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# Environment and health performance review

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# Environment and health performance review

**Belarus**

## ABSTRACT

The present report describes and evaluates the current environment and health situation in Belarus. It evaluates the strong and weak points of the national environmental and health status and presents the recommendations of independent experts. The conclusions and recommendations are based on a detailed environment and health performance review carried out in the country. The review identified the most important environment and health problems, evaluated the public health impact of environmental exposures, and reviewed the policy and institutional framework, taking into account the institutional set-up, the policy setting and legal framework, the degree and structural functioning of intersectoral collaboration and the available tools for action.

## Keywords

ENVIRONMENTAL HEALTH  
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## Abbreviations

### *Technical terms*

DALY	disability-adjusted life year
EHPR	environment and health performance review
ENHIS	European Environment and Health Information System
kBq/m <sup>2</sup>	kilo-becquerel per square metre
NGO	nongovernmental organization
PM <sub>10</sub>	particulate matter with an aerodynamic diameter smaller than 10 microns
SSRs	sanitary standards and regulations

### *Organizations and other entities*

RCHE&PH	Republican Centre of Hygiene, Epidemiology and Public Health
RSPCH	Republican Scientific Practical Centre of Hygiene
WHO	World Health Organization

## Map of Belarus



Source: United Nations Map, No. 3776 Rev. 3, January 2004.

## Foreword

This report aims to convey a clear picture of the current environmental and health situation in Belarus. It evaluates the strong and weak points of the environmental and health status in Belarus. It also includes recommendations made by independent experts. The process of preparing the environment and health performance review began in December 2006. An initial visit to Belarus, to organize the review, took place in September 2008. It was followed by an evaluation mission in Minsk, from 17 to 21 November 2008. During this field visit, the WHO team met 65 representatives from 30 institutions in various sectors involved in environment and health. The national contributors are acknowledged in Annex 1 of the report. Most of the information summarized in this report was collected before 21 November 2008 – the last day of the mission. In a few cases, more recent data were retrieved from electronic sources or provided by national counterparts.

The draft report was then presented at a national workshop on 1 October 2009 in Minsk. The workshop discussed the environmental and health priorities for Belarus, tools for management and tools for actions. The results of the discussion were used to finalize the report.

Thanks to the efforts and support of the Ministry of Health and the Republican Scientific Practical Centre of Hygiene, the environment and health performance review for Belarus was carried out under the supervision of Valeriy Filonov. Special thanks go to Irina Zastenskaya, Environment and Health focal point, and her team, for organizing the visit, contacting all relevant sectors, providing background information and contributing their valuable time.

Particular thanks are also extended to the staff of the WHO country office and especially its head, Egor Zaitsev, who supported the preparation and implementation of the mission from its inception.

Srdan Matic  
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## Executive summary: main conclusions and recommendations

### **Main conclusions**

#### *Institutional and legal framework*

- Health and environmental health in Belarus are governed by a multilevel institutional framework. The Office of the President and two ministries have the main responsibilities, and other sectors are charged with important functions relevant to health.
- Notwithstanding the high rate of registered physicians per 100 000 population, the universal coverage of health care and well-developed environmental services – and also considering the evolving context and its implications on environmental health – the country has a strong demand for modern expertise and more skilled human resources that cover environment and health.
- Vertical, hierarchical organization structures of various sectors make effective local intersectoral collaboration on environment and health issues difficult.
- The central government finances the sanitary–epidemiological network. A substantial part of funding for the Republican Scientific Practical Centre of Hygiene, (the main research and development resource of the network), however, comes from fees charged for sanitary–hygienic certificates.

#### *Environment and health situation*

- Environmental monitoring does not indicate any risks related to specific chemical contamination. Lack of data from biomonitoring of human beings, however, does not allow confirmation of the lack of any such risks.

- The monitoring of health and the environment is very intensive and is conducted independently by a large number of institutions and services. Reporting, however, is fragmented and does not allow easy evaluation of trends and patterns of environmental health risks. Also, data are not adequate for monitoring the effects of interventions. Moreover, strategic analysis and integration of information produced by those systems is difficult.
- Access to drinking-water remains an important challenge in Belarus, particularly in rural areas. This is well recognized, and several national programmes are under way to improve the situation.
- Drinking-water delivered by the water distribution system is often below sanitary standards, despite the understanding that the quality of groundwater (the main water source) is good.
- Air quality in most residential urban areas is satisfactory, due to the segregation of air polluting industrial installations and to (still) relatively low-levels of traffic. This situation may deteriorate with increasing intensity of traffic, especially if a large share of the vehicle fleet is made up of second-hand cars and trucks.
- Lack of relevant data restricts the assessment of indoor air quality. A substantial part of child mortality due to poisoning by carbon monoxide is assumed to be attributable to malfunctioning stoves, but clear data to support this view is missing. Also, data on the frequency of dampness or mould problems in homes and public buildings are missing.
- Although competitive sports, in general, and sports among children, in particular, are a high priority and receive state support, non-competitive forms of physical activity for children and adults are less popular and underdeveloped.
- Information on exposure of the population to hazardous chemicals is missing, making assessment of the effectiveness of the chemical safety policies and programmes difficult.

- Legislation that addresses environment and health risks is quite comprehensive, but is too general and not action oriented. It is not accompanied by clearly stated targets and indicators.
- The organization and financing of environment and health services is vertical, hierarchical and resource intensive, making intersectoral collaboration, especially at the local level, difficult.
- The financing of the sanitary–epidemiological network is centralized and does not encourage improved performance and innovation.
- The human resources of state services engaged in preventing environmental health risks (both from the health and environmental sectors) are quite numerous. Every year, new specialists, trained at dedicated departments of medical universities, join the service. However, staff access to modern methods and updated knowledge is limited.
- Substantial human and institutional resources are still devoted to following up the consequences of the Chernobyl nuclear accident and health problems related to it.
- Communication with the public is limited and could profit from a more structured, long-term professional interaction between the media and specialists in communications and environment and health.

### **Recommendations**

- Programmes that implement environment and health policies should be equipped with measurable indicators, milestones, objectives and targets that enable the assessment of the performance of the system in improving environment and health conditions.
- Monitoring systems should be revised to allow evaluation of the main environmental health risks and the way these risks change due to implemented policies and programmes. A limited set of core indicators should be agreed upon and

followed in assessing reports, with the aim of formulating strategic conclusions based on the integrated assessment of the data and information.

- The capacity of professionals to effectively communicate with the public about environmental health issues – thus establishing a better understanding of the role of environmental conditions in shaping health – should be improved.
- Investment should be made to further develop human resources and skills in environmental health. Training and capacity building activities should be supported – both at the national level and through participation in international efforts – and should target young professionals from various disciplines, as well as experienced members of the medical workforce.
- Intensive programmes under way to improve access to drinking-water should remain a priority. Such programmes can reduce the substantial health risk associated with the widespread use of individual wells, which often provide water of inadequate quality.
- The quality of drinking-water in existing water distribution systems needs to be improved further, mainly by maintaining these systems and by preventing them from becoming contaminated.
- The significance of regular and widespread physical activity outside of school or the competitive sports system should be more effectively supported by authorities and society, to emphasize its health benefits. Also, conditions that enable safe walking and cycling should be improved.
- Plans for urban development should consider the accelerated growth in the number of vehicles and should look for healthy and environmentally friendly alternatives to the use of private cars in cities. Such plans should include improved public transport, cycling and walking.

- Conditions that continuously develop the capacities of the personnel involved in environment and health actions should be improved and should include better access to international literature and the exchange of experiences.
- Developing the capacity to include biomonitoring (even on a limited scale) of priority hazards should be considered.
- Human and organizational resources that focus on following up the Chernobyl nuclear accident should be better integrated in the public health system and be better used to assess and manage other possible environmental health risks.
- The organization and financing of the sanitary–epidemiological network should enable increased performance and encourage innovation.
- Institutional arrangements should be devised and responsibilities should be identified for effective intersectoral collaboration on health issues. They should facilitate a gradual, project-oriented process coordinated by the Ministry of Health, starting with relatively simple areas of work that involve few sectors.

#### **Tools for management**

The following actions should be considered to improve the national capacity to address environment and health risks in Belarus:

- revise the monitoring system, to enable an assessment of the performance of environment and health programmes and policies (with measurable indicators, milestones, objectives and targets) and of priority environment and health risks;
- conduct an integrated assessment of data and information, with the aim of formulating strategic conclusions;
- in urban development plans, consider the adverse effect on health of accelerated growth in the number of vehicles and also consider the need for healthy and environmentally friendly alternatives to the use of private cars;

- reorganize and change the financing of the sanitary–epidemiological network, to improve performance and innovation;
- improve conditions for the continuous development of capacities of personnel involved in environment and health actions;
- facilitate access to foreign literature and the international exchange of experiences;
- improve the capacity for effective communication with the public;
- improve the capacity for environment and health risk management – for example, through the involvement of management schools, as well as the inclusion of cost–benefit analysis; and
- integrate human and organizational resources that focus on following up the Chernobyl nuclear accident in the public health system and that are used to assess and manage other possible environmental health risks.

#### **Tools for action**

The following tools for action are needed:

- a set of core indicators that enable strategic analysis and evaluation;
- indicators, milestones, objectives and targets for (all) programmes that implement environment and health policies, to enable the assessment of their performance;
- methods for risk assessment, including cost–benefit analysis;
- strengthened dialogue between different sectors;
- reporting on health and environment, adjusted to the needs of decision-makers and the general public; and

- improved capacity for environmental and health communication and risk management – for example, through the involvement of management schools.

## Introduction

### **The main objectives of the environment and health performance reviews are to:**

- assist Member States in developing a national institutional framework that will make it possible to draft national action plans that address children's health and environment;
- provide a country-based analytical description of the environment and health situation;
- determine whether health policies are well designed to prevent ill health caused by environmental determinants.

## Background

Preventing disease and injury is at the heart of public health and health systems. The environment is responsible for as much as 24% of the total burden of disease (1).

Environmental health comprises the aspects of human health and disease that are determined by factors in the environment. It also refers to the theory and practice of assessing and controlling factors in the environment that can potentially affect health. According to the definition used by the WHO Regional Office for Europe, environmental health includes both the direct pathological effects of chemicals, radiation and some biological agents and the effects (often indirect) on health and well-being of the broad physical, psychological, social and aesthetic environment (2). In the course of this report, the relationship between environment and health will be denoted as "environment and health". This covers all human health issues that are related to environmental factors and all environmental factors that may (possibly) affect health (either negatively or positively).

In 1989, the WHO Regional Office for Europe launched the environment and health process through a series of ministerial conferences, with the aim of eliminating the most significant environmental threats to health as rapidly as possible, based on the premise that prevention is better than cure.

Environment and health issues are essentially cross-sectoral, and human health can only be protected from the risks posed by a hazardous or contaminated environment through the coordinated input of different sectors and a greater capacity on the part of the health sector to enlist the support of these different actors to develop a high level of targeted activities and to ensure consistency and synergy with other relevant commitments made by Member States (3, 4).<sup>1</sup>

The importance of coordinated input from different sectors has been emphasized by the call for the development of national environment and health action plans made at the Second Ministerial Conference in Helsinki (5) and by the theme of the Third Ministerial Conference held in London in 1999, “Action in Partnership” (6). Following the Fourth Ministerial Conference on Environment and Health, in Budapest in June 2004, and the commitments made by Member States to reduce children’s exposure to environmental hazards, countries are now seeking support to implement such actions.

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<sup>1</sup> *The Budapest Declaration (4):*

- recognizes “the relevance of national environment and health action plans (NEHAPs) ... and commend the continuing efforts to implement and evaluate them” (paragraph 6);
- calls on organizations to establish mechanisms “for coordinating technical and financial assistance to the newly independent states and countries of south-eastern Europe, in order to stimulate legislative and institutional reforms, strengthen countries’ capacities and effectively reduce exposures to environmental hazards and their health impacts” (paragraph 20c); and
- invites the WHO Regional Office for Europe “to support the initiative of the newly independent states and some countries of south-eastern Europe to reform and upgrade their sanitary/epidemiological services and set up public health systems” (paragraph 20d).

## **Objectives**

The World Health Organization (WHO) Regional Office for Europe has therefore initiated a project to provide the evidence base for developing and implementing such actions. Through detailed environment and health performance reviews (EHPRs), it provides country-based analytical descriptions of the environmental situation in Member States. The major areas of this strategic analysis are the institutional set-up, the policy setting and legal framework, the level and structural functioning of intersectoral collaboration, and the available tools for action. This interdisciplinary assessment objectively examines the relevant policy and institutional framework and gives guidance for: strengthening environment and health policy-making; planning preventive interventions; ensuring service delivery; and conducting surveillance in the field of environment and health. The most important environment and health problems in the country are identified, and the public health impact of environmental exposure is assessed. The national performance review is conceived as an integral part of the planning and management of environment and health services and is performed at the request of the Member State concerned.

## **The EHPR process**

EHPRs are based on a programme of environmental performance reviews launched in 1991 by the Organisation for Economic Co-operation and Development to help its member countries improve their individual and collective performances in environmental management (7). The programme was mandated to the United Nations Economic Commission for Europe in 1993, to ensure coverage of the whole European Region (8). The programme has also covered Belarus (9). In the period 1997–2004, the WHO Regional Office for Europe contributed to the environmental performance reviews, providing a review of the health aspects related to the environment.

Since environmental performance reviews focus on environmental management, the Regional Office recognized the benefits of such country-specific tools and expanded them to cover the relationship between human health and the environment, and between the environment and health policy management (10–12).

The EHPRs are in line with and draw upon the national profiles of children's health and environment developed by WHO headquarters (13) and are strongly linked to ongoing WHO Regional Office environment and health programmes. The WHO European Environment and Health Information System (ENHIS) (14) records information on: national approaches to linking environmental conditions and public health; their importance for healthy environmental policy; and measurement of the countries' progress towards the targets set in the Europe-wide action programmes.

As in the case of ENHIS, the environment and health performance reviews focus on risk factors that most affect the health of European children. At the Fourth Ministerial Conference on Environment and Health in 2004, ministers agreed to prioritize four regional priority goals for Europe (3):

- regional priority goal 1: prevent and significantly reduce the morbidity and mortality arising from gastrointestinal disorders and other health effects, by ensuring that adequate measures are taken to improve access to safe and affordable water and adequate sanitation for all children;
- regional priority goal 2: prevent and substantially reduce health consequences from accidents and injuries and pursue a decrease in morbidity from lack of adequate physical activity, by promoting safe, secure and supportive human settlements for all children;
- regional priority goal 3: prevent and reduce respiratory disease due to outdoor and indoor air pollution, thereby contributing to a reduction in the frequency of asthmatic

attacks, in order to ensure that children can live in an environment with clean air; and

- regional priority goal 4: reduce the risk of disease and disability arising from exposure to hazardous chemicals (such as heavy metals), physical agents (such as excessive noise) and biological agents and to hazardous working environments during pregnancy, childhood and adolescence.

The implementation of EHPRs in most of the countries covered by this programme in 2007–2009 has been made possible by the European Commission through its Directorate-General for Health and Consumer Affairs. In support of the European environment and health process, the European Commission has identified the need to develop and strengthen policy actions to reduce the risk of disease and disability arising from agents in the environment in Europe and has been co-funding this WHO Regional Office for Europe activity. In several countries not covered by the European Commission co-funded project, including Belarus, the reviews are conducted in the framework of the bilateral biennial collaborative agreements between WHO and the ministries of health.

## **Methods**

Each EHPR is carried out, at the request of the Ministry of Health of the country concerned, by two or three WHO technical experts. It takes the form of semi-structured interviews with national technical representatives and policy-makers.

This EHPR is made up of the steps described below.

1. The standardized method for the review developed at the beginning of the process is applied to all Member States.
2. Consultations are held with the head of country office, and assistance and advice are sought on timing and the personnel involved.

3. Prior consultations are held with the environment and health focal point or project counterpart within the Member State.
4. Relevant policies, information, evidence and data are collected and analysed, and the national counterpart organizes the WHO field visit.
5. The field trip by the WHO technical team to the country takes place; interviews are conducted with preselected representatives of different sectors and institutions.
6. A draft report is compiled, summarizing the information collected during the field visit.
7. A final report with recommendations for action is submitted to the counterpart, the head of country office and interviewees.
8. Final conclusions are presented to policy-makers at a national workshop. Such a workshop discussed conclusions and recommendations of this review in Minsk on 1 October 2009.

All the EHPR final reports contributed to the assessment of environment and health policies in the WHO European Region. These were presented as background material at the WHO Fifth Ministerial Conference on Environment and Health held in Parma, Italy, in March 2010.

## 1. Health characteristics of Belarus's population

### Conclusions

- The main causes of death are cardiovascular diseases and cancer, which are consistent with mortality patterns in other European countries.
- Life expectancy in Belarus is higher than the average for the Member States of the Commonwealth of independent states (CIS),<sup>2</sup> but is still well below the average for the WHO European Region. A slight increase in life expectancy, however, was noted in the last few years.
- Cardiovascular diseases are the leading contributor to the burden of disease in Belarus, followed by externally caused diseases and neuropsychiatric conditions in males, and neuropsychiatric conditions and cancers in females.
- According to WHO estimates, 19% of the total burden of disease in Belarus can be attributed to environmental factors. Also, high body mass and physical inactivity are leading risk factors that contribute to the country's burden of disease, which can also be linked to environmental conditions that do not support healthy lifestyles.

In 2007, life expectancy at birth in Belarus was 64.5 years for men and 76.2 years for women. It grew slightly in the last few years (15). It was, however, lower than the average for the WHO European Region (by 7 years for men and 3 years for

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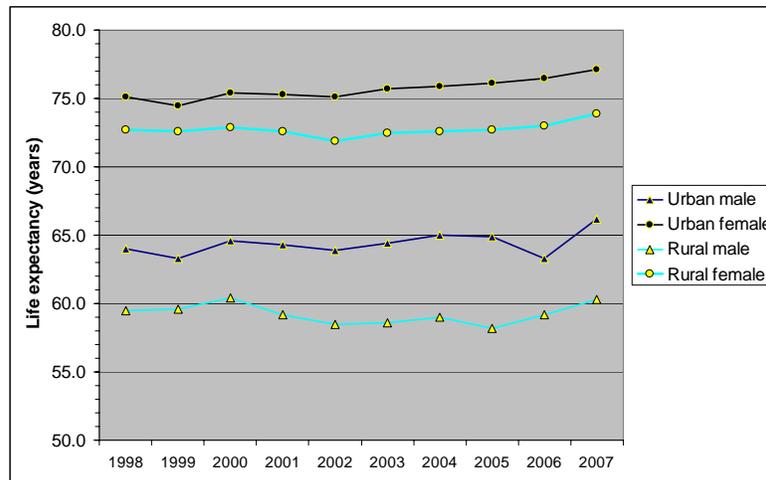
<sup>2</sup> The Commonwealth of independent states (CIS) includes the following countries: Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, the Republic of Moldova, the Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan. Georgia was an official member until 17 August 2009.

women), though it was higher than the average for the newly independent states.

In 2007, life expectancy at birth among urban populations in Belarus was about 5 years longer than that of rural populations (Fig. 1); this is mainly the result of higher mortality due to cardiovascular diseases – ischaemic heart disease, in particular – in rural populations (15).

In 2007, 52.8% of all deaths were due to diseases of the circulatory system, 14.1% were due to cancer, and 10.8% were due to external causes of death (15).

**Fig. 1. Life expectancy in urban and rural populations in Belarus**



Source: Health status of the population of the Republic of Belarus, 1998–2007 (15).

Also, the world health report for 2003 showed a difference between female and male populations in disability-adjusted life years (DALYs)<sup>3</sup> (16). For both males and females, the leading

<sup>3</sup> The disability-adjusted life year (DALY) is a WHO metric. One DALY can be thought of as one lost year of “healthy” life. The sum of these DALYs across the population, or the burden of disease, can be thought of as a measurement of the gap between current health status and an ideal health situation where the entire population lives to an advanced age, free of disease

disability group was cardiovascular diseases (men 28.2%, women 31.9%). For men, the second highest disability group was unintentional injuries (19.4%) and was followed by neuropsychiatric conditions (12.5%). For women, however, neuropsychiatric conditions (18.0%) were second and were followed by cancer (9.7%), and then by unintentional injuries (6.9%). The 10 leading disability groups, as percentages of total DALYs for both sexes in Belarus, are shown for the year 2002 in Table 1 (17).

**Table 1. Leading disability groups in Belarus, by gender**

Rank	Males		Females	
	Disability groups	% of total DALYs	Disability groups	% of total DALYs
1	Cardiovascular diseases	28.2	Cardiovascular diseases	31.9
2	Unintentional injuries	19.4	Neuropsychiatric conditions	18
3	Neuropsychiatric conditions	12.5	Malignant neoplasms	9.7
4	Malignant neoplasms	9.3	Unintentional injuries	6.9
5	Intentional injuries	8.0	Sense organ diseases	5.6
6	Respiratory diseases	3.8	Musculoskeletal diseases	5.5
7	Digestive diseases	3.6	Respiratory diseases	3.9
8	Infectious and parasitic diseases	3.5	Digestive diseases	3.5
9	Sense organ diseases	3.1	Intentional injuries	2.7
10	Musculoskeletal diseases	2.3	Diabetes mellitus	2.3

Source: *Highlights on health in Belarus – 2005 (17)*.

The top two risk factors for males – alcohol, followed by tobacco – already account for 40% of the burden of disease (measured in DALYs) in Belarus. The 10 leading risk factors for females account for over 45% of the burden of disease in Belarus; among these, the top three are (in order of importance) high blood pressure, high cholesterol and high body mass index.

and disability. DALYs for a disease or health condition are calculated as the sum of the *years of life lost* due to premature mortality in the population and the *years lost due to disability* for incident cases of the health condition.

Table 2 shows the 10 leading risk factors, for each gender, that contribute to the burden of disease, along with the their corresponding share of total DALYs (17).

**Table 2. Leading risk factors for the burden of disease in Belarus**

Rank	Males		Females	
	Risk factors	% of total DALYs	Risk factors	% of total DALYs
1	Alcohol	21.2	High blood pressure	18.3
2	Tobacco	19.7	High cholesterol	15.6
3	High blood pressure	15.6	High body mass index	12.2
4	High cholesterol	13	Low fruit and vegetable intake	8.1
5	High body mass index	7.7	Physical inactivity	6.2
6	Low fruit and vegetable intake	7.7	Alcohol	4.9
7	Physical inactivity	4.9	Unsafe sex	2.1
8	Illicit drugs	2.7	Illicit drugs	1.5
9	Occupational risk factors for injuries	1.3	Lead	0.9
10	Lead	1.3	Childhood sexual abuse	0.8

Source: *Highlights on health in Belarus – 2005* (17).

According to the 2009 world development report, the child mortality rate for children under 5 years of age in Belarus dropped by 48%, from 24 deaths per 1000 live births in 1990 to 13 deaths per 1000 live births in 2007 (18), ranking the country at 134 of 189 worldwide for the year 2007 (19).

In 2008, the maternal mortality rate in Belarus was 5.8 maternal deaths per 100 000 live births, compared with 10 maternal deaths per 100 000 live births in 2007, which is below the average of the European Region (13 maternal deaths per 100 000 live births) and far below the average for the countries of the Commonwealth of Independent States (27 maternal death per 100 000 live births) (20).

WHO estimates, based on 2004 national health data, indicate that 19% of the total burden of disease can be attributed to environmental (including occupational) causes (21).

## 2. Environment and health priorities

### Conclusions

#### *Environment and health risks and major determinants of health*

- Drinking-water quality remains a major environmental health concern. This is especially so in rural areas, where the availability and technical reliability of the piped water supply systems are poor.
- Current levels of air pollutants, especially respirable particulate matter with an aerodynamic diameter smaller than 10 microns (PM<sub>10</sub>), are relatively low in residential areas of cities. Efforts should continue to prevent the negative effect of the growing intensity of road traffic on air quality and health.
- Lack of relevant data restricts the assessment of indoor air quality. A substantial part of child mortality due to poisoning by carbon monoxide is assumed to be attributable to malfunctioning stoves, but clear data are missing. Also, data are missing on the frequency of dampness and mould problems in homes and public buildings.
- Exposure to environmental tobacco smoke is very common among children and young people, creating a substantial risk of poor respiratory health.
- Information on the prevalence of overweight and respiratory diseases in children, two issues of growing concern throughout Europe, is patchy and not comparable with similar information from other countries. A large part of the burden of disease attributed to overweight and physical inactivity in Belarus calls for better assessment and more effective preventive measures – related, in part, to environmental conditions that discourage physical activity.

- Although there are positive examples of actions that support personal mobility, such as modernization of public transport in Minsk, little is being done to encourage and assure the safety of walking and cycling.
- Although competitive sports, in general, and among children, in particular, are a high priority and receive state support, non-competitive forms of physical activity for children and adults are less popular and underdeveloped.
- Mortality due to road traffic accidents and unintentional injuries among children is high, compared with other countries. In the case of deaths due to accidental falls, it is the highest in the Region.

#### *Public health*

- Monitoring of the environment does not indicate any risks related to specific chemical contamination. Lack of data from biomonitoring of human beings, however, does not allow this to be confirmed.
- Information on exposure of the population to hazardous chemicals is missing, making assessment of the effectiveness of chemical safety policies and programmes difficult.
- The monitoring of health and the environment is very intensive and is conducted by a large number of institutions and services. Reporting, however, is fragmented and does not allow easy evaluation of trends and patterns of environmental health risks. Also, data are not adequate for monitoring the effects of interventions, and strategic analysis and integration of information produced by those systems is difficult.
- Priorities for public health actions that address environmental determinants of health are not clearly identified for population groups or risk factors.
- Existing programmes for screening children's health do not link the health of the children studied with health

determinants, thus limiting application of the study results in planning and monitoring public health actions.

- Although reporting on public health is quite comprehensive, scarcity of data specific to environmental health makes comprehensive assessment of the situation and trends difficult, especially for specific vulnerable groups.

### **Recommendations**

- Programmes that implement environment and health policies should be equipped with measurable indicators, milestones, objectives and targets, to enable the assessment of the performance of the system in improving environment and health conditions.
- Monitoring systems should be revised to allow evaluation of the main environmental health risks and how they change in response to the implementation of policies and programmes. A limited set of core indicators should be agreed upon and followed in the assessment reports, aiming to formulate strategic conclusions based on the integrated assessment of the data and information.
- Setting priorities in environment and health should be supported by better use of existing information and by generation of data specific to environmental health problems. Application of WHO ENHIS methods would facilitate national policy-making and international comparisons.
- Efforts to improve the availability and quality of drinking-water should continue, to reduce existing health risks due to poor water and sanitation.
- In public health, the built environment is viewed mostly from the perspective of its contribution to pollution, and not from that of a potentially positive health determinant. A more integrated approach to the built environment could reduce the frequency of home accidents, increase personal mobility and contribute to the prevention of chronic diseases.

- The positive role of regular and widespread physical activity inside and outside of school and of the competitive sports system should be supported more effectively by authorities and society, to emphasize their health benefits. Also, conditions that enable safe walking and cycling should be improved.
- Conditions for continuously developing the capacities of personnel involved in environment and health actions should be improved. This should include better access to international literature and the exchange of experiences.
- Modern epidemiological methods should be more widely used in studies that assess health status, thus allowing their results to be used to help design and monitor public health interventions.

With the support of the European Commission Directorate-General for Health and Consumer Affairs, and in collaboration with partners from 18 Member States, the WHO Regional Office for Europe has developed ENHIS (14), which has enhanced the availability and comparability of data on environment and health.

The system focuses on the health issues identified in the Children's Environment and Health Action Plan for Europe (3) as priorities for pan-European action, particularly its four regional priority goals, as described in the Introduction (see section on "The EHPR process"):

- regional priority goal 1: ensure safe water and adequate sanitation;
- regional priority goal 2: ensure protection from injuries and adequate physical activity;
- regional priority goal 3: ensure clean outdoor and indoor air;  
and

- regional priority goal 4: aim for a chemical-free environment.

The information in ENHIS covers health issues related to the environment, environmental issues that affect children's health, and also actions that aim to reduce or prevent health risks (14).

For Belarus, of the 29 indicators<sup>4</sup> in the four regional priority goal groups, only data for the following 9 indicators are available:

- percentage of the population with access to an improved water supply in urban and rural areas (item 1.2 b);
- percentage of the population connected to sanitation facilities in urban and rural areas (item 1.3 b);
- standardized mortality rates for road traffic injuries in children and young people aged 0–24 years (item 2.1);
- standardized mortality rates for cause-specific unintentional injuries in the group aged 1–19 years (sum of all mortalities) (item 2.2);
- proportion of 13–15-year-olds exposed to environmental tobacco smoke in their homes (item 3.4);
- proportion of children aged 0–14 years living in homes that use solid fuels – data for 2004 (item 3.6);
- degree of implementation of policies to reduce exposure of children to environmental tobacco smoke – data for 2006 (item 3.7);
- standardized estimates of leukaemia in children under 15 years of age – data from 1989–1998 (item 4.1); and
- degree of implementation of action to reduce exposure of the population to ultraviolet radiation in 26 countries – data for 2006 (item 4.8).

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<sup>4</sup> For all information and data quoted in this section, see the country profile of Belarus (20) and the ENHIS fact sheets.

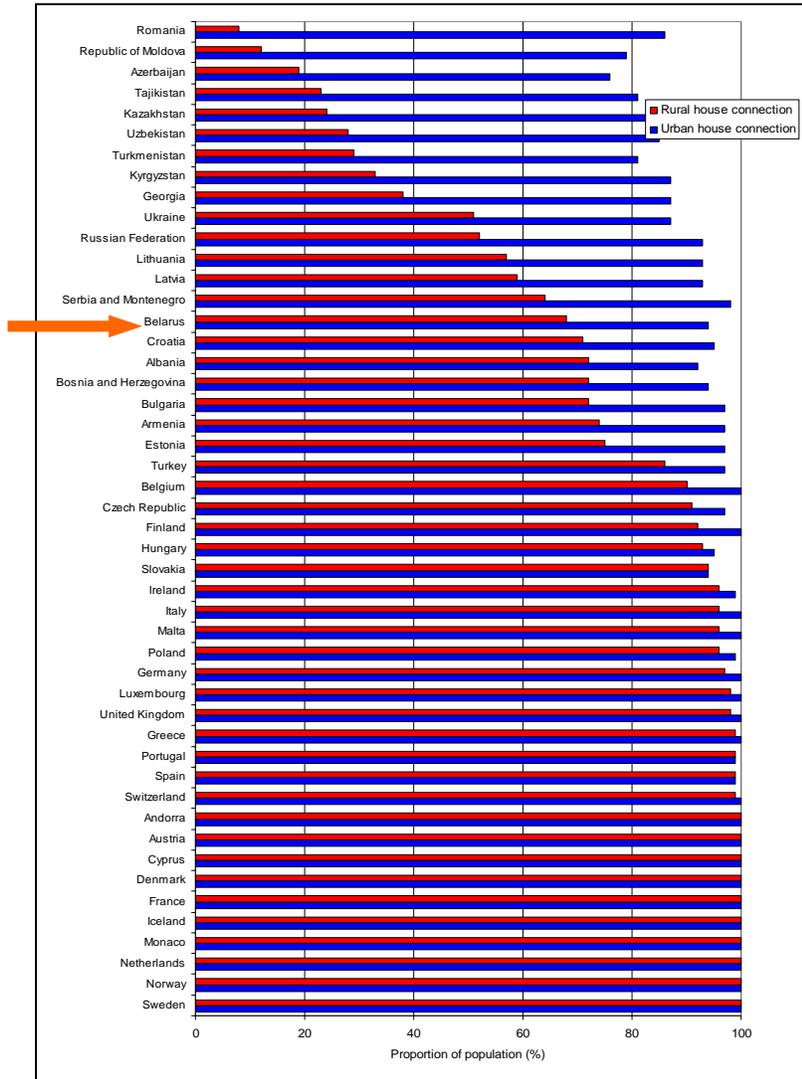
## **Water supply and sanitation**

The risk to children's health related to poor access to safe drinking-water and sanitation is still substantial in many rural areas in the WHO European Region, especially in the eastern part. Belarus belongs to the countries in the Region with a relatively low percentage of the rural population having access to an improved water supply and sanitation facilities (see Fig. 2). Only 61% of the rural population and 93% of the urban population were connected to piped water systems in 2006, but these proportions document a significant improvement from 22% and 78%, respectively, in the year 2002. The percentage of the population with houses connected to sanitation facilities in rural areas increased to 38% in 2006, compared with 22% in 2002, while the proportion of houses connected to sewage systems in urban areas remained unchanged, at 86% (14).

The objective of the State Programme 2006–2010 “Clean Water” is to speed up the construction and renewal of the water supply and sewage systems, to further increase the percentage of the population connected to them and to increase the quality of the water distributed.

In schools, access to piped drinking-water and sanitation is also not universal – especially in rural areas, where 16% of schools had no water supply and 26% were not connected to a sewage system in 2007. These numbers represent an improvement achieved since 2002 and 2003, when these proportions were 24% and 34%, respectively.

**Fig. 2. Percentage of the population with access to improved water supply in urban and rural areas, selected countries in the WHO European Region, 2006 or last available year**



Notes. Data for Belgium are for 1995; data for Bulgaria, Finland and Turkmenistan are for 2004. Also, Serbia and Montenegro became two separate Member States of WHO in September 2006. In this fact sheet, the data refer to the then one country of Serbia and Montenegro.

Source: ENHIS (14).

The quality of drinking-water distributed by many water supply systems is poor (15). The sanitary–hygienic norms related to chemical and sanitary parameters were exceeded in up to 22% of samples taken from communal water supply systems and from 31% of samples taken from systems operated by private enterprises in 2007 (with similar results in 2005–2006). Also, there are consistent differences between provinces, with about 10% of unsatisfactory samples taken in Minsk Province city communal system and 31% in Brest Province – with 18% and 47%, respectively, for systems operated by communes and private enterprises. In most cases, poor water quality is caused by high concentrations of iron, exceeding five times the allowed concentration in as many as 12% of the samples.

The microbiological quality of piped water is also poor, with 1.3–2.7% of samples from communal and private enterprise systems in the period 2005–2007 not complying with the norms. Poor water quality in public water supply systems, especially in rural areas, is related to the unsatisfactory technical condition of the systems. Such a situation was found in inspections of 43% of rural systems in 2007, compared with 46% in 2006.

The quality of drinking-water from individual wells is markedly poorer. In 2007, 40.7% of water samples taken from wells did not satisfy chemical and sanitary standards (down from 43.1% in 2005). In most cases, high turbidity and high concentrations of nitrates were the cause of the unsatisfactory test results. In 16.3% of samples for 2007, microbiological parameters were not acceptable (down from 22.9% in 2005). The highest rates of unsatisfactory samples in 2007 for sanitary parameters were recorded in Brest Province (58%), and for microbiological parameters in Minsk Province (30%).

The main source of drinking-water used by water distribution systems is groundwater. Its quality is considered to be good, with only 1.2% of samples exceeding the allowed concentrations of pollutants in 2007 – mainly ammonia (22). Only two cities (Gomel and Minsk) use surface water as drinking-water. The

main problems with surface water – for example, in Minsk – are high levels of compounds that contain iron, magnesium and fluoride. In industrial areas, water sources polluted by heavy metals are documented. In areas with intensive agricultural production, biogenic problems have been reported – for example, high levels of phosphates from the use of fertilizers. Also, the areas of former military bases are contaminated with petrochemical and radioactive substances.

Despite the overall improvement in drinking-water supply and sanitation, still more needs to be done, especially in rural areas. An example of ongoing programmes implemented in rural areas to improve this situation is the construction of 666 new agrarian towns, planned under the leadership of the Ministry of Agriculture. The Clean Water Programme will include these towns, to further improve the supply of water and provision for sewage. These towns will be centres for agricultural activities with improved living and working conditions for 500–3000 people each. The National Village Revival Programme, covering 35% of the rural population of Belarus in 1481 agrarian towns, continued through 2010.

With respect to *recreational water environments* in Belarus, the quality of bathing water is frequently below that required by hygienic norms. In 2007, hygienic parameters were exceeded in 19% of samples, and microbiological parameters were exceeded in about 9% of the samples analysed (16% and 10%, respectively, in 2006). Pathogens of communicable diseases were detected in close to 1% of the samples. Such contamination was most common downstream of the points of discharge of communal wastes insufficiently cleaned by waste processing systems. Detection of such contamination leads to a closure of bathing areas: the Ministry of Health announcement of 14 August 2009 listed almost 90 lakes and locations on rivers closed to the public for recreational use. Although the criteria for classifying bathing water quality differ between Belarus and the countries of the European Union, the proportion of samples not meeting the standards was markedly higher in Belarus than

in most of the countries of the European Union for which data are available in the ENHIS system (14).

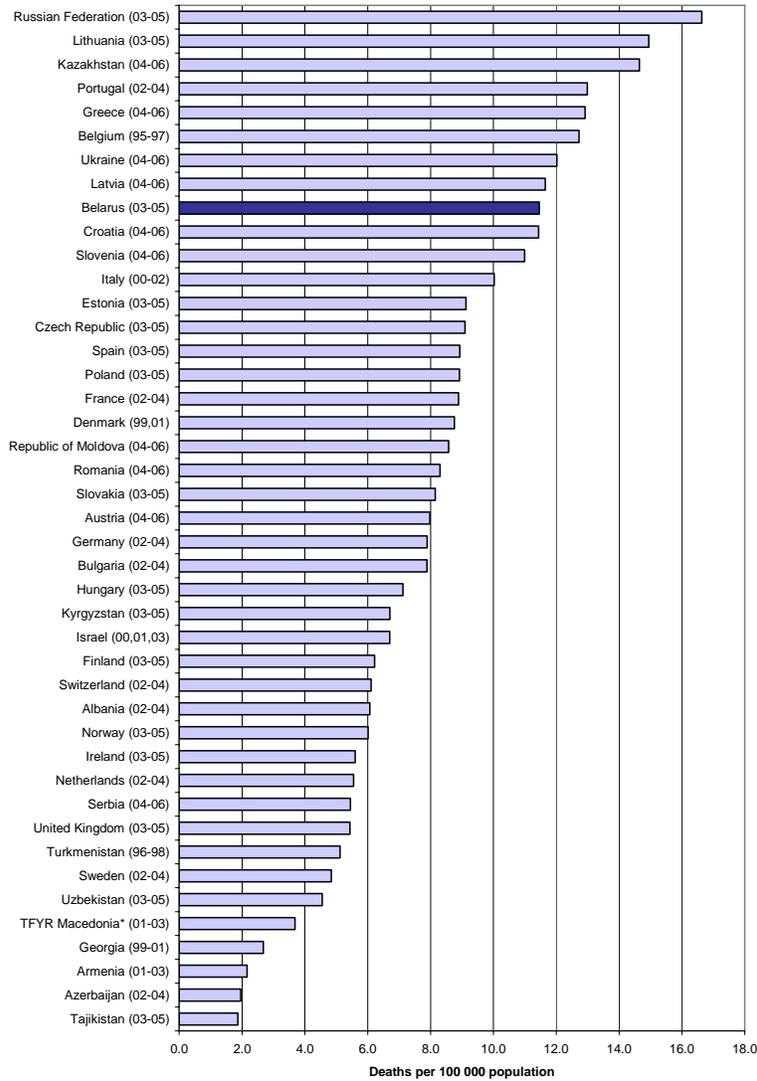
### **Road traffic and unintentional injuries**

According to available data, 273 children under 15 years of age died in Belarus in 2007 as a result of accidents and external causes of deaths. Traffic accidents that involve children and young people less than 15 years of age account, on average, for a quarter of all accidental deaths in this age category. The standardized mortality rate for road traffic injuries in children and young people aged 0–24 years in Belarus is 11.5 deaths per 100 000 population, which is above the average in the WHO European Region (8.1 deaths per 100 000 population) (see Fig. 3).

The National Programme on Prevention of Injuries 2001–2010 contains a special section on children that indicates the need for training; it is also related to a national programme on the prevention of road accidents. In rural areas, high fatality rates (about 40% of all deaths due to accidents) are believed to result from delayed provision of appropriate medical services to the injured. The time needed from the moment the injury occurs to the arrival in a clinic can be very long due to a low density of hospitals in rural areas, as well as a lack of specialized physicians. To some extent, high fatality rates may be related to insufficient ability to provide quick and effective medical help at the site of an accident.

A pilot version of a computer-based program with a special protocol for the treatment of injuries on-site is currently being tested as a way to reduce the fatality rate. Although vehicle drivers and passengers were the most frequent participants in traffic accidents (58% and 19%, respectively), pedestrians were the most frequent fatalities of such accidents (40% compared with 26% for drivers and 24% for passengers).

**Fig. 3. Standardized death rates for road traffic injuries in children and young people aged 0–24 years in the WHO European Region, as averages of the most recent 3 years**



*Note. The parenthetical material following the country names corresponds to the three-year period of the data.*

*\* TFYR Macedonia = The former Yugoslav Republic of Macedonia.*

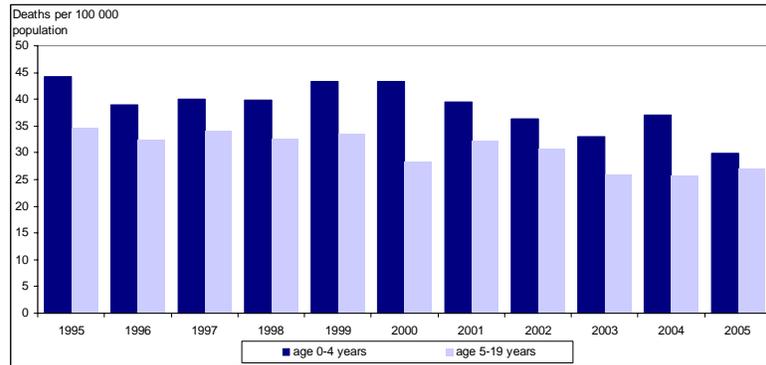
*Source: European detailed mortality database (23).*

The long-term (2006–2015) programme “Minus 100” to increase traffic safety, implemented by the State Automobile Inspectorate, aims to reduce the number of accidents and their health consequences. Programme actions include inspection of vehicles, improved road infrastructure, improved behaviour of road users on the road and dissemination of information to the public. All children receive instruction on basic traffic rules in the first grade of school. Near schools, the State Automobile Inspectorate controls the safety features of the road infrastructure.

The standardized mortality rate for unintentional injuries in children (1–19 years of age) in 2001 was 24 deaths per 100 000 population, compared with 17.2 deaths per 100 000 population for the European Region and 27.2 deaths per 100 000 population for the countries of the Commonwealth of Independent States (23). Especially high child mortality rates in Belarus, compared with other countries, are attributable to accidental falls and exposure to smoke and fires.

Although more than 50% of injuries to children happen at home, there is no special programme to prevent and reduce such injuries. General regulations that pertain to safe playgrounds and toys, as well as safe environments in schools and residential areas, do exist. These regulations are the responsibility of the Ministry of Housing and Communal Services, the Ministry of Industry and the Ministry of Education, and their respective local executive and administrative authorities. For the years 1995–2005, standardized death rates (per 100 000 population) for external causes of injury and poisoning in children (0–4 years of age) and young people (5–19 years of age) in Belarus are shown in Fig. 4.

**Fig. 4. Standardized death rates for external causes of injury and poisoning in children and young people, in Belarus**



Source: European health for all database (20).

National and local authorities support physical activity and sports. Medical screening of schoolchildren selects children with a special predisposition to various sports disciplines, and the system of sports clubs creates good conditions for the development of their performance. About 200 000 children (out of about 1.6 million school-age children) attend schools with extended sports programmes.

Conditions for less advanced or competitive forms of physical activity, such as cycling in cities, are less developed. The infrastructure (bicycle paths) is not developed, and cycling cannot be considered a healthy means of transport under the present road conditions. Also, in some provinces, over 40% of schools have no sports facilities (gym). Moreover, there is no active promotion of public transport or bicycles as a mode of transport in the cities.

The problem of obesity in children does not seem to be widespread. The lack of uniform definitions and methods of data collection, however, makes it difficult to assess the extent of the problem and to make comparisons with data from other countries. In any case, the data available from health surveys indicate that between 9% and 20% of children in Minsk have an

excessive body mass index (24). The reports available do not provide data on longer-term trends in the prevalence of child obesity.

As shown above (see Table 2), high body mass index and physical inactivity are among the leading contributors to the burden of disease in Belarus (17). The data available do not indicate any decrease in the health burden of these risk factors in recent years.

### **Respiratory health and outdoor and indoor air quality**

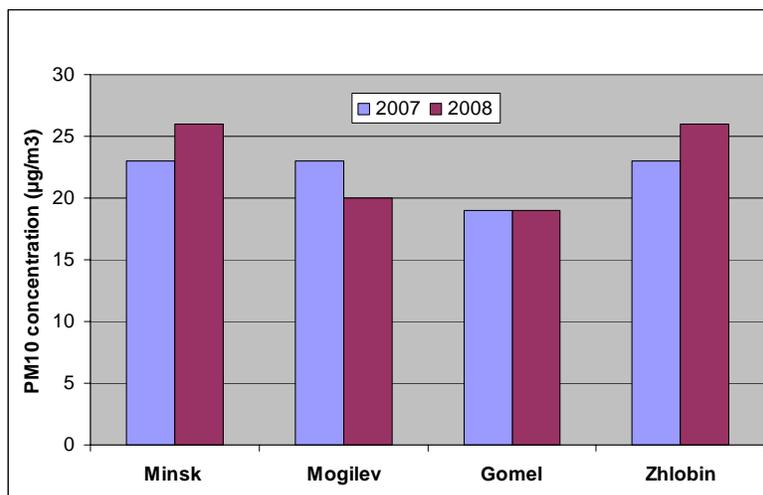
The most common newly registered disease category in children (72% of newly registered cases) is respiratory diseases, followed by injuries and infectious diseases (about 5% of newly registered cases each) (25). However, there are no data on the prevalence of asthma and allergies collected with standard methods (such as those developed by the International Study of Asthma and Allergies in Childhood, ISAAC), so the frequency of these diseases in children cannot be compared with those in other countries. Also, data on infant postneonatal respiratory mortality is not included in national reports on population health.

Among the many risk factors of respiratory diseases, indoor and outdoor air pollution are important. Recently introduced monitoring of the respirable fraction of particulate matter in ambient air, PM<sub>10</sub>, indicates that average levels of this pollution in residential areas are relatively low in Belarusian cities, as compared with most cities in the European Region. These levels, however, still exceed the WHO air quality guideline level of 20 µg/m<sup>3</sup> (Fig. 5). However, daily air quality guideline levels (50 µg/m<sup>3</sup>) have been exceeded on only a few days.

Road transport is considered to be the major source of air pollution – in part, because of the large proportion of old vehicles. The increase in the size of the vehicle fleet, however,

has not been followed by an increase in reported emissions of pollutants to the atmosphere, mainly because less polluting newly introduced cars and trucks replaced the more polluting older vehicles. For example, most of the old buses in Minsk were replaced by new ones, with cleaner engines (corresponding to the year 2000 European emission standard, Euro 3). There is, however, no policy that bans import of old (or polluting) cars; and attempts to limit the traffic in the centre of Minsk, through the introduction of a *park and ride* system or the introduction of parking meters, have been unsuccessful.

**Fig. 5 Annual mean PM<sub>10</sub> concentration in residential areas of four cities in Belarus, 2007 and 2008**



*Note. Gomel is also known by the name Homiel, and Zhlobin is also spelled Zlobin.*

*Source: Department of Hydrometeorology of the Ministry of Natural Resources and Environmental Protection of the Republic of Belarus, unpublished data, 2009.*

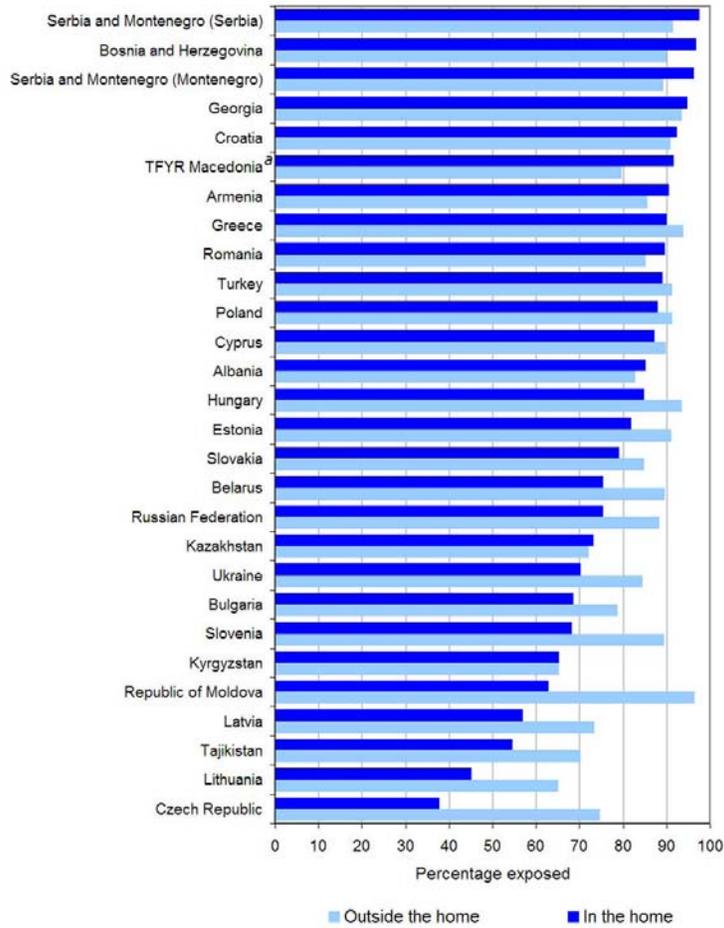
Depending on the type of industrial production, protection zones of up to 5.0 km around industrial areas have been established, and no educational institution can be situated in these zones. Installation of air quality controls are the responsibility of the enterprises themselves.

In 2006, about 28% of the population over 15 years of age were regular daily smokers (20). Also, 75% of children in Belarus in the age group of 13–15-year-olds were exposed to second-hand tobacco smoke at home (Figure 6). The exposure of children to direct or indirect tobacco smoke has been linked to multiple adverse effects on health, including sudden infant death syndrome, respiratory problems, cancer, and impaired mental and social development. WHO air quality guidelines conclude that the acute and chronic respiratory effects of tobacco smoke on children's health have been demonstrated even in homes with occasional smoking (27, 28).

In 2005, Belarus ratified the WHO Framework Convention on Tobacco Control. As with most countries in the WHO European Region, Belarus implements policies to restrict smoking in public areas, the direct advertisement of tobacco products and the sale of tobacco products to minors, aiming to reduce the exposure of children to tobacco smoke in public areas and to discourage active smoking. Smoking, however, is not banned in bars or restaurants, or in public transport. Legal instruments that address exposure to tobacco smoke cover the whole population, with no specific regulations that focus on children.

Indoor air quality in schools is regulated by strict construction rules and standards for furniture (such as those that ban plastics and fibreboard), as well as sanitary norms, including ventilation standards. Every year, at the beginning of the new school year, a commission of the local authorities is supposed to visit educational institutions and grant the permit for health, sanitary, nutrition and sporting facilities. These inspections have the potential to detect sources of indoor air pollution, though it is unclear to what extent potential indoor air quality problems (such as dampness and mould or insufficient ventilation) can be detected during this annual inspection conducted in warm seasons.

**Fig. 6. Proportion of 13–15-year-olds exposed to second-hand tobacco smoke inside and outside the home, 2002-2007**



<sup>a</sup> TFYR Macedonia = The former Yugoslav Republic of Macedonia.  
Source: *Exposure of children to second-hand tobacco smoke (26)*.

Less than 5% of children in Belarus live in homes that use solid fuel for heating and cooking (29). Although this proportion is lower than reported from several other countries of the Region, it still presents a risk to health. Poisoning by carbon monoxide accounts for 10% of accidental deaths among children

(Republican Centre of Injuries and Orthopaedics, unpublished data, 2008). For all ages, in 2007, poisoning by carbon monoxide caused 1034 deaths (8% of all accidental deaths). It can be assumed that a substantial part of this mortality can be attributed to malfunctioning stoves.

In Minsk, residential areas usually contain green areas around and between tenement blocks, along with kindergartens, schools and grocery stores. Apartment blocks are either owned by the residents or by the local authority and then leased; normally, a central heating system provides heat. In the case where local authorities own the apartments, they are also in charge of renovation and decide each year which tenement blocks will be renovated – that is, replacement of pipes, new insulation, and replacement of windows. From a health perspective, the replacement of windows might contribute to indoor air problems, such as mould, as new materials and window designs might hinder air circulation. There are, however, no data on the frequency of dampness or mould problems in homes or public buildings.

### **Chemicals and physical agents**

For the last 20 years, *radioactive contamination* has been one of the major problems in Belarus, especially in Gomel Oblast. On 26 April 1986, explosions at reactor number four of the nuclear power plant at Chernobyl in Ukraine, a republic of the former Soviet Union at that time, led to huge releases of radioactive materials into the atmosphere. These materials were deposited mainly over countries in Europe, but especially over large areas of Belarus, the Russian Federation and Ukraine. It was estimated that 23% of Belarus (about 46 000 km<sup>2</sup>, of which 20 000 km<sup>2</sup> are woodlands) was contaminated to various degrees.

In the spring and summer of 1986, 116 000 people were evacuated from the area around the Chernobyl reactor to uncontaminated areas. Another 230 000 people were relocated in subsequent years. In Belarus, 7400 rural settlements had to be

resettled. The economic damage, including adverse direct and indirect effects on health (mentioned below), was estimated to be in the region of US\$ 235 billion.<sup>5</sup>

Still, in 2006, about 5 million people lived in areas of Belarus, the Russian Federation and Ukraine with levels of radioactive caesium greater than 37 kBq/m<sup>2</sup>. Among them, about 270 000 people continued to live in areas classified as strictly controlled zones, where radioactive caesium contamination exceeded 555 kBq/m<sup>2</sup>.

Evacuation and relocation was a deeply traumatic experience for many people, because of the disruption of social networks and because of having no possibility of returning to their homes. For many, a social stigma was associated with being an “exposed person”.

In terms of long-term health consequences, a large increase in the incidence of thyroid cancer has occurred among people who were young children and adolescents at the time of the accident and who lived in the most contaminated areas of Belarus, the Russian Federation and Ukraine. This was due to the high levels of radioactive iodine released from the Chernobyl reactor in the early days after the accident. Radioactive iodine was deposited in pastures grazed by cows. These cows then concentrated it in their milk, which was subsequently drunk by children. This was further exacerbated by a general iodine deficiency in the local diet, causing more of the radioactive iodine to be accumulated in the thyroid.

Since radioactive iodine is short lived, it is likely that most of the increase in radiation-induced thyroid cancer would not have occurred if people had stopped giving locally supplied contaminated milk to children for a few months after the

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<sup>5</sup> The monetary unit of exchange in Belarus is the Belarusian rouble (Rbl). Its monthly exchange rate for US\$ 1 for August 2008 and August 2009 was, respectively, Rbl 2115 and Rbl 2802 (30).

accident. Increased rates of other cancers and mortality have been documented among liquidators – that is, people involved in cleaning up the contaminated areas.

A contaminated area of a million hectares can now again be used for agricultural activities, and about 550 farms are back working in this area. For these businesses, certain agricultural protection measures have been developed and only products that will not be consumed are supposed to be produced. These measures are taken in the framework of national programmes developed and implemented for dealing with the consequences of the Chernobyl disaster. The fourth of such programmes is currently underway.

Belarus is among the countries that report the widest range of actions aimed at reducing exposure of its population to *ultraviolet radiation* (31). Such preventive actions include: media campaigns that encourage people to protect themselves against ultraviolet radiation; the provision of public information about the harmful level and effects of exposure to ultraviolet radiation; and legislation on the use of sunbeds by children and teenagers.

Belarus harmonizes its *chemical safety* programme with major international programmes – for example, the Rotterdam and Stockholm conventions. It prepared a national implementation plan, guided by the Stockholm Convention on persistent organic pollutants and also began (in 2008) adopting the Globally Harmonized System of Classification and Labelling of Chemicals. The health sector plays an important role in an intersectoral committee for registering pesticides.

Monitoring the levels of chemicals in air, water, soil and food is conducted by various authorities. The vast majority of the samples collected show levels of environment contamination well below the levels of concern. However, some measurements of heavy metals in soils of urban areas exceed the allowed levels. In less than 0.1% of food samples collected in the last

5 years (2003–2007), hazardous chemicals exceeded allowed concentrations – with increased levels of nitrates being the most common problem. Increased concentrations of pesticide residues were found in 0.02% of food samples in 2007 (0.04–0.05% in 2003–2006), but reached 0.08% in Minsk and Mogilev provinces.

Since the data on exposure of the population to hazardous chemicals (biomonitoring of persistent organic pollutants and heavy metals) are missing, it is impossible to assess the magnitude of the risk posed by this contamination to population health. The growing mass of waste deposited in landfills (being the predominant method of waste collection) is also of concern to environment and health authorities.

Since children less than 16 years of age cannot be employed, the occupational health risks of this population group are not considered. Among adults, the most common risks are considered to be exposure to noise and vibration and to various dusts, chemicals and microclimates. However, assessment of the frequency of such exposures in the country's workforce is difficult, since monitoring covers only selected workplaces, focusing on those where a risk to health is expected.

### 3. Institutional set-up

#### **Conclusions**

- Health and environmental health in Belarus are governed by a multilevel institutional framework. The Office of the President and two ministries have the main responsibilities, and other sectors are charged with important health-relevant functions.
- Notwithstanding the high rate of registered physicians per 100 000 population, universal coverage of health care and well-developed environmental services (and also considering the evolving context and its implications on environmental health), the country has a strong demand for more expertise and more skilled human resources.
- Vertical, hierarchical organization structures of various sectors make effective local intersectoral collaboration on environment and health difficult.
- The central government finances the sanitary–epidemiological network. A substantial part of funding for the Republican Scientific Practical Centre of Hygiene (the main research and development resource of the network), however, comes from fees charged for sanitary–hygienic certificates.

#### **Recommendations**

- Investment should be made in further developing human resources and skills in environmental health. Training and capacity building activities should be supported – both at the national level and through participation in international efforts – and should target young professionals from various disciplines, as well as experienced members of the medical workforce.

- Institutional arrangements should be devised and responsibilities should be identified for effective intersectoral collaboration on health issues. They should facilitate a gradual, project-oriented process coordinated by the Ministry of Health, starting with relatively simple areas of work that involve few sectors.
- Given the large potential of some key sectors (such as transport, agriculture, housing and energy) to influence health, sector-wide assessments should be considered, to identify the strategic directions and the policy options most beneficial to public health.
- The organization and financing of the sanitary–epidemiological network should enable more innovation, research and development and should allow its increased performance.

### **Socio-political situation, political system and infrastructure**

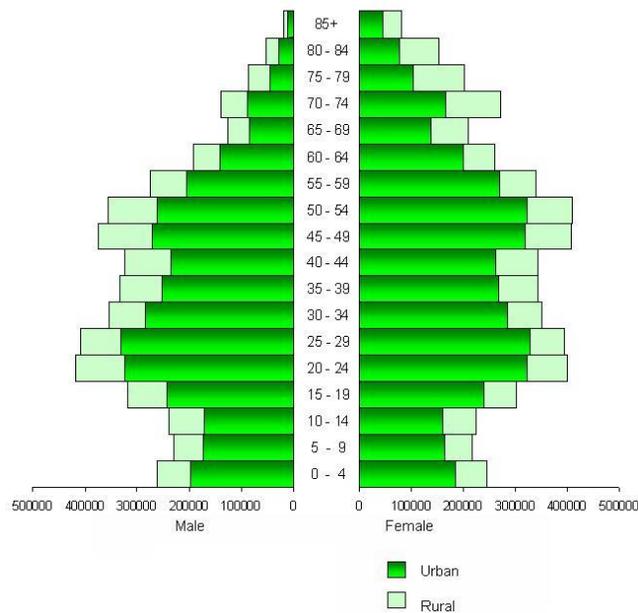
In 1990, The Declaration of National Independence of the Byelorussian Soviet Socialist Republic was signed; it acquired the status of constitutional law on 25 August 1991. Shortly after, in September 1991, the Byelorussian Soviet Socialist Republic was renamed the Republic of Belarus. The current constitution was adopted in 1994 (and amended in 1996 and 2006). Since then, Belarus has been a presidential republic with the President of the Republic of Belarus, Alexander Lukashenko, as head of state (32).

The representative and legislative body of the Republic of Belarus is the National Assembly. It consists of two chambers: the Chamber of Representatives (110 deputies) and the Council of the Republic (64 members), the latter being the chamber of territorial representation. While the Chamber of Representatives has the power to appoint the prime minister, make constitutional amendments, call for a vote of confidence on the prime minister

and make suggestions on foreign and domestic policy, the Council of the Republic has the power to select various government officials, conduct an impeachment trial of the president, and accept or reject bills passed by the Chamber of Representatives. Each chamber has the ability to veto any law passed by local officials, if it is contrary to the Constitution of Belarus.

Belarus is divided into six *oblasts* (regions or provinces), and further subdivided into 118 *raions* (districts), with one province being Minsk Province. The national capital is Minsk. Provinces and districts have their own legislative and executive authorities in charge of local government and self government (33).

**Fig. 7. Population pyramid of Belarus, 1 January 2010<sup>b</sup>**



<sup>a</sup> Taking account of 2009 Population Census results

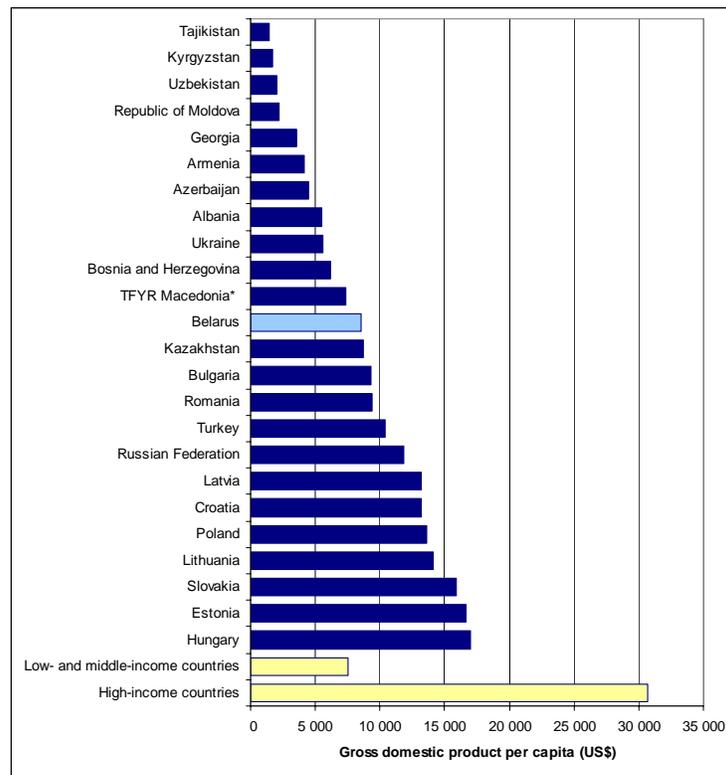
Source: National Statistical Committee of the Republic of Belarus (34).

In 2007, the total population of Belarus was about 9.7 million people, of which 4.5 million were male and 5.2 million were

female. Of the total population, 73.4% resided in urban areas (34). Fig. 7 shows the age distribution of the population by gender and urban–rural division. The different nationalities represented in the country are Belarusian (81.2%), Russian (11.4%), Polish (3.8%), Ukrainian (2.4%) and other (1.1%) (34). Between 1995 and 2007, the country’s economically active population increased from 44.5% to 46.7%.

The gross domestic income in 2005 was US\$ 30.2 billion, which comes to US\$ 8541 per person (Fig. 8). In 2005, health care expenditure made up 6.6% of gross domestic product (35).

**Fig. 8. Gross domestic income per person (US\$), 2005**



\* TFYR Macedonia = The former Yugoslav Republic of Macedonia.

Source: International Bank for Reconstruction and Development / The World Bank: World Development Indicators 2009, 2010 (35).

## Health sector

Public health services in Belarus have their origins in the Semashko system of the former Soviet Union (36). The Belarusian health care system of today still retains many of the key features of that system. Since independence in 1991, key organizational reforms in Belarus have focused on core weaknesses of the health care system. While there have been policy efforts to strengthen primary care and to address the urban–rural divide, in practice the hospital sector is still dominant and is in need of streamlining, so that resources can be released for primary care and public health (36).

## Policy and legislation

The Belarusian health system is structured hierarchically and organized on a territorial basis. The *Ministry of Health* – subordinate to the Council of Ministers – has overall responsibility for the health system. Decisions on reforms and the future of health care services are made by the Ministry, together with the national government. The Ministry is headed by the Minister of Health and is subdivided into different offices (see Annexes 2 and 3), which are responsible for planning for human and physical resource needs, deciding on the financing of services and administering the system. (36, 37)

The Ministry of Health is the key actor in developing policies and setting priorities. Responsibility for day-to-day management lies with the district and regional authorities and regional health care departments that implement policies and act on the centrally determined priorities within the constraints of their local budgets. However, “the hierarchical administrative arrangements and regulatory framework mean that ultimate management power lies with central government, namely the Ministry of Health, the Parliament and the President” (36: 13). The main aims of the Ministry of Health (37) are to:

- provide the population with medical care, including free treatment in governmental health organizations;

- implement a state policy in the field of public health;
- promote healthy lifestyles;
- provide favourable sanitary–epidemiological conditions for the population; and
- organize research and use scientific and technological achievements in medical practices.

The Law on Sanitary and Epidemic Well-Being of People (38), states that environmental protection is one of the ways to secure the right of citizens to health protection. Also, state-conducted examinations by sanitary experts shall be conducted in pursuance of the provisions of Article 5 of the Law on Sanitary and Epidemic Well-Being of People (38).

Control of compliance with laws in the field of health protection – in connection with sanitary and hygienic conditions – is exercised by the sanitary supervision bodies and environment protection agencies of Belarus. State sanitary supervision bodies exercise their activities pursuant to provisions of the Regulations of State Sanitary Supervision.

The two main sanitary supervisory bodies that deal with health risks related to environmental factors in Belarus are the Republican Scientific Practical Centre of Hygiene and the Republican Centre of Hygiene, Epidemiology and Public Health. Both of these bodies report to the Ministry of Health. The Republican Scientific Practical Centre of Hygiene is responsible mainly for scientific investigations, legislation and policy development, as well as setting standards intended to enter into force as by-laws and regulations. The Republican Centre of Hygiene, Epidemiology and Public Health is responsible mainly for monitoring, including the operation of laboratories and data collection and dissemination.

Together, the two centres have the following main tasks: draft and comment on legislation, acts and concepts for all strategies; conduct monitoring, control and surveillance, as well as

supervision of monitoring (such as air quality, drinking-water and bathing water); maintain contact with the European Union; and carry out technical supervision of environmental health activities of other agencies.

The main departments of the Republican Scientific Practical Centre of Hygiene in the field of environment and health are:

- Human Ecology and Hygiene of the Environment
- Occupational Medicine
- Toxicology
- Hygiene of Children and Adolescents
- Food Safety
- Physiochemical Laboratories.

The departments at the Republican Centre of Hygiene, Epidemiology and Public Health that work on environment and health topics are:

- Children and Environment;
- Communal Hygiene;
- Food Safety;
- Health and Environment Monitoring, Data Collection and Dissemination;
- Laboratories; and
- Occupational Health.

Subordinated to the Republican Centre of Hygiene, Epidemiology and Public Health are six regional centres, plus one for Minsk, and around 120 district, communal and town centres.

The Republican Scientific Practical Centre of Hygiene receives a fifth of its budget from the Ministry of Health for scientific research. The remaining budget is mainly generated through a system of state hygienic certification. Further funding is

obtained through different interministerial programmes, such as the Sanitary Welfare Programme and Children of Belarus, or through tasks it performs that are closely related to other ministries – for example, research on soil protection is funded by the Ministry of Natural Resources and Environmental Protection.

Through its functions of setting standards and certifying those standards – for example, annual hygienic registration of drinking-water suppliers – the Republican Scientific Practical Centre of Hygiene can impose restrictions on industries and small businesses, if a danger to health is perceived. It can also ban or restrict the market launch, sale or use of products, if these represent a danger to public health.

Given the multiplicity of areas of work and the increasing number of tasks, there seems to be an overall need for more well-trained professionals working in the field of environment and health services in Belarus.

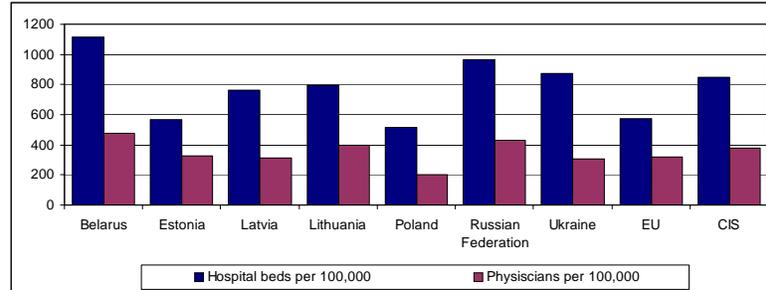
### **Human resources**

Compared with all countries in the WHO European Region, Belarus has the highest number of hospital beds and, after Greece, the second highest rate of registered physicians per 100 000 population: In 2006, Belarus had 1120 hospital beds per 100 000 population, compared with 966 per 100 000 population in the Russian Federation and 571 per 100 000 population (on average) in the European Union (see Fig. 9). In Belarus in 2006, 477 physicians per 100 000 population had been registered, compared with 431 physicians per 100 000 population in the Russian Federation and 320 physicians per 100 000 population (on average) in the European Union (20).

Despite these high numbers, there is a lack of personnel in primary health care in both urban and rural areas – for example, primary health care doctors form only 12% of all physicians in the country. Primary health care doctors are represented by three

types of physicians: (1) district internists working in city polyclinics; (2) district paediatricians working in children polyclinics and (3) general practitioners. (36).

**Fig. 9. Hospital beds and physicians per 100 000 population, in 2006, for selected countries**



Note. EU = European Union; CIS = Commonwealth of Independent States.

Source: European health for all database (20).

## Health financing

The Belarusian health system is (36: 29):

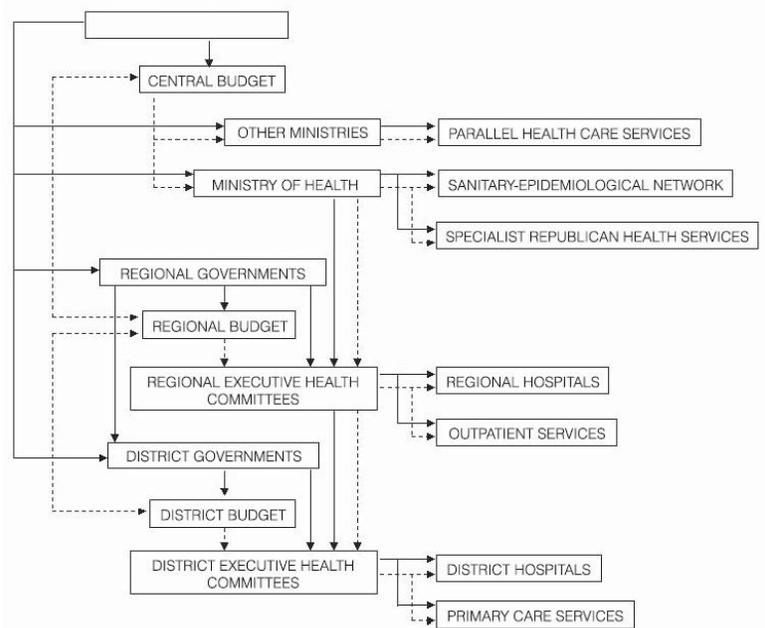
universal and directly funded through general taxation and coverage is not a significant issue. There is no system of social health insurance and there is only limited private voluntary health insurance (VHI).

Copayments only exist for costs incurred for pharmaceuticals and for services performed by dentists and opticians. The budget for the health system and the level of copayment have to be approved by the National Assembly and the president. Also, the following applies to revenue for health (36: 35).

Most revenue for health is raised at the local level and spent in accordance with centrally determined budgets. According to internal Ministry of Health data, in 2006, 86% of revenue for health care came from local budgets and 14% from the Republican budget, of which 9% is allocated directly to health facilities and 5% to centralized services such as the sanitary-epidemiological network and vertical programmes.

Fig. 10 shows the financial flow in the Belarusian health system.

**Fig. 10. Financial flows in the Belarusian health system**



Source: Richardson et al. (36: 28).

Article 45 of the Constitution guarantees the citizens of Belarus extensive entitlements to health care. Social benefits and minimal levels of support are defined by the 1999 Law on State Minimum Social Standards in the Field of Health Protection (39). Those benefits include health care services that range from diagnostic and treatment services to long-term care for the elderly and people with mental health problems. Thus, all primary, secondary and tertiary care costs are covered, and services are not rationed.

Some ministries and large state-owned enterprises provide parallel health care services for employees and their families. These services are not financed from central or regional budgets,

but are financed from the budgets of the enterprise or ministry concerned and may also cover aspects of occupational health care and spa treatments (36, 37).

## **Environment**

Core responsibility for environmental protection lies with the *Ministry of Natural Resources and Environmental Protection*. These responsibilities cover exploiting natural resources, protecting the environment and pursuing the state ecology policy. The objectives of technical regulations and standards in the field of environmental protection are to (40):

- protect life, health and inheritance rights and protect property and the environment;
- manage resources; and
- improve the competitiveness of products (services).

The main activities of the Ministry are in the fields of:

- developing the country's mineral resources;
- protecting the country's air quality;
- protecting the country's water resources;
- monitoring the environment in Belarus and analytical control of environmental protection;
- protecting and managing wildlife and hunting, and maintaining the status of nature reserves;
- hydrometeorological activities;
- use and protection of land, vegetation, forests and landscapes;
- organizing control of waste handling;
- environmental science;
- international cooperation; and

- environmental certification.

The Ministry also includes the Department of Geology and the Department of Hydrometeorology, as well as several state organizations subordinate to the Ministry of Natural Resources and Environmental Protection, such as the Central Research Institute for Integrated Water Resource Management.

Inspections of ecological conditions are performed in all districts and regions by a total of 1500 inspectors. These inspectors work in the field and in diverse laboratories subordinate to the Ministry of Natural Resources and Environmental Protection. This network of laboratories works independently of the laboratory network of the Ministry of Health (social and hygienic monitoring) and the Ministry of Emergency Situations (monitoring and prediction of emergencies), as their tasks are different.

The Natural Environmental Monitoring System collects mainly data on: soil, surface water and groundwater; air and the ozone layer; radiation; forests; the animal world; geophysical variables; plant operations; and the local environment.

The national plans, including the Environment Protection Action Plan and the National Programme of Environmental Monitoring, are financed by a special fund for ecology. The fund receives its support from environmental taxes and dues, as well as from fines charged for exceeding norms or emission limits. The Ministry of Natural Resources and Environmental Protection and its agencies also participate in the actions of other sectors, according to relevant agreements or regulations.

## **Other sectors**

### **Transport**

The *Ministry of Transport and Communications* is responsible mainly for the strategic and conceptual development of environmentally friendly and safe transport. The Ministry

implements a united road and transport policy, irrespective of the type of transport: road, water, air or rail. Under its control are also all non-state legal entities partly belonging to the state, such as public and cargo transport enterprises, transport-logistic centres, car repair plants, heavy duty and special truck production plants, river ports, shipbuilding and shipyard plants, airports, aircraft repair plants, and railway locomotive and coach plants. Some of the Ministry tasks also address public health (41):

- developing state management measures to motivate the public to use town passenger transport while leaving their own in parking places; and
- fulfilling environmental actions and providing safety for passenger and cargo transport.

About 3 million Belarusian motor vehicles are responsible for 80% of air pollution emissions. Although the number of vehicles (about 261 vehicles per 1000 population) is not yet high, it is growing; and plans are being made for measures that will fuel such growth, such as further construction of roads and parking areas. Also plans exist to increase the number of passengers in public transport, but there are no plans to promote cycling and build more cycling lanes. While the Ministry of Transport and Communications is responsible for the main policy, the actual planning has to be done by the regions and cities. The City of Minsk, for example, is preparing a master transportation plan for the city for the next 20 years.

### **Education**

The *Ministry of Education* pursues government policies, provides regulation, management and monitoring in the field of education, and coordinates related activities performed by the national organs of government.

The main tasks of the Ministry of Education are (42):

- developing and implementing government policies in the spheres of education, care and supervision of minors;
- implementing government youth policies;
- providing for the functioning and development of the national education system and the creation of a continuous learning system;
- coordinating the operations of: the national organs of government; education offices of the oblasts and Minsk City executive committees; organizations that implement the functions of the education system, government youth policies, children's rights protection, and care and supervision of adults;
- implementing government monitoring of the education system and government youth policies;
- assessing the implementation of government policies on child welfare;
- implementing measures for preventing child neglect and juvenile delinquency.

### **Agriculture**

The *Ministry of Agriculture and Food* manages and operates the following sectors of agriculture: farms, agricultural education, agricultural experimental and testing stations, and other agricultural organizations subordinate to the national government.

Besides the overall task of defining a unified state policy for agricultural production, management and coordination, the Ministry of Agriculture and Food also has responsibility for creating conditions that increase food resources and agricultural raw materials and improve the supply of food. In this regard, the Ministry exercises state control and supervision of the quality and safety of food raw materials and food products (of animal origin and crops) (43).

The Ministry is also responsible for the reconstruction and further development of agricultural townships and for securing living conditions in these areas (see also Chapter 2).

### **Housing and Communal Services**

The urban and regional development aspects of environment and health are dealt with by the *Ministry of Housing and Communal Services*. The Ministry has overall responsibility for the formation, implementation and coordination of public policies in the field of housing and communal services and for the coordination of activities of the three management levels in this field (national, regional and local) (44).

In this regard, the Ministry is responsible for the National Village Revival Programme – together with the Ministry of Agriculture (see above) – and for the National Clean Water Programme. The latter programme aims to increase the percentage of the population supplied with water and sanitation by building or renewing water and sewage pipelines.

The centralized collection of communal waste covers all settlements and villages. Local authorities are responsible for the waste removal system – in total. The Ministry is responsible for 170 major landfills; 4500 mini-landfills are under the control of local authorities or specialized companies, but it is planned to put all such landfills under the direct control of the Ministry. Of 170 major landfills, 120 have protective security measures and no leakages. The operation of the remaining 50 landfills will be stopped until 2014, and new ones will be built to replace them, according to the security measures established in the Law on Treatment of Solid Waste (38). Incineration is not regarded as a substitute for landfills, given the large costs involved.

### **Nongovernmental organizations**

As of July 2009, the Ministry of Justice had registered 15 political parties, 35 trade unions, 2216 nongovernmental

organizations (NGOs) (215 international, 699 national, 1302 local), 22 NGO unions (associations) and 80 foundations (9 international, 3 national, 68 local). In 2009, the group of registered NGOs included the following types of organization: 348 charitable organizations, 173 youth (children included) organizations, 136 organizations of disabled war and labour veterans, 106 NGOs of national minorities, and 70 NGOs involved in environmental protection and protection of historic monuments and cultural sites (45).

In the field of health care, most NGOs are “active in supporting people most seriously affected by the Chernobyl nuclear power plant disaster in 1986, and collaborate closely with international NGOs” (36: 18).

Of the NGOs working in environmental protection, only a few work in environment and health. One of the main reasons for this seems to be a lack of awareness, because in the last 20 years after the Chernobyl accident the problems of radiation dominated the discussion of environmental health.

The NGOs take different approaches to raise awareness about problems other than those stemming from the Chernobyl accident. Such approaches include information campaigns at schools, capacity building courses, proposals to legal authorities and participation directly in the development of National Strategies – for example, the National Sustainability Strategy until 2020.

Nevertheless, the level where NGOs seem to be most effective is the local level. Here they usually have close contact with local legislative authorities and can use their influence to pursue laws at this level.

## 4. Setting policy and the legal framework

### **Main conclusions**

- The legislative framework of Belarus in the field of health protection and environmental safety involves the country's constitution, laws, resolutions of the Council of Ministers, and by-laws (such as orders of ministers and departments, sanitary norms and rules, standards, and construction norms and rules).
- The legislation is quite comprehensive and aims to improve living conditions and public health. However, specific objectives and indicators that measure progress towards those objectives are not defined.

### **Recommendations**

The following actions should be considered to improve the national capacity to address environment and health risks in Belarus:

- revise the monitoring system to enable assessment of the performance of environment and health programmes and policies (with measurable indicators, milestones, objectives, targets) and of priority environment and health risks;
- conduct an integrated assessment of data and information, with the aim of formulating strategic conclusions;
- specify qualitative and quantitative targets for the policies and programmes designed to improve the environmental conditions of life;
- promote stronger and more explicit integration of health considerations in legislation and national plans that address environmental protection, management of natural resources and waste disposal;
- in urban development plans, consider the adverse effect on health of accelerated growth in the number of vehicles and

consider the need for healthy and environmentally friendly alternatives to the use of private cars.

- reorganize and change the financing of the sanitary–epidemiological network to improve performance and innovation;
- improve conditions for the continuous development of capacities of personnel involved in environment and health actions;
- facilitate access to foreign literature and the international exchange of experiences;
- improve the capacity for effective communication with the public;
- improve the capacity for environment and health risk management – for example, through the involvement of management schools, as well as the inclusion of cost–benefit analysis; and
- integrate human and organizational resources that focus on following up the Chernobyl nuclear accident in the public health system and that are used to assess and manage other possible environmental health risks.

### **Health policies related to environment and health**

The legislative system of Belarus in the field of health protection and environmental safety involves the country's constitution, laws, resolutions of the Council of Ministers and by-laws (such as orders of ministers and departments, sanitary norms and rules, standards, and construction norms and rules). Definite requirements for children's health, in connection with exposure to the environment, are regulated by by-laws, primarily in sanitary norms and rules (I. Zastenskaya, unpublished observations, 2009).

### **Environment and health: "hard" law**

A number of different laws and presidential decrees provide the foundation for environment and health considerations. A major

legislative enactment that governs the right of citizens of Belarus to a healthy lifestyle and health protection (also achieved through a favourable habitat and safe labour) is the *Constitution of the Republic of Belarus (46)*. The Constitution also governs the right of children to: receive care from their parents and educators; develop physically; and be protected from abuse.

*The Law on Health Care* guarantees citizens the right to health protection, which is secured by creation of safe environmental conditions, and defines the prevention of disease as a priority of the state policy in the field of health protection.

A major legislative enactment of Belarus that governs the requirements of habitats is the *Law on Sanitary and Epidemic Safety of People*. It sets forth the legislative and organizational basis for: preventing exposure to unfavourable environmental factors; ensuring sanitary conditions and safety from epidemics; maintaining and improving health; ensuring physical and mental development; and fostering long active lives. It specifies a set of actions to be taken to secure sanitary conditions and safety from epidemics and guarantees the right of citizens to a favourable habitat and recovery of damage to health inflicted by a breach of sanitary and epidemic law. The Law also guarantees access to full and reliable information on sanitary and epidemic situations. In addition, provisions of a separate article of the Law govern the requirements of the conditions for training and educating children and teenagers to maintain their health and prevent them from contracting diseases.

The *Law on Environmental Safety* is a major legislative enactment that establishes the bases for environmental safety and secures the constitutional right of citizens to an environment safe for their life and health.

Further laws that relate to environmental health are (I. Zastenskaya, unpublished observations, 2009):

- the Law on Drinking-Water Supply (of 24 June 1999.);
- the Law on Child Rights;
- the Law on Physical Culture and Sports (of 18 June 1993, revised 29 November 2003.) (Article 8);
- the Law on Atmospheric Air Protection (of 15 April 1997, revised 10 July 1997);
- the Law on Ozone Column Protection (of 12 November 2001);
- the Law on Quality and Safety of Food and Foodstuffs for Human Life and Safety (of 29 June 2003; Article 10: Information on quality and safety of food and foodstuffs);
- the Law on Wastes (of 26 October 2000);
- the Law on Radiation Safety of People (of 5 January 1998, revised 21 December 2005);
- Presidential Decree on Actions to Improve Traffic Safety (No. 551 of 28 November 2005); and
- Presidential Decree on State Control of Production and Turnover, Advertising, Consumption of Tobacco Raw Materials and Products (of 17 December 2002, revised by Presidential Decree No. 143 (of 8 April 2003) and by Presidential decrees No. 1 (of 16 February 2004), No. 14 (of 16 November 2004), No. 285 (of 18 June 2005), and No. 15 (of 4 September 2006).

### **National programmes**

Actions directed to enforce the country's legislative enactments that protect health and environment, including protecting children's health, are specified in existing programmes and action plans, such as:

- Children of Belarus: the National Plan of Actions directed to Improve the State of Children and protect their Rights for 2004–2010 (approved by Council of Ministers Resolution No. 1661 of 18 December 2003);

- State Programme to Secure Sanitary and Epidemic Safety of the Population, 2007–2010 (approved by Council of Ministers Resolution No. 1596 (of 29 November 2006));
- National Plan of Actions directed to secure Sound Management of National Resources and Environmental Safety, 2006–2010 (approved by Presidential Decree No. 302 of 5 May 2006); and
- National Demographic Safety Programme for 2007–2010 (approved by Presidential Edict No. 135 (of 25 March 2007)).

The programme Children of Belarus: the National Plan of Actions directed to improve the State of Children and protect their Rights for 2004–2010 intends to further implement the state youth policy. The programme's main objectives are to: raise the prestige of quality education and create greater opportunities for receiving it; support creative youth and youth interested in doing research; develop the permanent employment system; promote a healthy way of life; support young families; develop youth tourism; and take preventive measures against the spread of crime, drunkenness and drug addiction among young people.

### **Sanitary standards and regulations**

In the field of environment and health, many sanitary standards and regulations clarify and specify the laws and decrees. For example, in the field of water provision and sanitation the following sanitary standards and regulations are defined:

- Sanitary standard and regulation 10-124 RB 99: Drinking-water: hygienic requirements to the quality of water in centralized drinking-water supply systems – quality control;
- Sanitary standard and regulation 8-83-98 RB98: Requirements to the quality of water in non-centralized water supply systems – sanitary protection of sources;

- Sanitary standard and regulation 2.1.5.12-43-2005: Sanitary rules to be applied for water discharge systems in small towns;
- Sanitary standards and regulation 2.4.4.14-11-2003: Hygienic requirements to arrangement, upkeep and organization of the educational process at health improvement institutions with daily stay of children during holidays; and
- Sanitary standard and regulation 14-31-95: Sanitary norms and rules of arrangement and upkeep of infant schools.

Other sanitary standards and regulations are described in Annex 4.

### **Environmental policies**

One of the major principles of environmental protection in Belarus (Article 4 of the Law on Environment Protection) is to comply with the right of citizens to a favourable environment and to secure favourable conditions for their life and health.

From 2000 to 2008, legislative revisions aimed to accede to international conventions, such as the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade and the Kiev Protocol on Strategic Environmental Assessment. In April 2009, Belarus ratified the Protocol on Water and Health to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes.

In 2006, the National Action Plan on Rational Use of Natural Resources and Environmental Protection of Belarus in 2006–2010 was introduced. In accordance with the National Strategy for sustainable socioeconomic development of Belarus for the period until 2020, the strategic objectives of the country's environmental policy are to:

- create an enabling environment
- improve living conditions and public health
- ensure environmental safety.

Accordingly, the main objectives of this national action plan are to (40):

- reduce adverse human effects on the environment and further improve environmental conditions conducive to preserving public health;
- manage natural resources, their economy, and the gradual elimination of their extensive use;
- create an optimal network of specially protected natural areas and wetlands and preserve biodiversity; and
- develop applied scientific research that can create a framework for the introduction of energy-saving and low-waste technologies, modernize production facilities, and increase the proportion of secondary resources and waste used.

Prevention of the adverse effects of planned economic activities on the environment by conducting ecological expert examination of the design and construction stages is governed by the Law on State-conducted Ecological Expert Examination (of 18 June 1993, revised 14 July 2000).

One environmentally pressing problem is waste disposal. Since February 2008, a new law on treating waste bans the burial of secondary materials and gives priority to the use of such recyclable secondary materials as paper, glass, textiles, plastics and metals. At the moment, only 6–8% of a possible 45% of the urban waste can be recycled. Since recycling facilities in big cities are still being planned, a separate collection system still needs to be introduced, and efficient sorting stations have to be organized. The Ministry of Housing and Communal Services is responsible for collecting communal waste and installing the recycling system.

As incineration of non-recyclable waste is undesirable – mainly due to its high costs, compared with landfills – only waste deposit sites exist: 170 major landfills and about 4500 small communal landfills. Some of the old landfills have problems with leakage, but they are not considered the main concern. The main concern is old hazardous waste that is planned to be removed and concentrated on specialized landfills. Since 1990, only one specialized landfill exists in the contaminated area of the Gomel Region. In this context the secure dumping and removal of about 4000 tonnes of old pesticides (from the 1970s and 1980s) are considered problematic. These are buried and monitored in seven major dumping sites for which the types of pesticide the sites contain are unknown, as is with what they are mixed. It is planned to liquidate these sites and remove their contents to specialized sites. Up to now, only one site has been cleared of old pesticides. In the future, about 3000 tonnes of pesticides kept by agricultural farms still need to be managed properly.

In addition to the problems with pesticides, there are problems cleaning up ex-military bases, as soil and water are often contaminated chemically – for example, through the use of petrochemical products, or even radioactive materials. Nonetheless, these areas will be cleaned and converted into recreational areas.

Also, there is a need for more information on hot spots in urban and residential areas – for example, around industrial areas. So far, soil investigations in residential areas are not conducted, because responsibility for these investigations has yet to be established. Moreover, problems with heavy metals in industrial areas and Minsk are a concern because of the potential for soil contamination and contamination of surface waters. Furthermore, surface waters in rural areas have biogenic problems caused, for example, by phosphorus.

## **Transport policies**

The country's *traffic rules* prescribe speed limits (especially in pedestrian areas), rules for the safety of passengers (children), and rules for the movement of children in the vicinity of roadways. They have been approved by the Presidential Decree on Actions to Improve Traffic Safety (No. 551 of 28 November 2005). The Decree covers such issues as how to organize the bulk production of reflecting elements intended to make pedestrians visible at night and how to promote the use of such elements.

A number of actions aimed at preventing road traffic injuries can be found in sanitary safety regulations that describe: day-care services, including organized travel to school when it is located far from residential areas; equipping waiting locations with protection from roadways; and positioning infant rehabilitation centres far from roadways

## **Other sectors**

### **Education**

In the field of environment and health, the *Ministry of Education* develops and finances teaching material on health education, such as personal hygiene, as well as environmental projects, such as schoolyard gardens and farms, and school forestry. Schoolyard gardens can be found in all schools in villages, but less so in cities. A school farm competition is held every year at the district and regional level to improve land use; yearly scientific research competitions on ecological projects are also held. Moreover, around 700 forestry schools exist, with over 50 000 children joining forestry groups.

Unhealthy food, such as fatty fast food and sweets, are banned from schools. School lunch is free of charge and paid for by the state budget. In rural areas, a second breakfast is offered free of charge and, depending on the contamination of the area (such as the Gomel Region), a second lunch can also be offered. To

increase the consumption of fruits and vegetables, there are plans to promote these products more and drop pastries from school menus.

As mentioned above (in the subsection on “Respiratory health and outdoor and indoor air quality”), strict construction regulations and standards for furniture exist, and each year a commission of the local authorities visits educational institutions and grants permits for health, sanitary, nutrition and sporting facilities. Schools are normally located inside residential districts, but further promotion of walking and cycling safely to schools in cities is needed.

### **Agriculture**

The National Children’s Foods Programme – a subprogramme of the Children of Belarus Presidential Programme, coordinated by the *Ministry of Agriculture and Food* – secures a supply of healthy products (especially milk) for 80% of the children under 2 years of age. The prices for dairy products are also set by the Ministry and, to promote more low-fat products, products with lower fat content have a lower price.

### **Housing and communal services**

A system of separate waste collection is being introduced. By now, about 40% of the urban population has the possibility of separating waste into glass, plastic and paper. For several other recyclable products (such as metals and clothes), special collection points exist where people get refunds for their recyclable products.

## 5. Tools for action and intersectoral collaboration

### Conclusions

- The monitoring of health and the environment is very intensive and is conducted independently by a large number of institutions and laboratories. Reporting, however, is fragmented and does not allow easy evaluation of trends and patterns of environmental health risks. Also, data are not adequate for monitoring the effects of interventions. Moreover, strategic analysis and integration of information produced by those systems is difficult.
- Besides serving as a tool for controlling compliance with the existing norms and regulations, the results of monitoring are used to describe the status of health and environmental conditions where there is little information about human exposure to environmental determinants of health.
- Risk assessment and environmental impact assessment are well established and focus mainly on industrial hazards.
- Broader forms of impact assessment (such as health impact assessment and strategic environmental assessment) are not routinely conducted, but there is good potential (and interest) for developing them.
- Comprehensive reports on environment and health are prepared annually by health and environment authorities. However, they do not provide critical assessments of patterns and trends in the current situation, and their format is not well suited to the needs of decision-makers or the general public.

### Recommendations

- Programmes that implement environmental and health policies should be equipped with measurable indicators, milestones, objectives and targets that enable the assessment

of programme performance in improving environmental and health conditions.

- Monitoring systems should be revised to allow evaluation of the main environmental health risks and the way they change due to implemented policies and programmes. A limited set of core indicators should be agreed upon and followed in assessing reports, with the aim of formulating strategic conclusions based on the integrated assessment of the data and information.
- Efforts to adopt standardized methods in risk assessment should be scaled up. A more proactive approach to risk assessment, including cost–benefit analysis and targeting more hazards than those traditionally considered, might be beneficial.
- Data collection systems should be streamlined and harmonized, to allow better access for integrated strategic analysis and evaluation – subnationally, nationally and internationally.
- The existing dialogue between different sectors – health and environment, in particular – should be strengthened, to allow concrete progress in adopting various international conventions.
- Presentation of the analysis of the state of the environment and health should be adjusted to the needs of the general public and decision-makers.
- The capacity of professionals to effectively communicate with the public about environmental health issues – thus establishing a better understanding of the role of environmental conditions in shaping health – should be improved.

According to a review of environment and health policies in the Member States of the WHO European Region conducted by WHO in 2009/2010 (47), Belarus counts on collaborative structures for integrating health in other policies. The Ministry

of Health has a dedicated unit that organizes health-related intersectoral programmes. In general, the following sectors are involved in developing these programmes: agriculture, building and construction, housing, education, energy, environment, industry, labour and transport. To ensure sustainable coordinated action, both formal and informal meetings of collaborative structures take place between different departments of the Ministry of Health and among the different sectors. Besides this, competencies and responsibilities of each party are considered to be well defined (47).

Nevertheless the visits to the different ministries revealed that there is still room for improvement, as described below.

## **Monitoring**

The main sources of information for assessing environmental health risks are the Ministry of Health, through its system of socio-hygienic monitoring and sanitary supervision, and the Ministry of Natural Resources and Environmental Protection, through the national system of environment monitoring. The scope of reporting from this system is regulated by the decision No. 734 of the Council of Ministers of 24 May 2008.

The socio-hygienic monitoring data are derived from several reporting forms collected twice a year from the 134 territorial centres and are used to produce annual reports and bulletins. The main focus of the monitoring is registered morbidity (in particular, due to communicable diseases) and environmental conditions of residential areas and their adverse effects on health. The results of monitoring and a short analysis of them are published by the Ministry of Health in an annual report.

The assessment of environmental conditions covers:

- water quality in water distribution systems and individual wells;

- recreational water quality;
- ambient air quality
- sanitary conditions of residential areas (waste and soil pollution);
- workplaces and occupational diseases;
- food hygiene; and
- radiation hygiene.

This socio-hygienic monitoring involves the intensive work of 124 microbiological and 110 chemical or physical laboratories. Only one of these laboratories, however, has international accreditation. The air quality monitoring performed by these laboratories (with close to 90 000 samples collected in varying locations in 2007) supplements that conducted by the agencies of the Ministry of Natural Resources and Environmental Protection.

Besides the routine assessment of environmental conditions, the regional centres of hygiene conduct, in the framework of socio-hygienic monitoring, a broad range of studies on the health status of the population. These include a large diagnostic study of 140 000 schoolchildren (15–17 years of age) in Minsk, in 2007, where a wide range of parameters related to physical and functional development were measured. It is, however, not clear to what extent this study was designed and conducted in a way that allows assessment of potential adverse effects of environmental factors on children's health and enables focused reduction of the risks identified.

In several regions, efforts are underway to establish databases on population health status, based on statistical data.

Health status information is collected by a large number of specialized institutions in the health sector and is used for internal analysis and management. This leads to segmented and

fragmented reporting as “each specialty has its own reporting system and there is little coordination between them” (36: 48).

Registration, by cause, of mortality due to injuries is conducted by the agencies of the Ministry of Health. It enables analysis of mortality in several age groups (below, in and above working age) and according to an extensive list of external causes of accidents (though not corresponding totally to the international classification of diseases, ICD-9 or ICD-10).

Registration of occupational injuries and their health consequences in Belarus present a different picture of risks in the occupational environment than that of the countries of the European Union. According to the European health for all database (20), the registered incidence of occupational injuries in Belarus is 20 times lower than in European Union. Similar relationships are observed for other countries of the newly independent states, so it might be that the system of reporting explains, at least in part, this pattern, with less severe accidents avoiding registration in countries of the newly independent states. Consistent with this hypothesis is the possibility that fatality resulting from registered less severe accidents is much higher in of the newly independent states than in the European Union.

The Ministry of Internal Affairs registers traffic accidents, including the registration of the number of people killed or injured and specification of the role of the accident victim (driver, passenger, pedestrian).

The wide distribution of responsibilities for data collection and processing (as well as aggregation of the data before they are collected on a central level) makes the integration and use of the data for analysis of health status (as well as the links between health and environmental factors and also strategic assessment of the system performance) very difficult.

The National System of Environment Monitoring is considered to be a priority in Belarus's environmental policy. It has been in existence since 1993 and was updated in 2004. It integrates monitoring activities conducted by the agencies of the Ministry of Natural Resources and Environmental Protection (air, surface water and groundwater, ionizing radiation, and nature), the National Academy of Sciences (geophysical qualities and vegetation), the Ministry of Education (stratospheric ozone), the Ministry of Forestry (forests), and the National Committee of Territory (soil). The reports that present summaries and assessments of the results are published every few years (the most recent report, presenting the results from 2007, was available in the fall of 2008).

The Department of Hydrometeorology of the Ministry of Natural Resources and Environmental Protection monitors air quality in 17 cities through 58 monitoring stations. These stations collect samples of suspended particulate matter, sulfur dioxide, carbon monoxide and nitrogen dioxide, as well as specific hazardous pollutants in selected stations. The samples are collected in 20-minute periods three times a day. More than 366 000 air pollution samples are collected and analysed annually. Continuous automatic monitors of PM<sub>10</sub> were installed in four cities in mid-2006; these monitors focus on monitoring population exposure to PM<sub>10</sub> – that is, they are located in urban background areas. An expansion of this network, including hot-spot locations, is planned for the next few years.

The results of monitoring and their evaluation are presented in the annual report of the National System of Environmental Monitoring, as well as in other reports. The report on the health of the population of Minsk uses the PM<sub>10</sub> monitoring data from the one station available to estimate the health burden of air pollution on this population (though without a reference to the methods used).

## **Assessment of risk, environmental impact and health impact**

The development of a system of socio-hygienic monitoring, based on risk assessment of environmental factors, is among the main aims of improving the sanitary and epidemiological safety of Belarus's population (48). Several instructions on methods of assessing the risk of chemicals in environmental media (such as air and water) and of noise were published in the years 2003–2005. Examples of application of these methods in local decision-making – in particular, those for chemical contamination of drinking-water – are published in the *State report* of 2008 (48).

Data from monitoring environment hazards are the main source of information for the various forms of assessment of the possible adverse effects on health in the country and provide a basis for some intersectoral action. In terms of physical hazards to the general population, there is a tradition of preventing environmental hazards, mainly airborne, from industrial facilities. This tradition is based on imposing a certain distance between such sources and residential areas and schools. This approach (made possible by the low population density of Belarus) is, however, under review, given the increasing cost of land (especially in urbanized areas) and the widespread availability of technologies that reduce emissions to a low level.

Risk assessment exercises are initiated in specific instances, where new facilities or new technologies are introduced or proposed, with a view to update the definition of safety distance zones. Methods, models and tools for risk assessment are being updated and will be based on standard methods applied in European Union settings and by the United States Environmental Protection Agency. Consideration is given to both long- and short-term health end-points that relate to predicted exposures to contaminants at ground level.

While risk assessment provides a valuable tool for dealing with specific hazards, it is also used in Belarus for carrying out broader forms of assessments that involve intersectoral collaboration. As in many countries worldwide, environmental impact assessments are well established in Belarus. The Ministry of Natural Resources and Environmental Protection, which has yearly workplans that include impact assessment activities, is the main body that carries out environmental impact assessments on new industrial developments.

In its impact assessment activities, the Ministry makes efforts to consider a broad range of possible adverse effects on the physical environment, as well as the implications and adverse effects possibly occurring indirectly – for example, through changing patterns in transport and different needs for human settlement. Environmental impact assessments thus guide the development of environmental requirements on the construction of facilities and infrastructure.

The tradition of environmental impact assessments can provide a useful entry point for developing stronger consideration of human health. For example, a health impact assessment can effectively build on an environmental impact assessment, by taking advantage of the existing expertise and familiarity with impact assessments, institutional frameworks, and some of the common methods.

In Belarus, health impact assessments are not widely known or used, as in most countries in the eastern part of the WHO European Region. However, conditions for its introduction seem favourable.

A potential opportunity for introducing health impact assessments is offered by the interest in the country in strategic environmental assessments. While Belarus was not a signatory party to the 2003 United Nations Economic Commission for Europe Kiev Protocol on strategic environmental assessment, there is interest in ratifying it, and preparations are being made

for its entry into force, anticipated to occur in 2010 or 2011. Among the numerous international agreements or conventions that Belarus adopted or will adopt, the Kiev Protocol clearly provides for the full inclusion of human health in environmental assessment, thus opening the door to a systematic and complete consideration of the health consequences of proposed plans, projects or policies.

The use of strategic environmental assessments and their potential value were mentioned in connection with tourism, a strategic sector. This was prompted by a reported increase in the country's tick population.

Access to all international conventions and protocols and development of the necessary capacity require human and financial resources. A stable mechanism for this is in place in Belarus: the National Ecological Fund. This common basis of funding also offers the opportunity to establish connections between the different areas of relevance of the different legal instruments. For example, it seems particularly desirable to include human health considerations in the development of regulations on natural resources. Such efforts are underway in the country.

### **Capacity building**

The Belarusian State Medical University in Minsk includes departments of preventive medicine and trains specialists in epidemiology, hygiene and sanitary-hygienic laboratory methods, mainly for the system of sanitary inspection. Close to 120 people are graduated from these departments annually. These departments cover the following subjects:

- microbiology, virology and immunology
- general and food hygiene
- occupational health
- hygiene of children and youth
- radiation medicine and ecology

- infectious diseases
- pulmonology
- skin and sexually transmitted diseases
- biology
- biochemistry.

Postgraduate education is provided by the Belarusian Medical Academy of Postgraduate Education. Among its various courses, it offers training in methods of sanitary–hygienic studies, as well as training in the basic methods of statistical analysis. Besides its teaching activities, the Academy conducts research and provides expert opinions on legal and organizational acts. The Chair of Hygiene and Medical Ecology plans to undertake studies on the adverse effects of environmental factors on health and on increasing international collaboration.

National conferences on health and environment, such as the one organized in Minsk in September 2008, provide good opportunities for the exchange of experiences between Belarusian specialists and foreign experts; and these conferences contribute to the building of expert capacity.

The relatively limited access of Belarusian specialists to materials and documents in English restricts their capacity to profit from professional discussions, international journal articles and books from other countries, which are available predominantly in English. This delays the transfer of knowledge of dynamically developing disciplines, such as environmental epidemiology, exposure assessment and risk assessment. It also impairs the ability of Belarusian specialists to participate in international collaborative projects or conferences, which often provide important opportunities for professional capacity building.

## Communication

According to the Law on Sanitary and Epidemic Safety of People, the citizens of Belarus have the right to obtain full, reliable and timely information on sanitary and epidemic conditions, as well as human habitat conditions. This principle is followed by the state agencies that produce annual reports on the sanitary–epidemiological status of the country and its parts (such as the City of Minsk). The principle is also followed for annual reports from the national system of environmental monitoring. Current information is published on the web sites of the Republican Centre of Hygiene, Epidemiology and Public Health (49) and the Ministry of Natural Resources and Environmental Protection (40).

The annual report on the sanitary–epidemiological situation is comprehensive and timely. However, the number of copies printed is quite small (55 copies) and the electronic version is not easily accessible on the Internet. The report presents the activities of the public health services and also information on the incidence of communicable diseases and health-related aspects of the environment. The report is directed mainly to professionals, as its style and format are too difficult for general readers.

Some aspects of the annual report need to be improved. For example, although long-term trends are presented for the incidence of selected communicable diseases, many other indicators are provided with a comparison to a previous year only, making assessment of longer-term trends difficult. The indicators are described one by one, and a more comprehensive assessment of the situation is not presented. Also, no reference is made to similar situations in other countries, which would allow for a comparative analysis of Belarusian data. Moreover, summaries with conclusions from the assessment are missing, making the report difficult for decision-makers to use.

The annual report of the national system of environmental monitoring is available on the Internet (50). As with the reports prepared by the agencies of the Ministry of Health, it is very detailed and oriented to specialists. Also, the synthesis and assessment of the health situation are not presented in the reports, and summaries suitable for decision-makers or the general public are not published.

The web pages of the Republican Centre of Hygiene, Epidemiology and Public Health (49) contain – besides official documents, such as laws and decisions – timely useful information for the general public, such as warnings on mushroom poisoning and the list of recreational bathing places closed to the public because the bathing water does not comply with sanitary criteria. Although these reports are very useful and timely (providing current information), the format of communication could be improved – for example, by including graphical presentations, besides the currently available two pages of plain text.

The specialists of the hygienic centres provide information to the media (daily press, radio, television). However, the centres do not have public communication specialists or press officers, thus limiting professional preparation of communications. To partially remedy this, the Ministry of Natural Resources and Environmental Protection has organized seminars for journalists, to inform them about the environmental issues and to engage in relevant communication activities.

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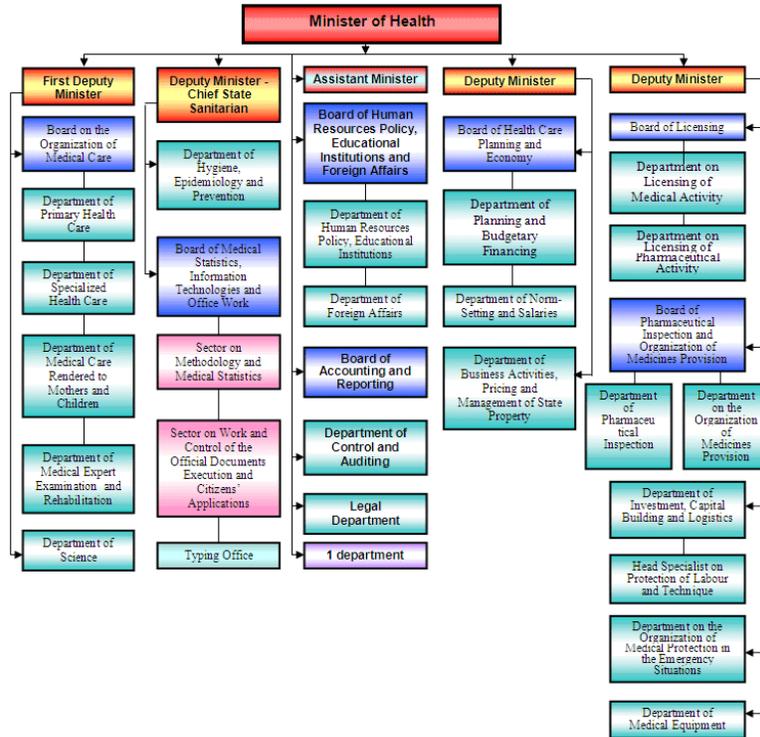
## Annex 1. EHPR mission to Belarus, 17– 21 November 2008, schedule of meetings with national authorities in Minsk

Date, time and venue	Attendee	Title
<b>17 November</b>		
9:00–13:00 Republican Scientific Practical Centre of Hygiene (RSPCH) Minsk	Irina Zastenskaya Stanislav Chudnitsky Natalia Farino Grigoriy Kosiachenko Tatiana Naumenko Valeriy Kluchenovich Helena Drozdova Liudmila Melnikova Leonid Polovinkin Irina Kedrova Valentina Kachan	Deputy Director Head of Laboratory Head of Department Head of Department Head of Laboratory Head of Laboratory Scientific Worker Head of Laboratory Head of Department Head of Laboratory Deputy Minister, Main Sanitary Doctor of the Republic of Belarus
14:00–15:00 Ministry of Health	Alexandr Apatskiy  Valeriy Filonov Valeriy Grin  Galina Loseva  Nelli Ginduk Irina Zastenskaya Leonid Lomot  Vladimir Rostovtsev  Nataliya Shut Anatoliy Shagun Aleksandr Sushkho Egor Zaitsev	Vice-Minister of Natural Resources and Environmental Protection Director of RSPCH Head of the Republican Centre of Hygiene, Epidemiology and Public Health (RCHE&PH) Deputy Chief of the Department of Hygiene (Ministry of Health) Deputy Chief of RCHE&PH Deputy Director of RSPCH Deputy Director of the Republican Scientific Practical Centre of Traumatology Head of Department of the Republican Scientific Practical Centre of Medical Technologies, Information Management and Economy in Health Care Republican Centre of Sports Medicine (Ministry of Sports and Tourism) Specialist of the Ministry of Housing and Communal Services State Automobile Inspection, Ministry of Internal Affairs WHO Office in Minsk
15:00–18:00 RCHE&PH	Nelli Ginduk Liudmila Naroichik Victor Voitsekobsky Anhzela Skuranovitch Vadim Gulin Irina Milanovitch Uriy Goreniuk	Deputy Chief of RCHE&PH Deputy Chief of RCHE&PH Head of Department Head of Department Head of Department Head of Division Head of Division

	Alexandr Rakevitch Alla Malakhova Olga Bartman Semen Posin	Head of Division Head of Division Head of Department Specialist
Minsk Regional Centre of Hygiene	M. Bogomia	Head of Division
Minsk City Centre of Hygiene	P. Amvrosiev	Deputy Chief
Sanitary–Epidemiology Establishment "The Road Centre of Hygiene and Epidemiology"	O. Kolos	Head of Division
<b>18 November</b>		
9:00–13:00 Research Institute of Water Resources of the Ministry of Natural Resources and Environmental Protection	Alexandr Rachevsky Svetlana Utochkina Maria Germenchuk  Sergey Zavialov Valentina Zhed Alexandr Andreev Sergey Kuzmenkov Liudmila Leonova Vladimir Savchenko Alexandr Pakhomov	Head of International Department Head of Department Head of Hydrometeorology Department Head of Department Specialist Head of Department Head of Department Specialist Head of Department Head of Division
14:00–16:00 National Academy of Science Food Centre	Zinon Lovkis Vasiliy Tsigankov	Director Head of Division
14:00–16:00 Ministry of Education	Anna Rysevets	Specialist
16:00–18:00 Ministry of Labour and Social Protection	Leonid Grakovitch	Head of Department
16:00–18:00 Department of Chernobyl Catastrophe Consequences Elimination, Ministry of Emergency Situations	Nikolay Tzibulko Iakov Kenigsberg	Deputy Chief Main Scientific Worker of the Institute of Radiology
<b>19 November</b>		
12:00–14:00 Gomel (out of Minsk) Republican Scientific Practical Centre of Radiation Medicine and Ecology	Alexandr Rozhko Eldar Nadirov	Director Head of Department

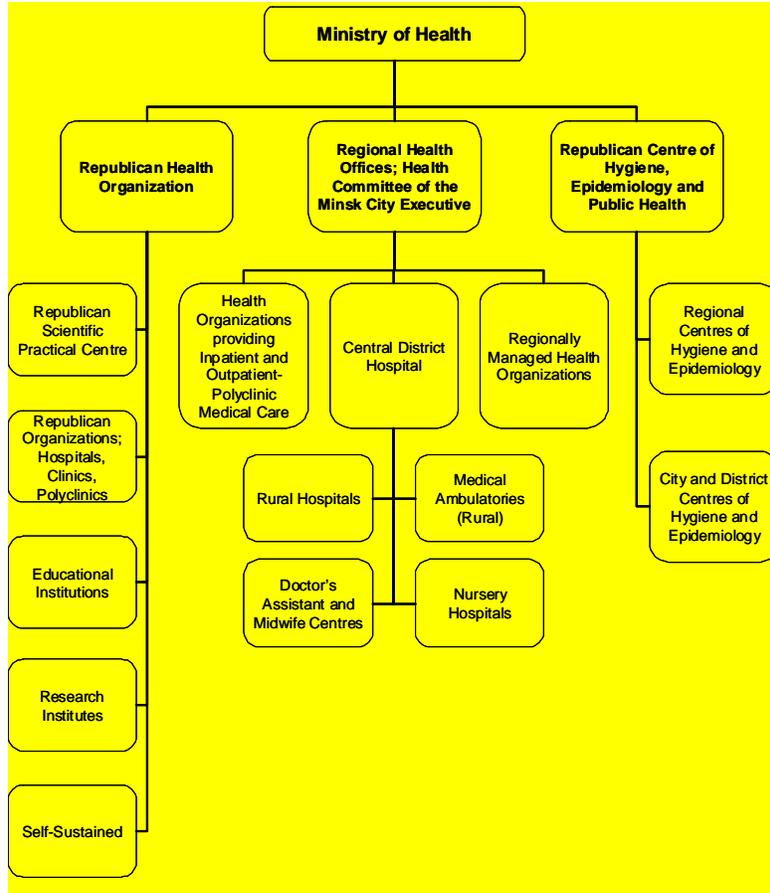
National Academy of Science, Institute of Radiobiology,	Vladimir Kudriashov	
Gomel Regional Committee of Environmental Protection	Oleg Cherkas	Chief
Gomel Regional Centre of Hygiene	Nikolay Skoromyiy	Deputy Chief
Minsk: 9:00–11:00 Republican Scientific Practical Centre of Traumatology	Leonid Lomat	Deputy Director
11:00–13:00 Ministry of Agriculture and Food	Michail Saveliev	Deputy Minister
14:00–16:00 Ministry of Transport and Communications, Belarusian Institute “Transtechica”	Sergey Novosielov	Head of Department
16:00–18:00 Minsk Regional Committee of Environmental Protection	Alexandr Borovichov	Chief

## Annex 2. Organizational chart of the Ministry of Health



Source: Ministry of Health (37).

### Annex 3. Organizational structure of the Public Health Authority



Source: Prepared by I. Zastenskaya.

## **Annex 4. Additional information by regional priority goal: overview of directives, regulations and protocols**

### **Regional priority goal 1: water and sanitation**

#### **Summary**

According to the European Environment & Health Action Plan 2004–2010, this goal can be achieved by: providing day-care centres with safe drinking-water and water discharge; implementing national programmes that aim to increase the share of living quarters equipped with water supply and a connection to a sewage system; training people who care for children; and training and educating children about hygiene.

In general, Belarus has developed a regulatory legal base that governs water supply and water discharge for human settlements (in general) and for day-care institutions (in particular). The country is implementing programmes and plans of action aimed at improving water supply and water discharge and is supervising education in the field of hygiene.

Regulatory enactments insufficiently indicate the requirements for specific features for children in recreational areas. To solve this problem, preparatory work on the relevant regulatory document was undertaken in 2008.

#### **Institutional set-up**

The main bodies of state administration that have control over water supply and discharge are: the Ministry of Housing and Communal Services, the Ministry of Public Health, and the Ministry of Natural Resources and Environmental Protection. Local authorities, however, govern the implementation of practical actions intended to improve water supply and sewage systems in human settlements.

## **Tools for management**

The following are the main laws, sanitary standards and regulations (SSRs), programmes and policies:

- Law on Sanitary and Epidemic Well-Being of People (Article 30 and Article 35);
- Water Code (of 15 July 1998);
- Law on Drinking-water - Supplement (of 24 June 1999);
- SSR 10-124 RB 99: Drinking-water – hygienic requirements for the quality of water in centralized drinking-water supply systems: quality control;
- SSR 8-83-98 RB 98: Requirements for the quality of water in non-centralized water supply systems – sanitary protection of sources;
- SSR 2.1.5.12-43-2005: Sanitary rules to be applied for water discharge systems in small towns;
- SSR 14-46-96: SSRs for the arrangement, upkeep and organization of the educational process at secondary general schools;
- SSR 2.4.4.14-11-2003: Hygienic requirements for the arrangement, upkeep and organization of the functioning of recreation centres for day stay of children during holidays;
- SSR 14-121-99: SSRs for the arrangement, upkeep and organization of the educational process and industrial training at vocational and secondary special schools;
- SSR 2.4.4.16-35-2005: Hygienic requirements for the arrangement, upkeep and organization of the functioning of sanatoria for children and sanatoria for children with parents;
- SSR 2.4.4.14-5-2004: Arrangement, upkeep and organization of the functioning of rehabilitation centres for children;
- SSR 2.4.4.14-17-2004: Arrangement, upkeep and organization of functioning of labour and rest camps for pupils;

- SSR 2.4.4.16-52-2005: Hygienic requirements for the arrangement, upkeep and organization of the functioning of special exercise institutions;
- SSR 2.4.16-2-2005: Hygienic requirements for the arrangement, upkeep and organization of the functioning of orphanages;
- SSR 14-31-95: SSRs for the arrangement and maintenance of preschool institutions;
- SSR 2.1.2.10-39-2002: Hygienic requirements for the arrangement, operation and quality of water in swimming pools;
- State Programmes: Pure water;
- State Programme: Securing sanitary safety; and
- National Action Plan to Improve the Position of Children (National Plan of Actions Directed to Secure Sound Management of National Resources and Environmental Safety, 2006–2010).

In April 2009, Belarus ratified the Protocol on Water and Health to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, which will make it possible to boost actions to reach regional priority goal 1.

## **Regional priority goal 2: injuries and physical activity**

### **Summary**

To reduce injury and death in children due to external factors, Belarus plans to perform a number of actions: protection from injuries on playgrounds, at school, at home and at work; assurance of road safety; improvement of city planning; information on physical training and sports; and balanced nutrition.

### **Institutional set-up**

The main bodies of state administration that have control over accidents and physical activity are: the Ministry of Transport and Communications, the Ministry of Education, the Ministry of Housing and Communal Services, the Ministry of Public Health, and the Ministry of Agriculture and Food. Local authorities, however, govern the implementation of practical actions intended to reduce disease and the death of children caused by external factors in human settlements.

### **Tools for management**

The following are the main laws, SSRs, programmes and policies:

- Constitution (Article 32 – prohibits violence and abuse of children);
- Law on Children’s Rights;
- Presidential Decree No. 551 (of 28 November 2005) on actions to improve traffic safety;
- Construction Norm 3.01.04-02: Urban construction – planning and building of human settlements;
- Law on Physical Culture and Sports (of 18 June 1993, revised 29 November 2003) (Article 8);

- Law on Sanitary and Epidemic Well-Being of People – along with natural nutrition norms and recommended volumes of meals for children;
- SSR 2.4.7.14-34-2003: Toys and games – hygienic requirements for safety, methods of control, requirements for production and marketing (Articles 25–33);
- National Action Plan on the Improvement of the Position of Children (Articles 93–112 of the Plan);
- State Programme on ensuring Sanitary Safety for People (2007–2010): construction and reconstruction of sports grounds, swimming pools, shower rooms, and the like (Articles 65–71);
- State Programme on the Development of Physical Culture and Sports for 2006–2010;
- State Programme to Secure Sanitary Safety – involving actions intended to expand the range of foodstuffs for nutrition of children (Article 75);
- Children of Belarus – a presidential programme that contains a section on child nutrition; and
- Action Plan directed to improve the position of children (Article 62).

#### **Tools for action**

Actions intended to protect children from violence involve: developing and implementing a system of recording and registering cases of violence against children; distributing information to the community on offences and crimes against teenagers; collating data on activities of social security and service bodies; analysing and making generalizations about observance of laws against children who become victims of abuse and violence; and analysing investigative and judicial practices in crimes against teenagers.

Through its main laws, SSRs, programmes and policies, the country legally regulates the prevention of injuries to children in road accidents and injuries while they are involved in sports. A number of legal devices secure protection of children from abuse and violence and also promote the development of physical activity and the balanced nutrition of children and teenagers.

The country also implements programmes and action plans that involve efforts to prevent injuries, develop physical culture and sports, and prevent diseases associated with nutrition.

The prevention of injuries at institutions for children (by means of safe facilities), problems of injuries and household poisoning, and the safety of products used by children viewed in the context of injuries and poisoning are all insufficiently reflected in the legislation. Also, it is necessary to develop legal acts that govern the sanitary safety of people. These acts should concentrate on the requirements for planning and building cities – for example, the creation of pedestrian areas, bicycle lanes and bus lines, and the control of vehicular traffic flow – based on applicable scientific research.

## **Regional priority goal 3: air quality**

### **Summary**

The goal of improving air quality is to be solved by: reducing emissions from transport vehicles and industrial and other sources; ensuring the quality of construction and finishing materials, heating and cooking systems that take into account the needs of children; and reducing tobacco smoking.

As a rule, sanitary norms and rules that govern the requirements for the arrangement and maintenance of institutions for infants contain separate provisions that concern ventilation and exchange of a premise's air. Thus, the quality of atmospheric air inside premises is specified by the laws of Belarus. Along with this, regulatory legal documents are being developed to improve the safety of the indoor environment, for children's health, by taking into account the specific features and nature of children. Such documents should specify requirements for air quality inside of premises where children stay for a long time. This includes having reasonable requirements for construction materials, furniture and interior articles and broadening the range of factors monitored.

### **Institutional set-up**

The main bodies of state administration that assert control over air quality are: the Ministry of Natural Resources and Environmental Protection, the Ministry of Public Health, and the Ministry of Transport and Communications. Local authorities, however, govern the implementation of practical actions in human settlements.

### **Tools for management**

The following are the main laws, SSRs, programmes and policies:

- Law on Environmental Safety;

- Law on Atmospheric Air Protection (of 15 April 1997, revised 10 July 1997);
- The Law on Ozone Column Protection (of 12 November 2001);
- Presidential Decree on state control of production and turnover, advertising, consumption of tobacco raw materials and products (of 17 December 2002, revised by Presidential Decree No. 143 of 8 April 2003 and Presidential Decrees No. 1 of 16 February 2004, No. 14 of 16 November 2004, No. 285 of 18 June 2005 and No. 15 of 4 September 2006);
- State Programme on Demographic Safety (2007–2010);
- Council of Ministers Resolution No. 1807 on updating the system of state hygienic regulation and registration (of 14 December 2001, revised by Council of Ministers Resolution No. 197 of 21 February 2004 and by Council of Ministers Resolution No. 1243 of 6 October 2004);
- State Programme on the Development of Physical Culture and Sports: on sanitary safety of people; and
- being a party to the WHO Framework Convention on Tobacco Control (the Law of Belarus of 14 June 2005).

Also, the use of furniture manufactured of polymer construction materials for use at infant preschool institutions shall be prohibited.

### **Tools for action**

Currently, the country is implementing actions intended to protect atmospheric air. Within the framework of the State Programme on the Sanitary Safety of People (Articles 33–49), plans are being made to change enterprises and boiler rooms so that they, among other things: burn natural gas; construct gas and dust-catching plants; reconstruct ventilation systems; remove industrial enterprises from residential zones; and construct ring roads to reduce emissions from vehicles.

Norms on atmospheric air quality and actions to reduce emissions from industrial enterprises are given in SSRs. SSRs that cover requirements for the maintenance, arrangement and operation of institutions for children involve actions directed at protecting air quality (such as providing distance from industrial enterprises and highways and locating premises inside buildings far away from kitchens).

The National Plan of Actions directed to secure Sound Management of National Resources and Environmental Safety 2006–2010 involves 35 actions to be taken at the national and regional level. Such actions are directed at reducing emissions from stationary and mobile sources. These measures involve: legally controlling atmospheric air quality, the ozone column and climate preservation, in compliance with international obligations assumed by Belarus; improving air quality, to secure ecologically safe human life; developing atmospheric air monitoring; reducing emissions of sulfur, nitrogen oxides, solid particles, hydrogen nitride, persistent organic pollutants, volatile organic compounds (caused by anthropogenic activities); and reducing emissions by industrial enterprises, vehicles and agricultural entities.

## **Regional priority goal 4: chemicals and food safety**

### **Summary**

The goal for chemicals and food safety is supposed to be achieved by: improving the safety of the use of chemical substances; distributing information to the population on the risk of exposure to chemical and biological agents; preventing the adverse effects of chemicals on pregnant women; reducing the intensity of physical factors (such as noise and ultraviolet radiation), and ensuring safe waste management.

### **Institutional set-up**

The main bodies of state administration that assert control over chemicals and food safety are: the Ministry of Agriculture and Food, the Ministry of Natural Resources and Environmental Protection, the Ministry of Public Health, the Ministry of Emergency Situations, and the Ministry of Housing and Communal Services. The local authorities, however, govern the implementation of practical actions intended to improve water supply and sewage systems in human settlements.

### **Tools for management**

The following are the main laws, SSRs, programmes and policies:

- Law on Sanitary and Epidemic Well-Being of People;
- Council of Ministers Resolution No. 860 (of 9 June 1999): Clause of participation of teenagers in agricultural work;
- Law on Environmental Safety;
- Law on Quality and Safety of Food and Foodstuffs for Human Life and Safety (of 29 June 2003) (Article 10: information on quality and safety of food and foodstuffs);
- Law on Wastes (of 26 October 2000);

- Law on Radiation Safety of People (of 5 January 1998, revised 21 December 2005);
- Law on the Sanitary Safety of People (Article 33);
- SSR 2.4.7.14-34-2003: Toys and games – hygienic requirements for safety, methods of control, and requirements for production and marketing;
- SSR 9-29-95: Sanitary norms of permissible levels of physical factors in household application of consumer goods;
- SSR 2.2.4/2.1.8.10-32-2002: Noise at working places, in premises of living and public buildings, and in area of living quarters;
- SSR 2.2.4/2.1.8.10-35-2002: Ultrasound at working places, in premises of living and public buildings, and in the area of living quarters;
- SSR 2.1.2.12-11-2006: Hygienic requirements for the arrangement, maintenance and renovation of residential buildings;
- Council of Ministers Resolution No. 434 (of 28 April 2005) on some issues of information distribution to consumers of food;
- State-conducted programme: Reduction of Things to Order on the Land and Land Improvement in Human Settlements;
- National Plan on complying with Provisions of the Stockholm Convention for 2007–2010; and
- Stockholm and Rotterdam conventions.

### **Tools for action**

According to the list approved by the Chief Sanitary Inspector of Belarus, crop protecting agents and plant growth-regulating chemicals, household chemical substances and compounds shall be subject to state-conducted hygienic regulation and registration. Also, to protect children's health, articles for children are also subject to state-conducted hygienic

registration. The goods for children subject to state-conducted hygienic regulation and registration are: clothes, footwear, toys and games; substances and materials intended for production of goods for children; school supplies; electronic teaching aids and games; and means for their locomotion.

Existing sanitary rules govern efforts to fight noise in the area outside and inside institutions for children. These rules provide requirements for: the distance of children's institutions from industrial enterprises and highways; separation of parts of the buildings where children stay from those being a source of noise; the application of equipment with reduced noise generation; and the like. Sanitary rules for the maintenance of institutions for children govern requirements for the creation of microclimates and the prevention of hypothermia and overheating of children and schoolchildren.

The Minister of Public Health and the Chairman of the Committee on Standardization, Metrology and Certification under the Council of Ministers approved (on 8 September 2005) a list of food and foodstuffs subject to control of genetically modified components.

Sanitary rules that govern the arrangement, maintenance and operation of various types of institutions for children are discussed in the applicable SSR sections (each SSR mentioned above contains a section entitled "Requirements for sanitary conditions and upkeep", which specifies requirements for waste collection and removal).

The measures listed above make it possible to conclude that the country has a legislative basis for arranging waste collection and removal, making it possible to solve the problem of preventing adverse effects on the health of children and teenagers. Development of additional requirements may be considered in the framework of hygienic education and training children to prevent waste generation and manage it efficiently.

Gaps in legislative support for completing regional priority goal 4 have been identified. One such gap exists in the sanitary rules that specify requirements for the arrangement and maintenance of institutions for children. These rules do not provide for monitoring radon.

Another such gap exists for ultraviolet radiation. Requirements that limit exposure to ultraviolet radiation are currently specified only in the rules for institutions for children, providing for health-improving actions, health-improving centres and sanatoria.

Thus, gaps in legislative support for completing regional priority goal 4 have been identified for chemical substances, ultraviolet radiation, radon, and hygienic education and training – to prevent exposure to such factors.

### ***Enforcement***

Belarus has several mechanisms to enforce laws in the field of health and environmental protection. These include administrative, economic, financial and legal mechanisms, and also mechanisms for controlling the execution of legislation.

It is possible to protect: the interests of national security, rights and freedoms, health and environment in Belarus; the right to affect certain types of activities, including those with the potential to affect health and the environment, only if a corresponding license is available and issued in an established legislation. In this case, the established regulation is President Decree No. 17 on licensing certain types of activities (of 14 July 2003, revised 3 May 2004 President Decree No. 2) and revised 4 October 2004 (President Decree No. 9)).

Major laws that govern legal relations in the field of environment and health safety contain separate articles on obedience to these laws. Chapter 5 of the Law on the Sanitary Safety of People sets forth the rights and liabilities of sanitary supervisory bodies and officials that exercise sanitary

supervision, with respect to enforcing and controlling the execution of the sanitary laws of Belarus.

The Law on Environmental Safety provides: for environmental impact assessment and for ecological expert examination (Chap. 8); for an economic mechanism for environmental protection (Chap. 14); and for targets and trends of control in the field of environmental protection (Chapter 15). It also specifies responsibilities for breach of the country's environmental safety laws (Chapter 16).

Preventing adverse effects on the environment from planned economic activities, by conducting ecological expert examination of the design and construction stages, is governed by the Law on State-conducted Ecological Expert Examination (of 18 June 1993, revised 14 July 2000.). Such state-conducted sanitary expert examination shall be conducted in pursuance of the provisions of Article 4 of the Law on Sanitary Safety.

Control over obedience to laws in the field of health protection shall be exercised by the sanitary supervision bodies and environmental protection agencies of Belarus. State sanitary supervision bodies shall exercise their activities pursuant to provisions of the Regulations of State Sanitary Supervision (approved by the Council of Ministers); and ecological supervision shall exercise their activities pursuant to the Regulations of Ecological Supervision (approved by the Council of Ministers of Belarus).

Controlling health and environmental conditions, as well as assessing the efficiency of actions taken to protect nature, shall be enforced within the framework of the National Environment Monitoring System and the social and hygienic monitoring system.

The main objective of the social and hygienic monitoring system (Council of Ministers Resolution No. 82 of 27 January 2004 on approving the regulations of the social and hygienic monitoring

system) is to define the level of risk to health and the development of actions intended to reduce, remove and prevent the adverse effects on health of factors that relate to habitat. The monitoring system acquires and analyses data on human health, diseases, physical development, disability, and conditions for educating and training children, teenagers and youth. It also controls and analyses: labour conditions; the nutrition, quality and safety of food and foodstuffs for life and health; the level of hygienic education and training offered; the levels of atmospheric air contamination; the quality of drinking-water; the condition of water supply sources; and the sources of adverse physical effects.

The National Environment Monitoring System functions in accordance with the provisions of Council of Ministers Resolution No. 949 (of 14 July 2003) on the National Environment Monitoring System in the Republic of Belarus. This Resolution created a local monitoring system conducted by legal entities that monitor the sources that adversely effect the environment. The purpose of the system is to monitor the harmful effects of pollution sources in the regions (Council of Ministers Resolution No. 482 of 28 April 2004 on approving regulation of the procedure of introduction of environment monitoring, monitoring of surface water, groundwater, atmospheric air; local environment monitoring in the national system of the Republic of Belarus and use of such monitoring).

All sanitary norms and rules involve special provisions on responsibility for breach of the laws. Thus, in Belarus, mechanisms are in place for enforcing laws and controlling their execution by legal entities and individuals.

Following the Fourth Ministerial Conference on Environment and Health in Budapest in June 2004, and the commitments made by Member States to reduce children's exposure to environmental hazards, countries are seeking support in implementation. WHO/Euro has initiated a project to provide the evidence base for developing and implementing such actions through detailed Environment and Health Performance Reviews (EHPRs).

The EHPRs are country-based interdisciplinary assessments that WHO/Europe carries out at the request of Member States. Through the EHPRs, Member States receive support in the reform and upgrade of the overall public health system. They identify the most important environment and health problems, evaluate the public health impact of environmental exposures and review the policy and institutional framework taking into account the institutional set-up, the policy setting and legal framework, the degree and structural functioning of intersectoral collaboration of the available tools for action.

Based on the analysis, as an integral part of the planning and management of environment and health services, the EHPRs provide guidance for strengthening environment and health policy making and for planning preventive interventions, service delivery and surveillance in the field of environment and health.

The present report describes and evaluates the current environment and health situation in Belarus. It evaluates the strong and weak points of the national environmental and health status and presents the recommendations of independent experts. The conclusions and recommendations are based on a detailed environment and health performance review carried out in the country.

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