional efforts are still required to sustain Europe's water resources.

31. The major changes in administrative arrangements that have affected many countries in the Region in the 1990s have also influenced the changes in the pattern and intensity of industrial and agricultural activity. These changes, in turn, have changed the polluting inputs and disrupted water supply, sanitation services, pollution control and activities related to public health surveillance.

32. Preparation for and response to both floods and drought in the future should be based on integrated studies of physical and social conditions using climatic, hydrological and economic models. Epidemiological research is required to determine the medium- and long-term effects of floods and drought on health.

33. In emergency situations, technical guidance on water management is needed as well as studies to help with short-term decision-making. Information provided to the public should include guidance on water conservation practices and should encourage constructive action by individuals and communities.

34. Integrated management systems must be adopted for marine and fresh recreational waters, to manage these two systems effectively in a way that ensures their safe use.

Ambient and indoor air quality

35. Improvements in epidemiological research in the 1990s have revealed that human health may be affected by exposure to much lower levels of some common air pollutants than previously believed. Although eliminating the pollutants may not be feasible in the near future, air quality management should attempt to minimize the risk. This is a major conceptual development that became apparent in the mid-1990s. Another important development during the period under review was the recognition of the significance to health of respirable particulate matter.

36. In terms of the absolute number of people affected, long-term exposure to suspended particulate matter was the most detrimental type of air pollution affecting health in Europe in the mid-1990s. Although the basis of quantitative estimates is still uncertain, it is likely that between 100 000 and 400 000 people each year die prematurely by more than 1 year as a result of exposure to ambient air pollution in Europe. Indoor exposure to environmental tobacco smoke and to radon is associated with several thousand cases of lung cancer and other severe illnesses per year.

37. Action to improve air quality, and in this way to improve people's health, starts by recognizing the pollutants and pollution sources that contribute most to population exposure. The foundation for improving public health here is laid by risk assessment of air pollution and by legislation based on relevant scientific information. Internationally, there is substantial cooperation on activities related to ambient air quality, and several important agreements are gradually being implemented.

38. No single strategy on indoor air quality has been applied throughout the Region. The involvement of health and environmental authorities is often limited, and most countries do not have specific legislation on indoor air quality. Evidence is accumulating of the severe effect of environmental tobacco smoke on children, a matter of particular concern for indoor air quality.

Discussion

39. Data on air quality in Europe indicate that population exposure to sulfur dioxide and lead declined substantially in the early 1990s and that these air pollutants have remained of concern in a limited number of cities in the Region. However, the levels and trends of pollution with respirable particulate matter are still of concern, and the ambient levels of nitrogen dioxide and ozone have not improved. The health effects of common air pollutants occur at various

concentration levels, including those considered low. Strategies for reducing exposure must not therefore be limited to eliminating extreme cases of high pollution; instead, they should aim at decreasing average exposure levels among the entire population.

40. A considerable proportion of the exposure to ambient air pollution and of the related health effects occurs in urbanized areas of Europe, mainly from emissions from motor vehicle transport. Improving the urban infrastructure and reducing transport-related emissions are therefore priority areas for action to reduce the health effects of ambient air pollution in cities.

41. Indoor air quality affects the entire population, including residents of rural areas. Improving indoor air quality may require countrywide strategies, although the specific features of the urban and rural environments should be considered. The materials selected for building construction and furnishings, as well as the consumer products used indoors, should not adversely affect indoor air quality. Reducing the health risks related to indoor air pollution requires that occupants modify their lifestyles (such as in relation to tobacco smoking).

42. Estimates of health effects are often based on very uncertain assumptions: both population exposure patterns and the shape and magnitude of the exposure–response relationships. The estimates of population exposure must be improved by more reliable and relevant modelling and monitoring of air quality. Assessment of population exposure might be improved significantly by making existing air quality data more readily accessible. This must be done not only for the purpose of carrying out a Europe-wide assessment but also to optimize national and local strategies for reducing pollution. Better exchange of information is also important in assessing the effectiveness of local and regional measures to improve air quality. Assessing population exposure to hazards in indoor air requires a different approach, including household surveys.

43. Focused research is needed to improve understanding of the exposure–response relationship. Such action has been initiated on the health effects of particulate in air and on selected aspects of indoor air quality by the European programme on environmental health research priorities. The European Science Foundation is carrying out this programme in collaboration with the European Commission and WHO, in accordance with the recommendations of the Helsinki Declaration on Action for Environment and Health in Europe.

Accidents to individuals and technological (chemical and nuclear) accidents

44. Different sectors need to cooperate and different kinds of disciplines, knowledge, skills and attitudes need to be integrated to address the underlying causes of accidents and to contribute to designing strategies and policies aimed at preventing accidents. The sectors involved include health, the environment, land-use planning, energy, education, transport, industry and consumer safety.

45. Deaths and injuries caused by road traffic accidents remain a high-priority issue in the Region. Despite some improvements in mortality trends, 120 000 deaths and 2.5 million injuries were reported in 1995, with indications that the number of road accidents was increasing. A recent development in tackling the problem of road safety is the increasing awareness that strategies aimed at improving safety should be integrated with those aimed at improving the environment.

46. Quantifying the magnitude of home and leisure accidents in the Region as a whole remains a challenge because reporting systems, definitions and data availability vary. Personal injuries are an important problem, estimated to affect between 2.5 and 15 people per 100 population per year in the EU. Children younger than 10 years of age are at higher risk than other age groups. Both the Healthy Cities and the Safe Community networks are actively engaged in promoting accident and injury prevention, especially among children and other vulnerable groups. Policies aimed at improving the safety of dwellings and of consumer products and initiatives in local communities are the key developments in preventing home and leisure accidents.

47. The accidental release of chemicals in the past and the potential for future chemical incidents are a cause of public concern that have warranted the development of response capability by environmental and health authorities. The objective has been to strengthen national capability to prevent and respond to chemical incidents by improving cooperation between the national institutions involved, including those responsible for health care and public health services.

48. Prudent concern for the safety and wellbeing of the European population requires competently designed and adequately staffed national and international preparedness and response arrangements in the event of a nuclear emergency. Accidents related to radiation, especially if they involve the uncontrolled release of radioactivity to the environment, form a special category of accident for which the public's trust and confidence in the responsible authorities are of paramount importance. The specific role of WHO within the United Nations family of organizations is to focus on issues relevant to health professionals and health authorities in Member States. In the light of this, WHO has established networks of national radiation safety institutions to generate and circulate the necessary information.

Discussion

49. The progress achieved by most countries in reducing deaths from road accidents does not appear to be accompanied by a decreasing number of accidents. This indicates that the approach to road safety that is broadly used (consisting of reducing the likelihood, severity and late effects of traffic accidents) is not sufficient to reduce the number of people involved in traffic accidents.

50. New opportunities may be offered by developing the concept of upstream safety strategies directed at the underlying forces that give rise to road accidents, such as managing the demand and need for transport and understanding the reasons behind increased mobility. Notably, many of the interventions that could be considered, such as changing the relative distribution of different modes of transport and promoting accessibility rather than mobility, overlap with the strategies being worked out to address other transport-related environmental concerns such as air pollution, noise and congestion.

51. There are still major shortcomings in the quality and quantity of data available on mortality and morbidity caused by accidents and injuries. The new classification of external causes of death being drawn up by WHO and the creation by the EU of new databases on road traffic accidents are helping to improve the current situation. Additional efforts need to be made to improve the collection and monitoring of data on home and leisure accidents and to make indicators of exposure to the negative environmental effects of transport more available.

52. One area of concern is the increasing east-west gap in the availability of information on accidental injury. Western European countries are developing better information systems, whereas other countries are lagging behind.

53. Effective emergency plans to respond to chemical incidents are crucially important to mitigate the damage to public health and the environment. Most countries in western Europe and most CCEE and NIS have emergency plans in place, but all the parties involved need to coordinate and integrate their activities. Collaboration between international organizations working towards the safe management of chemicals continues to be important, in order to provide guidance on this integrated approach and to strengthen national capability and capacity.

54. Future emergency preparedness and response measures could include:

- developing a register of chemical incidents in the CCEE and NIS;
- continuing international collaboration to effectively address the development of integrated emergency-response plans;
- training and educating public health and health care professionals, especially in the CCEE and NIS;
- preparing training materials focused on the participation of public health and health care authorities and personnel; and
- providing access to computerized databases for data retrieval and training purposes.

55. Past experience, mainly from Chernobyl, indicates the multidimensional nature of nuclear emergencies and thus the need for partnership between many agencies to address effectively the consequences of an emergency and retain the trust and confidence of the public. Such partnership must exist at all levels of preparedness and response, from the local level (operators of facilities and local authorities, including police, fire, health and other services), through the national level (where ultimate responsibility for protecting the population lies) to the international level.

Human settlements

56. Health in human settlements refers to all the dimensions of the wellbeing, illness and injury of a population that are influenced or determined by the ecological, biochemical, physical, geographical and social components of settlements and the surrounding countryside. The number of neighbourhoods in cities in the European Region with compound environmental, economic, health and other social problems has increased since 1989.

57. The proportion of the population living in urban areas in the European Region has continued to increase, largely owing to migration. In the year 2000, about 80% of the total population of the European Region will be urban. Many large cities now show indications of environmental stress, including high noise levels in residential areas, increasing levels of homelessness, greater waste generation and traffic congestion. However, the air quality of some cities has improved in the 1990s.

58. Societal trends in European countries related to households and housing conditions include the steady disintegration of extended and nuclear families. An increasing number of elderly people live alone, and the number of single-parent households is growing. Homelessness has

increased, and national authorities are recognizing it as a problem. Adolescents, single people, single parents and unemployed people are disproportionately affected. The causes of these trends are complex but are related to unemployment and the growing share of the workforce receiving low wages.

59. Europeans spend an average of about 80% of their time indoors, and inadequate housing and buildings can contribute to illness in many ways. Data on housing size and occupancy conditions in the CCEE and NIS indicate a housing deficit, and homelessness increased in the Region as a whole.

60. Noise has become a concern for increasing numbers of national authorities during the past decade. The main sources of acoustic nuisances are road, rail and air transport, recreational activities and industry, but people also complain more about noise from their neighbours.

61. Municipal and national authorities are increasingly concerned about the growing volume of wastes. Most worrying are concerns about the proper disposal of hazardous wastes and the lack of investment in and consequent deterioration of waste management facilities and services in the NIS.

62. The WHO Healthy Cities project and the European Commission Expert Group on the Urban Environment have proved to be effective in helping national and local leaders to view the problems of human settlements in an integrated manner.

Discussion

63. It has been increasingly recognized during the 1990s that data on human settlements in the European Region are incomplete and that comparing countries and cities is difficult because the statistics are incompatible. The sectors in which greater efforts need to be made to overcome the missing-information syndrome include homelessness, mental health, noise and the generation, collection and disposal of waste. In relation to urban health, noise is a commonly cited problem, homelessness is a high priority for about 30% of all Member States and waste collection and treatment pose environmental and health problems in the CCEE and NIS.

64. Policy-makers rely heavily on legislation, technology and fiscal instruments to instigate remedial measures. Much attention is focused on taxes and fiscal incentives to encourage change. Innovative technologies are being advocated to reduce end-of-pipe emissions and solid-waste disposal. In addition, laws and regulations have been enacted and standards set in many European countries. Nevertheless, despite good intentions, a growing body of evidence indicates that, unless these means and measures are complemented by others based on public education, communication and citizen participation, they do not achieve the stated policy goals and objectives.

65. The roles and responsibilities of the public, private, formal and informal sectors need to be understood and then put to good effect in determining and carrying out policies at the local level. Moreover, questions related to the rights and societal responsibilities of individual people and to short- and long-term planning perspectives and their intended and unintended consequences ought to be addressed. Strategic and systematic communication and information transfer need to be regarded as effective policy instruments that can be used in a complementary way with others, such as effectively collecting and using data.

66. A systematic approach to environmental education, communication and information transfer can bridge the gaps between professionals, policy-makers and citizens. In addition, formal education programmes for schoolchildren can be coupled in a complementary way with information addressed to the wider public to improve knowledge, raise awareness, question attitudes and lead to voluntary changes in the behaviour of individuals, households and firms.

Occupational health

67. During the 1990s, awareness has been growing that reorienting occupational health services can help greatly in achieving the objectives of national health and environmental strategies. The health of the workforce is a result of all occupational and non-occupational health determinants. Further, control of environmental pollutants and hazards in the workplace benefits both workers and the quality of the ambient environment.

68. In 1995, the Joint International Labour Organization/WHO Committee on Occupational Health revised the definition of occupational health to focus on three different objectives:

- maintaining and promoting workers' health and working capacity;
- improving the working environment and work to become conducive to safety and health; and
- developing work organization and working cultures in a direction that supports health and safety at work and, in so doing, also promotes a positive social climate and smooth operation and may enhance the productivity of an undertaking.

69. In the 1990s, many European countries have made considerable conceptual, political, legislative and practical progress in occupational health. However, the health and safety status of employees has worsened in some countries, mainly the NIS and some CCEE.

70. The composition of the labour force has changed, with increased proportions of elderly people, young people, disabled people and women. Part-time jobs, telework and temporary contracts have gained prominence. Migrant workers tend to be selected for more hazardous jobs than other workers, and it has been recognized that they may bring with them health problems from previous exposure. Vulnerable groups should receive sufficient support to allow them to continue working, to maintain or improve their working ability and to fulfil their social role (such as exercising their reproductive rights). Special attention also needs to be paid to employees of small and medium-sized enterprises, where there is less investment in occupational health.

71. Risk factors related to work organization are contributing more and more to the deterioration of employees' health, although physical, chemical and biological health hazards are still present in many workplaces. Psychosocial stress problems and musculoskeletal disorders are the most important occupational health issues. Significant risk factors include violence at work, excessive physical load and repetitive movement, noise, mental factors (such as the pace of work), exposure to chemicals and biological factors (such as infectious occupational diseases). Lifestyle factors (such as smoking and physical inactivity) are also important determinants of workers' health and ability to work..

72. About 3% of the total annual burden of disease is caused by preventable injuries and deaths in high-risk occupations and by chronic illness caused by exposure to toxic chemicals, noise,

stress and physically debilitating work patterns. An estimated 30% of total deaths and 30% of the total loss of disability-adjusted life years in the European Region are related to environmental and lifestyle factors that might be controlled or influenced through health protection and promotion activities at the workplace.

73. The economic losses from occupational accidents in some European countries are estimated to comprise 3–5% of the gross national product. Measures should be taken to preclude the existing possibility of externalizing the costs of work-related and workplace-preventable ill health by transferring them to society through social insurance schemes or national health care systems. Internalization of health protection and promotion costs at the workplace is more efficient and compatible with sustainable development.

Discussion

74. The workplace is one of the most important settings for protecting and promoting health and safety, especially since an increasing proportion of the population participates in formal and informal employment. Work and the work environment determine a large proportion of the quality of life in general. The working environment is also one of the most important settings for preventing pollution of the ambient environment. A key to sustainable development is to make all those involved in enterprises aware of the value not only of continuously improving their work environment but also of reducing or avoiding pollution of the ambient environment.

75. Despite international guidance from WHO, the International Labour Organization, the European Commission and other organizations, some countries continue to perceive occupational health regulations as relating only to preventing occupational diseases and accidents or surveillance of the health of the working population. Most countries now have a great opportunity to take advantage of better managerial procedures, multidisciplinary preventive services and active employees' participation to improve the organization of work and the working culture, to maintain employees' working capacity (leading to reduced absenteeism from sickness), to increase workers' employability as a result of better occupational skills and to reduce the costs of human resource management in enterprises while increasing their productivity and sustainability.

76. In most countries, the government divides the responsibility for developing and implementing policy to promote workers' health and make the work environment healthy and safe between different ministries, most often the ministries responsible for health and for labour. Other ministries are also concerned about occupational health, including the ministries responsible for: environment (such as through issuing environmental emission licences), economics, industry and finance (through fiscal incentives, taxation policy and measures affecting the attitudes and relationships of social partners) and education (vocational education and part-time jobs for young people). Coordination of government policy on health, environment and safety management in industrial and other enterprises would help in implementing the policy and achieving desired objectives.

77. The health of older workers is becoming an essential issue. Determining how to increase the age at which people typically stop working without damaging their health or productivity has great economic implications for Europe.

78. Workplace violence is becoming a major occupational health issue. Workplace violence may cause physical and mental health injury to employees, customers or the general public and

can generate employer liability and poor publicity. For example, in 1995, the United Nations Fourth World Conference on Women, convened in Beijing, China, addressed the need to prevent violence against women as a major goal for all countries.

79. The ultimate objective of occupational health is a safe and satisfactory work environment in which a healthy, active and productive worker, free from both occupational and non-occupational diseases, can carry out his or her daily work motivated to develop both as a worker and as an individual.

Consequences of armed hostilities

80. Public services are often the first to be interrupted or lost during times of armed conflict, when normal patterns of life are disrupted. Their loss becomes acute, and eventually critical, to the environment and health when the infrastructure, comprising personnel, materials, equipment and buildings, is deliberately destroyed or denied to whole populations. During the 1990s, the European Region experienced the disastrous effects of armed conflicts and serious civil disruption in Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Croatia, Georgia, the province of Kosovo, the Russian Federation (Chechnya) and Tajikistan.

81. The main effects of armed hostilities causing misery or death include hunger, disease, dehydration, pest infestations, trauma and mental stress. All weapons cause direct physical damage, but such weapons as land mines can also have secondary effects (collateral damage) on civilian populations and the natural environment. Land mines, trip wires and booby traps also cause considerable difficulties when people try to regain access to buildings, clinics, public health centres, water pumping and treatment stations, sewerage systems and waste disposal sites.

82. Whenever assistance is provided to mitigate the risks faced by a community, the first step is to assess rapidly what is needed in terms of priorities, personnel and resources. External support agencies have three distinct phases of assistance: public health assistance during hostilities, assisting the transition to peace and ongoing post-war protection. The delivery and effectiveness of environmental and health services decline during armed conflicts. The challenge facing the international community of aid organizations and bilateral bodies is to minimize the problems as rapidly as possible in the context of the situation prevailing at the time.

Discussion

83. Agreed approaches and methods have been lacking among donor governments and other external support agencies providing assistance in environmental and health matters to communities experiencing the ravages of armed conflict in the European Region. As a result, the efficiency and effectiveness of the limited aid resources available have been impaired. Cooperative agreements among these external support agencies are most urgently needed in the following areas.

- A standardized response programme needs to focus on priority environment and health issues in each locality being served.
- A standard approach to field assessment of the environment and health situation needs to be used, especially in the initial period of intervention. A standardized format for data collection and a minimum set of criteria for assessment would greatly reduce the risk of ambiguity and incomparability of the different types of assessment performed at present by different entities. A logical extension of this standardized approach to field assessment

would be to develop the concept of a central clearinghouse in a conflict zone for matching requests for assistance with offers from donors.

- A mechanism is needed for coordinating external assistance entities that would begin to function at the outset of a humanitarian crisis. Coordination would focus on avoiding duplication and providing aid to the most severely affected localities.
- An international agreement is needed to limit increases in the destructive power of hand-held conventional weapons. In future armed conflicts, this would reduce damage to environment and health facilities and services and also reduce adverse health effects among the affected populations. This is a logical extension of the recent international agreement to eliminate land mines. A first step would be to convene an international forum to examine this initiative in greater detail.
- The deliberate targeting and destruction of health care establishments and environment and health facilities by combatants should be specified as a category of war crimes. This would reduce adverse health effects on the population in future armed hostilities.

The initiative of carrying out NEHAPs

Introduction

84. At the Second European Conference on Environment and Health in Helsinki in June 1994, ministers of health and of the environment committed themselves to developing NEHAPs no later than 1997. Most European Member States have now developed their respective NEHAPs and will be examining the basic principles, key actors and key actions involved in putting them into effect.

From declarations to action

85. To facilitate the NEHAP process, the European Environment and Health Committee established the NEHAP Task Force. The Task Force guided the NEHAP pilot project, which was launched in 1995. Based on this experience, guidance documents were developed to assist other countries in developing their NEHAPs.

86. NEHAPs have proved to be useful in achieving such political objectives as:

- reforms related to the transition to a market economy;
- social reforms, deregulation and decentralization;
- European integration;
- transforming economic sectors according to the principles of sustainable development; and
- implementing international commitments, such as environmental conventions.

87. Most of the countries in principle have followed a seven-step planning process:

- 1) government commitment to proceed
- 2) environmental health assessment
- 3) public consultation
- 4) implementation strategy
- 5) framework for planning
- 6) government position on priority actions
- 7) finalizing and adopting an action plan.

88. Almost all NEHAPs have followed the outline and approach presented in the Environmental Health Action Plan for Europe, which reflects WHO's health for all strategy, the Environmental Programme for Europe of the United Nations Economic Commission for Europe and the EU's Fifth Environmental Action Programme. All NEHAPs have been prepared as an official document of the central government and adopted either by the cabinet or by the parliament.

NEHAP implementation

89. Experience shows that: NEHAPs should be designed for step-by-step implementation; they should be based on a project approach that can be achieved and afforded and has measurable outcomes; implementation should have a target date for completion; and there should be a strategy for updating the plan if necessary to accommodate changed circumstances. Some European countries, such as the CCEE and NIS, require external financial assistance to implement their NEHAPs.

90. Participants in efforts to improve the environment and health should include:

- central government authorities;
- authorities at all levels in relevant sectors, including those concerned with agriculture, defence, education, employment, energy, finance, food, housing, industry, land use and transport;
- nongovernmental organizations, including trade associations, trade unions, professional and technical bodies, advocacy groups, consumer associations and members of the public;
- public and private businesses, both large and small;
- the mass media and public relations and information services;
- universities, research centres and scientific associations; and
- international organizations.

91. Many actors have roles to play. Central government authorities have three essential tasks: to improve policy instruments for the environment and health; to develop a strategy for implementing the NEHAP; and to manage, on a continuing basis, the framework for implementing the NEHAP. Regional and local authorities are the main actors in the practical implementation of NEHAPs.

92. The success of the NEHAP implementation programme in each country will therefore depend primarily on the extent to which regional and local authorities are mobilized to take the priority environment and health actions. The public should be seen as an important partner in implementing the national action plans, and they should enjoy every possible opportunity to become informed about the plan and to be involved in decision-making. Mobilizing the various sectors of the economy to take an active part in implementing a NEHAP is the most important task at both international and national levels. The role of international bodies and the leadership of some of the most active countries at the international and subregional levels will be decisive in building the NEHAP movement.

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