

Capacity of the health  
system in Kazakhstan  
for crisis management

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KAZAKHSTAN

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2010



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# Kazakhstan

# Abstract

Recognizing the profound human consequences of natural and man-made disasters, WHO assists Member States by providing technical guidance on and support in building programmes to ensure the preparedness of the health sector to respond to emergencies.

This report presents an assessment of the preparedness of Kazakhstan's health system for emergencies and health crises, based on the WHO health systems' framework. It evaluates the arrangements in place to deal with crises, regardless of cause, examines initiatives taken to prevent and mitigate risk, and provides recommendations on strengthening the overall preparedness capacity of the health system.

While the main focus is on the national level, some attention has been paid to capacity for crisis management at the regional level and to the links between the various levels of government.

This document has been produced with the financial assistance of the European Union. The views expressed herein can in no way be taken to reflect the official opinion of the European Union.

## Keywords

Delivery of health care - organization and administration  
Disasters  
Emergencies  
National health programs  
Disease outbreaks  
Kazakhstan

ISBN 978 92 890 0240 0

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# Acknowledgements



The report is based on the findings of a team of experts and consultants from the WHO Regional Office for Europe and the WHO Mediterranean Centre for Health Risk Reduction: Sara Antoss, Marcel Dubouloz, Steeve Ebener, Gabit Ismailov, Enrique Loyola, Corinna Reinicke, Gerald Rockenschaub and Willibald Zeck.

The assessment was conducted in 2010, with a short follow-up in 2011, within the framework of the biennial collaborative agreement for 2010–2011 between the Regional Office and the Government of Kazakhstan.

The Regional Office gratefully acknowledges the grant received from the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, which lent support both to the implementation of this project and to the preparation of the report.

The assessment was made possible thanks to the efforts and support of the Ministry of Health and the Ministry for Emergency Situations of Kazakhstan. Special thanks are extended to Pavel Ursu, Head of the WHO Country Office, Kazakhstan, and Aliya Kosbayeva for their continuous support during the entire process.

# Introduction



## Global health security

The statistics show a steady rise in the number of disasters<sup>1</sup> worldwide, many of which are attributed to climate change. In the past 20 years, disasters have killed over three million people and adversely affected over 800 million.

In the WHO European Region, 47 million people were directly affected by natural disasters between 1990 and 2008, resulting in over 129 000 deaths, many of which are attributed to climate change (1). This does not include the wars and violent conflicts that have killed over 300 000 people in the Region over the last 20 years. Technological accidents, such as the Chernobyl nuclear power plant accident in 1986, have affected millions of people.

The effects of climate change have serious implications for global health security. In addition to the consequences for the health of individuals, environmental changes may well result in mass-population movement and competition for scarce resources, leading in turn to conflict and political instability.

Health is a major concern in all crises, disasters and complex emergency situations. Risk reduction measures to reduce the vulnerabilities of communities at risk and to increase their coping capacities can effectively prevent and mitigate the health and social impact of disasters, emergencies and health crises. National and local health authorities need to be ready and well prepared to respond to the health challenges of potential future crises and ensure that adequate systems and response and recovery mechanisms are in place and equipped with sufficient capacities and resources.

World Health Assembly resolutions WHA58.1 (2) and WHA59.22 (3) on health action in crises and disasters reinforced WHO's mandate to support Member States in preparing their health systems so they can cope effectively with the health aspects of crises, and strengthened its own institutional readiness.

Growing concern about national, regional and international public health security led to the adoption of the revised International Health Regulations (IHR) (4) by the Fifty-eighth World Health Assembly in May 2005. These regulations provide a new legal framework for strengthening surveillance and response capacity and for protecting the public against acute health threats, which could have the potential to spread internationally, negatively affect human health and interfere with international trade and travel.

The revised IHR (4) have a much broader scope than the first edition (1969), which focused on the international notification of specific communicable diseases. States Parties to the IHR (4) are now obliged to assess and notify WHO of any event of potential international public health concern, irrespective of its cause (whether biological, chemical or radionuclear) and origin (whether accidental or deliberate).

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<sup>1</sup> For inclusion in the Centre for Research on the Epidemiology of Disasters (CRED) database, a disaster must have resulted in at least one of the following: 10 or more deaths; 100 or more people affected; a declaration of a state of emergency; a call for international assistance.

## **Principles of disaster preparedness and response**

Effective and efficient crisis preparedness and response are governed by crosscutting strategic principles that WHO encourages Member States to adopt. These relate to the all-hazard approach, the multidisciplinary (intrasectoral) approach, the multisectoral approach and the comprehensive approach.

### **The all-hazard approach**

Different crises invariably result in similar problems and responses requiring similar systems and types of capacity. During a crisis, the need to manage information and resources (including human resources), as well as to maintain effective communication strategies, is in essence the same whether the crisis is the result of an earthquake, a flood or a terrorist attack. Hence, WHO promotes a generic, all-hazard approach, actively discouraging the establishment of vertical planning mechanisms, while recognizing that each type of crisis requires a specific area of technical expertise.

### **The multidisciplinary (intrasectoral) approach**

Health systems are defined as comprising all the organizations, institutions and resources that are devoted to improving, maintaining or restoring health. This includes public and private initiatives, action at the central, local, population and military levels – from local community health care to tertiary care – all of which may have a role to play during a crisis. WHO, therefore, encourages transparency and interoperability in the planning process, and promotes the involvement of all disciplines and all levels of the health system to ensure a coordinated and effective response, making the best use of often scant resources and ensuring that plans are appropriate and feasible.

### **The multisectoral approach**

Health-sector plans also need to be linked to and interfaced with national disaster preparedness and response plans to avoid confusion, prevent duplication of effort and make the best use of resources. This is important not only during a crisis but also as part of prevention, reduction and mitigation strategies. Other governmental departments, private enterprises and commercial organizations can play an important role in reducing the negative health effects of, for example, inappropriate urban development and use of land, poor agricultural practices and inadequate legislative procedures. Although not directly responsible, the ministry of health needs to ensure that health is not overlooked in the push for greater profits and economic growth and should advocate a multisectoral approach in dealing with health issues.

### **The comprehensive approach**

The economic consequences of a crisis can be enormous and the reduction, prevention and mitigation of the related risks are priority areas that increasingly need to be taken into consideration when planning national crisis preparedness, mitigation and response. Therefore, WHO encourages Member States to develop and implement strategies for the different aspects of crisis preparedness planning, bearing in mind that they are not separate entities but overlap with each other in scope and timeframe. They can be summarized as follows.

- Activities that address prevention and mitigation aim to avoid or lessen the adverse impacts of a hazard and, in the health sector, are devoted mainly to ensuring the functionality of the health facilities and key installations in the aftermath of a disaster.
- Preparedness requires a multidisciplinary, multisectoral planning process to strengthen the capacity and capability of systems, organizations and communities so that they can better cope with emergencies when they occur.



- Action related to response and recovery covers a wide range of activities implemented during and after an emergency in order to save lives and reduce health impacts, as well as to restore and, where appropriate, improve health facilities in the disaster-affected communities.

## The WHO health systems' framework

The assessment of the preparedness of Kazakhstan's health system for emergencies and health crises was based on the WHO health systems' framework (5). This framework comprises six building blocks (leadership and governance; health workforce; essential medical products, vaccines and technologies; health information; health financing; and service delivery), each of which incorporates key components considered by WHO as essential to the preparedness of a country for health crises. The framework has been formalized in the WHO toolkit for evaluating the capacity of health systems for crisis preparedness, which guided the assessment.

A health system consists of all the organizations, institutions, resources and people that have the primary purpose of improving health.

**Leadership and governance** involves ensuring the existence of strategic policy frameworks in combination with effective oversight, coalition-building, appropriate regulations and incentives, attention to system design, and accountability. In relation to preparedness planning, this means ensuring national policy that incorporates the preparedness of the health system for crises. Leadership and governance also encompasses effective coordination structures, partnerships, advocacy, the availability and use of relevant up-to-date information for decision-making, public information strategies, and monitoring and evaluation.

**The health workforce** includes all the health workers engaged in action aimed primarily at protecting and improving the health of a population. A well-performing health workforce operates in ways that are responsive, fair and efficient in order to achieve the best health outcomes possible, given the available resources and circumstances. Optimally, there would be a sufficient number of competent, responsive and productive human resources that have the required mix of skills and are fairly distributed. Preparedness planning should aim at assuring these factors, as well as relevant continuous education and training.

A well-functioning health system ensures equitable access to **essential medical products, vaccines and technologies** of assured quality, safety, efficacy and cost-effectiveness, and their scientifically sound and cost-effective use. Medical equipment and supplies for prehospital activities, hospitals, temporary health facilities, pharmaceutical services, laboratory services and blood services needed (as reserves) in case of crisis, are also included under medical products, vaccines and technologies.

A well-functioning **health information system** is one that ensures the production, analysis, dissemination and use of reliable and timely information on health determinants, health systems' performance and health status. It incorporates data collection, analysis and reporting, including hazard and vulnerability assessments, early-warning systems and overall information management issues.

A good **health financing** system ensures adequate funds for the health system and financial protection in case of a crisis. In addition to providing funds for processes essential to health crisis preparedness, it also ensures that crisis victims can access essential services and that health facilities and equipment are adequately insured for damage or loss.

**Service delivery** is the process of implementing effective, safe and quality health interventions, in an equitable manner, as and when needed and with minimum waste of resources. The health systems' crisis preparedness process makes it possible to review the way in which services are organized and managed with the aim of ensuring access to, and the quality, safety and continuity of care across health conditions and health facilities during a crisis.

## Country context

Kazakhstan is the ninth largest country in the world. It is situated in central Asia and the eastern-most part of Europe (Fig. 1). Its neighbouring countries are China, Kyrgyzstan, the Russian Federation, Turkmenistan and Uzbekistan, and it borders on a sizeable part of the Caspian Sea. It is the world's largest landlocked country. Its terrain is diverse with a vast flat steppe extending from the Volga River to the Altai Mountains, and from the Siberian plains in the north to the deserts of central Asia and the Tian Shan Mountains in the south.

**Fig. 1. Map of Kazakhstan**



Source: Map No. 3771, Rev.6. New York, Cartographic Section, United Nations, 2004.

The population increased from 14.98 million in 1999 to 16.01 million in 2009 (6). The migration balance was positive due to immigration from China, Kyrgyzstan, the Russian Federation and Uzbekistan, as well as to a substantially increased birth rate, from 14.9 live births per 1000 population in 1999 to 22.5 live births per 1000 population in 2009 (7).

Kazakhstan is a unitary state with a presidential form of government. It is administratively divided into 14 oblasts and 3 cities, each of which is under the responsibility of a governor appointed by the

president. Each oblast and city is in turn administratively divided into rayons. The governors wield considerable power and are key players in decision-making relating to the health system.

Overall, Kazakhstan's economic performance was strong during the period 2000–2007, with an average annual increase in gross domestic product (GDP) of 10%. In 2008, this growth decelerated to 3.2% following the global economic crisis. Economic recovery has begun in Kazakhstan and the World Bank predicts that, in the absence of another world economic slowdown and the associated sharp decline in prices of commodities, the Kazakhstan economy should continue to improve, although at a modest pace (8).

Kazakhstan possesses large reserves of fossil fuel, minerals and metals. Although the diversification of the economy has become a development priority, the country is still highly resource-dependent. In 2008, minerals, oil and gas accounted for 73% of all exports and 39% of GDP; in comparison, 11% of GDP could be attributed to manufacturing and 5% to agriculture. Consequently, Kazakhstan remains highly vulnerable to fluctuations in the price of commodities, particularly oil (8).

As a share of GDP, budget allocations for the health sector increased in Kazakhstan from 1.9% in 2002 to 2.4% in 2008 (7). The State Health Care Reform and Development Programme for 2005–2010 envisaged a gradual increase to 4% by 2010.

In terms of population health, the country faces the challenges of low life expectancy with a pronounced gender gap, high infant and maternal mortality, high rates of tuberculosis and noncommunicable diseases, and an emerging HIV/AIDS epidemic.

On the other hand, the overall trends of the key health indicators have been gradually improving since 2005. Notable exceptions are the growing rates of HIV and the sudden jump in infant mortality in 2008 (Table 1). The latter can, to a large degree, be attributed to the country's adopting WHO-recommended live-birth definitions as of January 2008 (9).

**Table 1. Selected basic statistics, Kazakhstan, CARK-5 and EU, 2008**

Indicator	KAZ <sup>a</sup>	CARK-5 <sup>b</sup>	EU <sup>c</sup>
Life expectancy at birth, in years	67.18	69.1	79.59
Infant deaths per 1000 live births	21.46	17.68	4.28
Maternal deaths per 100 000 live births	37.2	36.73	6.4
SDR <sup>d</sup> , diseases of circulatory system, all ages per 100 000	749.63	758.95	234.47
SDR <sup>d</sup> , malignant neoplasm, all ages per 100 000	161.07	106.88	172.62
SDR <sup>d</sup> , external cause injury and poisonings, all ages per 100 000	132.96	81.13	38.29
Tuberculosis incidence per 100 000	128.78	88.65	13.47
HIV incidence per 100 000	14.9	10.37	5.3

Source: European Health for All database (7).

<sup>a</sup> KAZ = Kazakhstan

<sup>b</sup> CARK-5 = central Asian republics and Kazakhstan

<sup>c</sup> EU = European Union

<sup>d</sup> SDR = standardized death rate

Health services are delivered through an extensive countrywide network of publicly owned facilities. National health policies are set by the Government and implemented by national and local authorities. The Ministry of Health heads the hierarchy but the local health services are administered mainly by oblast health departments, which have considerable autonomy to do so. Devolution from

national to oblast level was embedded in the Constitution of the Republic of Kazakhstan, more specifically in Section VIII on local state governance and self-governance, which was adopted by referendum on 30 August 1995 and came into force on 5 September of the same year. According to the State Health Care Reform and Development Programme (2005–2010), the next major step in the devolution process will involve corporatizing the management of health facilities. This programme also envisages strengthening the Ministry of Health's role in connection with formulating health policy, preparing legislation, commissioning research, developing reform strategies, monitoring population health, implementing reforms, and training health personnel.

## **Hazard profile**

Kazakhstan experiences a wide array of natural, technological and biological hazards, among which the most threatening and severe are listed below.

### **Natural hazards**

#### ***Earthquakes***

Kazakhstan's southern and south-western regions are among the most seismically active regions in central Asia (Fig. 2). The occurrence of devastating earthquakes affecting the densely populated former capital of Kazakhstan, Almaty, is considered by far the biggest threat.

#### ***Flood***

Seasonal flooding and flash flooding affect large numbers of people and cause substantial economic loss in southern and eastern Kazakhstan (Fig. 3).

#### ***Mudslides***

Large debris flows and mudslides are particularly life threatening in the mountainous regions of southern Kazakhstan (Fig. 4). Snow melting in spring, coupled with sustained precipitation and an inadequate hydro system (i.e. undersized sewage water reservoirs, untimely dam releases, and outdated infrastructure) are the causes of this hazard.

#### ***Extreme temperature events (heat-waves and cold spells)***

There is evidence of an increase in extreme temperatures in the south of the country. New record-high temperatures have placed an additional burden on infrastructure (roads, electricity grid) and on agricultural productivity (Fig. 5). This could have an increased impact on health in the near future. At the other end of the scale, a cold wave in 1997 affecting 600 000 inhabitants of Kazakhstan, secured a place among the five cold waves having affected the largest numbers of people over the past 30 years (1).

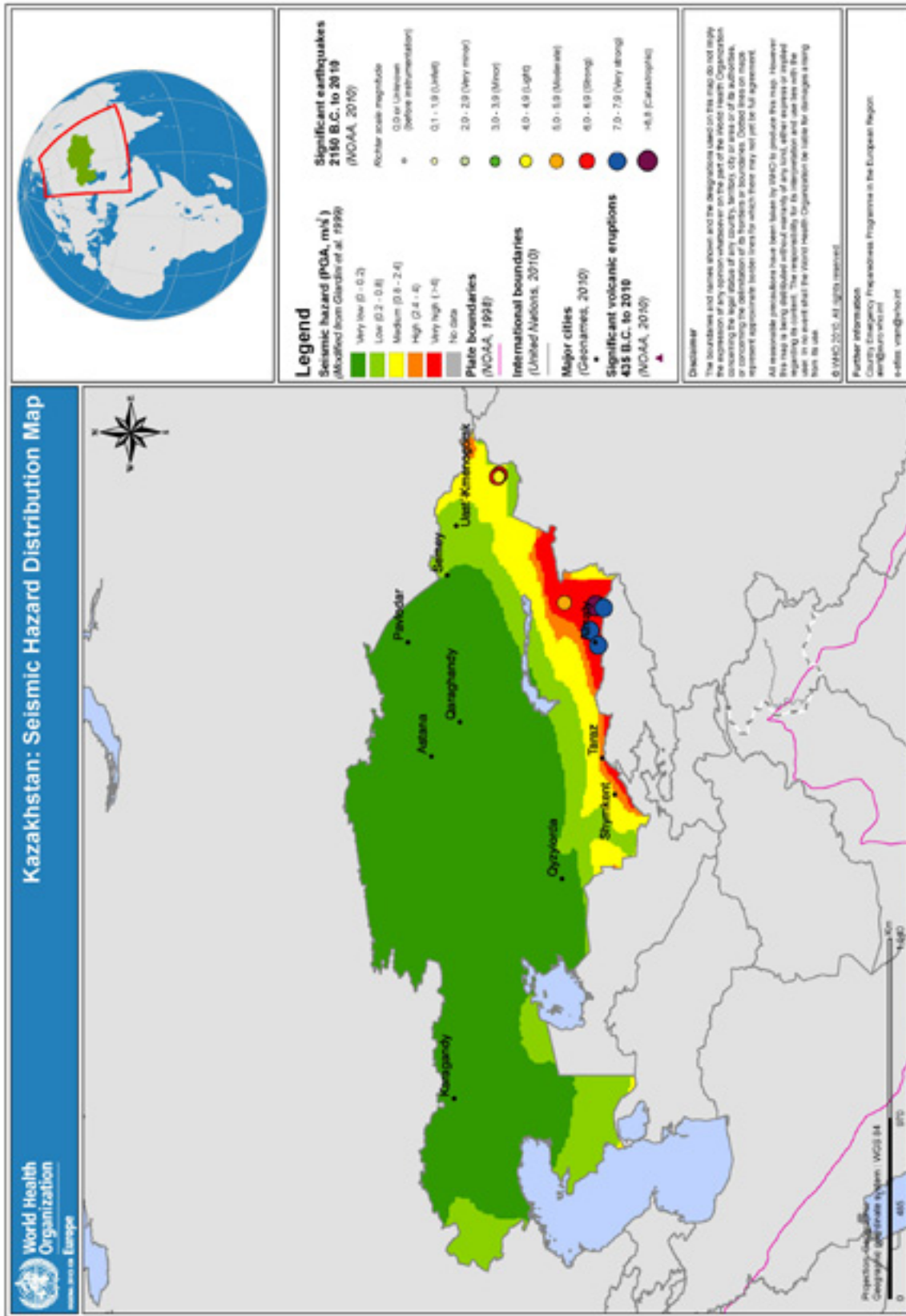
### **Technological hazards**

#### ***Nuclear radiation***

Kazakhstan has roughly 15% of the world's uranium resources and an expanding mining sector with an anticipated annual production of 25 000 tons in 2011 and 30 000 tons in 2018. In 2009, Kazakhstan became the leading producer of uranium with almost 28% of world production. The Government is committed to increasing the export of uranium and is considering future options for nuclear power (10).

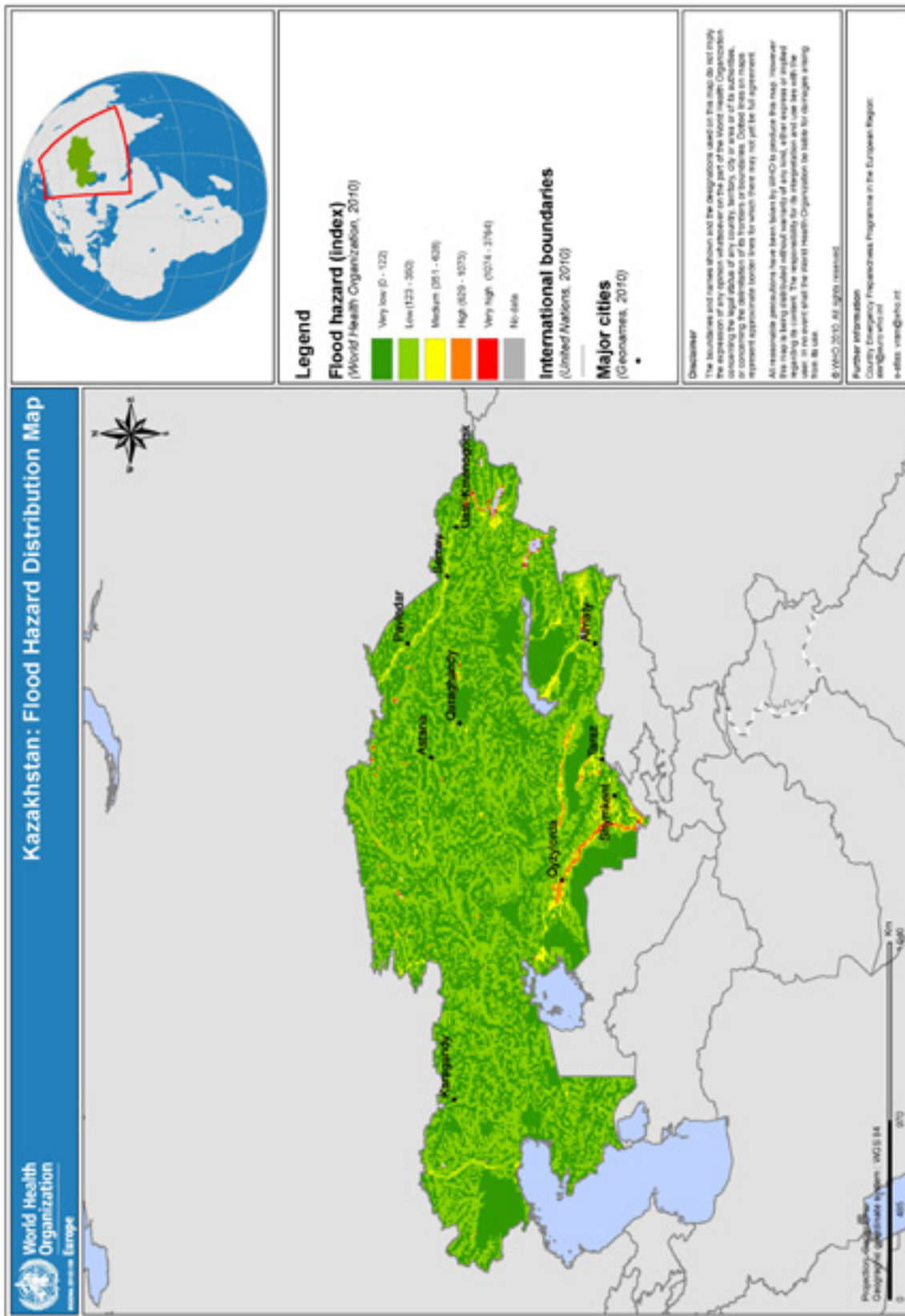
Kazakhstan inherited a series of radiation hazard areas and sites contaminated with toxic chemicals. Some 467 nuclear tests were conducted between 1947 and 1990 at the Semipalatinsk test site, which was closed in 1991. Kazakhstan has voluntarily renounced the world's fourth-largest nuclear arsenal and ceased to develop nuclear weapons. Nuclear reactors are present in the cities of Aktau, Alatau and Kurchatov for research purposes.

Fig. 2. Seismic hazard distribution in Kazakhstan



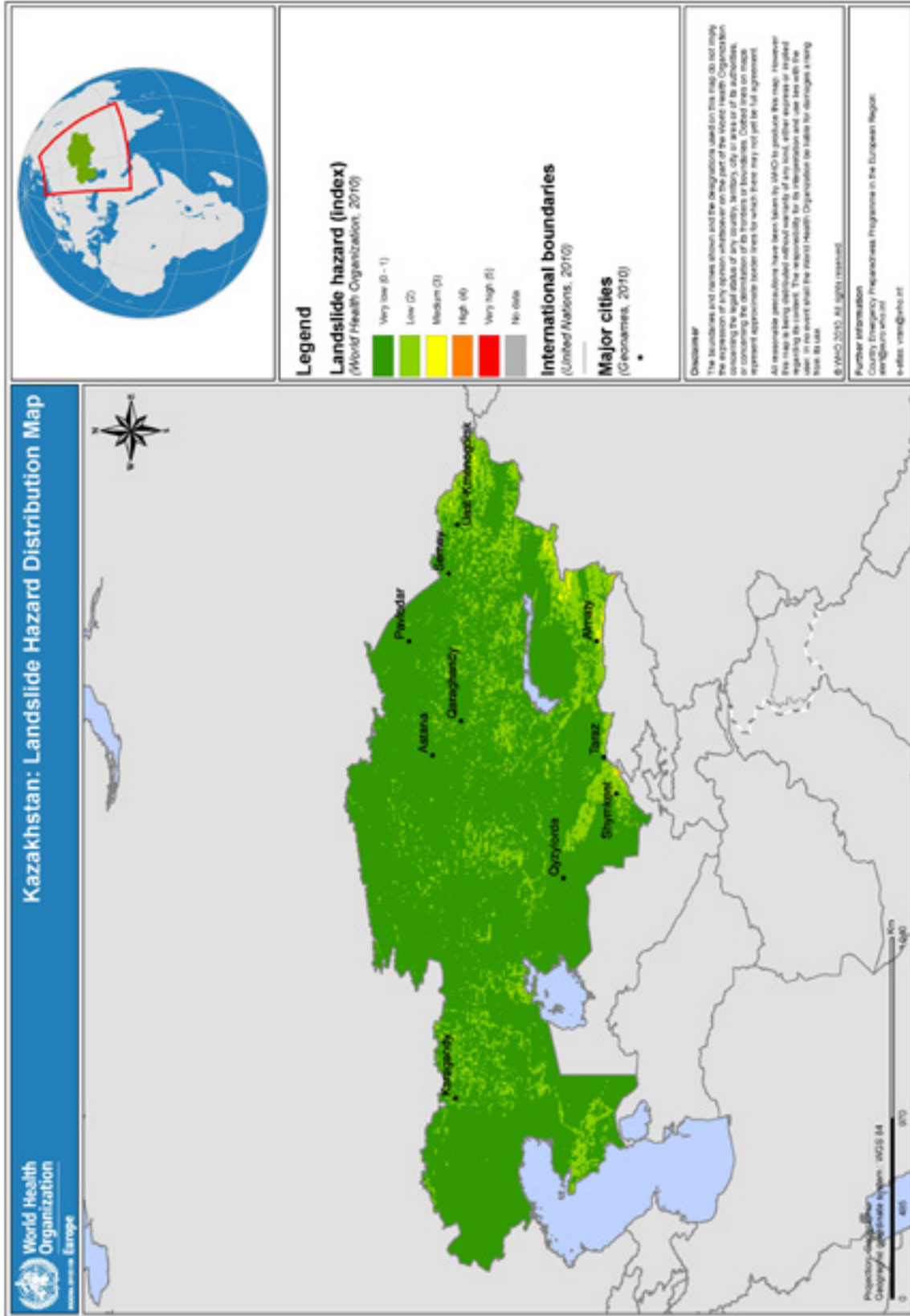
Note. Maps and dataset created in 2010 and representative of that year. PGA = Peak Ground Acceleration; NOAA = National Oceanic and Atmospheric Administration.  
 Data sources for this map are: Adapted from Giardini D et al. (11); Significant Earthquakes Database (SED) (12); Tectonic Plate Boundaries Database (13); United Nations International and Administrative Boundaries Resources (14); GeoNames geographical database (15); Significant Volcanic Eruptions Database (16).

Fig. 3. Flood hazard distribution in Kazakhstan



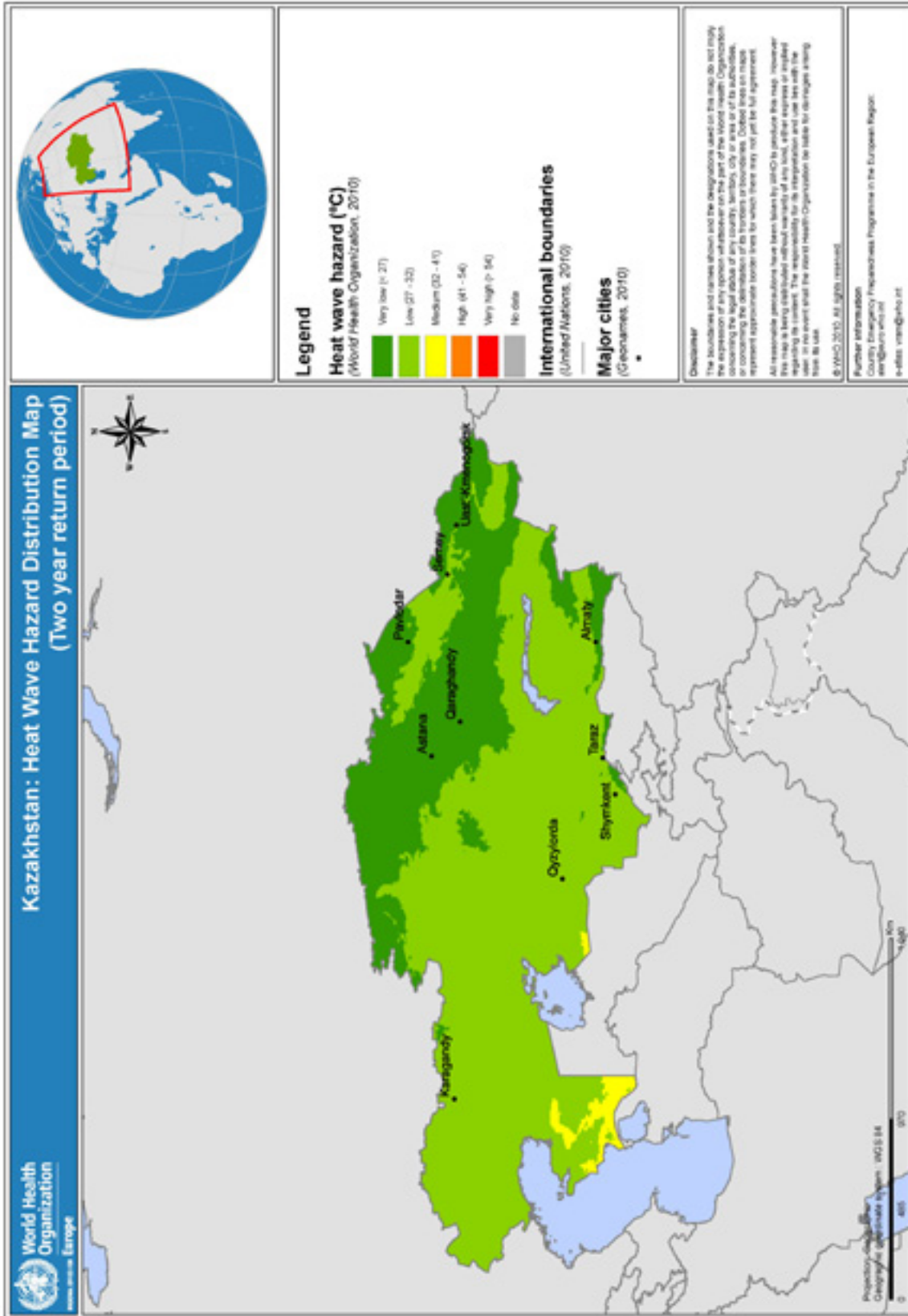
Note. Maps and dataset created in 2010 and representative of that year.  
 Data sources for this map are: *The WHO e-atlas of disaster risk for the European Region. Volume 1. Exposures to natural hazards – Version 2.0 (17)*; United Nations International and Administrative Boundaries Resources (14); GeoNames geographical database (15).

Fig. 4. Landslide hazard distribution in Kazakhstan



Note. Maps and dataset created in 2010 and representative of that year.  
 Data sources for this map are: *The WHO e-atlas of disaster risk for the European Region. Volume 1. Exposures to natural hazards – Version 2.0 (17)*; United Nations International and Administrative Boundaries Resources (14); GeoNames geographical database (15).

Fig. 5. Heat-wave hazard distribution in Kazakhstan

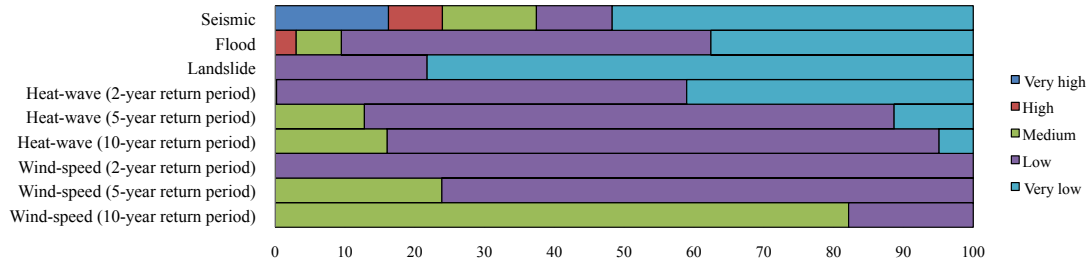


Note. Maps and dataset created in 2010 and representative of that year.  
 Data sources for this map are: *The WHO e-atlas of disaster risk for the European Region. Volume 1. Exposures to natural hazards – Version 2.0 (17); United Nations International and Administrative Boundaries Resources (14); GeoNames geographical database (15).*



Fig. 6 shows the distribution of the population exposed to each of the natural hazards mentioned above.

**Fig. 6. Percentage of population exposed to natural hazards in Kazakhstan by levels of intensity**



Source: *The WHO e-atlas of disaster risk for the European Region. Volume 1. Exposures to natural hazards – Version 2.0 (17).*

### **Pollution**

Kazakhstan faces both rapid-onset and slow-onset environmental pollution hazards. Rapid-onset pollution hazards are the result of industrial or transport incidents causing explosions and fires of flammable material or the release of oil, chemicals or radioactive material. The number of industrial incidents in Kazakhstan is high and rising, and is linked to the country's economic growth and industrialization.

The impact of pollution may not be felt for a long time as waste accumulation and the growing number of people exposed will lead to a slow-onset disaster. As a result of weapons' testing, industrial projects, and pesticide and fertilizer runoff from intense monoculture practices, Kazakhstan's ecology is increasingly at risk. The joint Kazakhstan–World Bank Syr Darya control and northern Aral Sea project has resulted in the restoration of the northern part of the Aral Sea. However, pollution in the area near the Aral Sea is the cause of great concern and continues to pose a serious public health threat.

### **Traffic accidents**

The mortality rate from road traffic injuries in Kazakhstan is 30.6 per 100 000 population, by far the highest in the European Region. In comparison, the average rate for the Region and the global rate are 13.4 per 100 000 population and 18.8 per 100 000 population, respectively (18).

# Stewardship and governance

## **Legal framework for national multisectoral emergency management**

Kazakhstan's constitution, national laws, presidential decrees, resolutions of the Cabinet of Ministers, and orders and guidelines of the ministries, all describe and regulate the structure, roles, responsibilities and managerial authority relating to most aspects of crisis management at the national and regional levels.

*Law No. 19 on natural and technological emergencies* (5 July 1996), *Law No. 100–1 on civil defence* (7 May 1997) and *Government Decree No. 1298 on the state system for preventing and responding to emergencies* (28 August 1997) comprise the fundamental legislation on protecting the people of Kazakhstan in emergency situations, including threats from natural disasters. *Government Decree No. 1298* forms the foundation of the overall national multisectoral emergency management system, the aim of which is to prevent emergencies in times of peace and war, as well as to respond to them. It is noteworthy that the system explicitly excludes recovery operations. Thus, the principle of a comprehensive approach, i.e., one that includes all phases of crisis management, is not upheld. *Law No. 100–1* defines the main goals, organizational structure and functioning of civil defence in Kazakhstan, as well as the competencies of the executing agencies and institutions, and the rights and responsibilities of citizens, foreigners and non-citizens in the area of civil defence.

In addition, several other laws, decrees, orders and guidelines exist, such as *Law No. 314 on industrial safety at hazardous industrial entities* (3 April 2002). These regulations cover labour relations, the protection of labour, environmental, fire, nuclear and space safety, as well as procedures for the destruction of chemical and nuclear weapons and the use of ammunition.

The current legal framework relating to multisectoral crisis management at national level is structured around broadly defined blocks of hazards (e.g. natural, technological, social and environmental emergencies). For instance, *Law No. 100–1 on civil defence* covers armed conflicts and natural and technologic disasters, and *Law No. 19 on natural and technological emergencies* covers natural and technologic emergencies but explicitly excludes social and environmental emergencies. Consequently, it can be argued that the legal basis may have some room for improvement if a more comprehensive all-hazard approach is to be applied.

In addition, the Ministry for Emergency Situations has recently developed a draft consolidated law on civil defence, which takes into consideration all the threats and challenges faced at the present time, as well as the experience of developed countries in the area of prevention of and response to emergencies. Should this law be adopted, it would contribute to increasing the efficiency of measures for protecting the health of individuals and saving their lives, and for preventing disasters, accidents and catastrophes. Its implementation would bring about improved control and permit systems in the area of civil defence.

## **Legal framework for health-sector emergency management**

The rules regarding type, scope and delivery of medical aid in cases of natural and other emergency situations in Kazakhstan are developed in accordance with the *Code on the health of the population and the health-care system* (18 September 2009), *Law No. 19 on natural and technological emergencies* (5 July 1996) and *Law No. 87–1 on rescue services and the status of rescuers* (27 March 1997).

Kazakhstan is a State Party to the IHR (4). *The Hyogo Framework for Action 2005-2015: Building the resilience of nations and communities to disaster (18)* was adopted by Kazakhstan and the country regularly submits progress reports.

Although the national laws, policies and regulations form a strong foundation and legal framework enabling the different stakeholders and partners to operate and interact, it must be highlighted that the Ministry of Health is not formally or legally designated to lead the overall disaster-management cycle of the health sector, including planning, response and recovery operations. The Ministry of Health lacks a legal framework that mandates an all-hazard, whole-health, multidisciplinary approach to a risk-reduction and crisis-management programme. Rather, the individual activities are undertaken by different departments, based on specific policies and legislation.

### **National multisectoral institutional framework for emergency management**

The protection of the population, territories and enterprises from emergencies is managed multisectorally, from the highest official – the President of the Republic of Kazakhstan – down to the structures and organizations at the rayon level. The interaction of governmental, central and local executive bodies and other organizations takes place within the framework of the state system for the prevention and reduction of emergency situations.

Representatives of 15 ministries, under the leadership of the Prime Minister, constitute the high-level Crisis Management Committee, which convenes quarterly unless there is a national emergency when it meets as necessary. Similar committees exist at the lower government levels where they are chaired by the respective governors.

The Ministry for Emergency Situations fulfils the role of the secretariat and the operational crisis management body. It has a network of subordinate organizations and committees distributed throughout the country, including the fire-fighting committee, the committee for state reserves, the committee for state control in emergencies and industrial safety, civil defence military units, rescue teams, paramilitary mountain rescue teams, airborne mudflow protection and rescue units, medical services of the joint-stock company, Railway Hospitals of Disaster Medicine, and branches of the state enterprise, Centre of Disaster Medicine.

Under the guidance of the Cabinet of Ministers, the Ministry for Emergency Situations is responsible for the coordinating the input of the other ministries and high-level authorities at the national and oblast levels in connection with:

- preparedness planning, response and recovery operations; civil defence; state control in the areas of fire and industrial security; the prevention and extinguishing of fires; and the development and training of national material reserves;
- the functioning and further development of the national emergency and response system;
- the development of a multisectoral national emergency response plan defining the roles and responsibilities of the crisis management structures (for approval by the Cabinet of Ministers).

### **Health-sector institutional framework for emergency management**

In accordance with *Government Decree No. 704 (17 August 2007)*, the Ministry of Health handed over jurisdiction of the Centre of Disaster Medicine to the Ministry for Emergency Situations. The main role of this Centre is to manage and coordinate emergency medical and psychosocial services in a health crisis to provide medical services for rescue and associated staff in emergencies.

In accordance with *Government Decree No.543 on the transfer of the ownership and usage rights of certain legal entities with respect to government-owned shares (participation shares)* (6 June

2008), the joint-stock companies, Medical Transport Service, University Clinic, and Central Road Hospital, were transferred to the Ministry for Emergency Situations. Later, in accordance with *Government Decree No.1642 on joint-stock companies administered by the Ministry for Emergency Situations* (22 October 2009), these companies were merged into one joint-stock company entitled Railway Hospitals of Disaster Medicine.

In effect, the Ministry for Emergency Situations has taken the leading role in relation to the health aspects of emergency preparedness planning and response. The Ministry of Health has dissolved its previous unit for disaster and emergency preparedness and kept a part-time civil defence focal point.

When health needs exceed the capacity of the Ministry of Health in large-scale emergencies, it convenes a health-sector emergency management committee (chaired by the Minister of Health), and appoints a representative to liaise with the Emergency Operations Centre of the Ministry for Emergency Situations.

### **Health-sector emergency management programme components**

The Ministry for Emergency Situations is overall responsible for crisis preparedness planning and risk-reduction initiatives. It has a dedicated budget to support data collection, hazard and risk analyses, and the preparation of forecasts and annual risk-assessment reports with scenarios. Local governments are required, annually, to update their prevention and response plans, which are shared during quarterly meetings, as well as at conferences and through personal contacts.

According to the 2007–2009 report on the implementation of the *Hyogo Framework for Action (19)*, institutional commitment in Kazakhstan has been attained but achievements have been neither comprehensive nor substantial. The Ministry for Emergency Situations has elaborated a catalogue of natural and man-made risks and updated the safety passports<sup>2</sup> of all the oblasts and the cities of Astana and Almaty (20).

The process of establishing a health-sector risk-reduction and crisis-management programme has room for improvement. The vast majority of components required for a comprehensive health risk assessment (data, skills and capacity) exist but they are fragmented. While the hazards faced by the population and the infrastructures are well known, many of them are not geographically mapped.

Some examples of activities carried out by institutions that collect and/or analyse hazard data follow.

- The Committee on State Sanitary and Epidemiological Surveillance of the Ministry of Health analyses and maps information on communicable diseases, sanitation, hygiene and environmental quality (water and sanitation, sites of dangerous pathogens and radiation, etc.).
- Several state sanitary and epidemiological surveillance stations located in areas of major epidemiological and disaster concern, such as the Aral Sea, have Geographic Information System (GIS) capacity employed on a project basis (e.g. for monitoring plague, anthrax and brucellosis) but not routinely.
- The National Nuclear Centre of Kazakhstan monitors air, water and soil radiation, as well earthquakes and nuclear incidents.

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<sup>2</sup> The safety passport format was approved by the Minister for Emergency Situations on 1 April 2008 (Order No. 64). Safety passports document vulnerability and risk assessments and detail plans for disaster risk-reduction activities for certain administrative territories.

- The Ministry of Environmental Protection collects meteorological, hydrological and environmental (air/water quality) data.
- The National Statistics Agency has a significant amount of subnational data on socioeconomic and demographic indicators, including data from the ministries of health, labour and justice.
- KazGeoCosmos (a private entity) monitors oil-related threats (e.g. oil pipeline accidents) and their impact on human populations and the environment (soil, birds, fish, vegetation, etc.). Their resulting risk-distribution maps include vulnerabilities but give no indication of capacity or readiness.

With respect to the last-mentioned institution, although the analyses carried out provide general trends in the country, they remain preliminary as the approach used needs to be improved in several areas (level of disaggregation, indicators, method) before the resulting risk-distribution maps can be used in decision-making.

The area of health-sector capacity and vulnerabilities is underdeveloped in risk analyses and mapping. *Decree No. 6683 on approving criteria for assessing risks related to civil defence* (15 December 2010) of the Ministry for Emergency Situations and the Ministry of Economics Development and Trade includes only health facilities with more than 50 beds.

Mechanisms of coordination and partnership-building in crisis management have been formalized through over 20 international agreements,<sup>3</sup> such as the following:

- Agreement on cooperation on and interaction in the field of research into earthquakes and the forecasting of seismic danger in the countries of the Commonwealth of Independent States (CIS) (Moscow, 1993);
- Agreement between the Governments of the Republic of Kazakhstan, the Republic of Kyrgyzstan and the Republic of Uzbekistan on cooperation and interaction in the field of research into earthquakes and the forecasting of seismic danger (Bishkek, 1995);
- Agreement between the Government of the Republic of Kazakhstan and Cabinet of Ministers of Ukraine on cooperation on the prevention of emergencies and their consequences (Kyiv, 1999).

Since 1995, Kazakhstan has participated in the North Atlantic Treaty Organization (NATO) Partnership for Peace programme,<sup>4</sup> which entails focusing on strengthening civil emergency and disaster management capabilities.

The Ministry for Emergency Situations is responsible for coordinating the work of the different actors, managing information aspects, assigning tasks and responsibilities, and evaluating and following up on action taken. It has developed public information campaigns, especially at the levels of primary and community health care, on how to behave and what precautions to take during different kinds of emergencies. The Ministry of Health is responsible for communication with and education of the public on health issues during epidemics.

<sup>3</sup> A full list of formal international agreements is available in Russian (<http://www.emer.kz/activity/cooperation/dog08.doc>, accessed 17 March 2011).

<sup>4</sup> Further information on the Partnership for Peace programme is available ([http://www.nato.int/cps/en/natolive/topics\\_50349.htm](http://www.nato.int/cps/en/natolive/topics_50349.htm), accessed 17 March 2011).

## Health workforce

The ability of health systems to respond to health crises depends critically on the number and distribution of health workers, as well as on their skills and commitment. In 2007, there were 3.88 physicians and 7.83 nurses per 1000 population in Kazakhstan (21). This is close to the averages for the European Union and newly independent states. However, considerable regional variations exist, with substantially larger concentrations of health workers in cities and much lower numbers dispersed throughout very large rural areas.

The overall size of the health workforce appears to be large enough to enable adequate response in a health crisis. One of the strengths of the network is its mechanism for deploying dedicated medical and psychosocial teams from the Ministry for Emergency Situations in a crisis and reallocating additional Ministry of Health medical staff from unaffected areas. Decisions on deployment are based on the type and magnitude of the crisis and on the overall needs. In a major emergency, over 500 staff can be mobilized within three hours and dispatched within eight hours.

The sanitary–epidemiological stations at oblast level have epidemiological teams that can be dispatched within three hours. The composition of the emergency response team depends on the nature and size of the incident; experts in epidemiology, sanitary hygiene and laboratory diagnostics are always available.

Responsibility for medical education was transferred from the Ministry of Education and Science to the Ministry of Health in 2003. Kazakhstan is in the process of reforming its medical and pharmaceutical education programme. *Government Decree No. 317 on the concept of reforming medical and pharmaceutical education in the Republic of Kazakhstan* (24 April 2006) emphasizes the need for continuity between levels of education.

Kazakhstan has 6 public universities, 2 private medical universities, 1 private nursing institute, 29 public nursing schools and 31 private nursing schools (22). Continuous medical education is conducted by the Almaty Postgraduate Medical Institute and the School of Public Health (23).

In 2010, Kazakhstan was the first country in the WHO European Region to formally revise its two-year residency programme in disaster and emergency medicine and its one-month continuous medical education programme in the same area, and to include the key concepts of the Regional Office's public health and emergency management training programme. However, it should be noted that both residency programmes and continuous-medical-education programmes are optional for medical doctors and that there are no training courses in emergency management for nurses.

In addition, in the light of the current high-level risk for emergencies in the southern regions of the country, the Ministry for Emergency Situations took the initiative to organize training in first aid for medical and non-medical staff of all the services involved in response to emergencies, as well as for the population of that area. The training centre is located at the Railway Hospitals of Disaster Medicine joint-stock company.

In emergency management, simulation exercises and drills constitute an important part of capacity-building. Health facilities are regularly involved in simulation exercises organized by the Ministry for Emergency Situations. Health workers at the Centre for Disaster Medicine and the Railway Hospitals of Disaster Medicine joint-stock company are also integrated in the overall multisectoral exercises organized by the local municipalities.

# Medical products, vaccines and technology

Appropriate and cost-effective diagnostic and therapeutic medical products are essential for the provision of quality health care and the mitigation of human mortality and morbidity in an emergency.

The Ministry for Emergency Situations is responsible for ensuring strategic reserves of essential supplies, including pharmaceuticals, medical supplies and equipment for crisis management. *Order No. 24 of the Minister for Emergencies (12 February 2008)* regarding regulations on Ministry for Emergency Situations' state reserves assigns responsibility for stockpiling, maintenance, rotation, storage and distribution of state reserves to Ministry for Emergency Situations' Committee on State Reserves.

*Law No. 106-II on state material reserves (27 November 2000)* declares that they can be used for military mobilization, the prevention of and response to natural and technological emergencies, humanitarian aid, and the regulation of markets.

*Law No 349-1 on state secrets (15 March 1999)* specifies details relating to the Ministry for Emergency Situations' reserves, such as the location and content of strategic warehouses and their maintenance and distribution systems. By nature of this Law, this information is not included here. It should be noted that the Ministry of Health's system of drug supply and quality assurance has undergone significant improvement in recent years and needs to be integrated with the overall state reserves' system, which covers planning, maintenance, distribution, quality assurance and information about medicines. For instance, medicines included in the reserves should be selected from the official Drug Formulary of the Republic of Kazakhstan endorsed by *Order No. 299 on approval of the Drug Formulary of the Republic of Kazakhstan* of the Minister of Health (26 April 2010).

In addition, all health facilities are required to have a three-day reserve of medicines and medical and laboratory supplies, as well as supplies for hospital operations in emergencies, e.g. water and fuel for the generators. The idea is that health facilities, including laboratories and blood banks, should be able to sustain normal operations for three days without resupply.

There are no procedures for the exceptional emergency procurement of medicines or medical and laboratory supplies by health facilities, nor are there specific procedures for accepting or rejecting donations from national or international partners.

The medical services of the Ministry for Emergency Situations have mobile hospitals that can be deployed nationally or internationally within 24 hours, as well as the special consultation-and-diagnosis trains (Densaulyk and Zhardem) that can draw up promptly and as closely as possible to the site of an emergency and evacuate large numbers of injured people in a single-stage operation. Both facilities have modern equipment and are able to provide a comprehensive range of services, including essential primary health care, surgical and intensive care, laboratory diagnostics, radiological examinations, etc.

# Health information

## **Information management systems for risk reduction and emergency preparedness programmes**

The Ministry for Emergency Situations plays a leading role in national risk analyses, including risk assessments, with the important participation of other ministries and agencies.

The state-owned enterprise, Kazhydromet,<sup>5</sup> under the Ministry of Environmental Protection, conducts continuous activities (monitoring, analysis, observation, forecasting and early-warning) related to meteorological, hydrological and climatological events. Kazhydromet is formally responsible for providing information about natural disasters in Kazakhstan through its network of regional centres in the oblasts and the cities of Astana and Almaty, as well as through its extended network of meteorological and hydrological monitoring stations. Some of these are included in the global monitoring network.

The Committee on State Sanitary and Epidemiological Surveillance under the Ministry of Health oversees communicable diseases control, food and water safety, environmental health (including air and soil) and sanitary hygiene. The surveillance system has an early-warning capacity for the detection of outbreaks; it also cooperates with neighbouring countries through information-sharing.

Communicable diseases surveillance relies on both active and passive data collection processes. Health facilities submit routine epidemiological data for analysis to the oblast branches of the Committee on State Sanitary and Epidemiologic Surveillance. In addition, they report on a number of legally notifiable infectious diseases using standardized urgent notification forms. Active surveillance is based on sentinel surveillance of selected diseases, including influenza-like illness and severe acute respiratory illness. In addition, there is ad hoc reporting of unusual events of a clinical, epidemiological and laboratorial nature, such as increased numbers of cases, higher-than-expected mortality rates, etc. The national surveillance system relies on an extensive laboratory network throughout the country. The main means of information exchange and notification are telephone and telefax; increasingly, routine statistics are sent by electronic mail.

The Committee on State Sanitary and Epidemiological Surveillance is responsible for initiating and leading a public health response, in coordination with relevant stakeholders. In emergencies, the Committee is responsible for assessing the risk of communicable diseases and establishing epidemiological surveillance and early-warning systems in settings that include displaced populations.

The Agency of Statistics of the Republic of Kazakhstan is the central institution responsible for developing statistical methodology, providing statistical support and meeting the formal statistical information needs of the public, the Government and the international community. Selected summarized statistical information can be accessed from Agency's web site.<sup>6</sup> Detailed statistical information can be made available upon formal request.

<sup>5</sup> Further information about Kazhydromet is available (<http://www.kazhydromet.kz/about/about.php>, accessed 19 March 2011).

<sup>6</sup> Further information about Agency of Statistics of the Republic of Kazakhstan is available (<http://www.eng.stat.kz/Pages/default.aspx>, accessed 18 March 2011).



Recently, Kazakhstan embarked on a number of ambitious information management projects, including the unified health information system of the Ministry of Health and the corporate communication and information system of the State System for Prevention and Response to Emergencies. One of these projects, the unified health information system, will comprise several modules, including patient, resource and financial management. Another project, the corporate communication and information system, aims at establishing effective and efficient management processes for risk reduction and emergency preparedness, including a GIS component. A notable observation is that the latter-mentioned project focuses primarily on the needs of the Ministry for Emergency Situations with little consideration for the public health sector, except as regards epidemiological surveillance.

### **Information management systems for emergency response and recovery**

The coordination of multisectoral surveillance and early warning is the responsibility of the Ministry for Emergency Situations that houses a fully equipped 24/7 crisis centre. The crisis centre hosts and provides the facilities for the national multisectoral emergency committee in times of a large-scale crisis. It receives information from a variety of sources within the country and globally.

Telecommunication in the health sector is reliant on telephones, mobile phones, fax-machines and, increasingly, electronic communication through the Internet. Ambulances are equipped with radios and have their own wavelengths but there is no back-up system within the health sector.

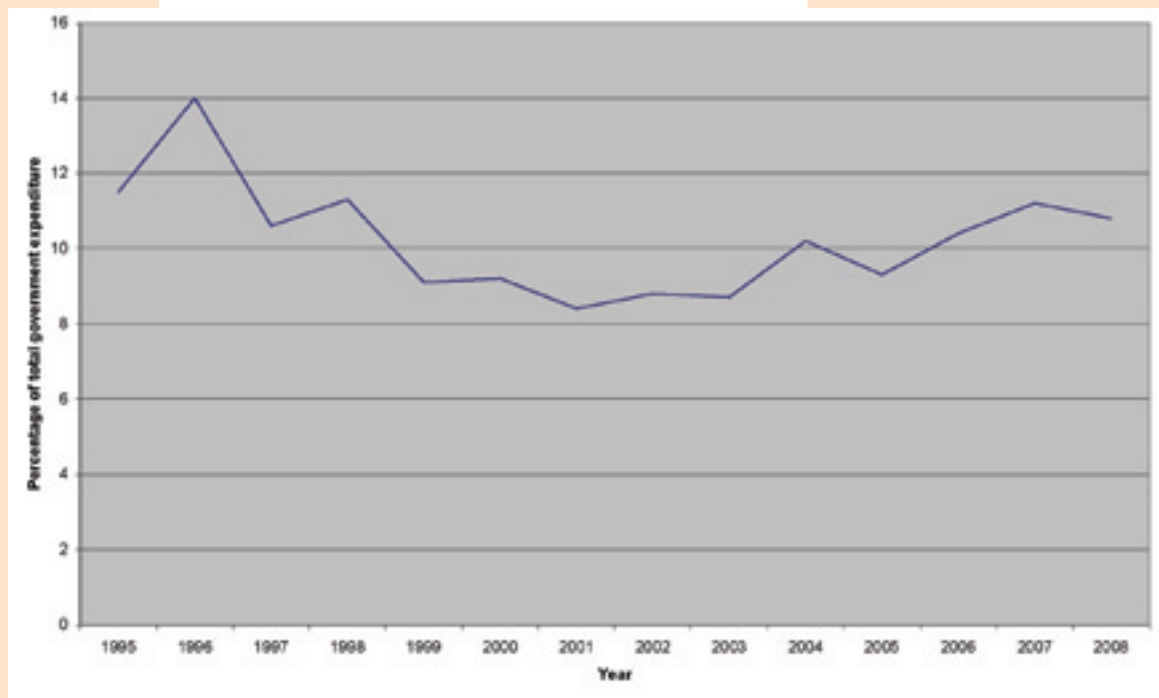
The telecommunications system of the Ministry for Emergency Situations' medical services also includes radio communication channels. There are plans to expand the system to include satellite telephone communication and to develop telemedicine complexes in the hospitals of the joint-stock company, Railway hospitals of disaster medicine, and in the special consultation-and-diagnosis trains, Densauilyk and Zhardem. This would facilitate the provision of special on-site medical assistance to the injured, cancelling the need to transfer them to major health-care institutions.

# Health financing

Kazakhstan, like other countries in the WHO European Region, faces difficult challenges and choices in relation to financing its health system and distributing limited resources among various health priorities.

Kazakhstan's public-sector expenditure on health, as a percentage of total government expenditure, has gradually increased over the last decade (Fig. 7).

**Fig. 7. Estimated public-sector expenditure on health in Kazakhstan as percentage of total government expenditure, 1995–2010**



Source: European Health for All database (7).

However, total per capita health expenditure still remains low when compared with other countries in the WHO European Region (Fig. 8).

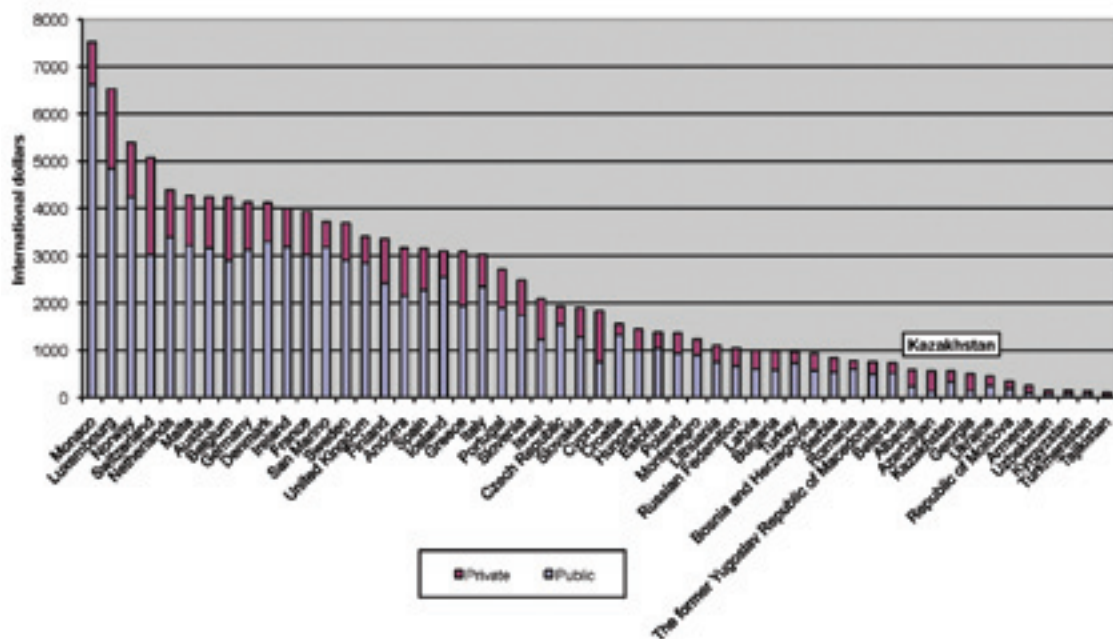
The legal framework in Kazakhstan provides for free emergency medical care, including emergency transport, as part of the guaranteed free basic health-benefits package reflected in *Government Decree No. 2136* (15 December 2009).

The Government of Kazakhstan finances its health system largely from general budget tax revenues. The pooling of budget funds at oblast level was introduced in 2005 and was a positive step towards reducing fragmentation in financing the services. Since 2010, steps have been taken to consolidate the health budget at the national level as part of a unified national health-care system. The single-payer system established at the regional level has facilitated progress towards

overall health policy objectives<sup>7</sup> by financing the state guaranteed benefits package, which covers emergency care and both out- and inpatient care. Medicines prescribed for children, adolescents and women of reproductive age as outpatients are also covered.

The existing arrangements for financing the health services ensure that the population has some degree of financial protection, although the structure of benefits varies across oblasts. However, these arrangements do little to encourage investment in essential health crisis preparedness efforts, such as hospital risk-reduction programmes, etc.

**Fig. 8. Total per capita health spending in the WHO European Region, 2008, international dollars**



Source: *National health accounts country information (24)*.

There are various arrangements for financing the medical and psychosocial services of the Ministry for Emergency Situations. The Centre for Disaster Medicine is funded by the Ministry itself and the health facilities of the Railway Hospitals of Disaster Medicine joint-stock company are funded primarily from the sale of medical services provided under the single-payer system of the Ministry of Health, with financial support from the Ministry for Emergency Situations.

The Ministry of Health has no dedicated contingency fund. However, substantial resources are allocated for national reserves (Kazakh T 38.7 billion (US\$ 260 million)) and Ministry for Emergency Situations' reserves (Kazakh T 8.5 billion (US\$ 57.7 million)) in accordance with *Law No. 219-IV on the national budget for 2010–2012* (7 December 2009).

<sup>7</sup> The WHO Regional Office for Europe's health policy objectives on health financing, based on *The world health report 2000*, are: (1) to finance policy objectives that are essentially identical to the broad health-system goals by promoting universal protection against financial risk and a more equitable distribution of the burden of funding the system; and (2) to finance intermediate policy objectives that are instrumental in achieving the broad health-system goals, i.e.: to promote the equitable use and provision of services relative to their need; to improve the transparency and accountability of the system; to promote quality and efficiency of service delivery; and to improve efficiency in the administration of the health financing system (25).

# Service delivery

## **Response capacity and capability**

*Government Decree No. 1298 on the national system for preventing and responding to emergencies (28 August 1997)* stipulates that the planning of emergency response is an integral part of the overall system of prevention and response to emergencies. The provision of medical and psychosocial services in emergencies is outlined in the plans for medical–sanitary support of civil defence and response to emergencies, which exist at the national and subnational levels within the framework of *Government Decree No. 1298*.

The scope and purpose of medical and psychosocial services in emergencies, and details on the organization of these services, are included in *Government Decree No. 608 on approving rules on the provision of emergency medical services (EMS) in emergencies (17 June 2010)*.

In the first phase of any emergency (whether local, regional or national), the Ministry for Emergency Situations' medical services are deployed to the site of the emergency. Several entities act as medical first responders in emergencies. These are: (1) the EMS system of the Ministry of Health; (2) the medical and rescue services of the Ministry for Emergency Situations; and (3) local functional health facilities.

In the second phase of an emergency, medical and psychosocial care is provided by unaffected health facilities, both public and private, in a safe zone away from the disaster site.

## **The EMS system and mass-casualty management**

Kazakhstan has adopted a decentralized model of emergency management, devolving operational authority to the lowest possible level of government. This applies especially to the management of mass gatherings and hospital services.

In a mass-casualty incident, the Ministry for Emergency Situations establishes an operational field centre (or a scene incident command post), which is equipped to ensure a reliable means of communication. The centre functions as the overall command entity for the management of casualties, deciding on the evacuation of patients and ensuring standardized procedures for tracing casualties.

In the immediate aftermath of a small-scale emergency, the first medical team to arrive at the disaster site decides the final destination of victims to be transported by ambulance. In a large-scale emergency, casualties are transferred to a first-aid medical team, which is part of the non-military civil defence formation.

First-aid medical teams are set-up in pre-existing health facilities according to the civil defence plans for providing medical–sanitary support and response in the case of emergencies. The main objectives of these teams are to provide first-aid treatment, triage casualties, organize the temporary isolation of infectious and psychiatric patients and the disinfection of victims of biological and radionuclear incidents, and prepare patients for evacuation.

Following the transfer of the Centre for Disaster Medicine and the joint-stock company, Railway Hospitals of Disaster Medicine, the Ministry for Emergency Situations established a countrywide network of hospitals with health-care workers dedicated to crisis preparedness and response

operations. The network includes two consultation-and-diagnosis trains (Densaulyk and Zhardem), set up in 2010 in conjunction with the joint-stock company, National Company–Kazakhstan Railways. These trains make it possible to intervene urgently in an emergency situation and provide specialized medical assistance, temporary hospitalization and a means of evacuation for large numbers of injured people in any region. Each train consists of nine carriages: four that are medically equipped, two for medical personnel (these can also be used for evacuation in emergency situations), one for use as a conference hall/canteen, one with medicaments and supplies and one for operational support functions, such as the generation and maintenance of power. The trains and the mobile field hospitals are also used for first-aid purposes.

There is a standardized national protocol for on-site triage by a first-aid medical team. The rapid transportation of patients to hospital is prioritized over on-site resuscitation activity. Patients are sorted into those who are in critical need of attention and immediate transport to hospital and those with less serious injuries. The choice of the hospitals to which they are sent is based on type of condition rather than on severity.

The management of the dead and missing (recovery, identification) is the responsibility of the Ministry for Emergency Situations' medical services, whereas the Ministry of Health medical services are responsible for forensic investigations.

The management of public health during events involving mass gathering is the responsibility of the Ministry of Health, which ensures the strict monitoring of communicable diseases and sanitary issues, as well as food and water safety during such events. As in the case of the 2011 Asian Winter Games held in Astan and Almaty, these activities are developed and coordinated in collaboration with other ministries and governmental agencies.

The EMS system in Kazakhstan is regulated by *Order No. 788 on approval of the rules and regulations on emergency medical services for the population* of the Health Care Agency of the Republic of Kazakhstan (28 August 2001). It is part of a unified health-care system consisting of EMS stations, substations and departments and free of charge for both citizens and foreigners. The stations are established in cities and rayon capitals with over 30 000 people. There is only one station with an emergency call centre and dispatching function per city or rayon, but this station can have several substations that also serve the city or rayon. EMS stations are either independent or affiliated with the EMS hospitals in the cities.

All EMS stations are under the jurisdiction of the local health administrations. There are substantial regional variations in the levels of their staffing and equipment, which is partly attributable to differences in regional funding. For instance, some well-funded EMS stations and their ambulances are equipped with GIS-based EMS navigation systems.

Dispatch centres can be reached either directly, through the unified toll-free number 103, or indirectly, through the unified toll-free emergency call number 112. Dispatch centres receive telephone requests for ambulance services, provide medical advice over the telephone and organize the coordinated dispatch of appropriate resources.

There are three main types of ambulances in Kazakhstan: patient transport ambulances (type A); road ambulances designed and equipped for the transport, basic treatment and monitoring of patients (type B); and road ambulances designed and equipped for the advanced treatment and monitoring of patients (type C). In addition, in cities or rayons with more than 70 000 people, there are ambulances for special emergency paediatric care and in cities or rayons with more than 100 000 people there are ambulances specifically for the transport of psychiatric patients.

## **Management of hospitals in mass-casualty incidents**

In line with the legal requirements, each health facility is obliged to have a plan for the provision of medical–sanitary support to civil defence and for response to emergencies. Hospital directors have the overall responsibility for coordinating planning exercises, testing plans and funding preparedness activities. A dedicated civil defence focal point in each health facility is responsible for hospital emergency preparedness and response.

In practice, elements of hospital preparedness exist to a varying degree, including defined standard operating procedures, a description of the roles and responsibilities of the key hospital staff, an incident command room, regular drills and exercises, and accessible contingency stocks. Most hospitals have contingency plans for internal fire, outbreaks of communicable diseases and continuity of operations (such as tents for temporary and/or partial evacuation of the hospital). In the hospital contingency plan for chemical incidents shown to the assessment team, there was no description of the decontamination procedures for arriving patients, nor any indication of the location for decontamination. The contents of hospital contingency plans vary greatly from one hospital to another; being determined by the hospital staff, the overall approach to their design is individual-based rather than function-based.

Health facilities support routine infection prevention and control, including the upholding of infection control measures and the submission of epidemiological reports, in line with the requirements of the Ministry of Health's sanitary–epidemiological services.

Comprehensive, funded hospital preparedness programmes, as well as formalized interhospital networking and referral systems, are rare. This may be due to a preference for informal and personal interaction between professionals at each level, and to the fact that back-up resources (qualified staff, vacant beds, medicine and equipment) are readily available, at least in the oblast centres.

In 2009, the Ministry of Health, in cooperation with the Ministry for Emergency Situations, conducted a nationwide risk assessment of its hospitals, which focused mainly on the risk of internal fires. The report was used in deciding on mitigating and preventive measures.

Seismic vulnerability assessments are conducted in areas of high seismic hazard. Follow-up action includes the allocation of funds for retrofitting priority health facilities and reducing seismic vulnerabilities, as noted in *Government Decree No.81 on the strategic plan of the Ministry of Health of the Republic of Kazakhstan for 2010–2014* (10 February 2010). However, systematic assessments of the structural, non-structural and functional vulnerabilities of the hospitals, based on an internationally recognized assessment methodology, such as the *Hospital Safety Index* (26), have not yet been conducted. It was noted that, under *Joint Decree No. 6683 on approving criteria for assessing risks related to civil defence* of the Ministry for Emergency Situations and the Ministry of Economics Development and Trade (15 December 2010), all hospitals with over 50 beds are subject to routine civil defence risk assessment using standardized methodology. This risk assessment rates the health facilities against seven criteria, including emergency preparedness, training of staff, education of the population, etc.

## **Continuity of essential health programmes and services**

There is an ongoing system for monitoring public health but no specific disaster-related preparedness plans are in place for monitoring specific programmes (on, for example, reproductive health, nutrition and psychosocial support) that could be put into effect during a response. Although there is as yet no hospital network, there is a mechanism for sharing staff (also with neighbouring oblasts) to deal with the transfer of patients in major emergencies. Hospitals have stocks, including blood, that are regularly renewed and it is possible to share resources between blood banks.

The communicable diseases surveillance and early-warning system is robust enough to continue in a crisis situation. The sanitary–epidemiological services have the capacity to provide laboratory support through their many substations, enabling the hospitals to continue their services.

The management of lifelines (provision of shelter, food and water) for internally displaced people is under the responsibility of the local authorities with sanitary–epidemiological services. These authorities are responsible for water assessment, sanitation, communicable diseases and the implementation of the necessary monitoring activities.

# Conclusions and recommendations

Since the country's independence, Kazakhstan has significantly reshaped its health system following an ambitious reform strategy. Although the aspect of emergency preparedness and risk reduction was not the focus of much attention during the reform process, it was included in the reform. This was due, in large part, to the strong leading role of the Ministry for Emergency Situations and to the Government's recognition of the importance of this area.

The Government placed emphasis on strengthening the medical services of the Ministry for Emergency Situations to cover the majority of low-scale to-medium-scale health emergencies. However, it is clearly recognized that these resources are not sufficient to manage a serious health crisis. The overall preparedness of the health system for crises needs to be strengthened and the Ministry of Health should take a proactive role in addressing gaps in the capacity necessary for crisis management.

Several key areas of intervention were identified during the review.

1. National health-sector crisis-preparedness activities require core teams of dedicated professionals to lead the process at the national and subnational levels. The existing arrangement of civil defence focal points may not be sufficient to sustain coherent action at the national level towards strengthening the capacity of the health system for emergency management and they need to be reconsidered.
2. The latest developments in the area of intersectoral risk analysis, including the information management projects of both the Ministry of Health and the Ministry for Emergency Situations, have created opportunities for establishing standards, processes and systems for the routine collection and exchange of data, as well as for undertaking joint analyses and preparedness planning, thus contributing to better informed decision-making in health crises. There is still substantial room for improvement with respect to health-sector involvement in intersectoral risk analyses, with the exception of those relating to communicable diseases.
3. As a priority, Kazakhstan has identified the need to strengthen its EMS system. As many of the necessary components are already in place, consideration could be given to the concept of implementing an integrated pre- and in-hospital EMS system.
4. The development of human resources for health crises preparedness and response should build on achievements and expand beyond its current focus, which is limited to medical doctors in disaster and emergency medicine and first responders. The first step could be to conduct a comprehensive audit of the capacities of health personnel working in the area of health crisis preparedness and response with a view to developing a detailed needs-based training plan.
5. Health facilities play a critical role in emergencies and, therefore, the economic and social consequences of their loss as a result of structural or functional collapse are enormous. Thus, it is important to approach the issue of hospital resilience and safety in a coherent and systematic manner. One option could be to pursue high-level commitment to developing: (a) a national



strategy for reducing the vulnerability of health facilities to the effects of natural disasters; and (b) a comprehensive hospital emergency-preparedness programme aimed at ensuring the efficient and effective management of hospitals and increasing their readiness to respond to any type of emergency.

6. Operational support functions in emergencies, including emergency telecommunication, play important role in increasing the efficiency of emergency response and recovery operations. It is desirable to establish a resilience telecommunication strategy relying on modern technologies for enhancing the resilience of communications, particularly of local emergency responders.

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# Annex. Selected legal and regulatory documents related to crisis preparedness and response in Kazakhstan

Legislation	Date
Law No. 19 on natural and technological emergencies	5 July 1996
Law No. 87–1 on rescue services and status of rescuers	27 March 1997
Law No. 100–1 on civil defence	7 May 1997
Government Decree No. 1298 on state system for preventing and responding to emergencies	28 August 1997
Law No. 349–1 on state secrets	15 March 1999
Law No. 106–II on state material reserve	27 November 2000
Order No. 788 of the Health-care Agency of the Republic of Kazakhstan on approval of rules and regulations on emergency medical services for the population	28 August 2001
Law No. 314 on industrial safety at hazardous industrial entities	3 April 2002
Government Decree No. 317 on the concept of reforming medical and pharmaceutical education of the Republic of Kazakhstan	24 April 2006
Government Decree No. 704 on the transfer and renaming of the state enterprise, Centre of Disaster Medicine of the Ministry of Health of the Republic Kazakhstan from the jurisdiction of the Ministry of Health of the Republic of Kazakhstan to the jurisdiction of the Ministry for Emergency Situations of the Republic of Kazakhstan	17 August 2007
Order No. 24 on regulations on the Ministry for Emergency Situations' state reserves	12 February 2008
Code: On the health of the people and the health-care system	18 September 2009
Government Decree No. 1642 on joint-stock companies administered by the Ministry for Emergency Situations	22 October 2009
Government Decree No. 2136 on the guaranteed free basic health benefit package	15 December 2009

Government Decree No.81 on the strategic plan of the Ministry of Health of the Republic of Kazakhstan for 2010–2014	10 February 2010
Order No. 299 on approval of the Republican drug formulary	26 April 2010
Government Decree No. 608 on approving rules for provision of emergency medical services in emergencies	17 June 2010
Joint Decree No. 6683 on approving criteria for assessing risks related to civil defence of the Ministry for Emergency Situations and the Ministry of Economics Development and Trade	15 December 2010











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“New diseases are global threats to health that also cause shocks to economies and societies. Defence against these threats enhances our collective security. Communities also need health security. This means provision of the fundamental prerequisites for health: enough food, safe water, shelter, and access to essential health care and medicines. These essential needs must also be met when emergencies or disasters occur.”

– Dr Margaret Chan  
WHO Director-General

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