

Assessment of
health-system
crisis preparedness

Armenia

ARM

October 2013

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 Armenia. This report presents an evaluation of the current level of crisis preparedness of the Armenian health system and reviews the changes and developments since the first assessment was undertaken in 2007. 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)
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Abbreviations

ARCS	Armenian Red Cross Society
ARNAP	National Platform for Disaster Risk Reduction
BCA	biennial collaborative agreement
DESCD	Department for Emergency Situations and Civil Defence
EMS	emergency medical services
EU	European Union
GDP	gross domestic product
GPS	global positioning system
IHR	International Health Regulations
IRA	initial rapid assessment
NGO	nongovernmental organization
SDC	Swiss Agency for Development and Cooperation
SHAEI	State Hygiene and Anti-Epidemic Inspectorate
TB	tuberculosis
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
YSMU	Yerevan State Medical University

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 Armenian 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.

The statistics show a steady rise in the number of disasters¹ worldwide, many of which are attributed to climate change. In the past 20 years, disasters have killed over 3 million people and adversely affected over 800 million. 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.

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.

Earthquakes alone have 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

^aMass 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 (whether 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, 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 Armenia 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 October 2013.

Country overview

Geography

Armenia is a landlocked country in the southern Caucasus region, which shares borders with Azerbaijan, Georgia, Iran and Turkey (see Map 1). The geography is primarily mountainous with little forest land, centred on the Ararat valley. It contains many fast-flowing rivers, including the Araks, Hrazdan and Debed; the largest lake is Lake Sevan, which serves as water reservoir. Armenia lies in the seismically active crescent that stretches from the Alps through the Caucasus and Central Asia to the Russian Federation, along with Turkey and other earthquake-endangered countries. The climate is markedly continental, with hot summers and cold winters.

Map 1. Armenia



Source: Map No. 3762 Rev. 5, April 2013, United Nations Cartographic Section.

Demography and health

Armenia has a population of 3.04 million, more than one third of whom live in the capital, Yerevan (9). The official unemployment rate is low, at 6% in 2011, but the labour force makes up only 43% of the total population (2007 data) (5). According to WHO's world health statistics of 2013 (10), life expectancy at birth in Armenia in 2011 is estimated at 71 years (67 for men and 75 for women) and is considerably higher than the average for countries of the Commonwealth of Independent States. Infant mortality is 16 per 1000 and maternal deaths are 14 per 100 000 live births.

The main burden of disease is noncommunicable diseases – particularly cardiovascular diseases – but the resurgence of TB and the steady increase in HIV infection rates (from an incidence of 0.9 per 100 000 in 2000 to 5.5 per 100 000 in 2011) are also serious health issues. Prevalence of diabetes was reported as 1.6% in 2011, and 27% of the population aged over 15 years are regular daily smokers (5, 10). Table 2 documents the main causes of death in Armenia in the last few decades.

Table 2. Main causes of death per 100 000 population, selected years

Cause of death ^a	1981	1990	1995	2000	2003	2009
Infectious and parasitic diseases	14	12	13	11	9	9
TB	4	4	6	6	6	5
AIDS/HIV	–	–	0.0	0.0	0.0	0.4
Diseases of the circulatory system	435	567	654	553	627	532
Malignant neoplasm	126	156	141	153	159	161
Diabetes mellitus	9	24	41	49	61	47
Diseases of the respiratory system	110	76	71	57	63	73
Diseases of the digestive system	34	34	38	30	39	59
Transport accidents	11	22	8	7	6	5
Suicide and intentional self-harm	4	3	5	2	2	2

^a International statistical classification of diseases and related health problems, 10th revision categories (11).

Source: European health for all database (5).

Economy

After several years of double-digit economic growth, Armenia faced a severe economic recession last decade, with GDP declining by more than 14% in 2009. In 2010, 28% of the population was living and working abroad, and remittances accounted for an estimated 9% of GDP in 2009. Sharp declines in the construction sector and in workers' remittances, particularly from the Russian Federation, led the downturn. The economy began to recover in 2010, with 2.1% growth, rising to 3.8% in 2012. Nevertheless, unemployment and poverty remain widespread, and by the beginning of 2010 more than 35% of the population was still living below the poverty line (12). Armenia's economic problems are aggravated by a trade blockade imposed by neighbouring Turkey and Azerbaijan since the dispute over Nagorno-Karabakh.

The World Bank predicts that, in the case of a disaster occurring, Armenia would spend more than a quarter of its GDP on a "common disaster" (defined as a disaster with a 20% probability of occurring in any one year) and seven times its GDP on a "catastrophic disaster" (defined as a disaster with a 0.5% chance of occurring in any one year) (13). Based on Armenia's 2007 GDP of

US\$ 9.2 billion, this equates to spending US\$ 2.3 billion on a common disaster and US\$ 64.4 billion on a catastrophic disaster.

Health system

Like many countries in the Europe and central Asian region, Armenia inherited an oversized and overstaffed health care system orientated towards hospital-based care. Since independence, a process of health sector reform effectively transformed the centrally run state health system: major changes involved administrative decentralization and the alteration of financing mechanisms, with key reforms including the adoption of the 1996 Law on Medical Aid and Services to the Population and the introduction of formal user charges in 1997. The Ministry of Health was redefined as a policy-making and supervisory body. Operation and ownership of health care institutions was devolved to local governments for primary health care and provincial governments for hospitals, with the exception of public health service and selected tertiary care hospitals.

The Ministry of Health is now directly responsible for financing (through the specialized State Health Agency) and managing approximately 20 health care facilities. The country's network of sanitary and epidemiological services was also reorganized in 2002, becoming the State Hygiene and Anti-Epidemic Inspectorate (SHAEI)² under the jurisdiction of the Ministry of Health. A further reorganization of SHAEI is currently taking place to separate the policy-making and inspection functions. The former will be incorporated into a new Ministry of Health structure in charge of public health functions; the latter will bring together inspectorate organizations of other sectors to operate as one overall inspectorate.

Almost all pharmacies, the majority of dental services and medical equipment support have been privatized, as have a number of hospitals and diagnostic centres in Yerevan (14, 15).

Main hazards and health threats in Armenia

Earthquakes, landslides, floods, hail, drought and desertification, among other environmental issues, have caused vast social upheaval and economic damage to Armenia. In a 2005 report on natural disasters hotspots, the World Bank lists Armenia in the top 60 countries exposed to multiple hazards (16). A 2004 United Nations Development Programme (UNDP) report on reducing natural disaster risk revealed that during 1980–2000 Armenia averaged about 325 deaths per million inhabitants due to disasters (17). In fact, more than 80% of Armenians are at risk of exposure to catastrophic events.

Earthquakes

The high degree of seismicity in Armenia results from its location in the most active segment of the Alpine–Himalayan seismic belt – the zone of collision of the Arabian and Eurasian tectonic plates. Earthquake events cause a disproportionately large amount of damage to the country. They have reached magnitudes of 7.1 on the Richter scale and the average recurrence interval of earthquakes with magnitudes of at least 5.5 is 30 to 40 years, according to historical data (18) (see Table 3).

The 1988 earthquake, centred on the town of Spitak, resulted in 25 000 deaths. Almost 165 000 people were affected and US\$ 14 billion of damage was sustained. More recently, an earthquake in July 1997 affected 15 000 people and caused over US\$ 33 million of damages; no deaths were recorded (3).

² Legally, SHAEI no longer exists as it is in the process of being absorbed into the State Health Inspectorate, but for ease of reference it will be referred to as SHAEI in this document.

Table 3. Destructive earthquakes in Armenia, 1679–1988

Year	Location	Magnitude
1679	Garni	7.0
1827	Tsaghkadzor	6.5
1840	Ararat	6.7
1893	Dvin	6.5
1937	Parakar	4.7
1972	Talin-Arouch	6.5
1988	Spitak	7.0

Source: World Bank (18).

Yerevan, home to 40% of Armenians, is in one of the highest seismic risk areas. A recent analysis of Yerevan building stock (18) revealed that an earthquake with a magnitude of 7.0 or greater would destroy most buildings, potentially killing some 300 000 people.

Landslides

Landslide destruction has incurred direct social and economic costs amounting to some US\$ 43 million, according to 2004 Armenian landslide inventory data. More than 100 communities and hundreds of residential buildings, communication infrastructure and vital facilities have been affected, as well as roads and railways. Landslides are generally triggered by heavy precipitation but, according to the UN Environment Programme, in Armenia the levels of rainfall are not sufficient for this; leakage from domestic and irrigation water supply systems are likely to contribute to the landslide risk (13).

Floods

Seasonal flooding may severely damage property, crops and infrastructure, particularly in the Araks, Hrazdan and Aghstev river basins. The last major floods in the country were in the late 1990s; these affected over 7000 people, caused US\$ 8 million in damages and resulted in four deaths (3).

Extreme temperatures

Hailstorms are among the greatest natural hazards for the agricultural sector; about 15–17% of Armenia's agricultural area may suffer from hail damage. In 2002, for example, hail damage was so extensive in northern Armenia that the American Government provided emergency wheat seed.

Over the past 30 years Armenia has seen an increase in average temperatures and hot winds – especially in the Ararat valley, Vayk and Syunik – as well as decreased precipitation and humidity resulting in longer droughts, especially in the Ararat lowland and foothill zones. According to the Centre for Research on the Epidemiology of Disasters, the mostly economically costly natural disaster in Armenia since independence in 1991 was the drought in June 2000, which affected nearly 300 000 people and caused US\$ 100 million of damage (3).

Environmental issues

The main environmental issues facing Armenia are soil pollution from toxic chemicals; deforestation during the energy crisis of the 1990s (as a result of which Armenia lost close to 20% of its forest cover); pollution of the Hrazdan and Aras rivers; and the draining of Lake Sevan (a result of its use as a source for hydropower), which threatens drinking-water supplies. In addition, desertification has increased as a result of intensified human activity and now threatens some 80% of Armenia.

A critical infrastructure facility in Armenia is the Metsamor nuclear power plant, which is located in a seismically active zone. The radiation security of Armenia, as well as of neighbouring countries, is contingent on the safe operation of this plant.

Infectious diseases

Pandemic influenza is considered a major potential threat to the country and, as a result, the Government of Armenia has developed and endorsed a national pandemic preparedness plan. In addition, Armenia is one of the world's 27 high multidrug-resistant TB burden countries: 9.2% of new TB cases and 42.3% of previously treated TB cases have shown to be multidrug resistant (19).

Other infectious diseases are likely to pose only a low risk of major outbreak: no cases of polio have been registered since 1996 and no cases of measles were reported in 2011, while DTP3 (diphtheria, tetanus and pertussis) immunization coverage among 1-year-olds was reported at 95% in 2011 and measles immunization coverage at 97% (19).

Since 2006 Armenia has no indigenous cases of malaria and has a low HIV prevalence rate (0.2% of the adult population in 2013), but sexual transmission of HIV/AIDS is on the rise. Prevalence of Hepatitis B is also intermediate, but that of Hepatitis C is considerably higher (19).

WHO is currently supporting the development of a national programme to monitor and promote rational use of antimicrobials in order to contain antimicrobial resistance (19).

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 a follow-up to the 2007 assessment of health security and crisis management, since substantial reform processes aiming at alignment with European and international laws and standards have taken place in the intervening years, and the institutional framework for emergency preparedness and response has been considerably extended.

The Ministry of Health received a comprehensive report on the findings of the assessment team, describing the present health security and crisis management framework in Armenia 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 Armenia from 30 September to 4 October 2013, in cooperation with counterparts from the Ministry of Health and the WHO Country Office in Armenia (see Annexes 1 and 2 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 (20), the team adopted the all-hazard, multisectoral approach to evaluating the preparedness of the health system for crises (see Annex 3 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 responsibilities 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 4 and Annex 3).

Table 4. The WHO health-system framework

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

Source: WHO (20).

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* (21), *Everybody’s business: strengthening health systems to improve health outcomes* (22) and *The Tallinn Charter: Health Systems for Health and Wealth* (23).

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 (24). 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” (24). 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 (24). 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 (24). 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 5).

Table 5. 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
Health workforce	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

Function	Key components
Health 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 (20).

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 3).

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 Armenia 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 all 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 Armenian health care system with operational and management realities that change over time. The capacity for crisis management in the health sector of Armenia 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 Armenian Constitution, national laws, 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 government has passed significant legislation to improve disaster risk reduction and emergency management systems (see Table 6).

Table 6. Key legal documents regulating disaster management

Date	Law/regulation
1996	Law on Local Self-governing
1997	Law on Internal Troops
1997	Resolution no. 152 on Establishment of Operating Procedures for the Government of Armenia in Case of a Strong Earthquake or Threatened Earthquake
1997, revised 2006	Law on the Legal Regime of the State of Martial Law
1997, revised 2008	Law on Protection
1998	Law on Protection of the Population in Emergency Situations
1999	Resolution no. 392 on an Integrated Programme for Seismic Risk Reduction in the Territory of the City of Yerevan

Date	Law/regulation
1999	Resolution no. 429 on an Integrated Programme for Seismic Risk Reduction in the Territory of the Republic of Armenia
1999	Resolution no. 746 on Approval of the Procedure for Resettlement of Population from Hazardous Territories
2001	Law on Fire Safety
2002	Law on Civil Defence
2002	Law on Seismic Protection
2002	Water Code
2003	Resolution no. 134 on Establishment of the Procedure for Ensuring Preparedness of Organizations, Public and Self-governance Bodies of the Republic of Armenia and Training of Population in the Sphere of Emergencies and Civil Defence
2003	Resolution no. 237 on Designation of the List of Facilities of Critical, Significant and General Importance in the Sphere of Seismic Protection
2004	Law on Rescue Forces and Status of Rescuers
2004	Standard Rapid Assessment 233-2004 on Safety in Emergency Situations. Main Notions, Terms and Definitions
2005	Law on the Armenian Rescue Service
2005	Resolution no. 1925 on Approval of the Procedure for Warning the Population about Emergency Situations Occurring in the Territory of the Republic of Armenia
2006	Resolution no. 1581 on the Procedure for Approval of Seismic Micro Zoning Maps
2006	Order of the Minister of Urban Development of Republic of Armenia (no. 24) on Approval of Construction Codes CHPA-6.02-2006 for Anti-seismic Construction Design Standards
2007	Joint Order of the Minister of Territorial Management (no. 08) and Minister of Urban Development (no. 45) on the Procedure for Carrying out Seismic Micro Zoning Works

In addition, design and construction codes and standards have been revised and updated to reflect the country's seismic vulnerability. The new construction codes adopted in Armenia in 2006 are similar to those used in Japan. The new codes, however, have only been implemented so far in about 10% of all existing buildings. The remaining building stock dates back to the Soviet period and is highly vulnerable to earthquakes.

In May 2008, the government adopted a decree to establish the Ministry of Emergency Situations as the national structure for multisectoral emergency management and coordination, and approved its charter and structure (25). The roles and responsibilities of other sectors are defined; they principally support all actions of the Ministry of Emergency Situations.

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

In accordance with Article 38 of the Constitution, “Everyone shall have the right to receive medical assistance and services in the manner prescribed by law. ... Everyone shall have the right to benefit from basic medical services free of charge”. Implementation of this constitutional norm is ensured through a number of legislative acts, such as the Law on Medical Assistance and Services to the Population (1996), through which primary health care is largely free of charge. Emergency services for children are free of charge (26); co-payments have been introduced for adults for 23 specific emergency services, but the basic life-saving service remains free of charge.

The Law on Sanitary and Epidemiological Safety (1992) enables the Ministry of Health to ensure the health of the population through public health interventions, particularly in relation to communicable disease control and environmental health. There are, however, no general provisions that constitute the necessary legal framework for effective crisis preparedness planning and response in the health sector.

Generally speaking, the Ministry of Health is responsible for adapting the health care system in compliance with emergency planning, but is not directly responsible for day-to-day operational management during an emergency. Nevertheless, it has to ensure the provision of emergency health care for citizens, provisional health care institutions and some supplementary and reserve resources. To this end, a new department within the Ministry of Health – the Department for Emergency Situations and Civil Defence (DESCD) – was approved in 2011, with the aim of strengthening disaster risk management within the health sector. A similar department was closed in 2003 as part of the World Bank health sector reform. The terms of reference and staff are yet to be finalized (see Annex 4 for model terms of reference).

A new law on public health safety (replacing the Law on Sanitary and Epidemiological Safety) to enable the Ministry of Health to ensure the health of the population is in the process of being finalized and endorsed. It is expected to include updated disaster preparedness and response legislation to authorize extraordinary actions by the state in the context of major health emergencies (WHO mission to Yerevan to support implementation of the IHR in national legislation, unpublished report, 2013). The WHO Country Office reviewed all legal provisions related to health and emergency preparedness, identified gaps in the regulations and proposed amendments to the Ministry of Health at the end of 2013.

The Ministry of Health’s SHAEI plays a coordinating role in IHR implementation (the Ministry was last confirmed as Armenia’s national IHR focal point in 2011). Since 2007 approximately 40 legal acts, standard operating procedures and similar instruments and documents – as well as multisectoral coordination mechanisms for IHR implementation – have been endorsed. In addition, methodological guidance materials and other technical documents have been developed and public awareness activities for different target groups (including population groups and specific structures) implemented. Extensive work has been done in the area of human resources capacity building; points of entry have been designated to ensure the respective capacities under IHR; and surveillance, preparedness and response systems have been strengthened. While much has been done regarding legislation and related instruments, however, there continues to be a need for further revision and adoption of national legislation for IHR implementation. In Armenia’s

response to emergencies, the Ministry of Emergency Situations plays the coordinating role in the operationalization of a number of IHR-related functions, in conjunction with the Ministry of Health.

External (foreign aid) health-related emergency assistance is regulated exclusively at the national level, facilitated by the Ministry of Emergency Situations. Bilateral and multilateral agreements exist with neighbouring countries (including the European Union, Georgia, Iran and the Russian Federation) and through international coordination mechanisms, such as the Hyogo Framework for Action. The Government of Armenia is able to provide support to other countries; for example, it sent multisectoral teams to Gujarat in India after the destructive earthquake in 2001, and provided assistance after the South-east Asian tsunami in 2004.

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 National Security Council organizes, coordinates, controls and makes relevant decisions on the implementation of national security strategy and state programmes; it is the representative body of disaster management in the president’s office. In an emergency, a state commission at ministerial level (known as the Commission for Resolving the Consequences of Emergency Situations), chaired by the prime minister, is created ad hoc. The task force of the Commission is formed by the Ministry of Emergency Situations, which was established in 2008. Some state agencies that were formerly independent or under other ministries’ mandates now fall within the structure of the Ministry of Emergency Situations as separate divisions; these include the Armenian Rescue Service, National Seismic Protection Service Agency, National Reserves Agency, State Fire Inspectorate and Accreditation and Licensing Agency. A number of state non-commercial organizations also work under the jurisdiction of this Ministry, including the Hydrometeorology Monitoring Centre, National Centre of Technical Safety, Centre on Active Impact to Atmospheric Phenomena and Crisis Management State Academy.

The Ministry of Emergency Situations can be considered the committee for national multisectoral emergency management, as it has overall policy and operational responsibility for all government bodies in emergency situations. In accordance with the Law on Protection of the Population in Emergency Situations (1998), the Ministry is mandated with:

- developing programmes for risk assessment and emergency preparedness;
- ensuring implementation of those programmes;
- carrying out emergency response and recovery;
- coordinating government-wide policy on risk mitigation;
- creating and accumulating resources (funds, food, medical stocks, and so on) to provide relief to people affected by emergency situations;
- appraising of forecasts and other assessments related to the onset of emergency situations;
- appraising of rescuers’ qualifications and training of the population in the basics of protection during strong earthquakes;
- coordinating and monitoring activities of the national executive government authorities, regional and local self-governance bodies, enterprises and organizations in the sphere of population protection;
- approving seismic zoning maps of Armenia in general and of facilities of critical importance;
- participating in vulnerability assessments of buildings and structures; and

- issuing, in accordance with the established procedure, licences for construction work in seismic zones.

It includes a variety of departments, including a health department, which is largely responsible for the health and safety of Ministry of Emergency Situations employees but also supervises medical simulation exercises.

The Armenian Rescue Service was established in 2005, is now part of the Ministry of Emergency Situations and is the primary organization responsible for emergency management and response. It replaces the State Emergency Management Administration, which was established in 1991 under the jurisdiction of the Ministry of Territorial Administration. The Armenian Rescue Service trains responders, plans for natural disaster responses, maintains public awareness to some extent and coordinates emergency response and recovery. It has about 3000 employees including firefighters, rescuers and trainers, and supports detached and regional subdivisions. Its special rescue units include the water, mountain, chemical and biological units, as well as the rapid response rescue teams for national and international disasters.

To manage emergency responses, the Ministry of Emergency Situations established the Crisis Management Centre, which operates 24/7. It has an emergency operations centre that services (in parallel to the 102 emergency medical call system) all 911 calls related to accidents and emergencies, organizes all notifications and warnings to administrative bodies and the public, notifies international entities of transborder emergencies, collects and disseminates information to public administrative bodies and dispatches task forces to manage emergencies. It also has direct fixed lines to fire stations, administrative agencies and local government offices in each marz (region). The dispatching centres in each region fall within the structural remit of the regional administration but report operationally to the Crisis Management Centre.

The Crisis Management State Academy is an educational and scientific state higher educational institution with its own budget. It is the only emergency management school in the Commonwealth of Independent States.

The Ministry of Emergency Situations also manages a public information centre with a mandate to increase public awareness of emergency preparedness through mass media information campaigns and press conferences.

The Armenian Red Cross Society (ARCS) is considered a governmental auxiliary organization, with specific roles and responsibilities during emergencies. For example, national and regional ARCS directors participate in respective emergency committees during an emergency. ARCS has a nationwide structure for disaster management in 10 regions and Yerevan city, and has two regional centres with rapid response teams.

A number of ministries and institutions have roles in specific areas of emergency preparedness, mitigation and response (27). These include:

- the Ministry of Nature Protection for flood, drought, and landslide mitigation;
- the Ministry of Agriculture for plant cultivation, forestry and management of flooding and landslides;
- the Ministry of Territorial Administration for dam safety, early warning systems in villages around the dams and reservoirs, and developing evacuation plans for local people; and
- the Ministry of Urban Development for spatial and architectural planning, implementation/ construction and nationwide landslide management.

A similar set-up exists at the regional level where, under the leadership of the governor, an ad hoc commission – known as the regional task force – is instituted during an emergency situation, with representatives of all sectors. The response is led by the regional Ministry of Emergency Situations focal point, irrespective of the nature of the emergency, and reporting is along vertical lines.

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 and its related bodies, such as SHAEI, implement some awareness-raising activities on health and health care, provide assessments on the sanitary-hygienic consequences of disasters and organize anti-epidemic and quarantine activities and the timely arrival of medical groups to the place of disaster. They also provide medical assistance during evacuation and for the injured.

Ministry subordinate agencies include some hospitals, maternity hospitals, ambulatory polyclinics, psychiatric clinics, dispensaries, SHAEI and the laboratories of the Centre for Communicable Disease Prevention and Control. The majority of medical facilities are under municipal jurisdiction, however, at both the national and regional levels. The Ministry of Health is also responsible to a certain extent for organizing and stockpiling drugs and other medical resources to be used in case of a disaster, but the Ministry of Emergency Situations remains the main provider of such items.

The Ministry of Health has no standing national multidisciplinary committee for providing strategic leadership or overseeing its emergency preparedness efforts; a health-sector task force convenes ad hoc when an emergency is declared. The newly approved DESCDC will assume the role of an operational entity. The replication of this entity at lower administrative levels is considered for the future.

During emergencies the Ministry of Health cooperates with the Government of Armenia, Ministries of Emergency Situations, Agriculture, Territorial Administration, Transport and Communication, police service, national security service and WHO, among others. No health-sector coordination mechanism on disaster risk management exists, however; this was expressed as a need by interviewees.

The multisectoral National Platform for Disaster Risk Reduction (ARNAP) was initiated in 2010 as an NGO with the status of a fund. While it is supposed to provide opportunities for state, nongovernmental, private and international institutions to participate in decision-making and consultation processes, it is clearly dominated by the Ministry of Emergency Situations, which makes up half (8 of 16) of the board members. The Ministries of Health, Education and Urban Development are not represented either on ARNAP's board of trustees (its key decision-making body) or on its advisory council. ARNAP has several thematic working groups, including the one on health and safety and first aid within this structure, but its priorities are donor-driven and are not set by the Ministry of Health.

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

A national programme on health-sector emergency management does not exist as such. The Ministry of Emergency Situations is responsible for developing multisectoral plans; these currently exist at the national level for incidents involving the nuclear power plant and earthquakes, and at the regional level for floods and landslides. The Ministry of Health is responsible for developing the health component of the plans, which is usually annexed in the overall plan together with the contributions from other sectors.

In general, emergency plans – including those of the health sector – are considered confidential. The assessment team was told the general content orally; from this information, health sector planning seems to focus mainly on the response phase. Public health activities have their own specific plans within the separate vertical programmatic areas (such as pandemic influenza, HIV/AIDS, TB, and similar).

Overall, responsibility for health-related disaster risk reduction activities and most of the mitigation, preparedness planning and recovery activities have been transferred to the regional and municipal levels. These activities are implemented according to their specific hazard profiles. The regional and municipal authorities are responsible for the functioning of local key public services such as infrastructure, care of the elderly and other vulnerable populations, health services and public information services; they have Ministry of Emergency Situations representation for the coordination of these services during emergencies.

Within the framework of its emergency preparedness programme, WHO has supported the Ministry of Health in assessing the structural, non-structural and functional safety of two hospitals in Yerevan (one multiprofile and one infectious disease), using the WHO hospital safety index (28). No national programme exists, however, to support further vulnerability assessments.

No research on effective health sector emergency management in the Armenian context is currently taking place. There is no mechanism within the Ministry of Health to prioritize the scientific research agenda, nor is it budgeted.

Recommendations on leadership and governance

The Ministry of Health might wish to review the national legislation, and specifically the new law on public health safety, to ensure that they clearly define and address:

- the needs of the health sector in its responsibilities within the multisectoral arena
- the role and responsibilities of the new DESCDC
- the regulations required to facilitate meeting the IHR.

The Ministry of Health should become an active member of ARNAP’s advisory council and board of trustees to ensure adequate representation of the health sector.

To ensure a more comprehensive approach to disaster risk management, the Ministry of Health could develop the technical capacity of its new DESCDC. This would be tasked with the

multisectoral and multidisciplinary coordination of the emergency programme and relevant information management (model terms of reference are set out in Annex 4), providing a coordination mechanism similar to in-country health cluster leads.

The Ministry of Health should institute relevant technical working groups (for example, within ARNAP) and draw on expertise from national and international organizations to develop the following plans and procedures.

- It should develop a national health sector disaster risk reduction plan, including nationwide risks (incorporating completed work on seismic and landslide risks) and population vulnerability to each risk, and prioritizing mitigation and emergency management measures. It should assign responsibilities, budget and a time frame to complete each measure and include these parameters in its medium-term expenditure framework; the measures should be based on consultations with and the agreement of key institutions relevant to disaster risk management.
- Alternatively, the Ministry of Emergency Situations should develop a crisis management or disaster risk reduction national programme or plan (for all types of risk). The Ministry of Health, in turn, should develop the health of the overall programme or plan.
- The Ministry of Health should develop national standards for comprehensive hospital emergency-response plans for public and private hospitals and other health care facilities (see Annex 5).
- A process of developing separate comprehensive health care emergency-response plans for each medical facility should commence under the guidance of the Ministry of Health.
- A list of priority health care facilities should be produced, and the Ministry of Health should support functional and non-structural vulnerability assessments of hospitals. Based on these analyses, a workplan containing interventions to improve the safety of the facilities could be developed.
- The Ministry of Health should develop a monitoring framework for the implementation of health care facilities' emergency-response plans (linked to accreditation and licensing).
- Coordinated activities between the Ministry of Health and the Ministry of Emergency Situations should be organized for daily operations during emergency situations.
- The Ministry of Health should establish mechanisms and allocate a specific budget that will facilitate scientific research into better crisis management.

WHO will be able to support the Ministry of Health in developing these plans and reviewing the legislation pertinent to emergency preparedness within the current and following BCAs.

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

Multiple possibilities for training in health-sector emergency management exist but there is no specific Ministry of Health human resource plan or strategy for the training of health care workers in emergency management. While some lists of trained personnel are held by the Ministry of Health, Ministry of Emergency Situations and Yerevan State Medical University (YSMU), a comprehensive database of emergency management training and of trained health care workers is not maintained by the Ministry of Health.

Training opportunities include various courses from YSMU (the only state-accredited medical school in Armenia), which is responsible for medical undergraduate and postgraduate education and residency training for students and doctors, as well as for continuous professional development for all doctors and nurses in Armenia (a function recently transferred from the National Institute of Health). Courses include:

- mandatory courses in toxicology, public health and epidemiology for undergraduate medical students at YSMU;
- master's degrees in public health (including elements of public health in disasters, disaster medicine and disaster management) for graduate medical students;
- specialty-specific courses relating to disaster medicine and management (lasting from one to seven weeks and taken by all residents) for doctors in residency training;
- a five-week course on disaster management (including modules on organization of medical services in emergency situations, protection of casualties and disaster surgery, medicine, obstetrics and psychiatry) for practising doctors and nurses.

So far over 1000 nurses and doctors have undertaken this last course (including all ambulance staff – doctors and nurses – of the Yerevan Emergency Medical Service), and YSMU's aim is for all doctors and nurses in the country to take it. YSMU also provides a selection of one-week emergency management and first aid continuous professional development courses that all doctors and nurses should take every five years. Courses are tailored according to role. The uptake and coverage of these continuous professional development courses is unclear.

The “Response project” of the Swiss Agency for Development and Cooperation (SDC), with the Ministry of Emergency Situations and Ministry of Health, delivers training for medical units across the country (comprising primary care doctors and nurses) in onsite medical response to emergencies and provides response equipment. Search and rescue teams are also being trained to work with the medical units as regional rapid response teams, which can be called on by the Ministry of Emergency Situations, working with the Ministry of Health, to attend major emergencies. Teams have been established in six regions so far. Medical unit trainers are selected from each region to receive “train the trainer” instruction, after which they return to their regions to train the teams. Teams are tested through regular simulation exercises coordinated by the Ministry of Emergency Situations. The aim of the project is to have medical units in all main cities of the country, with regular training and simulation exercises. SDC funding will end in 2015.

Crisis management courses are offered by the Crisis Management State Academy to civil service managers and employees in state institutions of all sectors (see below for further information on the Crisis Management State Academy). There are 48 courses, lasting from 1–15 days, each tailored to the roles of the participants – from deputy ministers to schoolteachers. They generally cover crisis management, intersectoral collaboration, planning, communications and first aid. The course for senior doctors and nurses takes one day and focuses on the current capacity and services within the health system and how to manage these in a crisis. The Ministry of Emergency Situations determines the number of courses and places offered each year and the Ministry of Health specifies which individuals will attend.

SHAEI has a human resources plan to train and develop epidemiology and outbreak response staff and to identify and fill employment gaps. Within the framework of the United States Agency for International Development (USAID)-funded avian influenza project (administered by WHO), rapid response teams have been established in Yerevan and in all regions in the country. The teams comprise a range of specialists, including epidemiologists, veterinarians, infectious disease specialists and laboratory specialists, and receive training from time to time. The training is not

incorporated in educational curricula, however, and depends heavily on the availability of external funding.

The heads of the new DESCDC and of a major hospital in Yerevan recently attended the public health and emergency management course run by the WHO Regional Office for Europe. Senior managers from the health sector attend international courses on an ad hoc basis. This partly adapted version of the course was developed and introduced at the Department of Emergency Medicine of YSMU in 2011. Some elements of the course are incorporated in curricula and are being introduced to the attendees of continuous medical education courses. The uptake and coverage of these courses is unclear.

First aid and basic needs assessment training courses are run by ARCS. These are provided for individuals at the community level and it was reported that this includes nurses, particularly those in primary care in rural areas.

YSMU is in the process of harmonizing and rationalizing the courses it offers, but there is no harmonization of curricula or materials across stakeholders (for instance, first aid curricula are not harmonized between the Crisis Management State Academy and ARCS). The training courses described above are generally in-depth and undertaken only once; more basic courses in disaster management and first aid offered to all hospital and primary care staff regularly throughout their careers might be more effective. In addition, most training courses for doctors, nurses and students do not include exercises or drills. Hospital-based training courses could offer the broader training suggested and would facilitate the hospital-level exercises recommended elsewhere in this report.

Funding for training appears sufficient, although it comes from a variety of sources (including the Ministry of Emergency Situations, Ministry of Education and others), again meaning that there is no Ministry of Health oversight on the number of places available on different courses.

Emigration is a major challenge in Armenia, especially in the health care sector, with many doctors and nurses trained in the country leaving to work and/or live abroad. The Ministry of Health reports that it has adequate staffing levels for service delivery, but to ensure that a sufficient proportion of staff remains trained in emergency management, courses need to be incorporated in educational curricula and held regularly; they therefore need adequate funding in the long term. Specifically, the “Response project” will require ongoing funding once SDC support ends.

NGOs reported a lack of clarity from the Ministry of Health on the integration of national and international volunteers into health service delivery in emergency situations. Regarding international assistance, the Ministry of Foreign Affairs has responsibility for requesting and accepting into the country both human resources and equipment in an emergency situation.

In terms of emergency response and management training for non-health sector personnel, the fire and rescue teams of the Ministry of Emergency Situations receive their initial training and ongoing refresher training from the Crisis Management State Academy. This includes several weeks of first aid training and regular simulations and exercises. The Crisis Management State Academy was founded in 1992 – the only emergency management school in the Commonwealth of Independent States – and is now a structure of the Ministry of Emergency Situations. It provides vocational education and training in fire and rescue; specialized search and rescue and medical response training; higher education courses in crisis management (at diploma, bachelor’s and master’s levels); and emergency management education for civil servants including managers, doctors and teachers, as well as for schoolchildren. It also produces a wide range of printed materials for specialists, the general public and children. Much of the SDC “Response project” training and ongoing exercises is implemented through the Crisis Management State Academy with the Ministry of Emergency Situations.

In addition, dispatchers at the Crisis Management Centre – which runs the 911 call system – receive two weeks of training from UNDP and ARCS on giving simple first aid instructions over the phone when answering calls.

A variety of courses and learning opportunities are also available to the general public on the topic of emergency preparedness and response. These include first aid training from ARCS; training (mostly of schoolchildren and teachers), publications and posters from the Crisis Management State Academy; and information via mass media from the Ministry of Health, Ministry of Emergency Situations and SHAEI.

Recommendations on health workforce

The new DESCDC should maintain a roster of staff trained in emergency management to facilitate strategic planning and for use in an emergency-response situation. This could be supported by the work of the new Department of Human Resources within the National Institute of Health, which is piloting a health human resources data collection system. All the respective units and departments of the Ministry of Health should be involved in this work. In addition, this strategic planning of human resources for emergency situations could be presented in the newly developed (but still not endorsed) national strategy for human resources for health.

A training-needs assessment for health-sector emergency management is needed, for which the suggested roster of trained staff would be the first step. The results of the assessment could be used to coordinate and harmonize the delivery of appropriate training across the various providers. The new DESCDC might consider refocusing training on more widely available basic courses in disaster management and first aid offered to all hospital and primary care staff on a regular basis. Participation in more specialized disaster management and medicine courses could be limited to senior doctors and managers with leadership roles in health sector disaster risk reduction, preparedness and response.

As part of this work, the Ministry of Health should support YSMU in the harmonization of current undergraduate, postgraduate and continuous professional development training courses in emergency management, basing this on the results of the training-needs assessment. The new DESCDC might also consider supporting YSMU in fully adapting and institutionalizing the WHO national public health and emergency management course for the Armenian context.

The Ministry of Health should consider making it mandatory for all hospitals to hold regular simulation exercises involving all levels of staff and considering internal and external emergencies. This requirement could be introduced in licensing requirements for medical facilities.

The Ministry of Health, working with the Ministry of Foreign Affairs, should develop procedures for integrating both national and international volunteers into health service delivery in emergency situations and should ensure that stakeholders are aware of these procedures.

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 Scientific Centre of Drug and Medical Technology Expertise under the jurisdiction of the Ministry of Health is responsible for regulation of pharmaceutical products. The purchase of

pharmaceuticals, medical devices and supplies, however, is not centralized and falls within the remit of individual health facilities. Currently, 320 active ingredients are licensed in Armenia as defined in the national essential drug list. This list was last revised in May 2013.

The main emergency stocks of pharmaceuticals and other medical products and equipment are maintained by the Armenian Rescue Service, within the remit of the Ministry of Emergency Situations. The assessment team was not able to evaluate the quantity and storage conditions of these goods. The national Centre for Communicable Disease Prevention and Control, under the jurisdiction of the Ministry of Health, has a limited stockpile of antiviral medications allotted for high risk and priority groups, which are being dispatched to the regional level. Expired items (some provided by WHO, some bought by the World Bank) were recently replenished within the scope of a World Bank project. No pre-arrangements with manufacturers for procurement of influenza vaccines are in place.

Additional stocks of medical supplies, primarily foreseen as available to bridge shortages in daily (non-emergency) operations, could be used in emergency situations if the government decides to do so. These items are stocked in the Humanitarian Assistance Centre outside Yerevan, in a solid one-storey building that is considered earthquake safe, with several entrances and good road access. According to one interviewee, the Humanitarian Assistance Centre has back-up lifelines to ensure, for example, cold-chain maintenance. Resources for transport with limited fuel emergency stocks are available.

The Ministry of Health provides technical advice to the Ministry of Emergency Situations, which is tasked with coordinating and leading the emergency distribution of relevant items. In addition, ARCS maintains a stockpile of emergency relief goods to serve 2500 people in the immediate aftermath of a disaster. As one of the main contingencies considered relevant in Armenia is an accident in the only nuclear power plant, detailed plans for the provision of iodine to the population are in place. For example, iodine tablets have been provided to the population living in a 5 km radius of the plant, and advice on how to take the tablets is given regularly. A sufficient quantity of iodine is stocked for the population living in a 10 km radius.

A government decree allows drugs and medical supplies to be taken from private pharmacies, wholesalers and pharmaceutical manufactures in case of an emergency, with compensation to be paid by the government at a later date.

Hospitals, both private and public, are responsible for maintaining their own emergency stocks. They are required by regulation to have an emergency stockpile of medical supplies and equipment lasting for a minimum of 20 days. Selected hospitals in remote areas are required to have stocks for two months.

A drug law, currently being revised, will include regulations for pharmaceuticals and medical supplies in emergency situations. Moreover, some general elements of emergency preparedness will be included in the new law on public health safety, also being revised. According to one interviewee, the newly revised laws will outline different contingencies, including armed conflict scenarios. Based on the different scenarios, essential pharmaceuticals and medical supplies and equipment will be defined. The new laws will oblige all hospitals to maintain emergency stocks, including stocks for continuation of essential services, for one month. Detailed quantities of required medical items will be outlined by capacity (per 100 hospital beds). Hospitals will be obliged to document the quantity and regular replenishment of emergency stocks, and mechanisms to monitor these stocks will be defined.

Interviewees assured the assessment team that for emergency situations specific regulations exist for the fast-track import and customs clearance of humanitarian supplies and drugs not officially

licensed in Armenia. The interviewees could not verify, however, whether these regulations are in accordance with international guidelines such as the WHO guidelines for medicine donations (29).

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

The main public laboratories are under the authority of the national Centre for Communicable Disease Prevention and Control and its regional branches. The Armenian Rescue Service has capacities for chemical, biological and radionuclear laboratory testing. In addition, private laboratories are run in Armenia.

The assessment mission did not include visits to laboratories. Nevertheless, the interviewees recognized that laboratories require urgent strengthening, including building capacities and capabilities, standardizing methods and improving communication. To tackle this problem the government endorsed the “Strategic plan for establishment of an overall laboratory network in Armenia” in May 2013. This focuses on all pillars of a functional laboratory network and includes strategies on sample packing and transportation, laboratory system response capacities, bio-safety and bio-security management and many others. The interviewees were very aware that implementation of the Strategic plan is a priority and is considered a prerequisite to meet IHR core capacities requirements.

The main institution for blood services in Armenia is the Haematology Centre after Professor R.H. Yeolyan, which is under the jurisdiction of the Ministry of Health. Blood products can be purchased at the centre on a self-pay basis. The main regional hospitals operate their own centres for blood donation and production. In addition, blood transmission centres with limited capacities exist in every region. The ability to scale up blood production is unclear. Due to funding constraints it has not yet been possible to establish regional blood banks with adequate capacities. ARCS is not embedded in the system for collection, production and provision of blood services.

The interviewees recognized that even in non-emergency situations the provision of blood and its products is insufficient. They mentioned that a blood donation strategy is being planned. It remained unclear whether a regulation requiring hospitals to hold a certain quantity of blood products in stock is in place. Overall, blood services for emergency-response operations seem to be only incoherently developed.

Recommendations on medical products, vaccines and technology

Given the importance of the existence of reserve stocks of pharmaceuticals and medical supplies, including blood products, timely endorsement of the new law on public health safety is recommended. In this context the Ministry of Health might wish to ensure that the law includes demands for storage of a defined minimum of pharmaceuticals and medical supplies in remote and hard-to-reach areas; provisions for safe and resilient storage facilities (including in hospitals), with sustainability of access; and provisions for transportation of items in an emergency. It might link these requirements to health facility licensing.

The Ministry of Health might wish to reappraise whether the WHO guidelines for medicine donations (29) are recognized within respective national regulations.

The Ministry of Health is encouraged to implement the strategy on strengthening the laboratory network. This will foster implementation of the IHR core capacities at the same time.

The Ministry of Health might wish to strengthen the country’s blood services. This process might begin with a needs assessment of blood products and a review of the regulations on blood services – including safety, voluntary donations and stockpiling – leading to the development of a strategy for sustainable blood services in Armenia. The Ministry of Health might wish to consider that ARCS should become involved in the collection of blood donations. Regional blood banks and procedures for the rapid collection (including public campaigns) and production of blood products might be established.

4. Health information

Key component 4.1.	Information-management systems for risk reduction and emergency preparedness programmes
Essential attributes:	<ul style="list-style-type: none"> 21. Information system for risk assessment and emergency preparedness planning 22. National health information system 23. National and international information-sharing 24. Surveillance systems

The Ministry of Emergency Situations is responsible for risk assessment in Armenia. It maintains a database and geographical information system maps of the major hazards facing the country (including earthquake, nuclear power plant incident and landslides); this is known as the National Observatory, and much of the information is available to the public (see Annex 6 for hazard distribution maps).

The data used are from historical disasters and an increasing number of modelled scenarios. This information is used to produce estimates of the likely impacts (including estimated numbers of deaths and injuries) of the main possible risks. Health facilities are mapped in the modelling and impact estimation processes, but information on demographics, underlying health status of the potentially affected populations, population vulnerabilities and similar issues are not taken into consideration. The information system does not include mapping or modelling of health-based emergencies, such as infectious disease outbreaks.

The results of Ministry of Emergency Situations risk assessments are disseminated to other ministries and to regional government offices for use in sector- and region-specific emergency plans. At the regional level multisector response plans are developed, tailored to local hazards; for instance, in the region visited by the assessment team floods and landslides are the main focus and not earthquakes, which are considered the main hazard in most other areas of the country. Some of these plans integrate local health data in their risk assessment and planning.

Communicable disease surveillance and outbreak response is provided by the Ministry of Health’s SHAEI, which has a national head office and a network of regional and community-level offices. SHAEI works with the national and regional laboratories of the Centre for Communicable Disease Prevention and Control and with the National Veterinary Agency. The surveillance system has been evaluated by the United States Centers for Disease Control and Prevention as having good data collection and high sensitivity (WHO mission to Yerevan to support implementation of the IHR in national legislation, unpublished report, 2013).

Case definitions are laid out for 85 notifiable infectious diseases and several syndromes (such as diarrhoeal illness), which are reported on a standardized paper form by medical practitioners and/or laboratories to local SHAEI offices. These data are collated and reported monthly to the regional SHAEI office, then up to the national level. Data are used for monitoring, retrospective analysis and forecasting of infectious disease activity.

A number of diseases require “urgent notification” (including those mentioned in annex 2 of the IHR) when a single case is suspected or confirmed. Such cases are notified by telephone to the local SHAEI office, which informs the national office immediately and an investigation is commenced at the appropriate level(s).

Indicators and standard operating procedures also exist for investigation of case clusters and outbreaks. Multidisciplinary rapid response teams are established at regional and national levels, and have procedures for mobilization should surge capacity and/or greater expertise be required. In the case of a major disease outbreak or other emergency, daily reporting of notifiable diseases would be instigated.

An electronic integrated disease surveillance system is in development, which is planned to be available at all health facilities and all SHAEI offices. The system will integrate human and animal disease surveillance; these are currently performed separately by the Ministries of Health and Agriculture, although specialists in animal and human health communicate informally if the respective systems identify any inter-related issues.

The Government of Armenia requested an extension to the deadline for meeting the IHR core capacities requirements. Its action plan for this is the “Strategic plan for establishment of an overall laboratory network in Armenia”, which it endorsed in May 2013. Information exchange and collaboration with neighbouring countries regarding epidemiological surveillance and IHR is limited (WHO mission to Yerevan to support implementation of the IHR in national legislation, unpublished report, 2013).

Data collection for noncommunicable disease surveillance, human resource monitoring and hospital capacity monitoring is performed annually by the Ministry of Health’s Health Analytic Information Centre. Once a year, all public and private health care facilities must submit a set of forms that report, among other items, the number of cases of various diseases seen in the past year at the facility, immunization coverage, the number and types of health care workers employed, the number of beds in the facility and the number of patients seen. Lifestyle data such as tobacco and alcohol consumption or body mass index are not collected. Health facilities are identified through the Ministry of Health licensing department, ensuring that all facilities in Armenia submit the required forms. From these data the Health Analytic Information Centre compiles statistics, which are disseminated to all relevant departments in the Ministry of Health and to the national statistical service.

Hospitals are responsible for maintaining their own stocks and reserves of equipment, pharmaceuticals and blood. Hospital stock levels of pharmaceuticals are reported to the Ministry of Health every 6–12 months. No other systems for monitoring stocks or bed capacity and service availability are in use at a regional or national level.

Ambulance dispatch centres exist in each region and have global positioning systems (GPS) for tracking the location of vehicles and incidents. The Yerevan ambulance service, which falls under municipal jurisdiction, can track the location of all ambulances across the country. It has radio and telephone contact with the Ministry of Health and Ministry of Emergency Situations if needed, but the service does not regularly report to the Ministry of Health (activity reports are submitted to the Yerevan municipality on a monthly basis).

While all the above information would be accessed by the new DESCDC in response to an emergency, the Ministry of Health does not collate these data into a national profile of health risks, either for use in health-sector risk assessment and planning or for use by the Ministry of Emergency Situations.

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 an emergency, rapid health-needs assessments would be conducted on site by the responding medical team(s) and communicated to the regional health office, which could then integrate local health and health service data into the assessment. There was no indication of a standardized method or format for such assessments. In the case of an emergency involving infectious disease or radionuclear release, the regional SHAEI office would conduct the needs assessment. Results would be communicated to the Ministry of Health and the regional task force (a multisectoral regional response committee led by the governor of the affected region). There appear to be no protocols for content or frequency of reporting at any level, although channels of communication are agreed.

Multisectoral IRA would include the health sector at regional and national levels. Regionally, IRA would be performed by the regional task force, which includes regional health office representation. The national multisectoral response committee (known as the Commission for Resolving the Consequences of Emergency Situations) would oversee IRA at the country level and use the results to allocate resources and tasks; the Ministry of Health is represented on this Commission. In non-emergency situations, the Ministry of Emergency Situations coordinates regular meetings of the Commission, where protocols are reviewed and issues discussed.

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

Crisis risk communication with the public is coordinated by the Ministry of Emergency Situations, with protocols and certain pre-agreed messages in place. In an emergency, a national communications centre (the Public Information Commission) would be established at the Ministry of Emergency Situations Crisis Management Centre. This Commission would be led by the Ministry of Emergency Situations; it would include communications representatives from all relevant ministries and stakeholders, and would coordinate the release of agreed communications and host press conferences.

At the regional level, communications would be coordinated by the regional governor's office. Multiple channels for communication with the public and the media would be employed including television, radio, newspapers and the Ministry of Emergency Situations website. Named individuals trained in risk communication could not be identified within the Ministry of Health.

Risk communication in public health emergencies would be led by the designated IHR focal point from SHAEI, in collaboration with the Ministry of Emergency Situations and Ministry of Health nationally, and with the regional health office and regional task force locally. SHAEI maintains ongoing communication campaigns on infectious diseases (and other topics) for general awareness raising and in response to outbreaks. Methods used include billboards, leaflets, television and radio pieces and community visits and talks. Materials and methods are sometimes field tested, but are always approved by the Ministry of Health before use and are developed for both the general public and specific risk groups. Similar methods would be employed for communications in a major public

health emergency, and protocols and pre-prepared messages have been developed for influenza pandemic and nuclear power plant incidents.

The Crisis Management State Academy, on behalf of the Ministry of Emergency Situations, produces a large number of risk communication materials for the public on disaster risk reduction, preparedness and response. Many were produced with support from NGOs and international organizations such as ARCS, Oxfam, UNDP and the United Nations Children's Fund (UNICEF). Materials include posters and leaflets for the general population on family emergency preparedness; educational booklets for children on safety in the home and preparing for and responding to emergencies; and technical guidance for teachers and community leaders on preparing for and responding to emergencies and providing psychological support for children in emergencies. The Crisis Management State Academy has also developed publications for those with learning difficulties (such as "easy-read" booklets on household disaster preparedness). Many of these resources contain health advice, including how to provide first aid and psychological first aid. Although internal first aid trainers and external health professionals were consulted in their production, the Ministry of Health was not involved. All these stakeholders are discussing the initiative to establish a multisectoral working group that will work on the development of first aid materials

Other organizations also produce risk communication materials on disaster risk reduction, preparedness and response that the assessment team saw during the visit. For example, ARCS produces leaflets for the public on how to respond to earthquakes and provide first aid, and YSMU produces a leaflet on earthquake hazards and what types of injuries medical facilities should expect to see.

Hazard-specific pre-prepared risk communication information for health care staff is contained in the SHAEL pandemic influenza plan and nuclear power plant incident plan (and covers steps for personal protection). Responsibilities, protocols and procedures for staff related to risk communication in major emergencies are not documented.

Recommendations on health information

The new DESCDC should develop capacity in the geographical information system and in health information management, and establish protocols for the collation and use of health data to inform emergency risk assessment and preparedness activities.

The Ministry of Health should work with the Ministry of Emergency Situations to increase the use of population health data in national disaster risk assessments and national risk mapping; the capacity development described above would support this.

The DESCDC should develop protocols for health sector needs assessment in an emergency at national and regional levels, with a standard format and reporting procedures (WHO protocols are available that could be adapted). Training and exercising would be required, and this could easily be integrated with the regular simulations and exercises run by the Ministry of Emergency Situations.

The Ministry of Health should coordinate health-related communications for disaster risk reduction, preparedness and response (working with the IHR focal points within the Ministry of Health and with the Crisis Management State Academy) when materials are developed for the public and for health care staff, ensuring that messages and technical content are harmonized. Protocols for communicating with health care staff in emergencies should be defined. Those in the Ministry of Health (including IHR focal points) responsible for health risk communication during emergencies should be identified and should receive appropriate training.

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

In accordance with the Law on Protection of the Population in Emergency Situations (1998), the Ministry of Emergency Situations creates and accumulates financial, food, medical and other commodity stocks and funds for providing assistance to victims of emergencies, and secures their targeted use.

Annual allocations to the Government Reserve Fund to cover common or catastrophic disasters are 5% of total expenditures envisaged in the budget, which are likely to be insufficient in major disasters.

The Ministry of Health has no legal requirement to set a budget line for risk reduction and crisis preparedness other than funding the salaries of the personnel appointed to the new DESCDC. Disaster risk reduction and mitigation measures to ensure functionality of health facilities are financed through national, regional and community budgets.

Hospitals, regardless their status (private or run by the Ministry of Health or municipality), are required to have stocks of essential medical products that are renewed periodically.

Recommendation on health financing

As in many countries, financial constraints limit additional investment; therefore, when establishing the national health emergency management programme, it is important to ensure that the main priority areas are defined and cost-effectively implemented. Thus, strengthening the visibility of the Ministry of Health within ARNAP might attract and channel donor funding towards the health sector.

A dedicated budget allocation for disaster preparedness planning and disaster risk reduction, even if limited, could also be a good investment for the future, and would demonstrate the commitment of the Ministry of Health to emergency management.

6. Service delivery

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

Subnational health emergency-response plans do not exist as standalone plans; they are instead included as separate chapters in the respective subnational multisectoral emergency-response plans. These plans include different contingencies, such as chemical and nuclear power plant accidents, earthquakes and armed conflict scenarios. For pandemic preparedness and response planning, the regional SHAEI branches are the main responsible authorities. The interviewees mentioned that the overall framework and content of the subnational plans is prepared at the national level, by the Ministry of Emergency Situations in particular. According to the interviewees, plans are adapted to subnational needs; for example, including as according to geographical specifics. As at the national level, subnational plans are considered confidential.

The national structure is duplicated at the subnational level: under the leadership of the governor, an ad hoc commission – known as the regional task force – is instituted during an emergency situation, including representatives of all sectors. The response is led by the regional Ministry of Emergency Situations focal point, irrespective of the nature of the emergency, and reporting is along vertical lines. Nevertheless, an operational entity such as the new DESCDC at the Ministry of Health is being considered at the subnational health sector.

Subnational response plans are tested regularly – more than once per year. Testing is usually done in the form of table-top exercises. In addition, simulation exercises, which include fire brigades, police, medical and search and rescue teams are conducted at the municipal level. Lessons learnt from exercises are fed back and used for revision of the plans. Emergency-response plans are not further publicized; hence, the extent to which the plans are shared with all stakeholders who would be involved in emergency response could not be evaluated.

At the subnational level overall multisectoral collaboration and coordination is considered to be well organized, but interviewees mentioned that it could be further strengthened. In addition, they noted that the subnational emergency-response plans could be improved by including more precisely defined roles and responsibilities for the different partners and by giving more detailed operating guidelines in general.

Key component 6.1.	Response capacity and capability (continued)
Essential attributes:	33. Surge capacity for subnational health-sector response

The surge capacities of the Armenian health sector have been improved in recent years. During large-scale events, search and rescue and medical teams (the medical units established within the framework of the SDC “Response project”), public and private hospitals and additional sites (including adjunct staff) designated to be turned into provisional hospitals can be mobilized. The Ministry of Emergency Situations has a mobile hospital with 45 beds at its disposal. Capacities for (ground) medical evacuation seem to be limited. Arrangements are in place to deploy staff from neighbouring regions to the area in need.

Rapid response teams within the Ministry of Health, established at the regional and national levels within the USAID-funded avian influenza project (implemented by WHO) are still operational. These teams – also known as epidemic liquidation teams – comprise specialists from different relevant disciplines: epidemiologists, infectious diseases specialists, veterinarians and laboratory specialists. The Ministry of Health’s SHAEI also holds a roster of epidemiologists who could be deployed. The Ministry of Emergency Situations is involved in larger outbreak response operations.

Stocks and supplies for emergency operations have been stored in fire stations, some of which host search and rescue teams (mainly volunteers). Six containers with equipment needed for search and rescue operations (including medical supplies) are positioned strategically by the Ministry of Emergency Situations in different regions.

Interviewees considered the surge capacity of the public health laboratories to be insufficient. No mobile laboratories are available in the country.

Key component 6.1.	Response capacity and capability (continued)
Essential attributes:	34. Management of prehospital medical operations

Prehospital medical operations in Armenia are organized and coordinated through the 911 call system. Calls are dispatched from the Crisis Management Centre to police, fire or EMS respectively. The old system with separate numbers for police (101), fire brigade (102) and EMS (103) is still in parallel use. Calls made using landline or mobile phones are automatically dispatched to the respective region where the call originates. To what extent calls using the unified 911 number are linked to EMS in all parts of the country remained unclear.

A standardized triage system is in place and is used by EMS, as well as by the search and rescue teams and medical surge units. As noted above, search and rescue teams are affiliated to fire brigades throughout the country, and can support the management of prehospital medical operations at short notice. Search and rescue and medical teams have been established within the framework of the SDC “Response project”, with the aim of strengthening a decentralized rescue system in Armenia. By the end of 2013 it is envisaged that trained medical units will be established in the six most disaster-prone regions.

Medical units are made up of 20 staff. Each is divided into four subunits comprising two physicians and three paramedics. They are mainly staffed by primary health care professionals and not hospital staff, who would be needed in their respective facilities to cope with the potential extra demand from individuals needing hospitalization in an emergency situation.

A total of 89 simulation exercises involving approximately 100 individuals each were conducted in 2013, supported by SDC. These included earthquake, mass-accident, chemical, biological and radionuclear accident scenarios. A “train the trainer” programme to ensure continuous (re-)training of search and rescue staff has been implemented. It remained unclear whether chemical, biological, radiological or nuclear personal protective equipment is available for the search and rescue teams.

There are 62 firefighting squads (14 in Yerevan) and 11 rescue squads (one in Yerevan). Each squad comprises six firefighters. The firefighters can support medical rescue operations, if needed.

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

The system for managing situations involving mass fatality and missing persons is not the responsibility of the Ministry of Health. In a disaster situation a joint commission responsible for the management of mass fatalities would be established on an ad hoc basis. Knowledge of the mechanisms for body storage, the identification process and the organization of viewing areas was, however, available in the Ministry of Health.

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

Armenia’s capacity and capability for response to the health consequences of mass-casualty incidents has been strengthened in recent years. For example, in May 2012 EMS were stretched when, during a political rally in the central square of Yerevan, balloons exploded and injured at least 144 people, of whom 104 had to be hospitalized with burns. Analysis of this event pointed out security issues on crowd control: victims dispatched by the ambulance services arrived at the triage reception area of the respective hospitals at the same time as numerous concerned individuals looking for relatives blocked the reception area.

The EMS fleet in Armenia consists of 85 ambulances. No aviation EMS are available, and EMS capacities outside the capital were described as limited. Additional ambulances are operated by hospitals and private service providers, all of which can be used in a state of emergency. The Yerevan ambulance service is under municipal authority and has 35 ambulances. Its dispatch centre consists of 605 staff in total (105 per shift) working in the main station and its seven substations. An ambulance car team comprises one physician, one paramedic and the driver. Medical supplies and equipment are replenished daily because stocks for crisis situations are limited. The centre is equipped with sophisticated communication equipment, including means for GPS monitoring of ambulances' locations. It receives approximately 600 calls per day, of which 25% are considered real emergencies. The centre acts as a national coordination centre for dispatching patients from one region to another and for coordinating EMS operations across regions if needed. Call statistics are reported to the Ministry of Health. If needed, the EMS centre additionally informs the Ministry of Health's SHAEI and/or the Ministry of Emergency Situations of any unusual events that may constitute a public health emergency (such as a sudden accumulation of calls reporting specific syndromes).

No personal protective equipment for chemical, biological, radiological or nuclear events is available at the Yerevan ambulance service. The extent to which other EMS stations outside Yerevan, the Armenian Rescue Service under the authority of the Ministry of Emergency Situations or related services that might act as first responders are equipped with personal protective equipment for chemical, biological, radiological or nuclear events could not be evaluated.

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 components of an emergency preparedness programme (planning, exercises, training, information management and communication) only rarely exist at the hospital level. According to the interviewees not all hospitals have a functional emergency-response plan in place. There also seems to be broad diversity in the quality and content of hospital emergency-response plans of different health facilities; public multiprofile hospitals have the most advanced plans in place.

In Erebouni Medical Centre, a multiprofile hospital in Yerevan, the director and his deputy are responsible for emergency preparedness and response. The assessment team was assured that a detailed emergency and response plan is in place, including designations of staff to specific duties, provisions for preparedness and contingencies for internal (such as fire) and external (such as earthquake, pandemic or conflict) emergencies. The plan is considered classified, but was said to have been discussed and approved by the Ministry of Health, Ministry of Emergency Situations and relevant authorities of the Ministry of Civil Defence. Interviewees stated that the plan includes provisions for increasing bed capacity from 600 to 900 beds, outsourcing some wards to alternative sites if needed; mechanisms for cooperating with the armed forces; and provisions for back-up means of communication, among others.

The Ministry of Emergency Situations was said to be responsible for the provision of food to the hospital in case of an emergency; hence, only limited food stocks are available directly in the hospital. Stocks of medical supplies to last one month are stored in the hospital, but whether these important stocks are placed in a safe and earthquake-resilient space remains questionable. Two generators, including 10 tonnes of fuel, are available. The assessment team could not ascertain whether the functionality of the response plan is tested regularly in simulation exercises for both internal and external contingency scenarios.

A hospital vulnerability assessment was performed at Erebouni Medical Centre by a working group established in accordance with Ministerial Order N-2208A issued on 11 November 2011. Even though the hospital was rated as having medium to good functionality, the interviewees underlined some concerns regarding its structural safety according to the WHO hospital safety index (28). Owing to budgetary constraints, however, options for restructuring are limited. It was noted that at Erebouni Medical Centre patients arriving by ambulance need to enter the hospital building via its main entrance, which is also used by the public. This imposes concerns regarding crowd control: ideally the hospital should have a separate entrance for patients arriving by ambulance, allowing direct transfer to the emergency room.

So far, hospital vulnerability assessments using the standardized tool have been carried out at only two health facilities in the country: Erebouni Medical Centre in 2011 and Nork Infectious Disease Hospital in 2010. Based on the results, the health facility status for both hospitals was ranked as “B”, meaning that intervention measures were needed in the short term and that the hospitals’ safety levels were such that patients, staff and the hospitals’ ability to function during and after a disaster were potentially at risk. One of several recommendations from the assessments was to perform a nationwide hospital vulnerability assessment. This would help both the Ministry of Health and the public obtain a realistic picture of the hospitals’ resilience; it would also help to improve the resilience of all hospitals in the country in a timely manner. For a variety of reasons, however, including lack of funding and political commitment, as well as conflicts of interest, it has not yet been possible to perform a nationwide hospital vulnerability assessment.

The Ministry of Emergency Situations regularly inspects hospitals’ provisions for internal emergencies, such as appropriate emergency exits. If a hospital does not comply with the Ministry of Emergency Situations standards it has to rectify the identified gap within a stipulated period. Thereafter, if the facility still does not fulfil the standards a fine is imposed and eventual its licence could be withdrawn.

No regulations are yet in place to allow the Ministry of Health to ensure that hospitals (public and private) meet relevant minimum standards for structural and non-structural safety and that a functional hospital emergency-response plan is in place.

Some large multiprofile hospitals have their own engineers and technical staff, so capacity exists for the immediate assessment of structural, non-structural and functional safety after any incident.

During the assessment mission the team was assured that plans exist to ensure continuous delivery of essential hospital services; for example, provisions are in place for Erebouni Medical Centre to outsource the maternity ward to the premises of a nearby school. The team could not ascertain, however, whether other hospitals also have plans for continuity of essential hospital services in place.

The Ministry of Health’s SHAEI would be responsible, in collaboration with the Ministry of Health and Ministry of Emergency Situations, for setting up special immunization programmes to meet specific needs in emergency situations. Furthermore, SHAEI is in charge of identifying and controlling environmental factors that are hazardous to health. The communicable diseases surveillance and early warning system continues in a crisis situation and could be intensified (for example, through inclusion of specific syndromic surveillance and daily reporting).

UNDP and local NGOs are implementing projects to strengthen the availability of reproductive health programmes in an emergency situation, with a special focus on gender issues.

In an emergency situation it is the responsibility of the Ministry of Emergency Situations to ensure availability of adequate quantities of safe water, and to cover food and nutrition needs for service providers and the population.

Some provisions are in place to deliver health services to displaced populations, such as a tent hospital.

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

The set-up and availability of emergency logistics and support functions, including the ability to set up temporary health facilities, is the responsibility of the Ministry of Emergency Situations, in collaboration with the Ministry of Health.

As shown during the unfortunate accident in the central square of Yerevan when several balloons exploded during a public event in 2012, the security of health care facilities during emergencies is crucial. The assessment team could not ascertain to what extent arrangements are in place with the police or military to provide manpower for, for example, crowd control at health facilities.

Recommendations on service delivery

A large number of stakeholders are involved in mass-casualty management and there is capacity to mobilize well-equipped additional surge capacity. Since the first assessment mission in 2008 these capacities have been further strengthened. Even more importantly, clear lines of authority and standard operating procedures are now in place, describing the roles and responsibilities of all partners from the different sectors involved in health emergency management. In this regard, the Ministry of Health might wish to promote the need to have clear intersectoral coordination mechanisms in place and defined in the national and subnational emergency-response plans. The newly established DESCDC in the Ministry of Health could undertake this for the health sector.

The Ministry of Health might wish to advocate regular multisectoral simulation exercises involving both the national and subnational levels. This kind of exercise could be useful to identify gaps in horizontal coordination between sectors and vertical coordination from the local to the national level, and could be conducted every other year.

The Ministry of Health is encouraged to continue the implementation of its strategy to strengthen laboratory capacities, including surge capacities for emergencies.

The assessment team noted that all hospitals, both public and private, are urged to have functional hospital emergency-response plans in place. Nevertheless, the Ministry of Health might wish to consider that such plans could be a requirement for (re)accreditation of all private and public hospitals, based on implementation of the defined minimum standards for a hospital emergency-response plan (see Annex 5), which were handed to the DESCDC; this might be the department to advocate the requirement. On this basis, the Ministry of Health might wish to develop a national template for emergency-response plans in hospitals. WHO might be able to offer support for the development of the emergency plans.

The Ministry of Health might wish to ensure that hospital emergency supplies are stored in resilient

locations. If not already included in the draft law on public health safety, this requirement might be added.

The Ministry of Health is encouraged to ensure that prehospital and hospital EMS, as well as other first responders, are equipped with the necessary personal protective equipment, including equipment for protection and decontamination in case of chemical, biological, radiological or nuclear events.

The Ministry of Health could lend its support to strengthening the interoperability of EMS and early warning systems by systematically sharing relevant information with the disease surveillance networks and other relevant authorities.

The Ministry of Health might consider carrying out further hospital safety assessments, including of non-structural and functional vulnerability, as well as of structural vulnerability and hospital preparedness activities. In carrying out standardized non-structural and functional assessments, the WHO hospital safety index (28) could be used.³

The assessment team recognized that Erebouni Medical Centre has provisions in place for continuity of essential health services such as maternity services. Nevertheless, the Ministry of Health might consider facilitating a countrywide integrated approach to addressing the continuation of the most urgent essential health services, including those for the chronically ill in case of an emergency. This integrated approach should address mental health and psychosocial issues in emergency situations for staff and victims alike.

Concluding remarks

The assessment team evaluated the capacity for crisis management of the health sector of Armenia against the benchmarks and indicators in 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 (20). The findings were based on documentary research, interviews and selected site visits; recommendations were formulated in conjunction with the Ministry of Health.

Since 2007, when the first assessment of this kind took place, the Government of Armenia has proved its strong commitment to crisis preparedness. This is reflected in the creation of the Ministry of Emergency Situations, among others, based a strong legal framework that integrates previously independent institutions and organizations engaged in emergency preparedness and response.

³ WHO defines these assessments as follows (30).

- Structural safety of a facility involves assessment of the type, materials and previous exposure to natural and other hazards and to determine if it meets standards for providing services to the population even in cases of major disaster.
- Non-structural safety of a facility includes verifying the stability of, for example, supports, anchors and secure storage and the safety of critical networks (e.g. water system, power and communications); heat, ventilation and air conditioning systems in critical areas; and medical diagnostic and treatment equipment.
- Functional safety includes the general organization of hospital management; implementation of disaster plans and programmes; and ensuring resources for disaster preparedness and response, the level of training and disaster preparedness of the staff and the safety of the priority services that allow the hospital to function.

The Ministry of Health, equally strongly committed to health emergency preparedness, responded with the creation of the DESCDC, which will provide normative, coordinative and operational support to the health sector.

The emergency-response system in Armenia seems to be adequately staffed and equipped for routine emergencies. Regulations and instructions at the national and regional levels define, among others, designation of authority and the roles and responsibilities of collaborating partners.

Hospital capacity would seem to be adequate in terms of number of beds and availability of trained staff – albeit unevenly distributed, with a focus towards urban settings – and accessibility to equipment. The current EMS are equipped with staff, ambulances (though few have full resuscitation capacity), some contingency stocks, dispatch centres and similar, but resources are unevenly distributed in the country.

Preparedness activities are ongoing. These include community and staff training; exercises and drills are carried out by the health sector in conjunction with the Ministry of Emergency Situations.

Armenia has amassed vast experience in delivering medical aid in national and international disaster situations. This experience should be shared and used in joint capacity-building activities in the WHO European Region.

The Ministry of Health could aim at enhancing the emergency preparedness programme 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 districts 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.

WHO could contribute to this by sharing with the Ministry of Health its experience in developing public health and emergency-management courses for national and international health care managers, as well as supporting the development of standards for district and facility emergency-response plans, which will complement the national response plans.

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Annex 1.

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Annex 2. Institutions and organizations visited

Ministry of Health

Mr Vahan Poghosyan, Deputy Minister of Health

Mr Vahe Hakobyan, Head of Department for Emergency Situations and Civil Defence (DESCD)

Mr Vladimir Darbinyan, Adviser to the Minister (disaster preparedness and response)

Professor Vladimir Davidyants, National Consultant to the Cooperative Biological Engagement Programme

Ms Anahit Mkrtchyan, Acting Head, Department of Pharmaceuticals Policy

Ministry of Emergency Situations

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Yerevan Ambulance Service

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Erebouni Medical Centre

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Dr Liana Torosyan, Leading Specialist of Communicable and Noncommunicable Diseases Department

Mr Sos Hovhannisyan, Head of Department of Radiological Safety

Ms Armenuhi Arustamyan, Leading Specialist of Department of Radiological Safety

Crisis Management State Academy

Mr Hamlet Matevosyan, Head of Crisis Management State Academy

Ms Haykandukht Gharibyan, Academy Staff Member

Lieutenant Colonel Samvel Shaumuradyan, Academy Staff Member

Annex 3. 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
		1.2	Legal framework for health-sector emergency management	2.	National structure for multisectoral emergency management and coordination
			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



Section	WHO health-system functions	No.	Key components	No.	Essential attributes
		1.5	Components of national programme on health-sector emergency management	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
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

Section	WHO health-system functions	No.	Key components	No.	Essential attributes
				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
				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

Section	WHO health-system functions	No.	Essential attributes
		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
6.5	Logistics and operational support functions in emergencies	48.	Emergency telecommunications
		49.	Temporary health facilities
		50.	Logistics
		51.	Service-delivery support function

Annex 4. Model terms of reference for a Ministry of Health Department for Emergency Preparedness and Civil Defence

1. Mandate of the crisis management programme

The crisis management programme, in the context of a dedicated programme for emergency management and disaster risk reduction, will lead, coordinate and support the efforts of the Ministry of Health and of the entire health sector in reducing the impact, specifically that on health, of:

- natural and human-made disasters with particular emphasis on the management of extreme weather events related to climate change;
- conflicts or other forms of collective violence, and displacement of populations;
- the accidental or deliberate use of chemical, biological and radionuclear substances.

The programme will promote and undertake activities in prevention, mitigation, preparedness, response, rehabilitation and early recovery related to public health, including – but not limited to – hazard and vulnerability analysis and monitoring; establishment of early warning mechanisms; provision of medical care; surveillance and control of diseases; and ensuring availability of safe water, sanitation and nutrition.

2. Areas of responsibility

The programme will have a multihazard scope, including all large-scale emergencies regardless of their etiology (such as natural disasters, chemical accidents, radiation accidents, conflicts and terrorism or other forms of violence).

It will be interdisciplinary, cutting across all technical programmes, divisions or units of the Ministry. It will reflect the wide-ranging public health approach of disaster risk management (reduction).

The functions of the programme will be promotional, normative, coordinative and operational.

Promotional functions

These include promotion of:

- the health and social aspects and benefits of disaster risk reduction and management in other sectors, including the private sector;
- disaster reduction measures and activities for inclusion in the developmental activities of other programmes/divisions of the Ministry of Health and the health system – in particular, adoption of mitigation measures for existing and new hospitals and health facilities and water, sewage and other essential supply lines and support systems;
- public awareness and health preparedness by means of the mass media and health education.

Normative functions

These include review, development, implementation, supervision and monitoring of:

- safety norms and standards for hospitals and health facilities;
- contingency planning, simulation exercises and other preparedness measures in the health sector;
- disaster preparedness and safety criteria (vulnerability assessments) for the accreditation of hospitals;
- lists of the drugs, equipment and supplies essential in emergencies;
- harmonization of training curricula and terminology;
- protocols for telecommunication (Internet, radio and similar).

Coordination–liaison functions

These include effective coordination of the health sector in its capacity as the “lead agency” with:

- the authorities for civil protection and civil defence, as well as with national emergency committees or other national agencies with multisectoral responsibilities in disaster management;
- counterparts, such as disaster focal points, units or commissions in other public sectors (such as social security, congress or parliament, foreign affairs and public works) or in the private or nongovernmental sector;
- disaster programmes in the health sectors of neighbouring countries;
- humanitarian or developmental organizations at the national or international levels (such as bilateral organizations, United Nations agencies and similar) that are of potential relevance to the health sector;
- emergency health-related information management.

Operational functions

These include:

- provision of assistance in the mobilization and operational coordination of the immediate health response in case of large-scale emergencies resulting from natural, technological or human-made disasters;
- coordination of health-needs assessments and provision of advice on the formulation of priorities and the assignment of resources;
- provision of assistance in the mobilization of external resources;
- contributing to the formulation of rehabilitation plans with special attention to the adoption of mitigation measures to reduce the vulnerability in future disasters;
- compilation and dissemination of lessons learnt from emergencies with a view to improving and adjusting future preparedness and mitigation activities of the sector.

3. Reporting channels

The Department for Emergency Preparedness and Civil Defence of the Ministry of Health should report directly to the cabinet of the Minister and be set up organizationally as a specific department.

In view of the scope of its cross-cutting responsibilities, it should have equal access to all technical and administrative areas or departments of the Ministry.

Direct access to the highest decision-making levels of the Ministry is essential.

4. Personnel and budget

Full-time professional staff proportionate to the identified vulnerability to priority hazards are essential, taking the economic capacity of the country into consideration. The professional qualifications of the staff will reflect the public health requirements in the national context and should include specialists in public health, disease surveillance and health information management, as well as support staff.

A special line item should be assigned in the Ministry of Health budget and the national budget dedicated to disaster risk reduction and the management of public health aspects of crises.

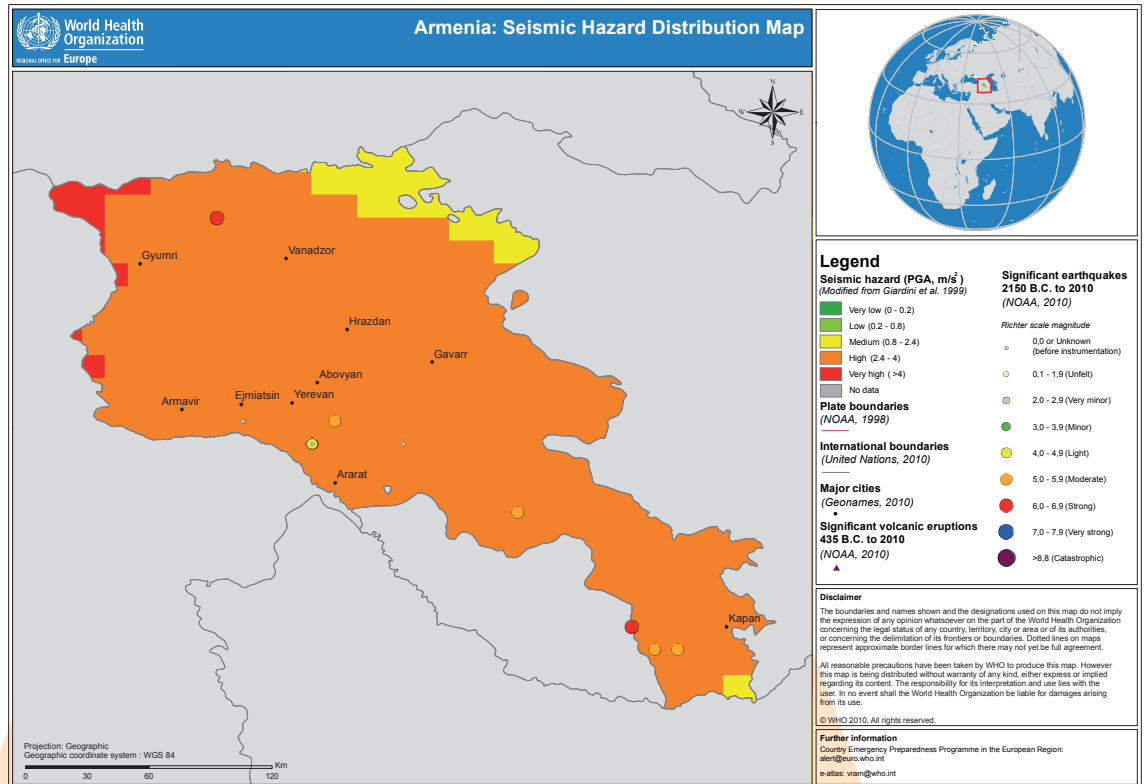
Annex 5. Minimum standards for a hospital emergency-response plan

At the least, the plan should clearly describe the following elements:

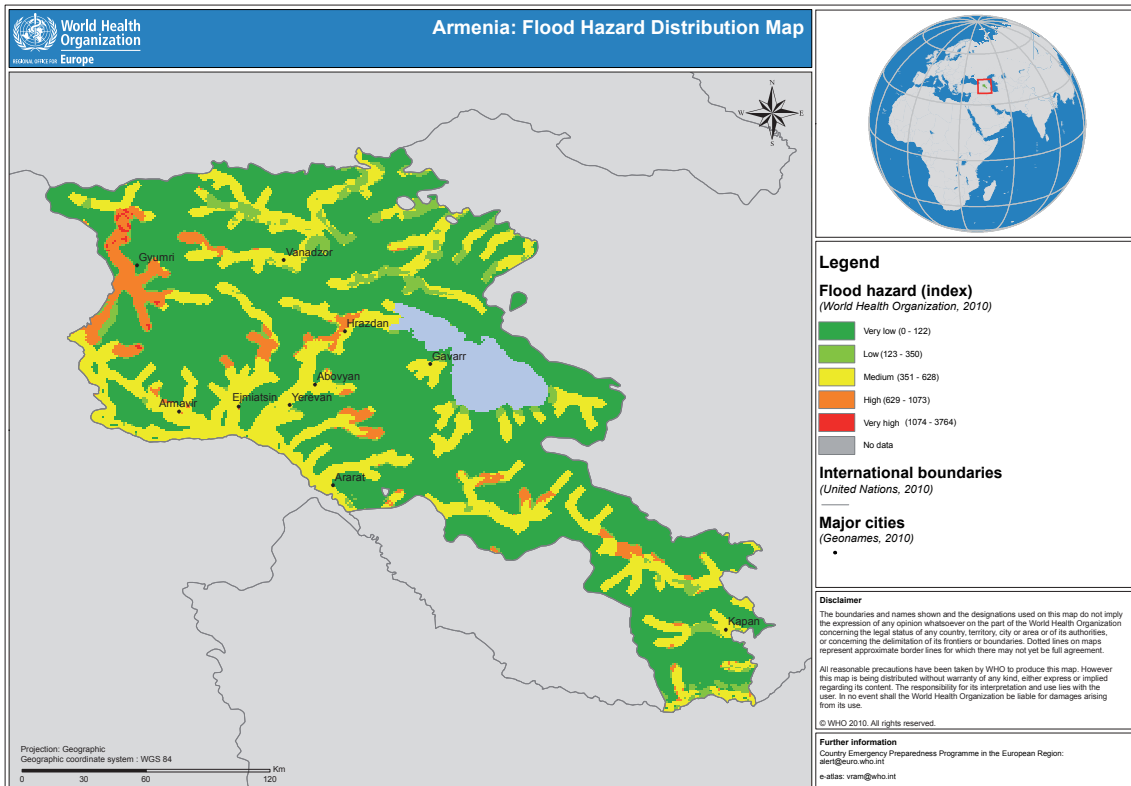
- the triggers for activation of the emergency-response plan;
- command and control structures (overall management and for the various departments) – a simple organogram may be sufficient for small hospitals, with basic descriptions of roles and responsibilities;
- resource mobilization (including call-back procedures, surge capacity and opening of the disaster triage area);
- identification of main roles for all staff (such as procedures for accessing hospital during the crisis and security concerns);
- a limited set of job action sheets for key managerial positions (including for the management of information and logistics);
- a limited set of standard operating procedures specifically applicable during the crisis (giving special attention to security and continuity of delivery of essential services, as well as surge capacity);
- the main elements of information management;
- the main elements of logistics management;
- the main means of communication during the crisis;
- coordination systems within the hospital and with outside parties.

Annex 6. Hazard distribution maps

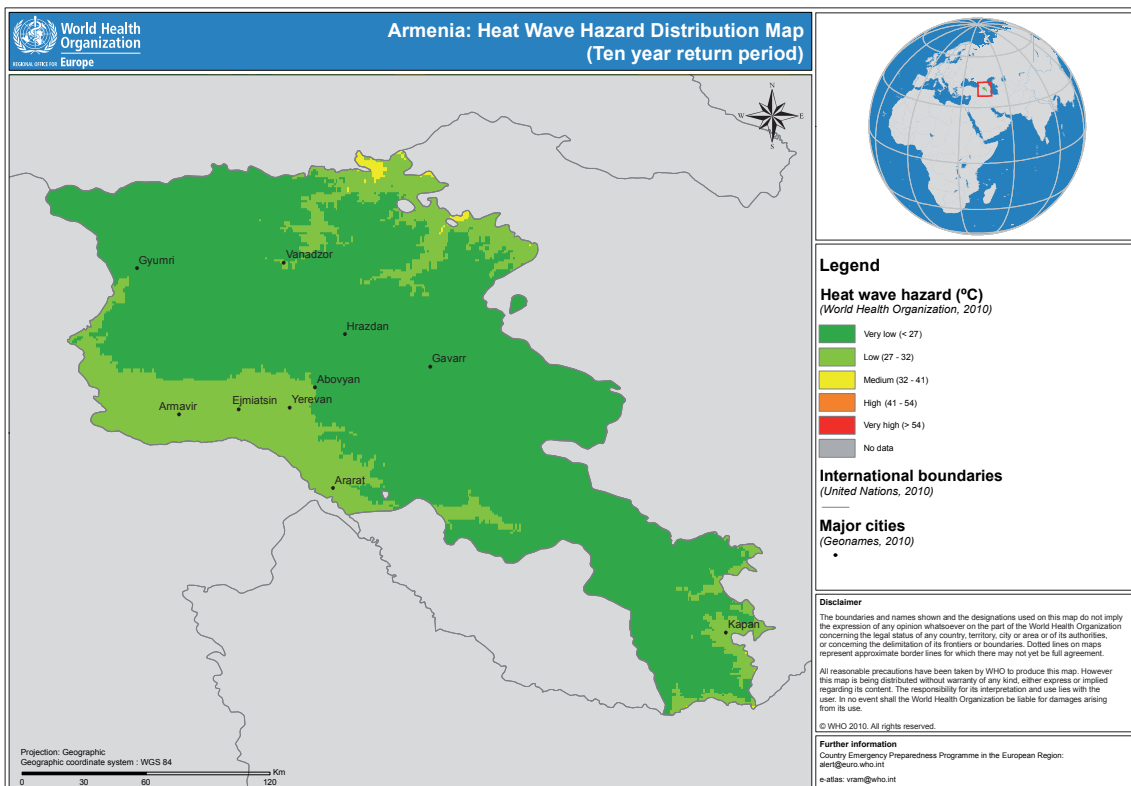
Map 1. Seismic hazard distribution



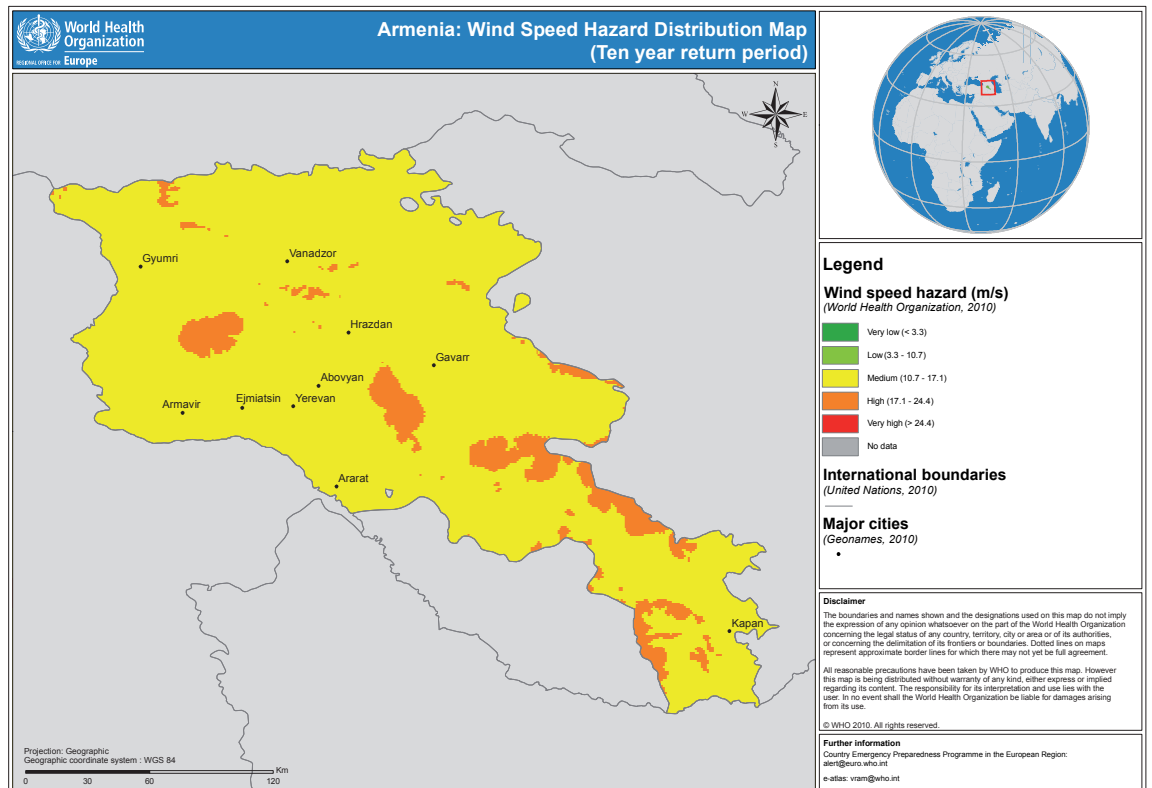
Map 2. Flash flood hazard distribution



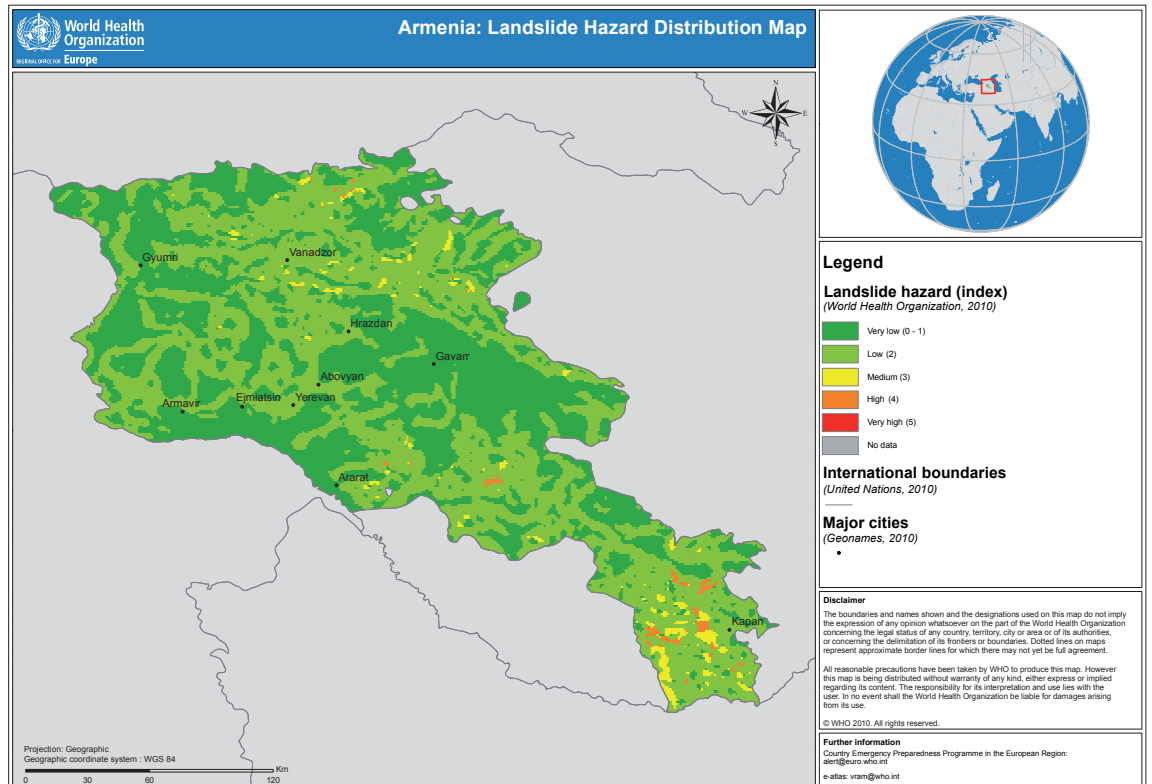
Map 3. Heat-wave hazard distribution



Map 4. Wind-speed hazard distribution



Map 5. Landslide hazard distribution



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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“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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