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Assessment of health-system crisis preparedness

Tajikistan

JK

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Abstract

In 2008, with the support of the European Commission Directorate-General for Health and Consumers, WHO launched the "Support to health security, preparedness planning and crisis management in European Union (EU), EU accession and neighbouring countries" project, with the aim of improving preparedness for public health emergencies in countries of the WHO European Region. One of the project's objectives was to test a tool for assessing the capacity of health systems for managing crises. The tool, which is based on the WHO health-system framework, was piloted in planning and crisis management assessments carried out in 2007–2008 in Armenia, Azerbaijan and the Republic of Moldova within the joint European Commission–WHO project "Support to health security and preparedness planning in EU neighbouring countries". The tool was further enhanced and improved as a result of the experience gained in these countries and during a second round of assessments, and the assessment team used the updated assessment tool for the 2013 mission to Tajikistan. This report presents an evaluation of the level of preparedness of the Tajik health system to deal with public health crises, regardless of cause. It also examines the country's risk-prevention and risk-mitigation initiatives. While the main focus is on the national level, some attention has been paid to intercountry cooperation on crisis management capacity and to the links between the various levels of government.

Keywords
Process assessment (health care)
Disaster planning
Emergencies
Risk management
Health system plans
Delivery of health care
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Abbreviations

CDC	Centers for Disease Control and Prevention
CIS	Commonwealth of Independent States
CoES	Committee of Emergency Situations and Civil Defence
DPEC	Disaster Preparedness and Emergency Care (Unit)
EMS	emergency medical services
GDP	gross domestic product
GIS	geographical information systems
GNI	gross national income
IHR	International Health Regulations
NGO	nongovernmental organizations
PCR	polymerase chain reaction
REACT	rapid emergency assessment and coordination team
SSESS	State Sanitary Epidemiological Surveillance Services
TB	tuberculosis
UN	United Nations
UNDP	United Nations Development Programme

Introduction

Recent decades have seen an increase in the occurrence of emergencies and disasters worldwide and in the severity of their impact on the countries affected, those of the WHO European Region being no exception. This development emphasizes the importance of the role of health systems in the overall cycle of disaster prevention, preparedness, risk mitigation, response and recovery.

The tasks of strengthening health-system crisis preparedness and building the necessary core capacities required to implement the International Health Regulations (IHR) *(1)* are complex. To strengthen the leadership of the health sector in planning for crises in conjunction with other sectors as a continuous process with an all-hazard approach, it is crucial both to have a clear understanding of the country's situation and political commitment and to establish capacities for sustainable crisis management and health risk reduction.

Much is at stake. Health crises and the human suffering they cause can jeopardize the progress made towards the sustainable development of health systems and the achievement of the United Nations (UN) Millennium Development Goals. Preparedness is the key to preventing this. A health system that has anticipated the health needs of people in crisis situations is able to respond effectively to these needs, save lives and prevent such events from escalating into security crises.

This report analyses the preparedness of the Tajik health system for crises. It provides key facts on its capacity to manage crises, which can be used by policy-makers, and contributes to the existing evidence on the preparedness of health systems for crises.

Background

Global health security

The UN Commission on Human Security established that good health and human security are inextricably linked and that illness, disability and avoidable death are critical pervasive threats to human security *(2).* The Commission identified the three main health challenges as conflict and humanitarian emergencies; infectious diseases; and poverty and inequity.

Not only are the established infectious diseases spreading more quickly (for example, multidrug-resistant tuberculosis (TB) and HIV/AIDS are increasingly becoming a threat to health security) but new diseases are also emerging at a faster rate than ever before (one or more per year since the 1970s). Nearly 40 diseases now exist that were unknown a generation ago.

The statistics show a steady rise in the number of disasters[1] worldwide, many of which are attributed to climate change. In the past 20 years, disasters have killed over 3 million people and

[1] For inclusion in EM-DAT: the international disaster database (3), an event has to result in at least one of the following: 10 or more deaths; 100 or more people affected; the declaration of a state of emergency; a call for international assistance.

adversely affected over 800 million. Over 12 300 earthquakes have alone been the cause of over 8.49 million deaths since the beginning of earthquake records. In the 20th and 21st centuries they have already caused around US$ 3.14 trillion of damage (of this, around 20% occurred in 2011, mostly due to the Tohoku earthquake and tsunami). Collection of building damage data for historic earthquakes demonstrates the vulnerability of traditional building stock such as masonry, adobe and badly constructed reinforced concrete. Given the worldwide population increase, however, a significant reduction in loss of life due to earthquakes compared to expectations has been seen. This is the result of a combination of country development, implementation of better building practices to resist earthquake forces and a more stable world, allowing for earthquake insurance and protection of financial assets *(4)*.

Natural and man-made disasters, depending on their magnitude and the vulnerability of the populations they affect, can have a devastating effect on health status in both the short and long terms. This is often aggravated by economic loss, which also has a negative impact on health status and, therefore, on the economy in the health sector as a whole. Increasingly, disaster management is becoming a priority in countries for several reasons.

- The economic and political implications of disasters, particularly outbreaks of communicable diseases, and their effect on trade and tourism can be enormous. Low-income countries are clearly the most vulnerable to these negative effects.
- 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.
- States Parties to the revised IHR *(1)*, which came into force on 15 June 2007, are legally bound to meet their requirements.

Nevertheless, governments – particularly in low-income countries – are often loath to invest in strategies aimed at disaster prevention and/or risk reduction, and there is an overall tendency to underinvest in the health sector. Statistics show that, on average, the lower the gross domestic product (GDP) of any particular country, the smaller the percentage invested in health *(5)*.

Health security in the WHO European Region

Between 1990 and 2012 approximately 48 million people in the Region were directly affected by natural disasters that resulted in over 192 000 deaths (see Table 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. Other severe events of the recent past include the Chernobyl nuclear power plant accident in 1986, which the UN estimates affected several million people, and the Marmara earthquake that killed nearly 18 000 people and injured close to 45 000 people in Turkey in 1999.

Since 1990, a series of violent wars and conflicts in the Region have had vast political, social and human consequences. Armed conflict in Bosnia and Herzegovina, Croatia, Kosovo (in accordance with Security Council resolution 1244 (1999)), Serbia, Slovenia and the former Yugoslav Republic of Macedonia resulted in an estimated 125 000 fatalities and the displacement of up to 3 million people. The break-up of the former Soviet Union brought about a number of violent episodes in Azerbaijan (Nagorno-Karabakh), Georgia (Abkhazia and South Ossetia), the Republic of Moldova (Transnistria), the Russian Federation (Chechnya, Ingushetia, North Ossetia and Dagestan) and Tajikistan, causing the loss of an estimated 200 000 lives. The recent civil unrest in Kyrgyzstan, where the mass displacement of populations also affected neighbouring countries, underlined the importance of ensuring that national health systems are equipped to respond effectively to the health security aspects of violence-related crises.

Table 1. Natural and technological disasters in the WHO European Region, 1990–2012

Disaster type	Occurrences	Deaths	Total affected	Economic losses (US$ thousands)
Drought	40	2	14 681 769	19 258 309
Earthquake (seismic activity)	121	22 710	5 831 093	56 597 709
Epidemic	59	677	216 047	0
Extreme temperature	222	138 675	3 901 425	17 398 351
Flood	491	4 568	12 800 073	94 410 590
Industrial accident	148	2 847	95 636	13 123 007
Insect infestation	2	0	0	0
Mass movement, dry[a]	5	334	3 219	2 600
Mass movement, wet	57	1 835	196 224	1 608 089
Miscellaneous accident	150	3 088	58 884	724 000
Storm	333	1 759	8 661 972	82 841 529
Transport accident	488	15 063	10 229	7 700
Volcano	4	0	7 000	19 600
Wildfire	82	448	1 322 294	12 838 811
Total	2202	192 006	47 785 865	298 830 295

[a] Mass movement includes avalanches, landslides, rock falls and subsidence events.

Source: EM-DAT *(3)*.

A number of serious terrorist attacks have also taken place in the Region in the last 15 years, including those that occurred in France (Paris, 1995), Spain (various ETA bombings; Madrid train attack, 2004), Turkey (various) and the United Kingdom (London, 2005). Reportedly, more than five times as many attacks have been thwarted in Belgium, France, Germany, Italy, the Netherlands, Spain and the United Kingdom, and the list of failed or aborted attempts is probably longer than we may ever know *(6)*.

IHR

The need to strengthen capacity for emergency preparedness and response, particularly in low-income countries, is firmly based on current trends and statistics and supported by a wide variety of literature on global warming, environmental hazards, bioterrorism and re-emerging and emerging diseases, particularly severe acute respiratory syndrome and avian influenza. The level of international concern about this need is reflected in an increasing amount of media coverage and the establishment of various commissions, committees and international coordinating bodies (such as the UN International Strategy for Disaster Reduction, UN Commission on Human Security and WHO Health Action in Crises Programme) to address issues related to emergency preparedness and response.

Growing concern about national, regional and international public health security led to the adoption of the revised IHR *(1)* by the 58th World Health Assembly in May 2005. These provide a new legal framework for strengthening surveillance and response capacity and protecting the public against acute health threats with the potential to spread internationally, affect human health negatively and interfere with international trade and travel.

The revised IHR 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 are now obliged to assess and notify WHO of any event of potential international public health concern, irrespective of its cause (whether chemical, biological, radiological or nuclear) and origin (accidental or deliberate). The criteria for assessing the international public health implications of any given event are outlined in the algorithm presented in annex 2 of the IHR. These include health-related events that are unusual or severe, may have a significant impact on public health, may spread across borders and may affect freedom of movement (of goods or people).

For effective implementation, States Parties (with WHO support) were also required to develop a national IHR implementation plan by June 2009 and to meet national core capacity requirements by June 2012. How this can be achieved, particularly in low-income countries, however, is not yet fully envisaged.

Cross-cutting issues related to disaster preparedness and response

Effective crisis preparedness and response is governed by a number of cross-cutting (strategic) principles that WHO encourages Member States to adopt. These relate to the all-hazard approach, the whole-health approach, the multidisciplinary (intrasectoral) approach, the multisectoral approach and the comprehensive approach.

The all-hazard approach

The concept of the all-hazard approach acknowledges that, while the sources of hazards (natural, technological and societal) vary, the resulting challenges to the health system are broadly similar. Thus, regardless of the cause of a hazard, activities relating to risk reduction, emergency preparedness, response and community recovery are implemented along more or less the same model. Experience shows that the various essential response actions have a substantial number of generic elements (health information, emergency operations centre, coordination, logistics, public communication, and so on), and that prioritizing these generates synergies to better address the hazard-specific aspects.

The whole-health approach

The whole-health approach promotes the concept that the emergency preparedness planning process, the overall coordination procedures, and the surge and operational platforms should be led and coordinated by emergency coordination bodies at the central and local levels, involving all the relevant disciplines of the health sector and dealing with all potential health risks.

The multidisciplinary 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 (for example, by nongovernmental organizations (NGOs) and international agencies) and action at the central, local, population and military levels – from tertiary care to local community health 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 and national plans for disaster preparedness and response need to be linked 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 government 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, ministries of health need to ensure that health is not overlooked in the push for greater profits and economic growth, and to advocate a multisectoral approach in dealing with health issues. Multisectoral planning, however, continues to be a challenge in many countries as government departments often prefer to develop their own individual plans, in parallel with other key partners.

The comprehensive approach

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

- Prevention, reduction and mitigation activities aim to reduce the likelihood or impact of a disaster 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.
- Response and recovery action covers a wide range of activities implemented during and after an emergency, which have specific humanitarian and social objectives linked to long-term strategic goals and sustainable development.

For programmatic purposes, WHO has designed specific activities aimed at preventing, mitigating and preparing for emergencies, disasters and other crises. For the purposes of this document, the following definitions apply *(7)*.

- Risk reduction involves measures designed either to prevent hazards from creating risks or to lessen the distribution, intensity or severity of hazards. These measures include flood mitigation works and appropriate land-use planning. They also include vulnerability reduction measures, such as awareness raising, improving community health security, and relocating or protecting vulnerable populations or structures.
- Emergency preparedness is a programme of long-term activities, the goals of which are to strengthen the overall capacity and capability of a country or a community to manage all types of emergencies efficiently and bring about an orderly transition from relief through recovery and back to sustained development. It requires the development of emergency plans, the training of personnel at all levels and in all sectors, the education of communities at risk and the regular monitoring and evaluation of all measures taken.

In 2007 the European Commission Directorate-General for Health and Consumers and the WHO Regional Office for Europe embarked on a joint project to develop a standardized assessment tool, which would support Member States in objectively evaluating the preparedness of their health sectors to respond to natural and man-made disasters, taking all functions of the health system into consideration. Other aspects for inclusion in the evaluation were priority health risks and the interoperability of public health emergency plans. The project was coordinated by the Regional Office.

A multidisciplinary team of experts in the areas of disaster preparedness, communicable diseases and environmental health worked together to elaborate, refine and pilot the tool. Baseline

assessments were conducted in Armenia, Azerbaijan, Croatia, Israel, Kazakhstan, Kyrgyzstan, Poland, the Republic of Moldova, Turkey, the United Kingdom and Ukraine. Comprehensive reports were delivered to the beneficiary countries highlighting strengths, weaknesses and gaps in organizational, legal and policy frameworks for planning national health-system preparedness. Furthermore, in collaboration with the ministries of health and the key stakeholders in these countries, a framework was developed for strengthening the preparedness of health systems.

The biennial collaborative agreement (BCA) 2012–2013 between the Regional Office and Tajikistan set out an agreement to conduct a further assessment of the preparedness of the country's health system for crises *(8)*. The assessment was carried out in September 2013.

Country overview

Geography

Tajikistan is a landlocked country, lying between Kyrgyzstan, China, Afghanistan and Uzbekistan (see Map 1).

Map 1. Tajikistan

Source: Map No. 3765 Rev. 11, October 2009, United Nations Cartographic Section.

Mountains cover 93% of its surface area, and more than half of Tajikistan lies above an elevation of 3000 metres. The climate changes drastically according to the elevation, but is generally continental, subtropical and semi-arid, with some desert areas. The average temperatures in January range from –1 to 3 °C in the lower elevations and from –15 to –20 °C in the eastern Pamir mountain range. Tajikistan is the wettest of the central Asian republics. The average annual precipitation for the Kafiristan and Vakhsh valleys in the south is around 500–600 mm, and in the mountains it reaches 150 mm.

Demography and health

Tajikistan has a population of 7.9 million, with an annual growth rate of 1.79%. The fertility rate, although declining from 5.1 in 1990 to 3.3 in 2007, remains high. Life expectancy at birth is 63 years for men and 69 years for women, and 45% of the population is under the age of 14. The majority (75%) of the population lives in rural areas *(9)*.

The maternal mortality rate is 65 per 100 000 live births – among the highest in the eastern European and central Asian region. The under-5 mortality rate for 2008–2012 was 43 per 1000 live births and the infant mortality rate was 34 per 1000 live births *(10)*; this is almost twice as low as the rates from the 2005 Multiple Indicator Cluster Survey *(11)*, which were 79 per 1000 and 65 per 1000 live births respectively (see Table 2).

Table 2. Selected demographic and health indicators, selected years

Indicator	1990	1995	2000	2003	2005	2007	2009	2011
Permanent population (thousands)	5506	5701	6265	6599	6842	7097	7414	7807 (2010)
Total employment (thousands)	…	…	1024	1067	1056	1049	1037	1030 (2010)
Employment in health care and social security (thousands)	…	…	72.3	71.1	70.5	69.5	74.6	79.1 (2010)
Labour force (millions)	1.99	2.15	2.35	2.58	2.78	2.98	3.19	3.39
Life expectancy at birth (male and female, years)	62.9	62.4	63.8	64.9	65.7	66.3	66.8	67.1
Life expectancy at birth (male, years)	59.8	58.6	60	61.2	62.2	63	63.6	63.9
Life expectancy at birth (female, years)	66.1	66.3	67.7	68.7	69.3	69.8	70.2	70.5
Under-5 mortality rate (per 1000 live births)	104.7	114.5	86.7	79.8	74.1	69.2	64.4	60.4
Infant deaths (per 1000 live births)	33.3	35.1	30.6	28.2	26.9	25.8	24.6	23.5
Maternal deaths (per 100 000 live births)			45 (2001)	37	97	38 (2008)		37
Diabetes prevalence (% of population)	...	0.3	0.3	0.1	0.2	0.2	0.3	...
AIDS incidence (per 100 000)	0.0	0.0	0.0	0.0	0.0	0.4	0.2	1.4
HIV incidence (per 100 000)	...	0.0	0.1	0.6	2.7	4.3	5.6	13.5

Sources: Statistical Agency under the President of the Republic of Tajikistan *(12)*; World Bank *(13)*.

Most indicators characterize Tajikistan as a country with low health status compared with other central and eastern European countries, and the health status of the Tajik people remains precarious (see Table 3). Adult life expectancy is low, with noncommunicable diseases the main cause of all deaths (59%) – mainly cardiovascular disease, respiratory disease and cancer.

Communicable diseases account for a continuing burden of disease: TB has re-emerged as a major public health threat since the 1990s, and although the number of officially reported cases of HIV infection is still comparatively small, with 373 new cases reported in 2008, the Joint United Nations Programme on HIV/AIDS estimates that the true number of people living with HIV in Tajikistan at the end of 2007 was between 5000 and 23 000 *(14)*.

The age-standardized death rate from external causes, injury and poisoning, at 33 per 100 000 population in 2005, is much lower than the Commonwealth of Independent States (CIS) average of 159 and the central Asian average of 81. It is even slightly lower than the average of 35 among the 15 countries belonging to the European Union before May 2004 in the same year *(14)*. One major reason for this may be a lower level of alcohol consumption than in most other countries.

Table 3. Main causes of death per 100 000 population, selected years

Cause of death[a]	1991	1995	2000	2003	2005	2007	2009	2010	2011	2012
Diseases of the circulatory system	185.9	218.3	187.8	201.9	215.2	219.2	206.0	208.0	217.7	209.9
Malignant neoplasm	48.7	28.7	30.9	31.7	32.1	30.5	33.7	33.2	35.3	32.4
Transport accidents	821	545	406	421	483	464	478	411	438	441
Infectious and parasitic disease	85.7	65.8	31.2	24.3	19.6	15.4	14.8	15.2	17.5	11.9
Diseases of the respiratory system	125.4	128.0	58.2	47.8	40.1	40.2	29.0	30.6	31.1	27.0
Diseases of the digestive system	18.2	22.6	19.3	18.1	20.7	22.0	19.4	19.6	19.7	20.9
TB					9.1		8.1	8.8	8.9	5.1

[a] International statistical classification of diseases and related health problems, 10th revision categories *(15)*.

Sources: Statistical Agency under the President of the Republic of Tajikistan *(12)*; WHO *(5)*.

Economy

While relatively economically stable, Tajikistan is increasingly suffering from low economic productivity, high unemployment and extreme poverty (see Table 4). The country ranks 122 of 177 on the Human Development Index of the United Nations Development Programme (UNDP), and has one of the lowest GDPs per capita among the 15 former Soviet republics. The years following the 1992–1997 civil war saw considerable growth in GDP, but despite this 46.7% of the population live below the poverty line. In addition, considerable income inequalities exist: the highest income quintile receives 45% of total income and the lowest income quintile receives only 7%. The gross national income (GNI) per capita in 2009 was US$ 860 *(13)*.

About 48% of the labour force works in the agricultural sector, but only 7% of the country is arable. Remittances from relatives working abroad constitute an important source of income: in 2007 they were equivalent to 45.5% of GDP. The current global economic crisis poses significant challenges to Tajikistan. Many migrant workers in the Russian Federation have lost their work, leading to a decline of remittances *(14)*.

Table 4. Development indicators, selected years

Indicator	2003	2009	2012
Population, total (millions)	6.5	7.4	8.0
GNI per capita (purchasing power parity, $)	1120	1890	2220
GDP growth (annual %)	11	4	8
Life expectancy at birth (years)	65	67	68

Source: World Bank *(13)*.

The main public funder and provider of health care services is the state, but private out-of-pocket payments contribute to revenue to a large extent. Tajikistan is among the lowest spenders on health care in the world, at just under US$ 16 (or $62 purchasing power parity) per capita per year on health care, even though health expenditure as a share of GDP increased from 5.3% to 6% during the period 2007–2011. Public expenditure as a share of GDP varied from 1% to 1.7%, and private expenditure from 3.7% to 3.9%, according to an unpublished WHO report on the national health accounts of Tajikistan. Total levels of health financing are comparable to other CIS countries with similar levels of GDP. General government expenditure on education is 13% of GDP, more than double the amount allocated to health.

Health system

The Tajik health system is in a period of reorganization and transition from the Semashko system inherited from the former Soviet Union. Strategies, laws and regulations are being re-defined or updated, but the capacity for implementation is not yet fully developed. The country has embarked on a comprehensive reform agenda, but the health system is still dominated by economic stringency, overlapping functions of state institutions, fragmentation and management in a highly vertical and heavily hospital-based manner.

The Ministry of Health is responsible for creating national health policies; setting standards; controlling the quality, safety and effectiveness of health services, pharmaceuticals and medical equipment; procurement and distribution of medical supplies and equipment for priority programmes; and managing public health services. The Ministry also manages national health facilities and colleges, including the Tajik State Medical University.

All other health facilities are financed through local governments and are not directly controlled by the Ministry of Health, nor does it have a role in their budgetary decisions. Thus, the regional (oblast) health departments (in Gorno-Badakhshan Autonomous Oblast, Khatlon, Sughd and Dushanbe) are responsible for health care provision by oblast-owned health facilities and, together with the local authorities, for the activities of district (rayon), city and village health facilities within their respective oblasts.

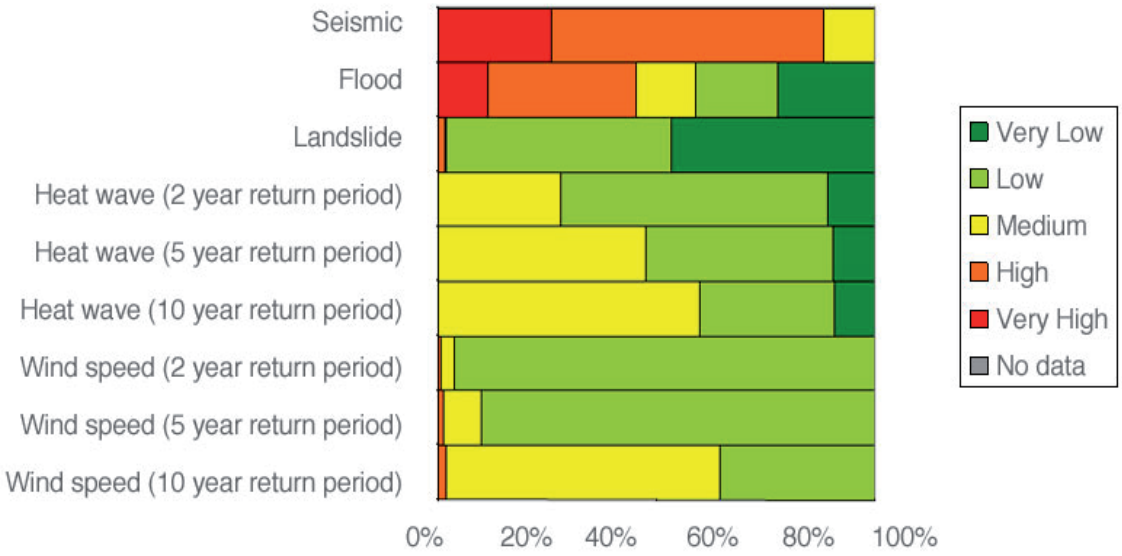
All rayon, oblast and national hospitals have ambulance services for emergency care, and there are also separate, specialized emergency hospitals. In Tajikistan, the official standard is one equipped ambulance for every 10 000 population, but this quota is far from being filled. In addition, the ambulance fleet is old and incommensurate with requirements, and modern means of communication are lacking. Patients predominantly use private transportation for referrals, and in emergencies medical staff accompany patients to the referral site in the private vehicle.

Under the reformed system of primary care, all health facilities will provide free emergency care under the basic benefits package, although this is currently limited to eight pilot rayons *(14)*.

Main hazards and health threats in Tajikistan

The country is prone to many types of hazard, including avalanches, droughts, earthquakes, epidemics, floods, heat waves, insect infestation, landslides, mudflows and windstorms (see Fig. 1 and Annex 1 for multiple hazard distribution maps).

Fig. 1. Proportion of population exposed to hazards, by level of intensity



Source: WHO *(16)*.

Avalanches, floods and landslides

A large number of seismic and non-seismic landslides occur annually and threaten settlements and industrial constructions. Flash floods in narrow valleys are particularly destructive. Heavy rainfall and the release of water contained in watercourses dammed by landslides, glaciers and accumulation of loose debris result in extremely destructive flooding and mudflows.

A further hazard emanates from the potential of sudden drainage of alpine lakes in the south-western Tajik Pamir mountain range. In the last 40 years several new lakes have formed in the front of retreating glacier tongues, existing lakes have grown and others have become dammed by landslide deposits or older moraines. In 2002 sudden drainage of a glacial lake in the area triggered a catastrophic debris flow. Of the 428 lakes mapped in the area, six have been rated very hazardous and 34 hazardous *(17)*.

Earthquakes

According to the Global Seismic Hazard Map *(18)*, the whole of Tajikistan is located in a high- to very high-risk earthquake zone. Earthquakes often trigger landslides, which have caused most of the damage and casualties in major emergencies in Tajikistan in recent years.

Serious earthquakes occurred in 1907 (Karatag), 1911 (Sarez), 1943 (Faizabad), 1949 (Khait) and 1989 (Gissar). In 2010 an earthquake in Vanj rayon affected over 6000 people, resulting in 1000 homeless people and an estimated economic loss in the range of US$ 1.5 million *(19)*.

Environmental issues

Most of Tajikistan's environmental problems are related to the agricultural policies imposed during the Soviet period. By 1991, heavy use of mineral fertilizers and agricultural chemicals was a major cause of pollution in the country. Among those chemicals were DDT, banned by international convention, and several defoliants and herbicides. In addition to the damage they have done to the air, land and water, the chemicals have contaminated the cottonseeds, whose oil is used widely for cooking.

Close to 55 million tonnes of radioactive waste is stored in abandoned and unsecured Soviet-era uranium mines, which present a formidable environmental problem for Tajikistan. In addition, the country suffers from considerable local water and air pollution, degradation of forests and land, and untreated municipal and hazardous waste.

The nonferrous metals industry also causes pollution problems. One of Tajikistan's leading industrial sites, the aluminium plant at Regar near the border with Uzbekistan, generates large amounts of toxic waste gases that have been blamed for a sharp increase in the number of birth defects among people who live within range of its emissions.

More than 7.5 million square metres of land in Tajikistan are suspected to be contaminated by landmines and unexploded ordnance, and some 850 people have been injured or killed in landmine accidents since 2003 *(20)*.

Extreme temperatures

In recent years Tajikistan has faced repeated droughts and extremely hard winters, which have had a serious impact on food security and the livelihoods of the most vulnerable. The harsh conditions of winter 2011–2012, as well as the 2008 winter crisis, have affected close to 500 000 people. Unusually cold winters led to shortages of electricity, water and heating, as well as agricultural losses. Heavy snowfall and avalanches blocked several areas of the country, limiting access to many rural areas, which were also cut off from electricity supplies.

Infectious diseases

Communicable diseases represent a major burden of morbidity in Tajikistan. Clean water supply and sewage infrastructure, as well as public health measures such as mosquito control and immunization, are not reliably available to all. Levels of waterborne diseases are high as the water supply is not safe and less than 10% of the population is connected to a sewage system. In summer occasional cases of malaria occur in Khatlon oblast and in the south of Gorno-Badakhshan Autonomous Oblast.

The main infectious disease risks are respiratory infections and zoonotic and diarrhoeal diseases, and include brucellosis, leishmaniasis and leptospirosis. Tajikistan experienced an outbreak of influenza H1N1 in 2009 and a polio outbreak in 2010. Anthrax virus recently spread in the northern regions of Tajikistan: eight cases have been confirmed and one person has died *(21)*.

Mission objectives and methodology

The objective of the assessment was to support the Ministry of Health in identifying the strengths and weaknesses of the current preparedness of the health system for crises in relation to internationally acknowledged benchmarks. The timing of the mission seemed appropriate as the Ministry of Health is in the process of reform, working towards the alignment of disaster response and emergency preparedness.

The Ministry of Health received a comprehensive report on the findings of the assessment team, describing the health security and crisis management framework in Tajikistan and proposing recommendations for strengthening the health system for crisis preparedness and response.

Assessment participants and design

A multidisciplinary team of experts carried out the assessment in Tajikistan during 23–28 September 2013, in cooperation with counterparts from the Ministry of Health and the WHO Country Office in Tajikistan (see Annexes 2 and 3 for lists of team members and institutions visited). The team members' areas of expertise included generic disaster preparedness planning and response, hospital disaster preparedness planning, mass-casualty management, public health and communicable disease surveillance and response.

Using the standardized toolkit for assessing health-system capacity for crisis management developed by the Country Emergency Preparedness Programme of the WHO Regional Office for Europe *(22)*, the team adopted the all-hazard, multisectoral approach to evaluating the preparedness of the health system for crises (see Annex 4 for an outline of the tool's structure).

Semi-structured and informal interviews were carried out with representatives of key stakeholder institutions, including:

- the Ministry of Health and related departments;
- other government ministries with responsibility for disaster preparedness and response;
- health facilities and institutions;
- national NGOs;
- UN and donor organizations.

Assessment form

The assessment form, which includes all the essential attributes and indicators to be evaluated, is sectioned according to the six functions (building blocks) of the WHO health-system framework (see Table 5 and Annex 4).

WHO defines health systems as comprising all the resources, organizations and institutions that are devoted to producing interdependent actions aimed principally at improving, maintaining or restoring health. Further information on health systems can be found in the following documents: *The world health report, 2000*, *Everybody's business: strengthening health systems to improve health outcomes* and *The Tallinn Charter: Health Systems for Health and Wealth (23, 24, 25).*

Table 5. The WHO health-system framework

Function	Overall goals/outcomes
Leadership and governance	
Health workforce	Improved health (level and equity)
Medical products, vaccines and technology	Responsiveness
Health information	Social and financial risk protection
Health financing	Improved efficiency
Service delivery	

Source: WHO *(22).*

Leadership and governance (also called stewardship) is arguably the most complex function of any health system; it is also the most critical. Successful leadership and governance require strategic policy frameworks that are combined with oversight, coalition-building, accountability and appropriate regulations and incentives *(26).* In relation to crisis management, this means ensuring that national policies provide for a health-sector crisis management programme. Effective coordination structures, partnerships and advocacy are also needed, as well as relevant, up to date information for decision-making, public information strategies and monitoring and evaluation.

The health workforce (human resources for health) includes all health workers engaged in action to protect and improve the health of a population. "A well performing workforce is one that is responsive to the needs and expectations of people, is fair and efficient to achieve the best outcomes possible given available resources and circumstances" *(26).* This necessitates the fair distribution of a sufficient number and mix of competent, responsive and productive staff. A preparedness programme aims to ensure that such staff represent an integral part of the health workforce by conducting training-needs assessments, developing curricula and training material and organizing training courses.

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 *(26).* Medical equipment and supplies for prehospital activities, hospitals, temporary health facilities, public health pharmaceutical services, laboratory services and reserve blood services needed in case of a crisis also fall in this category.

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-system performance and health status *(26)*. A health information system also covers the collection, analysis and reporting of data. This includes data gathered through risk and needs assessments (hazard, vulnerability and capacity) and those relating to early warning systems and the overall management of information.

A good health-financing system ensures the availability of adequate funds for the health system, and its financial protection in case of a crisis. In addition to providing funds for essential health-sector crisis management programmes, it ensures that crisis victims have access to essential services and that health facilities and equipment are adequately insured for damage or loss.

Service delivery is the process of delivering safe and effective health interventions of high quality, both equitably and with a minimum waste of resources, to individuals or communities in need of them. The

crisis preparedness process provided by the WHO health-system framework makes it possible to review the organization and management of services, ensure the resilience of health care facilities and safeguard the quality, safety and continuity of care across health facilities during a crisis.

The six sections of the assessment form are broken down into the key components of a health-sector crisis preparedness programme (see Table 6). Certain attributes are considered essential for the successful implementation of each key component. There are 51 essential attributes; they are listed according to the key components of each of the six WHO health-system framework functions (see Annex 4).

Table 6. Key components of the WHO health-system framework, by function

Function	Key components
Leadership and governance	Legal framework for national multisectoral emergency management Legal framework for health-sector emergency management National institutional framework for multisectoral emergency management National institutional framework for health-sector emergency management Components of national programme on health-sector emergency management
Health workforce	Human resources for health-sector emergency management
Medical products, vaccines and technology	Medical supplies and equipment for emergency-response operations
Heath information	Information-management systems for risk reduction and emergency preparedness programmes Information-management systems for emergency response and recovery Risk communication
Health financing	National and subnational strategies for financing health-sector emergency management
Service delivery	Response capacity and capability Emergency medical services (EMS) system and mass-casualty management Management of hospitals in mass-casualty incidents Continuity of essential health programmes and services Logistics and operational support functions in emergencies

Source: WHO *(22)*.

The assessment is facilitated by questions relating to each of the essential attributes. Assessors are required to answer each indicator-related question by choosing “yes”, “partially” or “no”, and to

justify the answer given. This information forms the basis of a detailed narrative assessment report, which can be used to develop a plan of action to address gaps identified and monitor progress during follow-up assessments.

Recording and analysis of results

Transcripts were prepared as soon as possible after the interviews and onsite assessments, and were shared with the other interviewers to allow for additions and corrections and to ensure a common understanding of the facts. The WHO Country Office in Tajikistan was asked to clarify, where possible, any contradictory information and to provide additional information where necessary. The team met, when possible, at the end of each day to share information, discuss the findings of the day and plan future interviews.

Further analysis of the information was carried out following the mission, once the transcripts had been received by the report writer. Using a triangulation system, the responses of those interviewed were compared for differences in viewpoint on the key issues of the WHO health-system framework, as well as in the interviewers' interpretations of the information received. It should be noted that qualitative research techniques, such as textual analysis of the transcripts or transactional analysis of the interviews themselves, were not used. The report is structured in accordance with the structure of the assessment form.

Findings and recommendations

The authors recognize that the organizations, institutions and health care facilities visited during the mission are components of the Tajik health care system, with operational and management realities that change over time. The capacity for crisis management in the health sector of Tajikistan was evaluated against the benchmarks and indicators of the WHO health-system crisis preparedness assessment tool, which is based on formal research and expert consultations.

The report is not intended to judge the comprehensiveness and effectiveness of the current system but rather to reassess it with the WHO health-system framework in mind, and to propose modifications as far as financial and other constraints will permit. Thus, the authors describe the strengths and weaknesses perceived solely in relation to the tool and provide recommendations for the consideration of the Ministry of Health.

1. Leadership and governance

Key component 1.1.	Legal framework for national multisectoral emergency management
Essential attributes:	1. Laws, policies, plans and procedures relevant to national multisectoral emergency management 2. National structure for multisectoral emergency management and coordination

The Tajik Constitution, 29 national laws and 37 administrative instructions, regulations and guidelines describe and regulate the structure and the roles, responsibilities and managerial

authority relating to crisis management at the national and subnational levels. The key legal documents regulating disaster management are:

- Decree 400 on the Establishment of the Committee for Emergency Situations and Civil Defence (1994), which is the first legal provision in the field of emergency situations;
- The Law on Civil Defence (1995), which aims at the implementation of security tasks in wartime and was amended in 2004 to the regulation and provision of safety in peacetime;
- The Law on Protection of the Population and Territories from Natural and Man-made Emergency Situations (2004), which stipulates organizational and legal provisions in protecting the people, national territories and natural wealth of Tajikistan;
- The Law on Emergency Rescue Services and the Status of Rescuers (2005; amended 2010), which defines the organizational, legal and ecological conditions for application of capacities and tools to prevent and mitigate emergency situations and also regulates relations among authorities, institutions and citizens, and determines the rights and duties of rescuers in the country;
- The Law on the Fund for Mitigation of Emergency Situations (1993), which describes the funding for mitigation and rehabilitation activities, which are supported by a levy on business enterprises in Tajikistan.

Further legal acts, resolutions and decrees regulate subordinate, intersectoral and international disaster response activities, such as:

- Agreement between the Governments of CIS Member States on Cooperation in the Area of Prevention and Liquidation of Natural and Man-made Emergencies (1993);
- Agreement between the Governments of the Republic of Kazakhstan, Kyrgyz Republic, Republic of Tajikistan and Republic of Uzbekistan on Cooperation in Emergency Prevention and Liquidation (1998);
- Decision of the Council of Heads of the Governments of CIS Member States on an Intergovernmental Special Programme for Development of a Response Corps for Liquidation of the Consequences of Emergency Situations due to Natural and Man-made Disasters for the period to 2010 (1998);
- Decision of the Council of Heads of the Governments of CIS Member States on the Procedure for Arrangement of Cooperation between CIS Member States in Liquidation of the Aftermath of Natural and Man-Made Emergencies (2001);
- Decision of the Council of Heads of the Governments of CIS Member States on the Conduct of the Special Interstate Forum for the improvement of CIS Activity and its Reformation and Protocol (1998);
- Agreement on Mutual Aid in Cases of Accidents and Other Emergencies at Electric
- Power Facilities of CIS Member States (2002);
- Agreement on Exchange of Information on Natural and Man-made Emergencies and Informational Cooperation in Liquidation of the Aftermath and Delivery of Assistance to Affected Population of CIS Member States (2003);
- Decision on Establishment of the Reserve Fund for CIS Member States for the Delivery of Assistance to States Affected by Natural and Man-made Emergencies (2004);
- Agreement between the Government of the Republic of Tajikistan and the Cabinet of Ministries of the Ukraine on Cooperation in the Sphere of Disaster Warning and Emergencies Management (2005);
- Agreement between the Government of the Republic of Tajikistan and the Government of the Swiss Confederation on Cooperation in case of Emergency Situations (2005) *(27).*

The National Disaster Risk Management Strategy for 2010–2015 was approved in 2010 *(28)*; it defines laws and regulations that authorize the national structure and activities specified in the strategy and its associated action plan. The legal framework applies to all concerned governmental bodies at the central, oblast and municipal levels.

Procedures for declaring and terminating a state of emergency are laid down in the legal framework. Response to a disaster is carried out according to the subsidiarity principle under the responsibility of those in charge at the lowest administrative levels. The national laws, policies and regulations provide the different stakeholders and partners with a foundation on which to operate and interact. Nevertheless, according to the interim progress report on the Hyogo Framework for Action (2009–2011) *(29)*, by-laws and other special subordinate regulatory acts and orders for the execution of laws in the sphere of disaster risk reduction are lacking.

The National Disaster Risk Management Strategy for 2010–2015 *(28)* also notes that seismic risk reduction should be included in construction rules and regulations.

Key component 1.2.	Legal framework for health-sector emergency management
Essential attributes:	3. Laws, policies, plans and procedures relevant to health-sector emergency management 4. Structure for health-sector emergency management and coordination 5. Regulation of external health-related emergency assistance

The main legal bases for health-sector emergency management are the Constitution; the laws on civil defence, protection of the population and territory from natural and man-made disaster and protection of population health; and further regulations and legal acts.

The Health Care Strategy for Tajikistan, adopted in 2002, builds on the WHO health for all strategy and identifies objectives and strategies for the health and other relevant sectors. Particular attention is paid to the health and well-being of mothers and children; emergency management is not mentioned. The National Health Strategy for 2011–2020 provides a summary statement of Tajikistan's long-term goals in protecting the health of its population, as well as the means of achieving those goals; namely, strategies, programmes and resources for modernizing the health sector. While it does not specifically mention health-sector emergency management it includes a range of laws and procedures relevant to health-sector emergency preparedness or recovery. For instance, the National Disaster Risk Management Strategy for 2010–2015 *(28)* lays out institutional mandates and legal issues, including the requirement that the Ministry of Health should ensure the provision of emergency health care for citizens and temporary health facilities and the availability of supplementary and reserve resources. This strategy and its action plan also make the Ministry of Health responsible for:

- coordination of the activities of central and local authorities;
- prevention and elimination of the consequences of emergency situations in the sphere of health.

The Minister of Health is by default the head of medical services and civil protection.

In 2009, the Ministry of Health issued Order 748, requiring all hospitals to provide space, human resources and basic provisions for emergency medical care, irrespective of the hospital's speciality. Interviewees informed the assessment team that this Order does not clarify the reporting and payment obligations for those patients who leave hospital after receiving first aid treatment in a major emergency and who do not require admission as inpatients.

External (foreign aid) health-related emergency assistance is regulated at the national level, predominantly through bilateral agreements. According to international disaster response legal guidelines *(30)*, however, the current regulations in this area are not sufficient, specifically in the area of personnel, medical and technical equipment importation.

Key component 1.3.	National institutional framework for multisectoral emergency management
Essential attributes:	6. National committee for multisectoral emergency management 7. National operational entity for multisectoral emergency management

The Ministry of Emergency Situations and Civil Defence is responsible for the management of the protection and rescue system in the event of a disaster. It implements state policy on disaster prevention and mitigation; coordinates disaster management programmes; and supervises and maintains the preparedness of disaster management units, communication and warning systems and relevant resources.

During emergencies, all government ministers become members of the multisectoral emergency management committee, known as the State Commission on Emergency Situations, which may also include representation from institutions relevant to the ongoing emergency, such as the Institute of Earthquake Engineering and Seismology, the Committee of Environmental Protection, the State Agency for Hydrometeorology, the Main State Department of Geology, and similar. It is chaired by the prime minister.

The State Commission on Emergency Situations is the body through which disaster preparedness and response is currently carried out. In addition, there are commissions for evacuation and for sustainable functioning of public services during emergencies on all levels; their respective roles and responsibilities have been defined.

The recently established National Platform for Disaster Risk Reduction is a consultative advisory body – a think tank – to the State Commission on Emergency Situations. It is tasked with formulating and implementing unified state policies in the field of man-made and natural disaster risk reduction, including reduction of human and socioeconomic losses. Members of the Platform include deputy ministers of eight ministries, a further eight representatives from institutions and organizations relevant for disaster risk reduction, and observers from the UN and NGOs. It is chaired by the deputy prime minister.

The Platform members meet twice a year and provide strategic directives for its technical working group. As yet, there is only one such technical working group, which has developed a disaster recovery guide and works on the integration of disaster risk reduction strategies into development plans and programmes.

The Committee of Emergency Situations and Civil Defence (CoES), chaired by the deputy prime minister, is the main operational body and has responsibility for the management and coordination of all national-level disaster-related activities. CoES chairs the Disaster Management Partnership's rapid emergency assessment and coordination team (REACT), which was set up in 2000. REACT's objectives are to improve coordination and information-sharing among all actors in the field of disaster management, as well as to strengthen CoES leadership in disaster management activities. REACT has around 65 partners, including the Ministry of Health and WHO.

The Information Management and Analytical Centre of the CoES maintains an electronic database of information on past disasters and has recently created a network of seven regional branches for

constant and immediate information exchange. Agreements between CoES and national institutes, organizations and agencies provide a framework for coordination and information exchange.

During emergency situations up to 15 additional state services may be activated to respond, including the Ministry of Health, which has its own Division of Emergency Situations. The Ministry of Health and the Ministry of Internal Affairs are also tasked with monitoring the main threats relevant to their areas of responsibility – such as infectious disease outbreaks for the Ministry of Health – and they conduct information campaigns for the public.

CoES has established a disaster management centre, which maintains 24/7 telephone and radio communication with all oblasts, as well as email connectivity to Sughd and Khatlon oblasts, Gorno-Badakhshan Autonomous Oblast, and Kulob and Rasht rayons. CoES also operates the "Centrospas" Department, which has participated in all search and rescue operations during disasters in Tajikistan since 1994. This special division consists of 35 trained and equipped rescuers who train rapid response teams in CoES oblast and rayon offices (in Sughd, Khatlon, Gorno-Badakhshan Autonomous Oblast, Kulob, Hissar, Rasht and Dushanbe).

A warehouse with essential reserves such as food, tents, medicines and other essential commodities is also maintained by CoES in its compound.

Key component 1.4.	**National institutional framework for health-sector emergency management**
Essential attributes:	8. National committee for health-sector emergency management 9. National operational entity for health-sector emergency management 10. Mechanisms of coordination and partnership building

The Ministry of Health is responsible for national health policy and directly manages the national-level health facilities, scientific research institutes and educational institutions for health professionals. It supports the health-related disaster prevention and response activities of the central and local authorities through its Disaster Preparedness and Emergency Care (DPEC) Unit, but is otherwise fully embedded in the national response system through CoES.

The DPEC Unit was created five years ago, following the introduction of a new legal requirement that all government bodies have a focal person or unit for emergency management and civil defence. In each oblast and rayon a chief specialist is appointed as the focal person for emergency management, while in each hospital the director is responsible for emergency preparedness, planning and response activities and the deputy director is responsible for civil defence issues. A dedicated focal person is appointed in some hospitals (as at Karobolo Hospital and Dushanbe City Infectious Disease Hospital).

The DPEC Unit and its relevant representation at lower administrative levels are responsible for various functions and activities, including:

- maintaining EMS systems
- monitoring health facilities
- establishing and monitoring emergency plans
- ensuring the preparedness of facilities for harsh winters.

CoES informs the DPEC Unit of any health-related emergencies through its 24/7 call centre, but the DPEC Unit regards itself as a policy unit and not as an operational entity, since all emergency operations are conducted through CoES.

The Ministry of Health is a member of a variety of coordination groups and mechanisms, such as REACT and the National Platform for Disaster Risk Reduction, and provides information for monthly monitoring and early warning reporting. The DPEC Unit conducts regular meetings with emergency focal people from the EMS provider and with the hospitals in Dushanbe; it also plans, conducts and/or participates in exercises. It reports important issues at the weekly multidisciplinary staff meetings in the Ministry of Health, or more frequently if required, and coordinates emergencies with other units of the Ministry of Health, other government bodies, NGOs and institutions.

There is no health-sector coordination mechanism for emergency preparedness, in spite of the multitude of national and international actors.

Key component 1.5.	Components of national programme on health-sector emergency management
Essential attributes:	11. National health-sector programme on risk reduction 12. Multisectoral and health-sector programmes on emergency preparedness 13. National health-sector plan for emergency response and recovery 14. Research and evidence base

In 2010 the Government of Tajikistan approved the National Disaster Risk Management Strategy for 2010–2015 and its action plan *(28)*, developed by CoES. The action plan identifies the key principles, as well as the roles and structures, of the national response to disasters. The Ministry of Health is embedded in the national preparedness and response activities laid out in this strategy and action plan; for example, it is identified in the early warning matrix as the lead during human epidemics.

The Ministry of Health has a national health-sector preparedness and response plan, which is reviewed and updated annually. It regulates, among other things, meetings, training, simulation exercises, stock storage, monitoring and early warning activities. This plan seems to be more of an action plan for annual preparedness activities than an operational tool for emergency management and response, but since it is a classified document the assessment team could not review it.

A wide range of research institutions and clinical centres are engaged in research activities in Tajikistan's health sector. Their activities are coordinated by the Department of Human Resources and Science at the Ministry of Health. Research is predominantly conducted in clinical areas.

State budget-supported scientific research relating to emergency preparedness includes:

- complex seismic physical research in the territory of Tajikistan for the purpose of seismic risk reduction;
- assessment of the sustainability of slopes during large earthquakes in connection with the security of coordinated hydroelectric system on the river Vakhsh;
- improvement of methods of registration and analysis of data on the behaviour of buildings and construction grounds during large earthquakes.

Recommendations on leadership and governance

The Ministry of Health might consider extending the scope of the current health-sector preparedness and response plan so that it could complement the national multisectoral plan and serve as an umbrella management tool for oblast and rayon health administrations and response agencies. The extended plan should define national-level responsibilities relating to, among others, resource mobilization, prioritization of health facilities, coordination among different jurisdictions, cross-border activities and foreign assistance.

The Ministry of Health might also consider establishing a health-sector emergency preparedness platform to enhance information exchange and reduce overlaps and gaps between relevant government bodies and NGOs. It could be chaired by the DPEC Unit and WHO could provide the secretariat. This group could be tasked to support the Ministry of Health's development of the national health-sector plan.

A national mass-casualty management plan, describing the management of prehospital medical operations, medical surge capacity, medical triage and the networking of EMS systems should be developed. This should be linked to the national health emergency preparedness and response plan. Such a plan could facilitate the implementation of nationwide standards for health emergency management.

It would be useful to conduct a review of the legal requirements for the emergency reception areas in health facilities to clarify reporting and payment procedures for day care patients.

2. Health workforce

Key component 2.1.	Human resources for health-sector emergency management
Essential attributes:	15. Development of human resources 16. Training and education

The area of human resources has been identified as a key one for development, given the severe "brain drain" the country has experienced over the last decade as health workers seek the prospect of higher wages abroad. Retention of graduates in Tajik health facilities thus remains a serious problem.

In order to monitor and manage the current availability of health workers, the Ministry of Health maintains a central database of health staff by category, place of work, age and sex, which is managed by the Department of Human Resources and Science. The database assembles information on the entire workforce and makes it possible to identify the serious lack of certain medical specialists required for emergency care, including specialists in neurosurgery, anaesthesiology, critical care, trauma, obstetrics and orthopaedics. This problem is more pronounced in rural areas.

Although the Ministry of Health's Interim Workforce Plan for 2006–2010 is based on information from this database and outlines key priority areas, there is no consolidated human resource plan across priority programmes, and emergency preparedness capacity development is not mentioned. The DPEC Unit in the Ministry of Health does, however, maintain a classified list of staff available for emergency response.

The Centers for Disease Control and Prevention (CDC) recently assessed the human resource capacity of the State Sanitary Epidemiological Surveillance Services (SSESS) and identified a lack of 67 medical staff. A field epidemiology training programme for 60 staff has therefore been set up.

A public health faculty was established in the Medical Institute of the Tajik State Medical University in 2005, granting bachelor's and master's degrees in public health but not yet in public health in emergencies.

With the support of WHO, an emergency training and management centre was founded in 2005 in the Disaster Preparedness and Emergency Care Unit of the Ministry of Health. It provides training to managers of health facilities on emergency management, development of preparedness plans,

hospital safety, realization of emergency plans, resources for preparation and response to natural disasters and general organization of hospitals, and so on.

For hospital staff, training on emergency preparedness and civil defence is compulsory and is usually conducted once a month for about two hours by the respective facility's focal point. The training may include participation in rayon simulation exercises or evacuation drills, although none of the medical institutions visited during the mission had so far evacuated patients during a drill.

There is currently no clear prehospital care training curriculum for initial or postgraduate medical training. Its necessity has been recognized by facility managers, Ministry of Health administrative staff and educational institution heads, but an integrated approach and standards need to be developed. Continuing education opportunities are very limited, especially for ambulance service care providers (doctors and nurses).

CoES's training centre has developed a system that includes different manuals and training packages on disaster management and is intended to teach basic knowledge of disaster prevention and response to state decision-makers, local authorities, representatives of the public and private sector, CoES staff and members of vulnerable communities.

At the community level, training and instruction on preparedness for possible natural disasters are mostly undertaken by international organizations such as FOCUS and the Red Crescent Society of Tajikistan, in cooperation with subdivisions of CoES. The curricula and course materials are developed by each implementing organization and are not standardized. The Red Crescent first aid course was approved by the Ministry of Education for education of lay people; public awareness and recognition of acute conditions and ability to perform first aid are limited.

Disaster risk reduction has recently been included in university undergraduate and school curricula. Children at comprehensive schools (since 2009) and students at higher education institutions (since 2010) are taught the basics of preparedness for emergencies and civil defence.

Recommendations on health workforce

The Ministry of Health might consider carrying out a comprehensive training and education needs analysis to identify the skills required for the performance of specific health-related tasks in connection with emergency preparedness and response. Gaps in skills that could be dealt with through training or recruitment should be identified. National competencies should be established, post descriptions reviewed and career development in disaster management defined.

Existing training curricula and material should be reviewed and common terminology used in all new material. All material should be harmonized across providers.

3. Medical products, vaccines and technology

Key component 3.1.	Medical supplies and equipment for emergency-response operations
Essential attributes:	17. Medical equipment and supplies for prehospital and hospital (including temporary health facilities) activities and other public health interventions 18. Pharmaceutical services

The Ministry of Health's Department of Pharmaceuticals and Medical Goods is responsible for regular provision of pharmaceuticals and medical and laboratory supplies, although hospitals and other health facilities have to procure pharmaceuticals from their own budgets. The national essential drug list, which is revised twice a year, currently defines 363 active pharmaceutical

ingredients licensed in Tajikistan. Procurement of pharmaceuticals is partly based on risk assumptions: for example, medication for the treatment of gastrointestinal diseases is mainly procured in spring and summer; medication for the treatment of acute respiratory illnesses in autumn and winter.

Pharmaceuticals are stocked in the National Procurement Centre warehouse in Dushanbe. This also has the capacity to stock humanitarian donations. According to interviewees, the warehouse was scaled up in recent years to meet international standards. Medical supplies are now periodically tested, and expired or inappropriate items are disposed of. Overall, emergency stockpiles remain limited due to financial constraints.

In cases of emergency, pharmaceuticals can be transported to the location in need via Ministry of Health ambulance cars, although emergency stocks of fuel are not available. Interviewees highlighted the fact that transportation containers are available to ensure the cold chain during transport. No budget is dedicated exclusively to emergency situations for procuring drugs or fuel for transport of items. Private pharmacies can be asked to provide required pharmaceuticals on a voluntary basis in an emergency situation.

Medical equipment and supplies for vaccine-preventable diseases fall within the remit of the National Immunization Centre, which collects surveillance data on vaccine-preventable diseases, according to interviewees, for use in early warning and detection of outbreaks. Distribution and provision of vaccines and necessary supplies are organized via six oblast branch offices and 65 rayon-level immunization centres. Maintenance of the cold chain in remote areas is deemed critical as a result of power cuts. Overall, provision of vaccines is considered to have improved significantly in recent years but not to have reached a stable level. It is estimated that donors and the government each provide approximately 50% of the funds for required vaccines.

The National Immunization Centre is responsible for the calculation of needs in emergencies (determined on the basis of population size and growth) and the required reserves, as well as for immunizing internally displaced people if needed. Interviewees reported that only a limited quantity of vaccines is stocked and available for emergency situations. Because of the economic situation no prearrangements with vaccine manufacturers are in place for the provision of, for instance, influenza vaccines in case of a pandemic.

According to the State Agency for Pharmaceutical Control, drug donations are accepted in accordance with the WHO guidelines for medicine donations *(31)*. Interviewees reported that pharmaceutical donations are exempted from import tax; however, even in the case of an emergency, customs fees are due. The Ministry of Health can demand rapid clearance of pharmaceutical donations in an emergency. Whether fast-track customs procedures for importing humanitarian goods in an emergency situation are in place remains unclear.

Key component 3.1.	**Medical supplies and equipment for emergency-response operations (continued)**
Essential attributes:	19. Laboratory services 20. Blood services

SSESS operates laboratories at the national, oblast and rayon levels. CoES runs mobile laboratories for the detection of biological, chemical and radiological agents, and additional laboratories exist under the authority of other institutions (such as the Tajik Scientific Research Institute of Preventive Medicine and the National Centre for Controlling Quarantine Diseases under the authority of the Ministry of Health), according to an unpublished WHO report assessing and evaluating the core capacities of Tajikistan of 2011.

Laboratory capacities include polymerase chain reaction (PCR) diagnostic capacities. If confirmation of results or further diagnostics is needed, samples are sent to reference laboratories in other countries, mostly in the Russian Federation. Quality assurance mechanisms and implemented standards and protocols for laboratory analysis remained unclear. Some laboratory staff were trained abroad, including six staff recently trained in Moscow and two in Berlin.

The laboratory system in Tajikistan appears fragmented and the responsibilities and coordination mechanisms in emergency situations remain unclear. The availability of transportation kits that meet international requirements for sending samples to reference laboratories (for example, for confirmation of poliovirus and diagnosis of subtypes) needs to be ensured to allow rapid diagnosis in any kind of possible outbreak situation.

Reportedly, the capacity and capability of public health laboratories to perform diagnostics in compliance with international standards need to be strengthened. Functional laboratory capacities are of paramount importance for the early detection of outbreaks of, for instance, diphtheria, as noted in the unpublished WHO assessment of Tajik laboratory services of 2011.

The National Blood Centre is the only entity authorized to produce and distribute blood products. From 1 October 2013 blood products are no longer distributed on a self-pay basis but included in the Ministry of Health reimbursement scheme. Approximately 35 000 blood units were produced in 2012. The capability to scale up blood production is unclear.

According to the National Blood Centre, the safety of blood products is ensured by testing donated blood for several pathogens, including hepatitis A, B and C, HIV and brucellosis. Countrywide blood product distribution is organized via regional sub-branches. Five mobile donation centres are available. Blood is donated on a voluntary basis and donors receive a monetary incentive.

An unquantified amount of blood product reserves are in stock, including supplies for the production of safe blood. However, according to the National Blood Centre, these reserves are not available countrywide. Arrangements and public campaigns for exceptional collection of blood are not defined. Procedures or guidelines for the rapid production, storage and distribution of blood in an emergency situation are not in place.

Recommendations on medical products, vaccines and technology

Given the importance of the existence of reserve stocks of pharmaceuticals and medical supplies, including blood products, the Ministry of Health might consider holding defined minimum reserve stocks available (determined by risk assessment). Given the difficult access to mountainous areas, these emergency stocks should be positioned in different locations throughout the country. A vulnerability analysis of the storage areas, with a focus on ensuring their resilience is recommended: sustainability of access to items and supplies should be considered a priority.

The Ministry of Health might consider formalized fast-track procedures to ensure rapid customs clearance for donations in emergencies, including pharmaceutical and medical supplies.

The Ministry of Health and National Blood Centre should ensure that procedures are in place for rapid collection (including public campaigns) and production of blood products in an emergency.

The Ministry of Health might wish to reassess the potential responsibilities and coordination mechanisms of all laboratories (run by different authorities and institutions) in an emergency situation. It should continue the strengthening of laboratory capacities and capabilities (such as trained staff) for accurate and rapid diagnosis, including mechanisms to ensure compliance with international biosafety standards. Protocols should be developed for rapid exchange of information

with and between laboratories, including procedures for the rapid sharing of specimens. Availability of transportation kits meeting international requirements for sending samples to reference laboratories (such as for confirmation of poliovirus and diagnosis of subtypes) should also be assured; this would permit rapid diagnosis in all kinds of possible outbreak situation.

4. Health information

Key component 4.1.	Information-management systems for risk reduction and emergency preparedness programmes
Essential attributes:	21. Information system for risk assessment and emergency preparedness planning

Risk assessments to compile the necessary information for the generation of risk maps are the responsibility of CoES. The assessment team was unable to evaluate to what extent a national risk profile for the most relevant hazards – such as avalanches, earthquakes, floods, landslides and mudflows – exists. The National Disaster Risk Management Strategy for 2010–2015 *(29)* requires the development of standard risk assessment procedures and a comprehensive database that includes information on hazards, vulnerability indicators and risk assessment parameters. In addition, the strategy plans for the collection and development of data on vulnerability and risk by means of maps and geographical information systems (GIS). It is envisaged that the Information Management and Analytical Centre of the CoES will lead this process. The health sector, represented by the Ministry of Health's DPEC Unit, needs to be involved in and contribute to these hazard, vulnerability and risk assessment activities; for instance, in mapping health facilities and their capacities, areas known to be at risk of outbreaks, and so on.

The DPEC Unit has one GIS officer capable of producing basic maps for preparedness and response management. During the 2008 energy (cold wave) crisis maps were created showing, among other information, the actual staffing situation and the availability of generators in health facilities and the placement of donated goods.

Key component 4.1.	Information-management systems for risk reduction and emergency preparedness programmes (continued)
Essential attributes:	22. National health information system 23. National and international information-sharing 24. Surveillance systems

The Ministry of Health has implemented some components of a health information-management system for risk reduction and emergency preparedness. It also contributes to the Tajik monthly monitoring and early warning reports *(33)*; these aim to provide regular information on and analysis of the evolution of natural, food, health, energy-related and other risk factors. The reports are compiled by a multisectoral group, including government bodies and UN agencies in Tajikistan. The Ministry of Health provides mainly epidemiological data and analysis.

The National Health Strategy for 2011–2020 includes strengthening the health information system to provide reliable and timely data, such as early reporting of outbreaks.

A national focal point must be designated to notify WHO of an event that might constitute a public health emergency of international concern, according to the IHR *(1)*. Focal point responsibilities are shared between the Ministry of Health and SSESS. Mechanisms for 24/7 response are established. Interviewees assured the assessment team that every unusual event that might require immediate

action is reported to SSESS immediately. This might allow for notification to WHO within 24 hours of assessment of the public health information (according to article 6 of the IHR).

SSESS is the main authority responsible for surveillance activities. Cases are notified by general practitioners, with aggregated data for 85 notifiable diseases and conditions reported to SSESS on a weekly basis. Samples are first analysed at the local level and laboratory surveillance is also conducted by SSESS laboratories. Reporting of notified diseases and conditions follows a vertical line, with information flow from the local to the rayon, oblast and central levels by telephone. The data received are electronically entered into a national database and analysed by SSESS epidemiologists at the national level. In an outbreak or other relevant epidemiological situation, reporting can be switched to daily reporting (including zero reporting). A report with surveillance data for use within the Ministry of Health is produced monthly; the comprehensive, publicly available report is published once a year.

When the occurrence of diseases or conditions is greater than expected the local level is usually the first to react. In addition, oblast and rayon SSESS outbreak response teams can be mobilized to take over responsibility for onsite investigations, supported by national SSESS outbreak response teams. The teams collaborate closely with other authorities. It remained unclear during the mission, however, to what extent the national and subnational levels share epidemic information, apart from reporting weekly surveillance data regularly. A field epidemiology training programme has recently been set up to increase the number of trained staff.

In addition to disease surveillance, SSESS analyses water samples and tests food products regularly for biological, chemical and radiological events.

The National Immunization Centre also gathers data on vaccine-preventable diseases, including sentinel surveillance for influenza and related laboratory data. To what extent surveillance data are shared between the different institutions and analysed by the Ministry of Health to enable a comprehensive view of emergency or non-emergency situations is not clear.

Key component 4.2.	**Information-management systems for emergency response and recovery**
Essential attributes:	25. Rapid health-needs assessment 26. Multisectoral initial rapid assessment (IRA) 27. Emergency reporting system

In general, in a disaster situation response operations are coordinated by CoES in collaboration with the Ministry of Health and other ministries, such as the Ministry of Internal Affairs (which includes the structures responsible for quarantine control). According to interviewees in the Ministry of Health, cooperation and information-sharing between the Ministry of Health and other ministries – in particular CoES – seems to be good and is based on historically established contacts and informal arrangements.

Rapid health-needs assessments are frequently carried out by the Ministry of Health and WHO in tandem; as a result they have jointly developed forms for systematic data collection. Multisectoral initial rapid assessments are conducted under the remit of CoES, and the established REACT structure can be used to involve international partners such as UN agencies. Standardized forms for initial rapid assessment data collection are available within the REACT structure. The existence of a formalized emergency reporting system, with clear procedures to ensure that data from all relevant stakeholders are collected through an emergency reporting system or structure, could not be verified.

Key component 4.3.	Risk communication
Essential attributes:	28. Strategies for risk communication with the public and the media 29. Strategies for risk communication with staff involved in emergency operations

The Ministry of Health has one staff member dedicated to public and media communication; this communication officer is currently funded on a project basis. Channels of communication used include leaflets, the Internet (via the Ministry of Health webpage), FM radio channels and TV. Health education messages and information on public health events are communicated regularly to the public through the "Health Lifestyle" programme on national TV. This is developed by the National Institute for Health Lifestyle; depending on the topic, CoES and respective experts of the Ministry of Health are involved in developing the programme's content. Whether information on emergencies or suspected outbreak situations is relevant for dissemination to the media or directly to the public is decided in collaboration with the head of SSESS and other senior staff of the Ministry of Health. TV and radio stations do not charge fees for the dissemination of health messages.

Initiatives to promote the broadcasting of relevant messages through local radio stations are ongoing. Health messages are disseminated in Tajik and Russian. Interviewees assumed that the few minority populations that do not speak Russian or Tajik are informed through their community networks.

No strategies are currently in place for communicating risks to responders in emergency operations; for instance, on specific risks and self-protection measures. Preparedness activities do not routinely include the dissemination of this information to heath care workers.

Recommendations on health information

The Ministry of Health should advocate becoming fully involved in the ongoing risk assessment and mapping process led by CoES by collecting and providing data on, for instance, the exact location and capacities of health facilities, areas prone to outbreaks, and so on. It is important that all health statistics (including surveillance data) are used for risk assessment and identification of vulnerabilities in the health sector.

The Ministry of Health should consider developing an electronic integrated surveillance system for notification and reporting to support early and reliable detection of possible outbreaks. As a first step in this process it is recommended that a study should be undertaken to determine to what extent and at which levels it would be useful to replace paper-based reporting with an electronic system. This feasibility assessment might recognize the use of mobile phone technologies for notification and reporting in remote areas or in settings where no reliable Internet connection is available.

The Ministry of Health and SSESS are strongly advised to strengthen surveillance and data analysis capacity at all levels, as well as formal feedback mechanisms, as part of their responsibility, nationally and internationally, to facilitate the rapid exchange of information in the event of a crisis. This includes improving planning and coordination within and among laboratories that do not directly report their surveillance data to the Ministry of Health and/or SSESS.

The Ministry of Health is urged to ensure regular, consistent and continuous notification of diseases and defined conditions to relevant authorities at the local level. This might be accomplished by a review of the timeliness, completeness and accuracy of disease surveillance data. The Ministry of Health should aim for a complete evaluation of the current surveillance system based, for example,

on the WHO guide to monitoring and evaluating communicable disease surveillance and response systems or the updated CDC guidelines for evaluating public health surveillance systems *(34, 35)*. WHO might provide support for this evaluation.

The relevant authorities within the Ministry of Health and SSESS should consider strengthening their epidemic intelligence by exchange of epidemiological information through regular teleconferences between the national and regional SSESS centres. The teleconferences could be used by the national centre to share international and national epidemiological information of relevance with the regional level, while regional centres could update each other on current situations and issues. It is recommended that such teleconferences are held on a weekly basis at a defined time and in a setting where all regional SSESS centres are connected simultaneously. The teleconference should also be used to seek and give advice informally on epidemiological issues, based on the participants' experiences.

The Ministry of Health, in collaboration with CoES where necessary, should consider agreeing on formalized emergency reporting mechanisms with clear procedures to ensure that data from all relevant stakeholders are collected and come together for analysis and dissemination.

The Ministry of Health is encouraged to develop messages on potential risks and self-protection measures for health care workers responding to an emergency.

5. Health financing

Key component 5.1.	National and subnational strategies for financing health-sector emergency management
Essential attributes:	30. Multisectoral mechanisms of financing emergency preparedness and management 31. Health-sector financing mechanisms

The State Commission on Emergency Situations manages the reserve fund intended for provision of relief assistance during response operations, and the appropriate delivery of funds allocated for disaster response operations is monitored by CoES. The Government of Tajikistan allocates funds for the response and recovery operations of CoES on an annual basis. Overall, a lack of targeted financing for relevant state organizations to implement disaster risk reduction activities has been noted, while significant financial assistance for disaster preparedness and response is rendered by international NGOs and donor organizations.

Specific, but negligible, funds for disaster response operations are assigned separately to local authorities. No insurance mechanism is available for the population and its property in case of disasters.

The Ministry of Health plays only a subordinate role in budgetary decisions for the health sector, as the Ministry of Finance transfers funds directly to oblast administrations for allocation to local facilities, such as oblast-level hospitals and polyclinics. Oblast administrations are responsible for most social services, including health and education, and can choose whether to top up the health budget from their own funds. The end result is that per capita health expenditure varies across oblasts and rayons – with allocations for health care varying between 6% and 21% of local budgets – and is not related to social or health need indicators: in fact, the poorest oblasts spend the least on health per capita.

The level of spending on drugs is extremely low (2.5% of hospitals' health budgets) at the hospital level; these costs do not even cover emergency care.

The Ministry of Health has no legal requirement to set a budget line for risk reduction and crisis preparedness; it allocates funds to these on an annual basis. There is no budget for the following aspects of risk reduction and crisis preparedness:

- assessment of critical health facilities for structural vulnerabilities with a view to risk reduction;
- insurance of critical health facilities;
- contingency;
- research, monitoring and evaluation.

Any change in allocation to budget lines requires a process of negotiation with the fund holder (the Ministry of Finance, oblast or rayon health authority).

The current health care finance reform process may lead to pooled funding, which could increase the allocation to emergency management as the Ministry of Health will have more freedom to distribute funds at its discretion.

According to UNDP, the Government of Tajikistan has mobilized more resources for the response to recent emergencies than has been received through international support. The government funding predominantly supported infrastructure recovery and reconstruction, and the subnational level was tasked to provide heating devices, coal, water and other utilities such as building latrines and sewage canals.

Recommendation on health financing

It is acknowledged that the Government of Tajikistan has a high political commitment to emergency preparedness, allocating substantial amounts from the national budget and obtaining external funding to this end. Nevertheless, the global economy is contracting and the Ministry of Health cannot rely on its current health-financing structure or international donors in the medium to long term. It is therefore strongly recommended that mechanisms should be found to ensure additional funding for cost-effective emergency preparedness activities, such as prioritization of health facilities for retro-fitting and security of contingency.

6. Service delivery

Key component 6.1.	Response capacity and capability
Essential attributes:	32. Subnational health-sector emergency-response plans 33. Surge capacity for subnational health-sector response

Rayon emergency-response plans are developed under the guidance of CoES by representatives of various ministries and agencies including CoES, the Ministry of Internal Affairs (fire and police) and Ministry of Health. The plans describe contingency elements, specifying which agencies are responsible for various elements of a response based on the nature of the emergency, and broadly outlining what activities are to be carried out.

Although the plans are reviewed and tested every year, and a number of rayons carry out civil protection drills, they do not seem to be widely known to relevant staff at lower administrative levels.

The organization and provision of surge capacity is well organized at the hospital level and seems sufficient with regard to physical space and beds. The command and coordination mechanism is centred on the head doctor of the facility, which in a major incident may become overwhelming for one individual.

Human resources in numbers seem sufficient at larger (national, oblast, most rayon and city) facilities but are challenged in the more rural rayons and below the rayon level. The high turnover rate of staff may have a negative impact on staff readiness through unfamiliarity with response procedures, plans and limited practice. Previous experience illustrates that the rayon level is able to respond quickly by calling up local staff, performing such activities as door-to-door case searches and awareness campaigns.

Contingency stocks are compulsory for hospitals and calculated according to bed numbers. A number of facilities illustrated specific and accountable planning in this regard. Depending on rayon or city resources, such stock may be maintained to various degrees.

The Ministry of Health and CoES store one large tented hospital and several tented field clinics, and mobile surgical container units with generators are available in six oblasts.

International organizations such as WHO and the International Federation of Red Cross and Red Crescent Societies store emergency stocks, such as 10 emergency team basic kits, 600 family (6-person) tents, various non-food items, and health and surgical kits. Non-food items and communication devices are also stored in the 30 communities in Gorno-Badakhshan Autonomous Oblast, which are most vulnerable to landslides and avalanches.

Key component 6.1.	**Response capacity and capability (continued)**
Essential attributes:	34. Management of prehospital medical operations 35. Management of situations involving mass fatality and missing persons

Tajikistan maintains a public prehospital emergency medical service, which manage ambulances at the rayon or facility level. A countrywide number for EMS (03) exists for landline access; an attempt to unify mobile access numbers and eventually create a nationwide emergency number is in progress. Dispatch is handled locally from the ambulance base, mainly through mobile phone communication with ambulances, although some have radios. The majority of call centres have no backup communication or disaster plan in place.

Ambulances are usually staffed by a doctor, a nurse and a driver, and occasionally by feldshers. Emergency care training for ambulance staff is provided predominantly through international projects.

Many dispatch centres, especially rural ones, do not function 24/7. Across the country, therefore, most patients arrive at hospital by private car or public transport, as would probably be the case in a mass-casualty situation.

Hospital receiving areas are not standardized. Few yet have an emergency department with more than minimal care capacity. Most lack the space, trained staff, relevant equipment and supplies to attend to more than a few patients at a time.

Prehospital operations lack direct on-scene radio communications between medical and other rescue services. The human resource potential of fire and rescue services in mass-casualty incidents is underdeveloped because of a lack of staff training in both emergency care and mass-casualty operations.

Search and rescue is conducted by rescuers from CoES and supported by volunteers from the Red Crescent Society of Tajikistan. Firefighting units are tasked with fire operations and are not yet

formally integrated in search and rescue operations and training. Both agencies consider provision of first responder medical care part of their mandate but have no substantial training component and little in the way of equipment or supplies.

No available plans or standard protocols are in place for mass-fatality incidents. Depending on the incident, the health authorities would call in the Republican Centre of Forensic Medical Examination (of the Ministry of Health) or staff from the National Centre for Controlling Quarantine Diseases. The police take initial control in major traffic accidents.

Key component 6.2.	EMS system and mass-casualty management
Essential attributes:	36. Capacity for mass-casualty management

Mass-casualty management is usually initially coordinated by CoES, which establishes a unified command structure during large incidents. The Ministry of Health and directors of the facilities involved manage triage and medical response.

Although responsibilities and procedures are defined to a certain degree in emergency-response plans, incidents seem to be managed on scene according to established routine and experience. The Ministry of Health has the ability to request to move staff, supplies and medication to an affected area, but resources are generally limited outside urban areas.

Unusual public health events are identified by the local hospital and SSESS, with no formal mechanism for input by EMS providers. Investigative teams can be activated and personal protective equipment is available at the Ministry of Health and with CoES.

The Ministry of Health has started to develop a national mass-casualty management policy and protocols for the subnational level, which will include guidelines for hospital managers.

Key component 6.3.	Management of hospitals in mass-casualty incidents
Essential attributes:	37. Hospital emergency preparedness programme 38. Hospital plans for emergency response and recovery

The Ministry of Health has formally adopted the “safe hospitals” approach to emergency preparedness *(32)* within the National Health Strategy for 2011–2020, along with plans to improve EMS. Approximately half the central rayon hospitals have conducted hospital safety assessments and completed disaster risk reduction and/or contingency planning exercises through a number of internationally supported projects.

Each hospital is required to have an annually updated hospital response plan, which must be tested on a regular basis. This has to include:

- a list of training to be conducted, including details of the staff level involved and the names of staff who will attend – this list to be countersigned after each course by each participant;
- a list of planned exercises;
- job descriptions in emergencies with telephone numbers;
- a 5-year contingency plan.

While the plans seen during the mission included all of the above, they were not operational hospital emergency-response plans as such, but rather a mixture of civil defence and training plans. General staff knowledge of the plans is limited: they are disseminated on a need-to-know basis and not made public in the facility.

As part of the multisector civil defence plan, CoES conducts a number of city- and rayon-level drills during the year, including health facilities. The Ministry of Health (with support from international agencies) organized eight health-related drills based on different scenarios within the last year; it plans to continue such training and exercises, but is reliant on external funding to do so.

Key component 6.4.	Continuity of essential health programmes and services
Essential attributes:	39. Continuous delivery of essential health and hospital services 40. Prevention and control of communicable diseases and immunization 41. Mother-and-child health care and reproductive health 42. Mental health and psychosocial support 43. Environmental health 44. Chronic and noncommunicable diseases 45. Nutrition and food safety 46. Primary health care 47. Health services for displaced populations

Hospital safety assessments indicate a number of gaps, especially in the more rural rayons, in ability to continue provision of services during an emergency. Several mechanisms are in place, however.

- Access to primary health care is guaranteed though a system of polyclinics that may refer patients to hospital or specialist care. Accessibility is dependent on distance and local resources, which may limit laboratory capacities, especially in rural areas. Many patients may bypass the primary health care system and go directly to larger rayon or oblast centres.
- Supplementary vaccination activities for routine emergencies can be fairly quickly organized by the National Immunization Centre.
- A number of programmes work on mother-and-child health and reproductive care; along with the Ministry of Health, these can scale up during emergencies and import emergency supplies fairly quickly.
- The Ministry of Health has formed an intergovernmental working group on mental health that has focused attention on emergencies. A number of training courses for assessment and psychological first aid have already been carried out.
- The country maintains a crisis food stock backed up by the World Food Programme and ongoing food security and feeding programmes. These systems have been used to address needs during acute emergencies.
- The Ministry of Health has shown good levels of response to displaced populations, establishing temporary medical posts when needed, and the ability to reach different population groups through mobile units; for example, during immunization campaigns. Camp management is directed by CoES. Temporary camps have been well organized, but have minimal space and gaps in some services, such as solid waste management.

Environmental health is an ongoing concern in the country, which faces limited accessibility to clean water and inadequate solid waste management in many areas. During emergencies, SSESS is responsible for control of water quality, and outside assistance is generally required to

assure adequate access to drinking-water. Management of medical waste will be challenging in emergencies due to limited facilities and supplies.

Key component 6.5.	Logistics and operational support functions in emergencies
Essential attributes:	48. Emergency telecommunications 49. Temporary health facilities 50. Logistics 51. Service-delivery support function

Communications are heavily dependent on mobile phones, and less so on landlines. CoES and the fire, police and military services have radio communications, as do some ambulances and bases. The system has significant limitations in cross-sector (service) on-scene communication. In general, a unit may contact its base, which must contact the dispatch centre of the other service to pass along the communication.

The Ministry of Health has resources available to establish basic temporary health facilities, including six mobile container surgical units and tents. Mobile units for blood donation and production are available. These are backed up by internationally supplied health kits. There may, however, be logistic challenges in moving the units into place and fully equipping them. Contingency stocks are limited. REACT, CoES, the World Food Programme and health sector coordination group are prepared to assist the Ministry of Health with logistics in large emergencies.

Emergency (fire) evacuation plans exist for facilities, and the police are responsible for site security and access control. Plans address the majority of operation continuity issues.

Recommendations on service delivery

To further strengthen the Ministry of Health's leading role in health-sector disaster risk reduction and response and improve agency interoperability – and in support of the National Health Strategy for 2011–2020 – the Ministry might consider increasing its planning and exercise activities with CoES and the fire and police departments, along with REACT and other government sectors. Likewise, to this end the Ministry of Health should support a nationwide unified emergency call number.

The Ministry of Health should develop mechanisms to ensure continuous delivery of essential health and hospital services if the system is overwhelmed (including mass-casualty exercises, emergency and trauma care, deliveries and dialysis). This would include continuing assessment of all hospitals regarding their structural, non-structural and functional safety, and seeking resources and budget support to implement urgent safety measures.

Hospital emergency-response plans should be reviewed to ensure they include all components of an operational plan, and be widely disseminated among staff and regularly tested in simulation exercises. They should also include a post-exercise review with all relevant staff to identify strengths and weaknesses.

The Ministry of Health's work on contingency planning for emergencies, extreme climatic events and displaced populations should continue; WHO could support this activity.

Concluding remarks

The assessment team evaluated the capacity for crisis management in Tajikistan's health sector against the benchmarks and indicators in the WHO toolkit for assessing health-system capacity for crisis management *(22).* The team based their findings on documentary research, interviews and selected site visits; recommendations were formulated in conjunction with the Ministry of Health.

Tajikistan has proven capacity to respond to national disasters. The strong commitment of the government to crisis preparedness is reflected in the ongoing reform of its management and coordination structure towards institutionalizing and expanding it and further developing the national emergency-response plan.

The emergency-response system in Tajikistan is based on a strong legal framework and seems to be adequately staffed, although it is not sufficiently equipped for routine emergencies. Regulations and instructions at the national and subnational levels define, among others, designation of authority and the roles and responsibilities of partners.

Health sector and hospital emergency-response plans are available to a certain degree but lack clear operational instructions. Hospital capacity would seem to be adequate for routine emergencies in terms of number of beds and availability of trained staff, albeit poorly distributed, with a focus on urban settings. The EMS system is understaffed and underequipped, and resources are unevenly distributed in the country. With the support of WHO and other partners, therefore, the EMS system is undergoing a reform process towards a geographically more even distribution of resources and a national emergency number (112).

Preparedness activities are ongoing. These include health facility safety assessments and community and staff training. Exercises and drills are mostly organized and carried out by the CoES and include the health sector.

The Ministry of Health could aim at enhancing the emergency preparedness approach to ensure that all disciplines of the health sector are taken into consideration and involved in crisis preparedness activities. The implementation of a national integrated emergency preparedness programme requires sufficient and well-equipped staff to develop standardized health-sector emergency preparedness plans as management tools for oblasts and health facilities and to formulate policies on education, training, accreditation, research and so on, which would reduce ad hoc activity in the area of emergency preparedness.

Tajikistan has amassed extensive experience in delivering medical aid in disaster situations. This experience is being and should continue to be shared and used in joint capacity-building activities in the WHO European Region. In connection with this, WHO could contribute by sharing with the Ministry of Health its experience in developing public health and emergency management courses for national health care managers.

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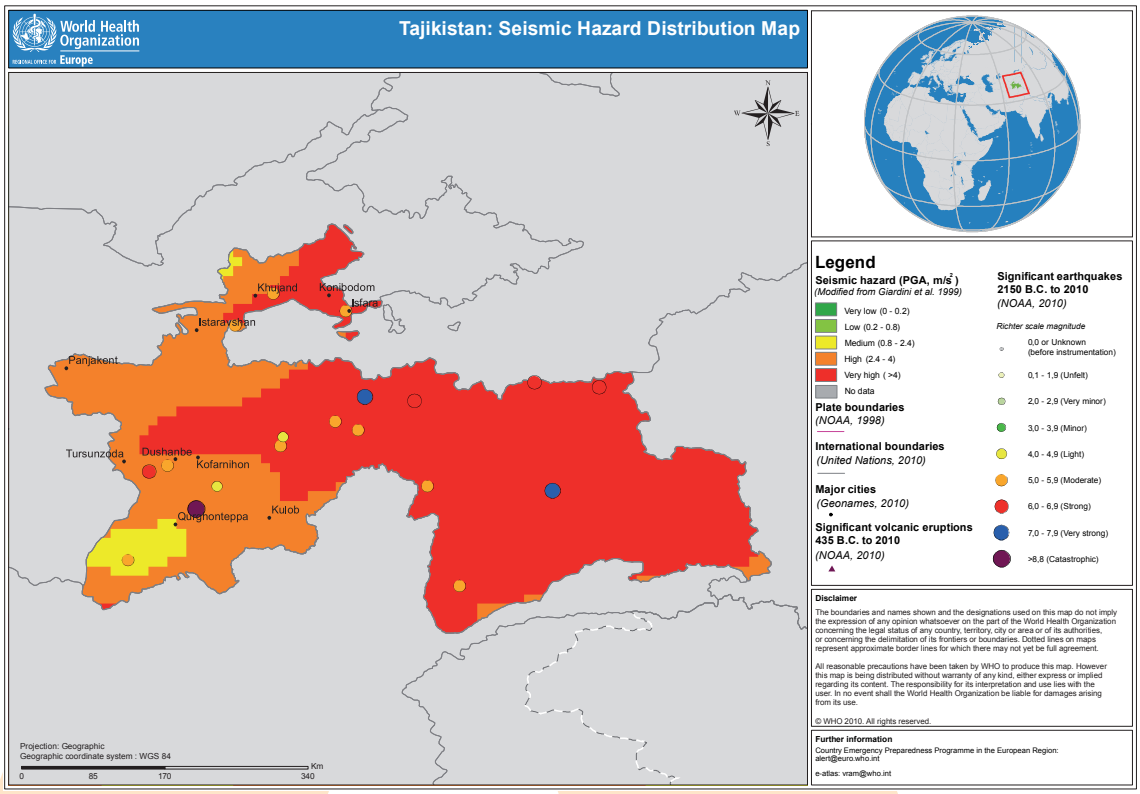
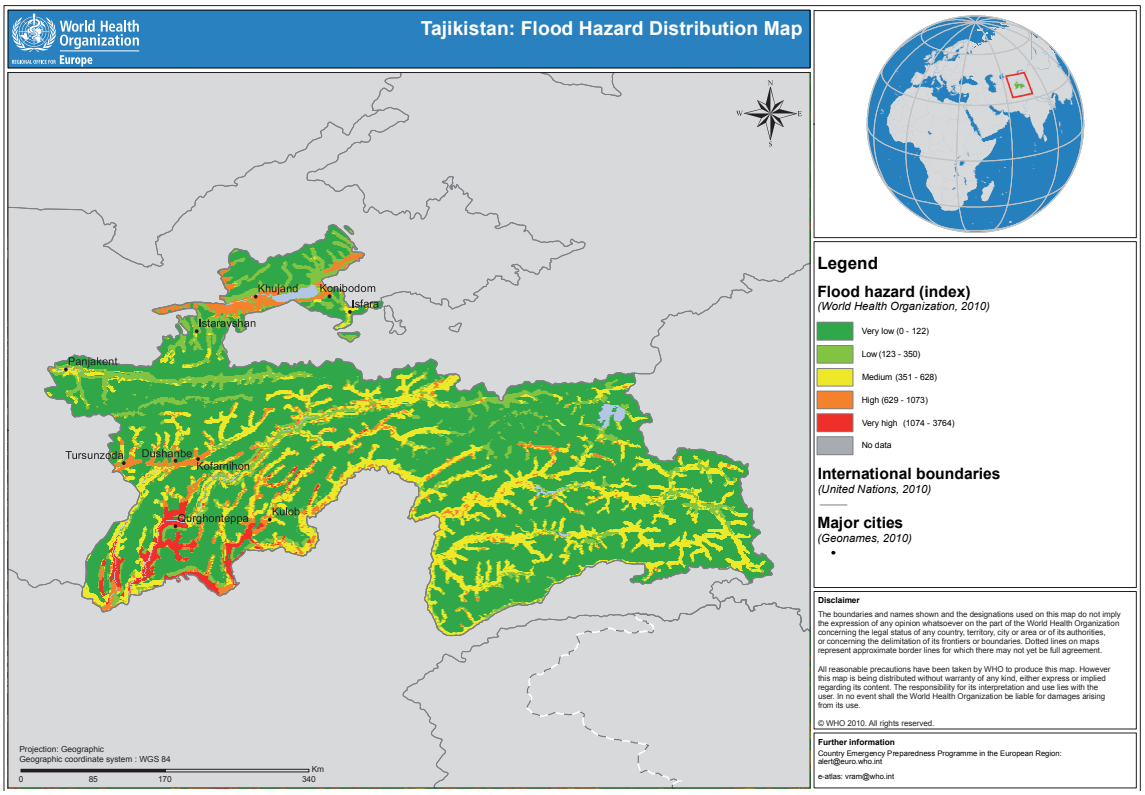
Annex 1. Hazard distribution maps

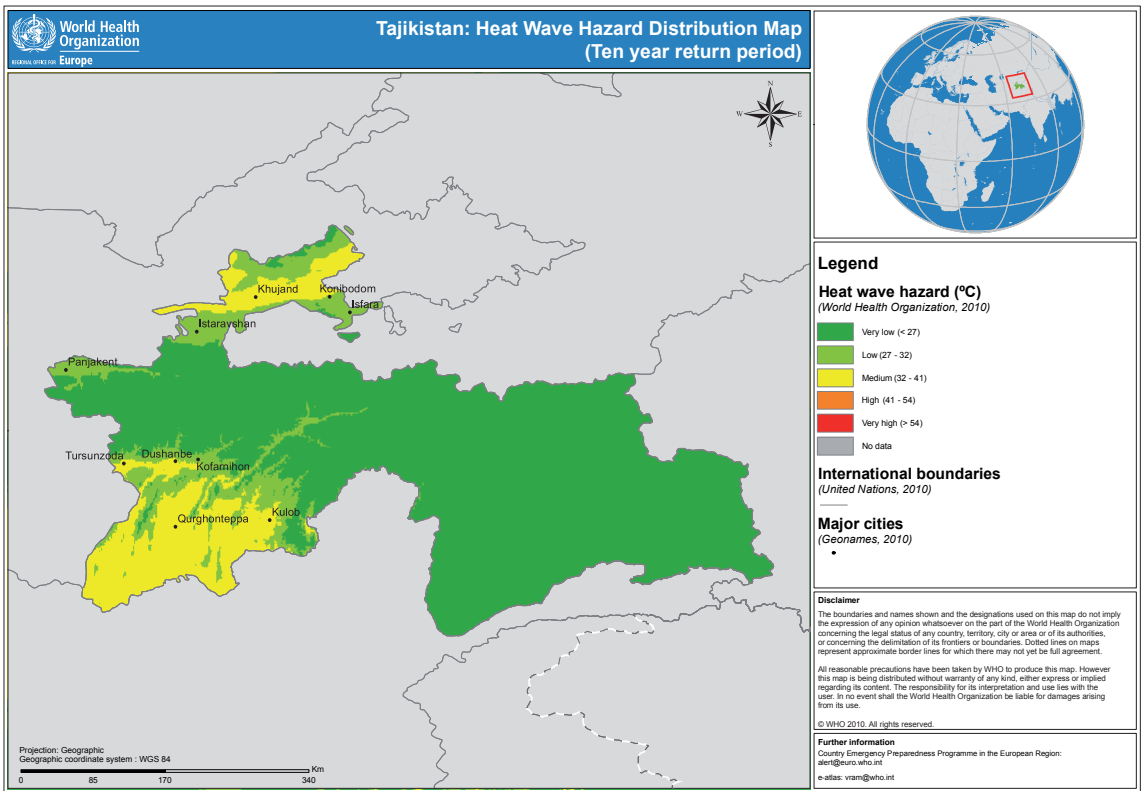
Map 1. Seismic hazard distribution



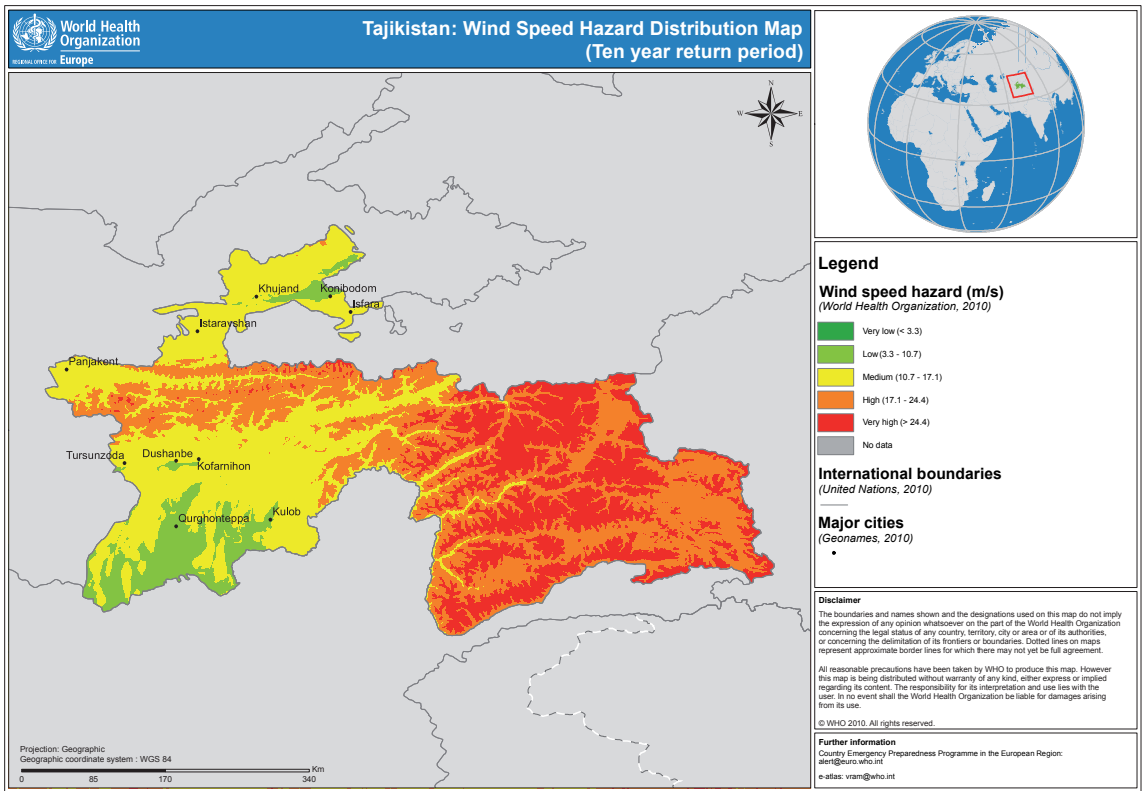
Map 2. Flash Flood hazard distribution



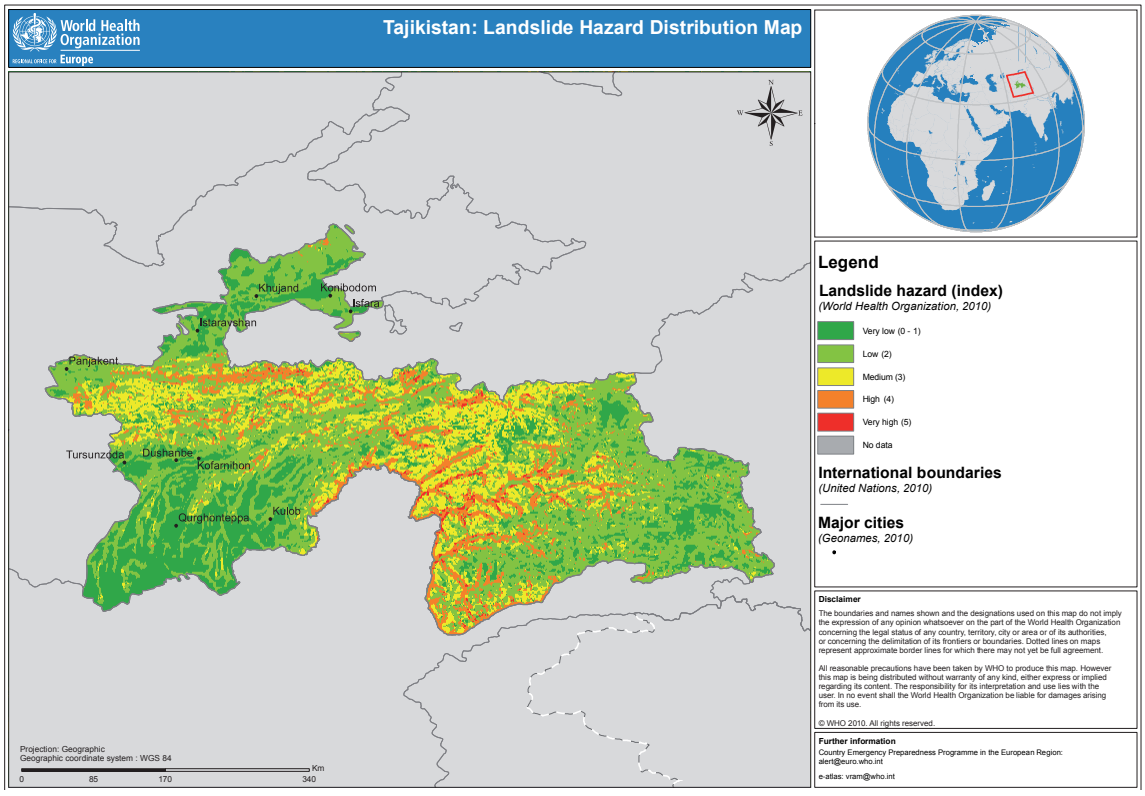
Map 3. Heat-wave hazard distribution



Map 4. Wind-speed hazard distribution



Map 5. Landslide hazard distribution



Annex 2.
Members of the assessment team

Dr Christophe Bayer, WHO Consultant

Craig Hampton, WHO Emergency Health Coordinator, Tajikistan

Dr Corinna Reinicke, Senior Public Health Specialist (Team leader)

Annex 3.
Institutions and organizations visited

Agency	Position	Name
Ministry of Health: Management	Deputy Minister	Mr Azamjon Mirzoev
Ministry of Health Structure of Central Apparatus/Personnel (SCA/P):[1] Disaster Preparedness and Emergency Care Unit	Head of Unit	Mr Saidanvar Ibragimov
	Deputy Head	Mr Nizomiddin Ibragimov
	GIS specialist	Mrs Zulphiya Azizova
Ministry of Health SCA/P: Law Department	Lawyer	Mr Sherali Rabiev
Ministry of Health SCA/P: Press Centre	Press Officer	Ms Fatima Gaibova
Ministry of Health SCA/P: Department of Pharmaceuticals and Medical Goods	Head of Department	Mr Salim Abdulazizov
State Control for Pharmaceutical Activities	Head of Agency	Mr Bahodur Kholmurodov
Centre for State Sanitary Epidemiological Surveillance (CSSES)	Deputy Head of Centre	Mr Navruz Jafarov
Department of Sanitary and Epidemiologic Safety, Emergency Situations and EMS/ International Health Regulations	Focal Point	Mr Said Davlatov

Agency	Position	Name
Ministry of Health SCA/P: Department for Economy and Budget Planning for Health	Head of the Department	Mr Saidali Khafizov
Laboratory Service	Head of Tajik Scientific and Research Institute of Prophylactic Medicine	Mr Saidbek Sattorov
City Clinical Hospital of Emergency Care	Chief Doctor	Mr Boboqul Muminov
	Deputy Chief Doctor	Mr Jamshed Homidov
National Medical Centre	Head of Centre	Mr Safarbek Manonov
	Deputy Head	Mr Khairullo Sharipov
City Health Centre #1	Head Doctor	Mr Aliakbar Safarov
Psychiatric Centre	Head of Centre	Mr Abduvose Fatohov
United Nations Development Programme/ Disaster Risk Management Programme (DRMP)	Programme Manager	Mr Firdavs Valijon
	International Consultant	Mr Kelly Faizulloev
	Project Analyst	Mr Valijon Ranoev
National Blood Centre	Director	Mr Aziz Odinaev
City Clinical Infectious Disease Hospital	Chief Doctor	Mr Saiolim Talbov
International Federation of Red Cross and Red Crescent Societies and National Red Crescent Society	Disaster Management Programme Manager	Mr Shamsiddin Muhiddinov
Ministry of Health SCA/P: Human Resources Unit	Head of Unit	Mr Salomiddin Isupov
FOCUS	Executive Officer	Mr Nashir Karmali
WHO Health Professional Advisory Unit	International Consultant	Ms Bakhtygul Akkazieva
City Department of Health	Deputy Head of Department	Mr Bobokhon Ismatov
WHO Disaster Preparedness and Response Unit	Local Consultant	Mr Samandar Gulshoev
Embassy of the Russian Federation	Third Secretary	Mr Igor Kovalev

Annex 4. Structure of the WHO toolkit for assessing health-system capacity for crisis management

Section	WHO health-system functions	No.	Key components	No.	Essential attributes
1.	Leadership and governance	1.1	Legal framework for national multisectoral emergency management	1.	Laws, policies, plans and procedures relevant to national multisectoral emergency management
				2.	National structure for multisectoral emergency management and coordination
		1.2	Legal framework for health-sector emergency management	3.	Laws, policies, plans and procedures relevant to health-sector emergency management
				4.	Structure for health-sector emergency management and coordination
				5.	Regulation of external health-related emergency assistance
		1.3	National institutional framework for multisectoral emergency management	6.	National committee for multisectoral emergency management
				7.	National operational entity for multisectoral emergency management
		1.4	National institutional framework for health-sector emergency management	8.	National committee for health-sector emergency management
				9.	National operational entity for health-sector emergency management
				10.	Mechanisms of coordination and partnership building
		1.5	Components of national programme on health-sector emergency management	11.	National health-sector programme on risk reduction

Section	WHO health-system functions	No.	Key components	No.	Essential attributes
				12.	Multisectoral and health-sector programmes on emergency preparedness
				13.	National health-sector plan for emergency response and recovery
				14.	Research and evidence base
2.	Health workforce	2.1	Human resources for health-sector emergency management	15.	Development of human resources
				16.	Training and education
3.	Medical products, vaccines and technology	3.1	Medical supplies and equipment for emergency-response operations	17.	Medical equipment and supplies for prehospital and hospital (including temporary health facilities) activities and other public health interventions
				18.	Pharmaceutical services
				19.	Laboratory services
				20.	Blood services
4.	Health information	4.1	Information-management systems for risk reduction and emergency preparedness programmes	21.	Information system for risk assessment and emergency preparedness planning
				22.	National health information system
				23.	National and international information-sharing
				24.	Surveillance systems
		4.2	Information-management systems for emergency response and recovery	25.	Rapid health-needs assessment
				26.	Multisectoral initial rapid assessment (IRA)
				27.	Emergency reporting system
		4.3	Risk communication	28.	Strategies for risk communication with the public and the media

Section	WHO health-system functions	No.	Key components	No.	Essential attributes
				29.	Strategies for risk communication with staff involved in emergency operations
5.	Health financing	5.1	National and subnational strategies for financing health-sector emergency management	30.	Multisectoral mechanisms of financing emergency preparedness and management
				31	Health-sector financing mechanisms
6.	Service delivery	6.1	Response capacity and capability	32.	Subnational health-sector emergency-response plans
				33.	Surge capacity for subnational health-sector response
				34.	Management of prehospital medical operations
				35.	Management of situations involving mass fatality and missing persons
		6.2	EMS system and mass-casualty management	36.	Capacity for mass-casualty management
		6.3	Management of hospitals in mass-casualty incidents	37.	Hospital emergency preparedness programme
				38.	Hospital plans for emergency response and recovery
		6.4	Continuity of essential health programmes and services	39.	Continuous delivery of essential health and hospital services
				40.	Prevention and control of communicable diseases and immunization
				41.	Mother-and-child health care and reproductive health
				42.	Mental health and psychosocial support
				43.	Environmental health
				44.	Chronic and noncommunicable diseases

Section	WHO health-system functions	No.	Key components	No.	Essential attributes
				45.	Nutrition and food safety
				46.	Primary health care
				47.	Health services for displaced populations
		6.5	Logistics and operational support functions in emergencies	48.	Emergency telecommunications
				49.	Temporary health facilities
				50.	Logistics
				51.	Service-delivery support function

[1] The names of the Ministry of Health itself and some of the central structures and institutions changed slightly in January 2014

The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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Original: English

"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
Director-General, WHO

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