Assessment of health systems' crisis preparedness

Turkey

October 2010

Abstract

In 2008, with the support of the European Commission Directorate-General for Health and Consumers, WHO launched the project, "Support to health security, preparedness planning and crises management in EU, EU accession and neighbouring (ENP) countries", with the aim of improving preparedness for public health emergencies in EU Member States and selected EU accession and ENP countries in the WHO European Region. One of the objectives of this project was to refine the assessment tool, which had been revised on the basis of the experience gained through the planning and crises management assessments carried out in Armenia, Azerbaijan and the Republic of Moldova under the joint EC–WHO project, "Support to health security and preparedness planning in EU neighbouring countries" (2007–2008). Before finalization, the updated tool was applied during a second round of assessments in Kazakhstan, Poland and Ukraine in 2009–2010. The WHO health systems' framework was used as the conceptual basis for describing and analysing the health systems in the countries. In September–October 2010, a similar assessment using the refined tool was carried out in Turkey. This report evaluates the level of preparedness of the Turkish health system to deal with crises, regardless of cause. It also examines the risk prevention and mitigation initiatives in the country. While the main focus is on the national level, some attention has been paid to crisis management capacity at the regional level and to the links between the various levels of government.

Contents

3

Acknowledgements

Forewords

The many recent disasters worldwide emphasize the importance of the preparedness of health systems for crises. In the light of the bitter lessons learnt and experience gained from the 1999 Marmara earthquake and its aftermath, our country has taken significant steps towards preparing the health system for disaster situations.

In collaboration with the World Health Organization (WHO) Regional Office for Europe, the preparedness of the Turkish health services for crises was assessed by a team of experts set up by WHO. The resulting report suggests that the progress made by Turkey in this area could indeed serve to inspire and guide other countries.

Following the financial and economic crisis, many countries face budget deficits and need to constrain public spending to achieve broader macroeconomic stability. Despite the crisis, our political commitment to and investment in disaster preparedness and response have not lost momentum. We have been able to sustain this investment as a result of rapid economic growth in the country. The measures taken by Turkey in response to the H1N1 pandemic in 2009 and recent international disasters are a testament to our commitment and experience.

My deepest thanks go to all the health workers who have been involved in bringing the health services of Turkey to their present level of preparedness for emergencies and disasters. I wish also to express my appreciation to those who contributed to this report, which I believe could influence future efforts in a major way.

Professor Recep Akdağ
Minister of Health of the Republic of Turkey

Following the 1999 Marmara earthquake, which not only caused immense suffering and sorrow but also served as a turning point for building awareness of disasters, Turkey revised its activities considering the overall disaster cycle and initiated the necessary steps towards optimal coverage in this area.

In this context, in 2004, the Ministry of Health launched a project on the organization of the health system during disasters with the aim of the strengthening capacity for preparedness and response. Examples of project components include creating national medical rescue teams, strengthening emergency health services, improving the communications' infrastructure, enhancing the logistics' capacity and adapting hospital disaster plans and provincial disaster plans.

As a result of these efforts, our national medical rescue teams are now able to respond effectively to disasters across the country. They are also included among the leading international medical rescue teams that can provide humanitarian support during disasters.

In providing a snapshot of the crisis preparedness of Turkey in relation to health, this report will contribute to strengthening and improving our activities in this area.

Professor Nihat Tosun
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The last decade has seen an increase in emergencies and disasters with severe impacts on human health. This has been the case worldwide, and in the European Region too. How society copes and prepares for such emergencies puts health systems to the test, as policy-makers plan disaster preparedness, risk prevention, risk mitigation, response and recovery.

This is a complex task requiring strong health systems and the support and input of all sectors. Strengthening health systems so that they are prepared for crises, and can fully implement the International Health Regulations is a priority. For a ministry of health to take the lead and implement preparedness planning jointly with other sectors, requires strong political commitment. It also requires a clear understanding of the current strengths of, and gaps in, the health system. This is not a one-off exercise, it is a continuous process, with an approach that can ensure a response to all hazards; it involves developing and maintaining capacities for sustainable crisis management and health risk reduction.

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. There is much at stake. Health crises and the human suffering they cause are not only humanitarian disasters, they can undermine hard won progress and jeopardize the progress made towards the sustainable development of health systems and the achievement of the United Nations' Millennium Development Goals. Emergency preparedness is the key to preventing such setbacks.

Therefore I welcome this report and am pleased that WHO could help to analyse the preparedness of the Turkish health system. It provides key facts on the capacity of the health system to manage health crises, which can be useful to policy-makers, and is a further contribution to the evidence base on best practices of health systems crisis preparedness.

The report concludes that Turkey has a high level of political commitment to crisis preparedness and has developed substantial capacity to respond to national and international disasters. The health system capacity is extensive and health services and hospitals are well equipped in terms of number of beds, availability of trained staff, and accessibility to equipment, contingency supplies and modern medical technology. The Emergency Medical Services system is well prepared and ready to respond to any type of health emergency.

The report includes recommendations for further enhancement of the systems by fostering multi sector coordination mechanisms in the framework of the IHR and ensuring the interoperability of emergency plans at all levels.

We are grateful for the support of the European Commission in this report, and for the professional and open cooperation of the Turkish Ministry of Health and other government institutions. We hope that the report will be useful not only for decision-makers in Turkey but for all countries who are committed to scrutinizing and improving their preparedness for health crises.

Zsuzsanna Jakab
WHO Regional Director for Europe

BACKGROUND

Global health security

The United Nations 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 (*1*). It 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 disasters[1] worldwide, many of which are attributed to climate change. In the past 20 years, disasters have killed over three million people and adversely affected over 800 million.

Not only are the established infectious diseases spreading more quickly (for example, multidrug-resistant tuberculosis (TB) and HIV/AIDS are becoming an increasing 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.

Natural and man-made disasters, depending on their magnitude and the vulnerability of the populations they affect, can have a devastating effect on the health status in both the short and long terms. This is often aggravated by economic loss, which also has a negative impact on the heath status and, therefore, on the economic burden in the health sector as a whole.

Increasingly, disaster management is becoming a priority in countries. The reasons for this are the following.

- 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 International Health Regulations (IHR 2005), which came into force on 15 June 2007, are legally bound to meet their requirements.

Governments, particularly in low-income countries, are often loathe to investing in strategies aimed at disaster prevention and/or risk reduction and there is an overall tendency to underinvest in the health sector. Statistics show (*2*) that, on average, the lower the Gross Domestic Product (GDP) of any particular country, the smaller the percentage invested in health.

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1 For inclusion in the EM-DAT (emergency data) database, an event has to result in any 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.

Health security in the World Health Organization (WHO) European Region

Between 1990 and 2010, approximately 47 million people in the Region were directly affected by natural disasters that resulted in over 132 000 deaths (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 United Nations 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.

Table 1. Crises (excluding conflicts) and their consequences in the WHO European Region (1990-2010)

Type of event	Number of events	Deaths	Total affected	Economic damage (thousands of US$)
Accidents	719	19 424	163 117	13 751 707
Drought	36	2	15 875 969	15 488 309
Earthquake	107	22 002	5 702 222	38 649 449
Epidemic	59	676	216 043	n/a
Extreme temperature	159	81 457	3 452 957	16 865 750
Flood	442	4 221	12 437 525	90 666 061
Mass movement[a]	59	2 298	199 181	1 594 389
Storm	315	1730	8 861 009	76 582 849
Volcano	4	0	7000	19 600
Wild fire	77	345	1 295 267	10 768 811
Total	1 977	132 155	46 915 023	264 386 925

[a]Mass movement includes: avalanche, landslide, rockfall and subsidence.

Source: EM-DAT: The OFDA/CRED International Disaster Database – www.emdat.be – Université Catholique de Louvain – Brussels – Belgium.

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, Serbia, including Kosovo (in accordance with United Nations Security Council resolution 1244/1999), Slovenia and the former Yugoslav Republic of Macedonia resulted in an estimated 125 000 fatalities and the displacement of up to three 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.

A number of serious terrorist attacks have taken place in the Region in the last fifteen 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 *(3)*.

International Health Regulations

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 (e.g. the United Nations International Strategy for Disaster Reduction, the Commission on Human Security and the 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 International Health Regulations (IHR) 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 or radio nuclear (CBRN)) 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, is not yet fully envisaged.

CROSS-CUTTING ISSUES RELATED TO DISASTER PREPAR- EDNESS 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 the 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, etc.), 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 (intrasectoral) approach

Health systems are defined as comprising all the organizations, institutions and resources that are devoted to improving, maintaining or restoring health. This includes public and private initiatives (for example, by 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 plans also need to be linked to and interfaced with national disaster preparedness and response plans to avoid confusion, prevent duplication of effort and make the best use of resources. This is important not only during a crisis but also as part of prevention, reduction and mitigation strategies. Other governmental departments, private enterprises and commercial organizations can play an important role in reducing the negative health effects of, for example, inappropriate urban development and use of land, poor agricultural practices and inadequate legislative procedures. Although not directly responsible, the Ministry of Health needs to ensure that health is not overlooked in the push for greater profits and economic growth, and to advocate a multisectoral approach in dealing with health issues. However, multisectoral planning continues to

11

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

- *Prevention, reduction and mitigation*. Activities that address these aspects 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*. This 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 related to this aspect 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 purpose of this document, the following definitions apply *(4)*.

- *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 the relocation or protection of 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 efficiently all types of emergencies and bring about an orderly transition from relief through recovery, and back to sustained development. It requires that emergency plans be developed, personnel at all levels and in all sectors be trained, and communities at risk educated, and that these measures be monitored and evaluated regularly.

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

A multidisciplinary team of experts in the areas of disaster preparedness, communicable diseases and environmental health worked together to elaborate, refine and pilot the tool. Baseline assessments were conducted in Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Poland, the Republic of Moldova 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.

Within the Biennial Collaboration Agreement for 2010–2011 between the Regional Office and the Ministry of Health of Turkey, it was agreed to conduct an assessment of the preparedness of the country's health system for crisis. The assessment was carried out in September–October 2010.

Country overview

Fig.1. Map of Turkey

Geography

Turkey lies at the cross-roads between Europe, Asia and the Middle East, its land area and lakes totalling 783 562 km^2. It has borders with Armenia, Bulgaria, Georgia, Greece, the Islamic Republic of Iran, Iraq and the Syrian Arab Republic. The country is geographically diverse with snow-capped mountains, rolling steep terrain, broad rivers, long rocky shorelines and rich agricultural valleys. *(5)*

Turkey is one of the most seismically active regions in the world. Active fault zones are found in two-thirds of the country where 70% of the population live. Turkey is one of the most populous countries in the European Region, with approximately 72 million people. Istanbul, the largest metropolitan area in Turkey, with a population of over 10 million inhabitants, is situated on the North Anatolian Fault. The average annual number of earthquakes equal to or greater than a magnitude of 5.5 on the Richter scale is 0.76, rating Turkey sixth in the world in this regard. *(6)*

14

History

The Ottoman Empire, once one of the largest empires in the world collapsed after the First World War and the Turkish nation led by Mustafa Kemal Atatürk, the founding father of the Republic, fought Italian, French, Greek and British armies to reclaim the land that Turkey now possesses. Since its formation in 1923, the Turkish Republic has prevailed as a secular state. Important milestones were reached when the country joined the North Atlantic Treaty Organization (NATO) in 1952 and the Organization of Economic Cooperation and Development (OECD) in 1961. (5)

Government

Turkey is a parliamentary republic, the legal system of which is based on European models and the Constitution of Turkey (1982). Turkey has been a candidate country for membership of the European Union (EU) since 1999. As a major policy objective of the Turkish Government, this has an important influence on the direction of economic, political and social policy. The executive branch of the Government comprises the president of the Republic and the Council of Ministers (the Cabinet), which is set up by a prime minister designated by the president and members of Parliament. Ministers are nominated by the prime minister and appointed by the president. The regulative tasks of the executive branch include the enactment of regulations, by-laws and law-amending ordinances or cabinet decrees. *(5)*

The Constitution of Turkey vests legislative authority over the 550 elected deputies of the Grand National Assembly of Turkey. (5)

Administrative levels

Turkey is administratively divided into 81 provinces and 923 districts. The organization and functions of the administration are based on the principles of decentralization and local administration, and regulated by law. The Ministry of Internal Affairs appoints the provincial governor and the district administrator who represent the state at the provincial and district levels, respectively, where they coordinate and administer state policy. Provinces are subdivided administratively into cities, districts, towns and villages. Locally elected assemblies include the general provincial assembly, the municipal assembly and the village council of elders. The mayors of cities, district centres and towns are also directly elected, as are village heads. *(5)*

Population

Table 2. Population of Turkey, 2000–2009

Year	Population	Annual growth %
2000	66 459 578	1.54
2004	70 250 173	1.32
2009	74 815 703	1.21

Source: The World Bank Group, World dataBank, World Development Indicators and Global Finance.

The population growth rate has steadily declined from 2.5% in 1980 to 1.2% in 2009. Twenty-five per cent of the population lives in rural areas and 30% in the three metropolitan areas: Ankara, Istanbul and Izmir. Rapid urbanization has been caused mainly by high rates of migration from rural to urban areas and from the eastern part of the country to the western part, rather than by changes in death and birth rates. *(7)*

Economy

Table 3. Overview of economy of Turkey, 2009 and 2010

Indicators	2009	2010
Gross domestic product (GDP) (billions current US$)	614.6	736.7
GDP growth (annual %)	-4.69	6.5
Gross national income (GNI) per capita, Atlas Method (US$)	8 710	9 682
Inflation, GDP deflator (annual %)	5.15	8.57

Source: The World Bank Group, World dataBank, World Development Indicators and Global Finance.

Turkey's economy is defined by its high degree of integration with the world economy, especially the European economy, through both trade and financial channels. This has made the country vulnerable to the impact of the global recession. In the first half of 2009, export earnings and private investment fell by a third, as domestic financial intermediation and capital inflows both contracted. Unemployment was 13.4% in the first half of 2009. Yet, the underlying strengths of the Turkish economy – a highly capitalized and well-regulated banking sector, a well-managed monetary policy, fiscal policy and public debt – have minimized systemic effects. Of concern in the medium term is the current account deficit. Aggregate saving in the public sector can be increased: while limiting increases in expenditure, reforms can aim for higher-quality spending and the protection of growth-enhancing investments. On the revenue side, there is an opportunity to improve collection, in particular by addressing the informal economy and tax evasion, which could help to generate growth that is sustainably financed *(8)*. According to the Economist Review 2010 *(9)*, after falling by 4.7% in 2009, the GDP is expected to increase by 6.5% in 2010, and a weaker demand in the key European markets is expected to slow annual growth to about 4.5% in 2011–2012, before it picks up again in 2013–2014 when it is expected to increase to 5–5.5%.

Environment

Table 4. Environmental factors, Turkey, 2000–2007

Indicators	2000	2004	2007
CO_2 emissions (tons per capita)	3.25	3.21	3.95
Agricultural land (% of land area)	52.60	53.55	51.26
Energy consumption (per capita kg of oil equivalent)	1148	1976	1369
Consumption of electrical power (kWh per capita)	1572	1804	2237

Source: The World Bank Group, World Development Indicators, 2010 *(10)*

Turkey is located in the Mediterranean Basin, an area that is affected most severely by climate change. This is recognized in Turkey's Ninth Development Plan (2007–2013), which highlights the critical importance of environmental issues, including cleaner production, waste management, and the efficient and sustainable use of water and other natural resources. The National Rural Development Strategy for Turkey (2006) also prioritizes natural resources based on rural development as key to overcoming rural and urban disparities.

The main environmental issues in Turkey are water pollution from the dumping of chemicals and detergents, air pollution, particularly in urban areas, deforestation, and the potential for spills from the 5000 oil- and gas-carrying ships that pass through the Straits annually.

Industrial air pollution comes mainly from power plants and the metallurgy, cement, sugar and fertilizer industries, a large percentage of which lack filtration equipment.

Land degradation is a critical agricultural problem, caused by the inappropriate use of agricultural land, overgrazing, overfertilization, and deforestation. Serious soil erosion has occurred in 69% of Turkey's land surface *(11)*.

Health system

Health services in Turkey are supplied by public and private providers. Primary-level health services are provided by family health and community health centres. Secondary- and tertiary-level services are delivered by hospitals belonging to and administered by the Ministry of Health (hereafter Ministry of Health hospitals), university hospitals and private hospitals. Some state enterprises and municipalities also provide health services but their capacity is limited. At the central level, the Ministry of Health is the major government body responsible for sectoral policy-making, implementation of national health strategies and programmes and provision of health services. At the provincial level, provincial health directorates, accountable to the provincial governors for administrative matters and to the Ministry of Health for technical matters, administer health services provided by Ministry of Health. The provincial health directorates are responsible for the coordination and management of health services in the provinces. Under their supervision, primary health care is provided through family health centres, community health centres, health posts, maternal and child health and family planning centres, and tuberculosis control dispensaries.

Health care is financed by the Social Security Institution (SGK), which is an amalgamation of the Social Insurance Agency of Merchants, Artisans and the Self-employed (Bag-Kur), the Social Insurance Institution (SSK) and the Government Employees Retirement Fund. A green-card scheme funded by the Government exists for people earning less than minimum wage. Green-card holders have free access to outpatient and inpatient care at primary-level health facilities, Ministry of Health hospitals and university hospitals. The scheme also covers all costs of drugs administered to hospitalized patients and 80% of drugs prescribed to outpatients. Emergency health services cover 100% of the rural and urban population and are free of charge for all citizens.

Health indicators in Turkey are steadily improving (Table 5). For example: life expectancy at birth rose from 70 years in 2000 to 74 years in 2008; the infant mortality rate fell from 134 per 1000 live births in the 1970s to 17 in 2008 *(13)* and 13.1 in 2009[1]; and the rate of maternal mortality dropped from 68 per 100 000 population in 1990 to 19.4 in 2008 *(15)* to 18.4 in 2009[2].

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2 Source: National Data System, Ministry of Health of Turkey, 2009.

Table 5. Health indicators, Turkey

Indicators	2000	2008
Life expectancy at birth (total, years)	70[a]	74[a]
Under-5 mortality rate (probability of dying by age 5 per 1000 live births) both sexes	42[a]	24[b]
Maternal mortality ratio (per 100 000 live births)	39[c]	19.4[d]
Total fertility rate (per woman)	2,4[a]	2,1[a]
Births attended by skilled health personnel (%)	73[b]	91.3[b]
Prevalence of acute malnutrition according to weight for age (% of children under 5 years)		2.8[b]
Prevalence of chronic malnutrition according to weight for age (% of children under 5 years)		10.3[b]

Sources: [a] *World Health Statistics, 2010 (12);* [b] *Turkish Demographic and Health Survey, 2008 (13);*
[c] *Trends in maternal mortality, 1990–2008 (14);* [d] Turkey–World Bank Partnership: some highlights *and results, 2010 (15)*

While communicable diseases have been the major contributor to Turkey's burden of disease so far, the country is now facing an epidemiological transition in that noncommunicable diseases (NCD) are increasingly taking centre stage. According to WHO, by the year 2020, only 3% of Turkey's burden of disease will be attributable to communicable diseases, while NCD will contribute to 80% and injuries to 17%.

The demographic profile in Turkey is also changing, albeit at a slower rate than in other Organization for Economic Co-operation and Development (OECD) countries *(16)*. By 2030, it is expected that the 65+ population will double. Finally, with economic growth and modernization, Turkey is also experiencing changes in nutritional habits and obesity is slowly on the rise.

Main hazards and
health threats in Turkey

Potential disasters in Turkey are mostly associated with natural hazards, such as earthquakes, forest fires, droughts, heavy rain and floods, landslides, rock falls, wind and snowstorms, avalanches, heat waves and fog.

Potential technological hazards are industrial explosions and fires, transportation accidents and terrorist attacks.

Annex 1 illustrates.

Earthquakes

In the last century, over 100 major earthquakes of a magnitude greater than 6 on the Richter Scale have affected Turkey, resulting in nearly 90 000 deaths, 115 000 injured and more than 500 000 damaged buildings. The most affected regions are the four provinces – Kocaeli, Sakarya, Bolu and Yalova – situated along an arc extending from the Sea of Marmara to Lake Van. This area belongs to the industrial heartland of Turkey, which homes the main industries dealing, for example, with automobile manufacturing, petrochemicals, the production of basic metals, textiles, paint and lacquer, and tourism. In 1999, two devastating earthquakes struck Turkey in the Marmara Region resulting in 20 000 deaths, 50 000 injured and the destruction of close to 350 000 residential and commercial units. *(17)*

Megacities

Megacities – large urban agglomerations of people and infrastructure – are places of rapid and often uncontrolled development and high risk. Megacities are entities that are highly variable in time and where different influences interact in a complex, nonlinear way. Due to the high rate of change (construction, migration, commuting population, etc) in large cities, such as Istanbul, the key challenge for disaster prevention and disaster management is to plan for the day-to-day temporal changes related to hazards, vulnerability and risks. Istanbul is threatened by earthquakes and, in a less pronounced way, by floods. The seismic hazard for Istanbul increases over time; for example, the Kocaeli earthquake of 17 August 1999 has significantly enhanced the chances of a 7.5 magnitude earthquake occurring on the Marmara Fault, south of Istanbul. Moreover, this risk is heightened by a very high rate of urbanization.

Floods and extreme weather conditions

Floods are among the most frequent and costly natural disasters in Turkey in terms of human suffering and economic loss. The historical flood database for the period 1955–2009 reports over 4000 occurrences in Turkey, causing 1400 deaths and serious damage to more than 30 000 dwellings. The Izmir, Kahramanmaraş, Rize and Trabzon Provinces were the most affected areas.

Severe droughts were experienced in the southern regions of the country in 1999 and 2000, and recurrent heat waves led to an increased risk of forest fires. During the last 30 years, there were 69 000 incidents of forest fires, which affected 1.5 million acres of forest land. Annually, about 13 000 hectares of forest land is burned.

Landslides and avalanches

Landslides frequently affect mid- and eastern Anatolia, particularly the Black Sea regions of Turkey. Snow avalanches are frequently observed in the mountainous part of the Aegean and eastern and south-eastern regions.

During the last 50 years, landslides, rock falls and avalanches have caused more than 1600 deaths and damaged about 30 000 dwellings.

Technological hazards

Technological hazards in Turkey include the release of buried toxic waste, dam failure and mining accidents. There are over 40 000 mines in Turkey; in 2010, mining accidents were limited to 26, occurring in 15 provinces and killing 37 miners.

Every day, approximately 150 ships, including 30 tankers carrying three million barrels of petroleum products, pass through the Bosphorus Strait, which divides Istanbul. In 1979, a crude oil tanker with 110 000 tons of fuel oil burned for more than two months after an accident in the Strait; 173 serious accidents have taken place in the last 10 years.

Communicable diseases' threats

Pandemics and other communicable diseases pose a threat to Turkey due to its geographic and economic position. It is an international hub; 15 million passengers pass through Istanbul Airport and 25 million foreign tourists visit the country every year.

The first H5N1 cases in animals and humans were detected in October 2005 and January 2006, respectively. According to data of the General Directorate of Primary Health Care of the Ministry of Health, diagnosis of Crimean-Congo hemorrhagic fever started in 2003. In 2006, 27 of the 438 cases diagnosed died; in 2008 and 2010, the figures were 63 out of 1315 and 49 out of 865, respectively.

Mission objectives and deliverables

The objective of the assessment was to support the Ministry of Health in identifying the strengths and weaknesses of, as well as gaps in the current preparedness of the health system for crises.

The Ministry of Health of Turkey would receive a comprehensive report on the findings of the assessment team highlighting the strengths and weaknesses of, as well as gaps in the present health security and crisis management framework in Turkey and proposing recommendations for strengthening Turkey's health system for crisis preparedness and response.

Methods

Assessment design and participants

A multidisciplinary team of 11 international and national experts carried out the assessment in Turkey from 27 September to 7 October 2010 in cooperation with counterparts from the Ministry of Health and the WHO Country Office (Annex 2). Using the standardized assessment tool developed by the Country Emergency Preparedness Programme of the WHO Regional Office for Europe, the team adopted an all-hazard, multisectoral approach to evaluating the preparedness of the health system for crises.

The areas of expertise of the team members included generic disaster preparedness planning and response, hospital disaster preparedness planning, mass-casualty management and public health, implementation of the International Health Regulations, and communicable diseases surveillance and response.

Semi-structured and informal interviews were carried out carried out with representatives of key stakeholder institutions both during the National workshop on assessment of health preparedness in Turkey, held in Ankara on 27–28 September 2010 (Annex 3) and on separate occasions during the assessment (Annex 4), including:

- the Ministry of Health and related departments;
- representatives of other government ministries with responsibilities in disaster preparedness and response;
- United Nations' agencies and donor organizations;
- international and national NGOs.

Assessment form

The assessment form, which includes all the essential attributes and indicators to be evaluated, is sectioned according to the six building blocks of the WHO health systems' framework (Table 6).

Table 6. The WHO health systems' framework

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

Health systems are defined by WHO as comprising all the resources, organizations and institutions that are devoted to producing interdependent actions principally aimed at improving, maintaining or restoring health. Further information on health systems can be found in the following documents: *World Health Report, 2000 (18), Everybody's business: strengthening health systems to improve health outcomes (19)* and *The Tallinn Charter: health systems for health and wealth (20).*

The **leadership and governance** of health systems, also called **stewardship,** is arguably the most complex but critical building block of any health system *(19).* It involves strategic policy frameworks that are combined with effective oversight, coalition building, accountability and the provision of appropriate regulations and incentives *(21).* In crisis management, this means ensuring that national policies make provision for a health crisis management programme. It also includes effective coordination structures, partnerships, advocacy, ensuring the availability and use of relevant, up-to-date information for decision-making, public information strategies and monitoring and evaluation.

The **health workforce** (human resources for health) includes all the health workers engaged in actions of which the primary intent is to protect and improve the health of a population. "A well-performing health workforce is one which works in ways that are responsive, fair and efficient, to achieve the best health outcomes possible, given available resources and circumstances" *(21).* This necessitates a sufficient number and mix of competent, responsive and productive staff, which are fairly distributed. A preparedness programme defines crisis management competencies and skills' sets, conducts training needs' assessments, develops curricula and training material and organizes training courses, to ensure that qualified and competent crisis management staff is an integral part of the health workforce.

"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" *(21).* Medical equipment and supplies for prehospital activities, hospitals, temporary health facilities and public health pharmaceutical services, laboratory services and the reserve blood services needed in case of a crisis, are also included under medical products, vaccines and technologies.

"A well-functioning **health information system** is one that ensures the production, analysis, dissemination and use of reliable and timely information on health determinants, health systems' performance and health status" *(21)*. A health information system also covers data collection, analysis and reporting, including hazard and vulnerability assessments, early warning systems and overall information management issues.

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

Service delivery is the combination of inputs into a service production process that delivers safe and effective health interventions of high quality to individuals or communities in need of them, both equitably and with a minimum waste of resources. The health systems' crisis preparedness process affords the opportunity to review the way in which services are organized and managed to ensure the resilience of health-care facilities and access to health care, as well as to safeguard the quality, safety and continuity of care across health facilities during a crisis.

The six sections of the assessment form (structured according to the building blocks of the WHO health systems' framework) are broken down into the **"key elements"** essential for a health crisis preparedness programme (Table 7).

Table 7. Key elements of the WHO health systems' framework, by building blocks

System building blocks	Key elements
Leadership	Legal framework for national multisectoral emergency management
	Legal framework for health-sector emergency management
	National multisectoral institutional framework for emergency management
	Health-sector institutional framework for emergency management
	Health-sector emergency management programme components
Health workforce	Human resources for health-sector emergency management
Medical products, vaccines and technology	Medical supplies and equipment for emergency response operations
Heath information	Information management systems for risk reduction and emergency preparedness programmes
	Information management systems for emergency response and recovery
	Risk communication
Health financing	National and subnational financing strategies for health emergency management
Service delivery	Response capacity and capability
	Emergency medical services 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

Essential attributes considered vital for the successful implementation of each of the key elements have been defined (Annex 5). **Indicators** (in the form of questions) are included for each essential attribute to facilitate their evaluation.

Recording and analysis of results

Accuracy of the facts

Transcripts were prepared as soon as possible after the interviews and on-site assessments and shared with the other interviewers present to allow for additions and corrections and ensure a common understanding of the facts. The WHO Country Office in Turkey was asked to clarify, where possible, any contradictory information and to provide additional information where necessary.

Feedback

The team met when possible at the end of each day to share information, discuss the findings of the day and plan future interviews.

Triangulation and report-writing

A further analysis of the information was carried out following the mission, when 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 systems' 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.

Structure of the report

The report has been 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 a national, integrated health-care system with operational and management realities that change over time and from country to country. The capacity for crisis management in the health sector of Turkey was evaluated against the benchmarks and indicators of the WHO health-system crisis-preparedness assessment tool, which is based on formal research and consultations.

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

1. Leadership and governance

Key element 1.1:	Legal framework for national multisectoral emergency management
Essential attributes:	1. Laws, regulations, administrative requirements, policies or other government instruments and procedures relating to multisectoral emergency management 2. National multisectoral emergency management structure

The Constitution of Turkey, national laws, decrees of the Cabinet of Ministers, regulations and guidelines describe and regulate the structure, roles and responsibilities, and managerial authority relating to most aspects of crisis management at the national and subnational levels. After the Marmara and Düzce earthquakes in 1999, the legislation in relation to disaster management was modified extensively and new institutions were formed. A comprehensive law relating to disasters, incorporating prevention, mitigation, preparedness and response elements, was passed in 2002. Disaster mitigation and response activities are carried out according to Act No.7269, which defines the main goals, the organizational structure and competencies of the executing agencies and institutions, and the rights and responsibilities of citizens, non-citizens and foreigners in the area of civil defence.

Furthermore, various legislations define responsibilities for risk reduction and emergency planning at the national and subnational levels. For example, Law No. 5902 established the Disaster and Emergency Management Presidency (DEMP)[3] , and Laws Nos. 5302 and 5393 relate to local government levels. The following laws were passed specifically to address earthquake-related issues: Law No. 587, which established the compulsory earthquake insurance (1999); Law No. 4708 on building inspection (2001); and the Earthquake Resistance Design Code revised in 2009.

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3 DEMP was established in December 2009 under the Prime Ministry. It has departments for: planning and mitigation; earthquake; recovery; civil defence; response; and administrative affairs. More information on DEMP is included in the following section.

The legal framework applies to all concerned governmental bodies at the central (prime minister), provincial (governor) and local (district governor) levels. The local authorities in Turkey are of three types: municipal authorities, special provincial administrations, and village administrations. Response to a disaster is under the responsibility of the governor at the provincial level and, respectively, at the district level according to the subsidiarity principle.

The local governments in Turkey are regulated by the Special Provincial Administration Law (No. 5302), the Municipality Law (No. 5393) and the Metropolitan Municipality Law (No. 5216). These laws indicate: "The municipality shall make plans according to the characteristics of the territory in order to prevent fire, industrial accidents, earthquakes and other natural disasters and to minimize the risks of such events and prepare the teams and equipment for action". The central government is responsible for coordinating the local and central organizations and intervening in situations where local means fail to cope.

Turkey is a State Party to the International Health Regulations (IHR) *(22)*. The country has adopted *The Hyogo Framework for Action 2005–2015: Building the resilience of nations and communities to disasters (23)* and regularly submits progress reports.

Key element 1.2:	Legal framework for health-sector emergency management
Essential attributes:	**3. Laws, regulations, administrative requirements, policies or other government instruments and procedures relating to the health sector** **4. Health-sector emergency management structure** **5. Regulation of external emergency health assistance**

In 1987, the Government adopted a basic law on health services, which acknowledges that health-care services should be delivered equitably, continuously and in accordance with the population's priorities. Its aim is to provide integrated health services, including preventive and environmental health services and health education, and to make them easily and equally accessible to everyone.

The Ministry of Health is formally and legally designated to lead the health sector in national disaster management planning. The national laws, policies and regulations provide the different stakeholders and partners with a strong foundation on which to operate and interact. The Ministry of Health undertakes activities according to a national disaster plan that explicitly mandates an all-hazard, whole-health, multidisciplinary approach to risk reduction and crisis management. Although there is no legal regulation of roles and responsibilities in case of CBRN events, efforts to draft a law are being made by DEMP.

The Ministry of Health is a member of DEMP and in similar structures at the central and local levels.

External emergency health assistance is formally regulated by DEMP, exclusively at the national level, and usually in the form of participation in international emergency and humanitarian operations, such as those carried out in recent years in Haiti, Indonesia, Pakistan, and the Sudan, among others.

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

Law No. 5902 established DEMP in December 2009 as the national emergency management and operational entity. It replaced three former general directorates (for: emergency management, civil defence and disaster affairs), each of which became subordinate to a different ministry. DEMP has clear terms of reference that define its mandate, responsibilities and authority. The Government allocates resources for funding staff and equipment.

DEMP is responsible for formulating and implementing policy on crisis and for directing all activities relating to crises. It also coordinates the activities of associated ministries, other governmental organizations and NGOs, also in the event of an emergency. The President of DEMP is the designated focal point for the *Hyogo Framework of Action (23).*

DEMP comprises three high-level boards and six departments. Law No. 5902 defines the duties and responsibilities of each department.

The three boards are: the Disaster and Emergency High Commission (comprising ministers); the Disaster and Emergency Coordination Commission (comprising understate secretaries representing the 12 major ministries); and the Earthquake Advisory Committee. All meet on a regular basis and can be summoned ad hoc, if the need arises. Experts from other ministries, governmental or nongovernmental institutions may be invited to participate. Other committees – for example, that on pandemic issues – may be created in the future.

The six departments (for planning and mitigation, earthquakes, recovery, civil defence, response and administrative affairs) each have five or more working groups.

The personnel of the Presidency are predominantly disaster management experts, engineers from related disciplines, technical and administrative staff. In addition, each ministry to which reference is made in the parent law (5902) has a unit responsible for disaster management. The size and staffing of these units vary from ministry to ministry.

In accordance with Law No. 5902, similar structures have been set up at the provincial and municipal levels. In each city, there is a provincial disaster and emergency management directorate is directly attached to the governor. Multisectoral service groups under the governor each have multidisciplinary departments. The service group, "First Aid and Life Saver Directorate", includes departments dealing with emergency medical services (EMS), hospital services, search and rescue (S&R), primary health care, the dead and missing, communication and logistics.

In the provinces, the municipalities and special provincial administrations are responsible for disaster and emergency preparedness, mitigation and response. In every province, the governor is responsible for emergency management and coordination. The governor can also request assistance from provinces that have not been affected by a disaster. The municipalities are responsible for activities, such as the implementation of earthquake-resistant building codes for construction within their jurisdiction. The Fire Department, which has a major role in disaster response, remains under the authority of the municipality.

Key element:	1.4 Health-sector institutional framework for emergency management
Essential attributes:	8. National health emergency management committee 9. Health-sector operational emergency management entity 10. Coordination and partnership mechanisms

The Ministry of Health has a multidisciplinary health-sector crisis management committee responsible for providing political and strategic leadership on the health aspects of processes related to crisis management. It meets twice a year and includes participants from scientific and academic institutions and NGOs.

The Emergency and Disaster Health Care Services Department within the Primary Health Care General Directorate of the Ministry of Health is, as the operational emergency management entity, responsible for risk reduction, preparedness and response activities. Coordination in cases of emergency and disaster is the responsibility of the Health and Disaster Coordination Center (SAKOM) under this Department. SAKOM and the Emergency Management Unit (also under the Emergency and Disaster Health Care Services Department) have their own salaried staff and several affiliated consultants. They also have a modern health disaster coordination centre, equipped with a modern communications system, which was linked to all 81 provincial 112 call centres at the end of 2010. SAKOM coordinates with DEMP, the disaster coordination centres of other ministries, the Turkish Armed Forces, the Turkish Red Crescent Society, and civil aviation and meteorological stations. It operates 24/7, receiving statistics on incidents and hospital-bed capacity from all linked provincial centres; it also tracks the Ministry of Health ambulances and the air rescue services countrywide. Apart from its internal operations, SAKOM organizes the participation of medical volunteer teams in international operations, such as those related to the Iran Bam earthquake, the Pakistan earthquake and recent floods, and it provides humanitarian assistance (as was the case in the Sudan). The Department provides technical oversight and guidance to the 81 provincial directorates of health in Turkey, which are administratively subordinate to the respective provincial crisis management centres.

Other tasks under the responsibility of SAKOM are:
- 24/7 coordination and monitoring of the national emergency management system;
- cooperation with entities that monitor weather and seismic conditions;
- cooperation with entities that carry out rescue, search and relief aid action;
- cooperation with entities that provide early warning systems;
- auditing the activities of the pre- and in-hospital system.

Picture 1. Emergency Operations Center at the Emergency and Disaster Health Care Services Department, Primary Health Care General Directorate, Ministry of Health

Source: Ministry of Health of Turkey

The capacity of SAKOM for strategic planning and response is good; it is responsible for coordinating the tasks of the different actors, as well as for information management, evaluation and follow-up in this area. However, information-sharing among the different departments of the Ministry of Health does not seem to be formalized. For example, there does not seem to be a standardized mechanism of sharing information with the Refik Saydam Hygiene Center Presidency.

In Turkey, the epidemiological basis for disaster policy, practice and resource allocation is strong with respect to communicable diseases and injury. Ideally, the epidemiology of each prevalent hazard should be known – mortality rates, fatality rates, and lethality rates for each hazard, both nationally and by province, with data by age and sex. Post-event communicable diseases and noncommunicable diseases morbidity patterns, by hazard, age and sex, should also be readily available. Trends in this data should be the basis for setting policy, (re)designing training programmes, procuring equipment, allocating funding priorities, directing research, etc., as well as for monitoring and evaluating programmes. Epidemiology should play a fundamental role in crisis management.

Apart from coordinating with key partners from the public, private and civil society sectors (Fig. 2), the Ministry of Health has established partnership mechanisms and contractual arrangements to access resources in disaster situations from public or private organizations, for example, ambulances or hospital beds from private enterprises or university hospitals, medicines for national and international emergencies from pharmaceutical companies, and the provision of food and water during disasters from relevant companies.

Fig. 2. National level crisis management integration
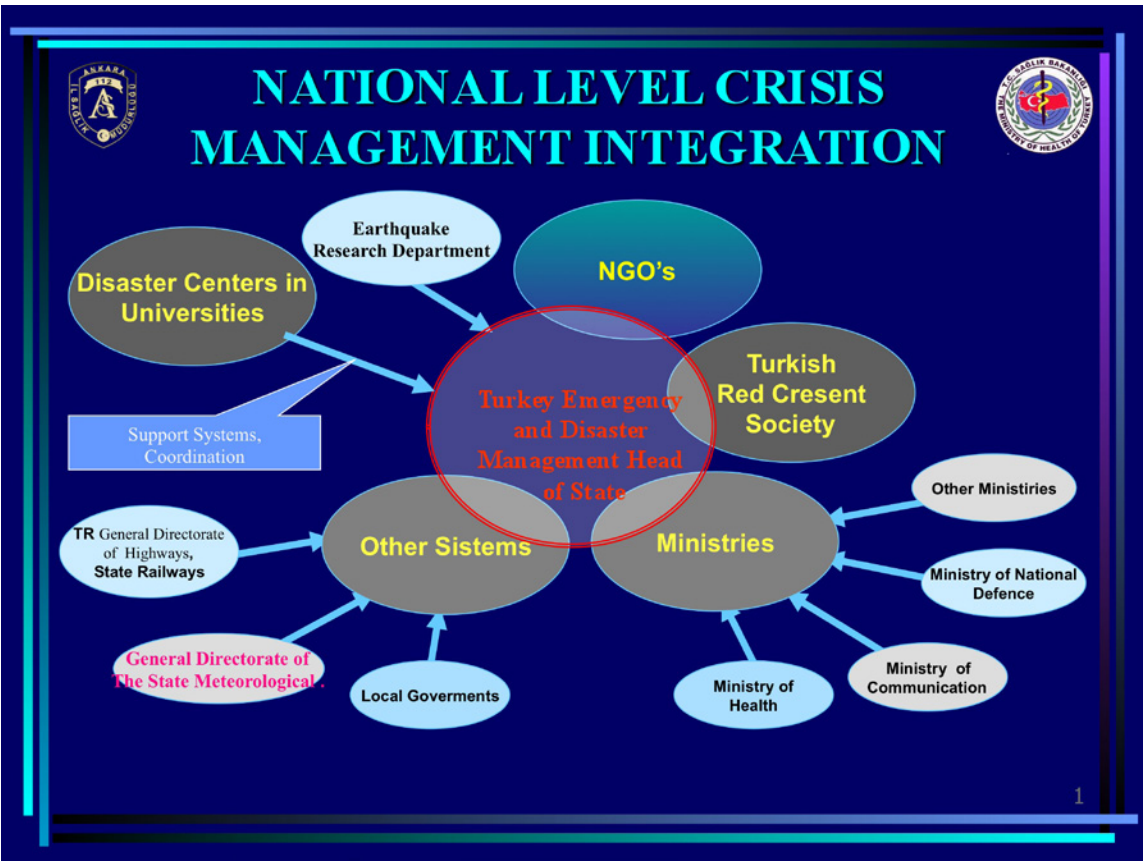
Source: Department of Health Organization in Disasters, (National Medical Rescue Team), Ankara Province Health Directorship, 2010.

Similar collaboration mechanisms have been established for training volunteers for the national medical rescue teams. Several NGOs, such as foundations, associations and citizen's initiatives, offer voluntary community services. NGOs are established under the Association Law (No. 2908) and are under the legal supervision of the Ministry of the Interior. NGOs relevant for the health sector are, for example, the Chamber of Medical Doctors, the Turkish Red Crescent Society (a special independent agency with strong legislative links to government), Disaster Volunteer Organization (MAG), AKUT (search and rescue association), and community-based NGOs.

Key element:	1.5 Health-sector emergency management programme components
Essential attributes:	11. Health-sector risk reduction programme 12. Emergency preparedness programme

Since the devastating earthquakes in 1999, Turkey has started to move from emergency response towards disaster risk reduction. The Eighth and Ninth Five-year Development Plans (2001–2005 and 2007–2013, respectively) highlight the need for social, legislative, organizational and technical structures that would better achieve disaster risk reduction, as well as systematic educational activities to raise public awareness. A programme on strategic disaster management in urban areas, for example, covers emergency management, support to infrastructure and lifelines, the protection of buildings and cultural/historical sites, legal issues, and training.

Detailed studies on vulnerability and risk assessment by different sectors, such as those for health, education and energy (including loss estimates), exist at the municipal and provincial levels.

The responsibilities for disaster risk reduction and most of the mitigation, preparedness planning and recovery activities have been transferred to these levels and are implemented according to their specific hazard profiles. The municipal and provincial authorities are responsible for the functioning of key public services – such as local infrastructure, care for the elderly and other vulnerable populations, health services and information for the public – and for their coordination during emergencies. In Istanbul, for example, 350 district governors have been trained in recent years in earthquake mitigation and response; the deputy district governors have been appointed as emergency coordinators and authorized to call in the police and armed forces, if necessary.

In Ankara, Erzurum and Istanbul, the assessment team visited highly sophisticated emergency management structures, which provide all the components of an emergency preparedness pro- gramme on a day-to-day basis: coordination, emergency response planning, training and education, simulation exercises, public information and response to emergency events. The command and control centres are all very well equipped with the latest technology in communication systems and disaster management information systems and with a seemingly sufficient and well-trained staff.

Data are gathered on a regular basis from a variety of institutions. Processing them has resulted, for example, in:

- an earthquake–hazard characterization model for Turkey;
- a comprehensive Turkish inventory database for loss estimation;
- vulnerability functions for infrastructure at risk;
- parameters for casualties, shelter needs and economic loss;
- near-real-time loss assessment capability.

In addition, user-friendly computer interface and support materials suitable for a wide variety of users in Turkey, including emergency managers, scientific investigators and decision-makers, have been developed

Key element:	1.5 Health-sector emergency management programme components
Essential attribute:	13. National health emergency response plans

The Ministry of Health bases its national response plans on risk assessment. The response plans delineate the roles and responsibilities of all staff of the ministries and other government entities and includes generic and contingency plans. There is, for example, a specific plan for pandem- ics. Health facilities, municipalities and provinces are legally required to develop their response plans and to test and update them annually. In Erzurum, for example, the assessment team was informed that a health-sector response plan for the Province had been elaborated according to the national planning template of the Ministry of Health and that it is sent to Ankara for validation once a year. This plan is part of the provincial multisectoral plan. Furthermore, it is used in exercises. Some municipalities have prepared disaster recovery plans that include hazard and vulnerabil- ity data, especially regarding critical structures.Istanbul is currently making large-scale efforts to identify and mitigate the risks to the city; for example, a master plan for earthquake mitigation has been developed.

Plans at the subnational level are usually prepared in coordination with government agencies, universities, NGOs and private-sector entities. They are available to involved agencies but not to the public.

Key element:	1.5 Health-sector emergency management programme components
Essential attribute:	14. Research and evidence base

The Scientific Committee for Emergency Management convenes regularly to draw up agenda for the planning and formulation of legislation, based on existing research results and quality performance data. In Turkey, post-disaster reviews are considered very important at both the central and local levels. Lessons learnt from previous disasters; especially from the Marmara earthquakes are also taken into account in pre-disaster planning. So far, SAKOM has not considered setting a research agenda in response to emergency programme needs.

Recommendations on leadership and governance

- As disaster preparedness in Turkey has become a national priority, the Ministry of Health may consider revising the legal requirements related to emergency preparedness with a view to enabling a programme approach, such as that used in the Tobacco Control programme. Adopting a programme approach would ensure that all disciplines of the health sector are taken into consideration and involved in crisis preparedness, all the relevant components of which (risk reduction, preparedness and response) are already very well established. The implementation of an integrated national emergency preparedness programme in a coherent, coordinated and participatory manner would ensure sustainability since such programmes are normally multisectoral and may have several funding partners.

- To this end, consideration could be given to developing a policy, which encourages the multisectoral sharing of epidemiological data (with laboratories and veterinary, agricultural and environmental institutions) and the strengthening of multidisciplinary coordination within the Ministry of Health (for example, of the maternal and child health, tobacco control, and communicable diseases programmes and the Refik Saydam Hygiene Center Presidency, among others).

- The Ministry might consider assigning a lead institution to coordinate the collection and collation of data across all sectors and units and, possibly, publish an annual report on the epidemiology of disasters and emergencies in Turkey. This could also be used in the WHO European Region as a model of best practice for reporting the epidemiology of emergencies and disasters.

- It would be useful to conduct a review of the legal requirements with a view to:
  – clarifying the roles and responsibilities of first responders to CBRN events; and
  – the possibility of creating a public health laboratory network to ensure effective surveillance.

- The Ministry of Health could take the lead in setting the research agenda and introducing funding and other incentives that would encourage universities to implement the agenda. This would facilitate the creation of an evidence-base for best practices in emergency preparedness and response that could be used to strengthen the link between policy, practice and the products of research. On the basis of its vast experience in national and international disaster response, Turkey could thus contribute to setting norms and standards

for the international disaster preparedness and response community. The Ministry of Health may consider applying for funding for this purpose to the Scientific and Technological Research Council of Turkey (TUBİTAK), which initiated the Public Research Grant Committee programme to fund projects proposed by governmental units in collaboration with universities, research institutes, the private sector and NGOs. Projects aimed at disaster risk reduction are highly promoted and usually favoured for funding.

• With a view to the possibility of accommodating international humanitarian assistance during crises in Turkey, the Ministry of Health may consider preparing respective policies and regulations for providers of foreign aid.

2. Health workforce

Key element:	2.1 Human resources for health-sector emergency management
Essential attributes:	15. Human resource development 16. Training and education

The Ministry of Health has a human resource plan until 2020 and a database of staff with contact and specialization details. A multisectoral database of staff and volunteers also exists defining their knowledge, competencies and skills. The staff receives briefing and participates in exercises. The mobile team members have standardized job descriptions and equipment.

Training is provided by a variety of institutions and organizations, such as DEMP (Ministry of Health), AKOM (a disaster coordination centre), UMKE, several Universities, the Turkish Red Crescent Society, MAG, AKUT, and civil defence and fire departments, among others.

Courses exist for each professional specialty spanning from one-day courses to Master Degree programmes. Topics include emergency medicine, emergency management, utilization and maintenance of equipment, search and rescue, assessment of functional and non-functional mitigation, first aid, hospital management, basic disaster awareness, and hospital emergency preparedness planning. Three different Master Degree programmes for emergency management exist in Turkey; universities offer various programmes in disaster management. The content of the curricula is standardized and accredited by the Scientific Commission of the Ministry of Health but the delivery of training is not harmonized. Trainees are doctors, nurses, paramedics, managers, civilians, firefighters, community volunteers and staff of private companies.

National medical rescue teams have been established in all 81 provinces and 4400 staff have been trained since 2004. In Istanbul, since 2000, diverse courses have been taken by civilians (26 000), first responder volunteers (12 000) and hospital staff (900) and a population of over two million have received training in risk prevention (also through schools). In each hospital, a team of one doctor and four nurses or paramedics is specifically trained to act as first-response volunteers in case of crises. The Ministry of Health plans to establish one such team for each 100 hospital beds nationwide. In Ankara, 650 health professionals have already received training in first response.

During the assessment visit, it was mentioned that there is no need to integrate international staff in case of a major emergency, as there is a sufficient number of volunteers in Turkey. For example, the staff of Ministry of Health facilities has established national medical rescue teams (UMKE) based on voluntary involvement. UMKE team members receive theoretical and practical training in disaster response. Although their participation in crisis situations is voluntary, their release from work must be approved by their respective health facilities. In major disasters and emergencies,

the latter provide all the help they have available. There are several voluntary organizations in Turkey (e.g. AKUT, the Turkish Red Crescent Society), as well as public servants (e.g. Ministry of Health staff) and voluntary UMKE team members for emergency and disaster response.

Currently, 40 medical volunteers (staff of the Ministry of Health and its hospitals) are in Pakistan and the Sudan. This medical assistance is organized by the Ministry of Health and coordinated by DEMP.

Recommendations on health workforce

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

- Existing training curricula and material should be reviewed and a common terminology used in all future material, which should be harmonized.

- Consideration could be given to developing and training additional health-sector capacity in conducting rapid health needs' assessments with a view to improving initial action plans to provide efficient, effective medical care and public health services to all victims and affected communities. Rapid health needs' assessment includes anticipation of the resources required in excess of those available in order to be able to mobilize surge capacity to meet the health needs.

- Turkey's broad training faculty could be consolidated into a national emergency training centre (academy) to further the process of strengthening the capacities of many stakeholders. This proposed centre of excellence could help to harmonize the development of the EMS and S&R systems in countries of south-eastern Europe by standardizing equipment and procedures, thus promoting collaboration in health crisis management in that region.

- The Ministry of Health could consider support the participation of subnational staff in international training.

3. Medical products, vaccines and technology

Key element:	3.1 Medical supplies and equipment for emergency response operations
Essential attributes:	17. Medical equipment and supplies for prehospital activities, hospitals, temporary health facilities and public health 18. Pharmaceutical services

DEMP is responsible for conducting national risk analyses and, based on the results, organizing warehouses containing strategic reserves of essential supplies at the national and subnational levels.

The Ministry of Health is responsible for the regular provision of pharmaceuticals and medical and laboratory supplies to its hospitals; the provision of resupplies to national and subnational health facilities in the event of an emergency is also possible. The Ministry has warehouses at the na-

tional level and in each province that house buffer and emergency stocks for a week. The quantity of supplies is determined by data projecting the annual needs of the country; hospital products and supplies are procured annually and distributed on a weekly basis.

Local health directorates have the authority to use funds from private sources to procure stocks needed in the case of an emergency. However, this would not usually be necessary, as ample stocks are available.

Hospitals are instructed to have reserve supplies, including food, water and fuel, for a three-day period. Stocks include antibiotics, chemical antidotes, antitoxins, life-support medications, equipment for intravenous administration, airway maintenance supplies, and medical and surgical items. Supplies and equipment required in an influenza pandemic, such as antiviral drugs, personal protective equipment for medical staff, vaccines, and laboratory diagnostics equipment, are also stored. Pharmaceuticals and medical, laboratory and equipment stockpiles are periodically tested, replaced and/or disposed of, as required. A central stock control system shows the levels of supplies in each hospital. Procedures are in place for the transport of vaccines to crisis areas by air or in acclimatized trucks. Qualified personnel are available to deal with the logistics and a computerized system for managing and tracking the items (including details of expiry dates, types of item in stock, etc.) is in place. In a national emergency, fully equipped and staffed tent hospitals belonging to the Ministry of Health can be deployed within six hours. Tent hospitals are positioned in several provinces and at the national level. The Turkish Army and some university hospitals also have this capability.

Procedures for requesting, accepting or refusing medicines, personnel, field hospitals and other services (donations) provided by international partners are in place and under the authority of DEMP.

Key element:	3.1 Medical supplies and equipment for emergency response operations
Essential attributes:	19. Laboratory services 20. Blood services

Essential laboratory services and basic laboratory testing, such as complete blood count, chemistry profile, electrolytes, blood gas analysis, and blood culture and sputum examination are – also in an emergency situation – supplied by the provincial or national laboratories. Nevertheless, Erzurum does not have a CBRN laboratory; therefore, such samples are sent to Ankara. Sufficient buffer stock is available and procedures for periodic testing, rotation and disposal exist. Establishing laboratories at scenes of disasters is not foreseen.

The laboratories visited by the assessment team (the Provincial Centre Laboratory and the Regional Hygiene Reference Laboratory in Erzurum) participate in simulation exercises when requested to do so. Nevertheless, they could not clearly explain their roles in an emergency or disaster situation.

Procedures exist for the rapid sharing of specimens, including cross-border transport to international reference laboratories. Collection and shipping follows international standards.

The Ministry of Health has authorized the Turkish Red Crescent Society to deliver blood services in Turkey. It was reported that essential supplies and equipment and sufficient quantities of blood are available and all blood donations are registered. A cold chain for the transportation of blood to affected areas is ensured. The Turkish Red Crescent Society has the capacity to scale up in emergencies and has volunteers that can be used.

Recommendations on medical products, vaccines and technology

- A major strength in the Turkish response system is certainly the provision of highly sophisticated medical equipment and contingency planning at all levels. Nevertheless, the Ministry of Health could define the role of laboratories in emergencies and mechanisms information-sharing between the EMS and surveillance systems.

- The Ministry of Health may consider developing guidance for standardized storage with respect to potential hazards, as some of the warehouses visited lacked such safety measures, such as flood-proof flooring, earthquake-proof shelving, double entrance doors and electrical wiring at floor level.

4. Health information

Key element:	4.1 Information management systems for risk reduction and emergency preparedness programmes
Essential attribute:	21. Risk assessment and preparedness programme information system

Risk assessments are coordinated by DEMP and conducted at the provincial and municipal levels. A national risk profile is available for earthquakes and some hydro-meteorological risks, such as heat wave, flood and storms. However, the country profile for emergencies and disasters is not yet complete, as technological hazard maps are lacking and hazard maps are not complemented by vulnerability maps.

Earthquake-specific vulnerability maps include projections of damage by building, site, infrastructure and number of victims. The risk maps are regularly updated and shared with responders. The Fire Department has fire-hazard maps, and different ministries and academic institutions, such as the University of Istanbul, produce risk maps with varied degrees of detail. The Kandilli Observatory and Earthquake Research Institute in Istanbul continuously monitors the seismic activity in the country on a real-time basis and is directly linked to DEMP, the Turkish Army Headquarters, SAKOM and the Istanbul Disaster and Emergency Directorate. In Istanbul, microzonal maps are available for floods and tsunamis.

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

The Refik Saydam Hygiene Center Presidency is a technical institution comprising national reference laboratories established to conduct basic laboratory services related to production, control and diagnosis for the protection of public health in Turkey. Besides the central office in Ankara, there are seven regional centres that report to it directly, and 114 public health laboratories attached to the epidemiological units in the respective provincial health directorates. The Center has its own vertical system of reporting on the epidemiological situation in the country, with information flows from district through province and only aggregated data reaching the national level. The quality of data sent from the municipal and provincial laboratories varies greatly. The system focuses mainly on communicable diseases and poisonings so that nutritional problems and noncommunicable diseases are not systematically taken into consideration (although these are key issues in the country and may become even more important during disasters). When the occurrence of communicable

diseases in a region is greater than expected, the central level reacts in most cases. However, the central workload is shared with the regions during outbreaks (for example, the regional laboratories in Adana, Istanbul, Izmir and Samsun took an active role in diagnostic activities related to swine flu in 2009–2010). No active surveillance is carried out at the provincial level apart from that of the 51 notifiable diseases. Data exist for all traffic accidents and hospitalized patients but they are not used for regular health or epidemiological reports. Private health institutions only share data on the 51 notifiable diseases.

The 112 system allows for emergency reporting in a timely manner through a sophisticated, multi-layered communication system.

The Refik Saydam Hygiene Center Presidency is the contact point for the laboratory services of the Early Warning and Response System (EWRS) and the Rapid Alert System for Food and Feed (RAS-FF). Diagnostic capacity is developed for many emerging and reemerging diseases (e.g. Hantavirus, West Nile virus, Dengue fever, Sand fly disease). However, the associated risks are shared by the Refik Saydam Hygiene Center and the General Directorate of Primary Health Care Services with EU Member States, the European Commission, the European Centre for Disease Prevention and Control (ECDC), WHO and the national IHR focal point. The Department of Communicable Diseases of the General Directorate of Primary Health Care Services is assigned as national IHR focal point.

IHR requirements in relation to communicable diseases met to a large degree but this is completely the case with respect to other public health threats. As in other countries, the total number of infections notified in Turkey is under-representative of the true burden of disease, and case definitions also vary. The list of mandatorily notifiable diseases has been updated, as have the standard case definitions related to them and the systems for the immediate and standard notification of each of them. A functioning early warning and response network (EWARN) system exists in Ankara but, currently, it does not cover all the public health hazards under IHR (2005) (CBRN events), only communicable diseases. As yet, there is no law specifying the roles and responsibilities of laboratories in CBRN events.

All States Parties to the IHR (2005) are required to send to the WHO a list of all ports authorized to issue ship sanitation certificates. Turkey has 45 authorized ports. A list of these and other relevant information has been submitted to WHO that publishes[4] this information in accordance with the requirements of the IHR (2005) *(22)*.

Food safety is under the responsibility of the Agricultural Directorate. Provincial laboratories are responsible for carrying out water quality control on a routine basis as a reference but are not involved in the collection of samples. This is the done by the health directorates' environmental departments. For the Winter Universiade 2011[5] in Erzurum, the regional hygiene reference laboratory took over this responsibility. The Ministry of Agriculture coordinates with the Ministry of Health on an ad hoc basis, as was the case recently during an outbreak of avian influenza. No data flow exists between the ministries as yet but this will be addressed within a new project on laboratory networks.

The Ministry of Health has several units and departments on communicable disease (influenza pandemic, malaria and tuberculosis) and the General Directorate of Borders and Coasts but there is no institution responsible for the overall collection of health data. There is no formalized mechanism of data-sharing between laboratories and epidemiological units at the provincial level, the Directorate of Borders and Coasts and other entities that also receive or collect important health data, such as the 112 system and the Refik Saydam Hygiene Center Presidency. Nevertheless,

4 Further information available at: http://www.who.int/ihr/ports_airports/portslanding/en/index.html.
5 Further information available at: http://www.universiadeerzurum.org/english.

work is in progress to create a public health services laboratory network, which includes public health laboratory services at the district, provincial and regional levels and the Refik Saydam Hygiene Center Presidency at the national level. The aim of this network would be to centralize all national health data.

An environmental information management system, including an early warning system for floods and droughts, is currently being developed. This requires further coordination among different institutions with different mandates that collect and store hydro-meteorological and environmental information. Links to SAKOM should be introduced from the start.

Key element:	4.2 Information management systems for emergency response and recovery
Essential attributes:	25. Rapid health needs' assessment 26. Multisectoral initial rapid assessment 27. Emergency reporting system

Rapid health needs' assessments are carried out on an ad hoc basis. In a crisis situation, staff from the Emergency and Disaster Health Care Services Department would be despatched to the area in question. There is no special system for collecting data during disasters that could provide guidance on, for example:

- what kind of data to collect in different types of disasters, how to collect them and at which time;
- what and how to report (specific forms to be completed);
- how to coordinate information to ensure reliability and sustainability of source.

Epidemiological institutions are not formally included in rapid health needs' assessments but participate if requested.

Initial rapid needs' assessments at multisectoral level are coordinated by the Disaster and Emergency Directorate at the lowest relevant administrative level. The health sector is fully involved.

Key element:	4.3 Risk communication
Essential attributes:	28. Risk communication strategies for the public and the media 29. Strategies for communicating risks to responders involved in emergency operations

The components of a risk communication strategy are in place, such as predefined coordination mechanisms, dissemination procedures, trained spokespersons and telecommunication equipment.

The Ministry of Health guides the health departments of the provincial governments in developing information for the public. The local governments are responsible for clearance and dissemination; a designated and trained spokesperson informs the public.
A hotline (184) is available for the public in the Ministry of Health for any kind of complaint or problem.

Istanbul has a team of 25 for media relations, a special radio station that transmits emergency-related awareness-raising programmes two hours a day in non-emergency times and 24/7, if

necessary, in an emergency situation. Mobile radio stations are deployable.

Information targeted to minority groups is managed through community members, such as village headmen. In the Kurdish-speaking areas, a Kurdish-language TV channel provides public health information.

Responders are trained in security-related issues, such as radio communication, different cultural aspects, and how to deal with road-traffic accidents, criminal activity or open conflict. They are informed about the potential risks or security threats of the emergency event through the umbrella coordination of the governors' emergency crisis management centres. Highly sophisticated communication equipment allows permanent interoperability among stakeholders and direct communication with and among responders.

Recommendations on health information

- The Ministry of Health is strongly advised to strengthen surveillance and data analyses at all levels, as well as formal feed-back mechanisms, as part of its responsibility, nationally and internationally, to facilitate the rapid exchange of information in the event of a crisis. This includes improving planning and coordination within and among laboratories and with other sectors.

- The Ministry of Health may consider providing guidance on integrating the emergency health information system into the overall health information system; developing standard operating procedures (SOP) to ensure the uniform coordination of information management across partners; and introducing standard formats and templates for generating reports to the Ministry and other partners, as required.

- The Ministry of Health should strengthen the capacity for epidemiological reporting (mortality, morbidity) in the emergency health information system and encourage private health providers to report accordingly.

- SAKOM should be encouraged to develop its capacity for performing rapid health needs' assessments. In this respect, the following action is required.
  – The elaboration of a rapid health needs' assessment policy, implementation guidelines and investigation procedures.
  – The systematic training of rapid health needs' assessment teams.
  – The development of information processes and templates for damage and health needs' assessments.
  – The involvement of the Refik Saydam Hygiene Center Presidency as an active partner in building a national team for rapid health needs' assessment (providing background information, collecting new key data, etc.).
  – The provision of integrated international damage assessment teams to assist the national assessment teams.

5. Health financing

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

In Turkey, the State has a legal obligation to fund the costs of reconstructing buildings after an earthquake (Disaster Law, No. 7269); however, the State does not have a similar legal responsibility to provide funding for disaster risk reduction activities. National funds are allocated for DEMP according to an annual plan and to benchmarks from previous years. Provinces receive lump sums from the national budget and the councils of the provincial administrations allocate funds to the different departments and functions according to annual plans.

Funding for national and international relief activities comes directly from the central government.

After the two major earthquakes in 1999, which caused widespread destruction of the building stock, the Government of Turkey decided to enforce compulsory insurance on a nationwide basis. All registered residential dwellings located within municipality boundaries are required to be covered by the compulsory earthquake insurance. The limitations of this insurance, however, are that it does not cover aspects of risk reduction, such as retrofitting, and – more importantly – it does not cover government-owned buildings, which is the case for most health facilities, for example. Also, it is limited to earthquakes and does not cover other disasters, such as floods, landslides or avalanches. About 1.5% of the GDP has been invested already in reconstructing permanent housing and in the repair and rehabilitation of damaged buildings in the aftermath of the 1999 earthquakes.

Although the Ministry of Health has no set budget for a risk reduction and crisis preparedness programme, funds are allocated to this end on an ad hoc basis each year, based on requirements for training, planning, simulation exercises, etc. Funds can also be reallocated from other budget lines. However, the budget for all disasters is covered from the Ministry of Health's own resources.

Contingency-funding mechanisms are well defined at the national and subnational levels; SAKOM can receive emergency response funds from DEMP within a few hours.

There is no budget for the following aspects of risk reduction and crisis preparedness: assessments of critical health facilities for structural vulnerabilities with a view to risk reduction; insurance of critical health facilities; research; and monitoring and evaluation. When needed, however, staff development is funded from the existing Ministry of Health budget.

The Ministry of Health cooperates with the Ministry of Public Works on renovating or repairing key health facilities to reduce structural and nonstructural vulnerability found through vulnerability assessments. Public hospitals have been given more autonomy to allocate resources while, at the same time, the accountability framework of the Ministry of Health, within which they are expected to operate, has become more rigorous. Therefore, each hospital has its own budget for repairs and renovations deemed necessary by the hospital administration.

International funding has supported the improvement of infrastructure and housing, and national and international training programmes on emergency management, risk reduction and trauma. Since 2000, grants of over 2.5 billion euros have been provided by the the European Union, the Japan International Cooperation Agency, the World Bank and others to fund a variety of programmes and projects such as:

- the project on flood control, forecasting and warning system for the Seyhan River;
- the Prevention Research Center project on earthquake disasters;
- the study on a basic plan for disaster prevention/mitigation in Istanbul, including seismic microzonation:
- the disaster management training project;
- the project on strengthening disaster research capacity;
- the capacity improvement project related to seismic observation for DEMP.

So far, fiscal sustainability has not been a major concern since economic growth has been strong in Turkey. However, because of the design of the new health system and the planned and ongoing institutional changes in the disaster risk reduction programme, there appears to be a high risk of a cost explosion in the years to come. In the last few years already, there has been a rapid increase in health expenditure; the consolidated public sector health expenditure increased from 2.8% of GDP in 1999 to 6.4% in 2007.

Recommendations on health financing
- It is acknowledged that the Government of Turkey has a high political commitment to emergency preparedness, allocating substantial amounts from the national budget and external funding to this end. Nevertheless, the global economy is contracting and the Ministry of Health cannot rely on current resources in the medium to long term. Therefore, it is strongly recommended that mechanisms be found to ensure funding for research and that sustainability and cost–effectiveness be proposed as research areas.
- The Ministry of Health is advised to promote the inclusion of health infrastructure in the national earthquake insurance scheme or the use of an alternative insurance scheme for coverage of health facilities.

6. Service delivery

Key element:	6.1 Response capacity and capability
Essential attribute:	32. Subnational health emergency response plans

The subnational emergency response plans are based on national policy, which was developed after the Marmara earthquake in 1999. Since 2003, all provinces have developed plans based on the national template and adapted to local situations, including mitigation, response and prevention activities. The plans consist of a generic part that specifies different levels of care and several contingency procedures (e.g. for natural disasters, epidemics/pandemics, CBRN, etc.). Clearly defined mechanisms exist for activating the plans and for command, control and coordination; even agreements between neighbouring provinces are in place. In Erzurum and Istanbul, for example, resources can be requested and shared with other provinces through the respective provincial crisis centres. Furthermore, the regional coordination centre in Erzurum is responsible for shifting resources between the neighbouring provinces. Istanbul districts have bilateral agreements with 20 provinces on sharing resources if needed. Private resources can be utilized in a state of emergency.

Response plans are tested, validated and exercised at least once a year. Testing is usually in the form of one table-top and one simulation exercise per year. Lessons learnt from exercises and emergencies are incorporated in the plans during revision. The plans are developed, revised and shared by and with the stakeholders who are members of the Crisis Coordination Centre. Emergency response plans are not further publicized.

Key element:	6.1 Response capacity and capability
Essential attribute:	33. Surge capacity for subnational health-sector response

The surge capacity of the Turkish health sector seems to be well developed. During large-scale events, medical rescue teams from EMS, Ministry of Health hospitals and private hospitals can be mobilized and a fully equipped and staffed field hospital can be deployed at short notice. Land, sea and air evacuations are possible.

Hospital wards can be quickly accessed to determine which patients should be sent home. Extra beds are available and hospitals are required to carry enough stocks to last three days. The roles, responsibilities and contact details of the different personnel are included in the hospital preparedness plans. Personal protection equipment against communicable diseases is stored at the hospitals.

Dispatching patients to other countries is not considered necessary; any cross-border collaboration would be decided by DEMP or the Ministry of Foreign Affairs.

Alternative treatment sites are foreseen in field hospitals and schools, and in hospital or university grounds. Buffer stocks (including generators, emergency stockpiles for cold weather emergencies, tents, etc.) have been prepositioned in 500 containers throughout Istanbul. Warehouses for medical equipment and provisions exist countrywide and NGOs, the Turkish Red Crescent Society and others, have additional storages in several regions of Turkey.

The surge capacity of the public health laboratories (according to those visited in Erzurum) is considered sufficient and the routine procedures and capacities meet the needs of emergency situations. A team and a mobile laboratory can be available at short notice in any of the provinces.

Key element:	6.1 Response capacity and capability
Essential attribute:	34. Management of prehospital medical operations

Prehospital medical operations in Turkey are very well organized and coordinated through the 112 system. Calls made to the ambulance services are free of charge. There is one line per 100 000 inhabitants.

Ambulances are dispatched through a central dispatch system. Istanbul alone has 226 public, 300 private and 25 municipal ambulances, all of which can be utilized by the Governor in a state of emergency. The ambulances and dispatch centres are equipped with highly sophisticated medical and communication equipment, facilities for maintenance of the equipment and buffer stocks. Staff is well trained and exercises and drills are regularly performed under the guidance of EMS.

Patients are triaged by the senior dispatcher and a doctor from the joint medical command centre to determine to which hospital they should be sent.

Picture 2: Examples of transportation means, EMS system, Turkey

Source: Ministry of Health, Turkey

Turkey included the air ambulance service in the prehospital health services at the end of October 2008. It consists of 17 ambulance helicopters that are distributed in 15 provinces and 2 ambulance aeroplanes deployed in Ankara. The helicopters are in service between sunrise and sunset and the aeroplanes on a 7/24 basis. Three more aeroplanes will be commissioned soon. The ambulance aeroplanes also serve Turkish citizens abroad and foreign citizens in Turkey. They are equipped with intensive care facilities and have been used in the transportation of 7980 patients/injured persons and in connection with 102 organ transplantation cases. Their total flight time is 16 595 hours. Air ambulance services are free of charge for all Turkish and foreign nationals, regardless of social security coverage.

The S&R system has full-time professional multisectoral teams, the members of which are from the Civil Protection, Fire and Police Departments under the authority of the Governor. It also has teams of health professionals who volunteer for additional responsibilities in emergencies and are under the authority of the respective health directorates. The Civil Defence Department (in Istanbul) has mobile decontamination units with trained doctors, K9 search and rescue teams, media relations personnel and trainers of rescue teams, civilians and organizations. Training covers personnel protection and the utilization of equipment, and includes a practical session on search and rescue. No provision is made for the psychosocial support of rescue staff but it is considered important.

In every province, there is at least one national medical rescue team (UMKE) consisting of five health personnel. Training includes disaster epidemiology, communication, scuba diving rescue, and response to CBRN-related events. UMKE teams are supplied with protective equipment to be able to respond to CBRN-related events. As yet, the Disaster Law (No. 7269) provides no legal basis for CBRN preparedness planning. Therefore, the roles and responsibilities of first responders in this field are not clearly defined.

Picture 3: Ministry of Health air ambulance services

Source: Ministry of Health, Turkey

The institutions responsible for collecting and analysing epidemiological data, and the prehospital services – especially the EMS – are linked via the respective health directorates and command and control centres. The EMS and S&R systems do not notify each other about suspicious events; the EMS system has no specified role in reporting about events of unusual diseases.

Key element:	6.1 Response capacity and capability
Essential attribute:	35. Management of mass-fatality situations and missing persons

The system for managing situations resulting in mass fatality and missing persons was considered adequate. Mechanisms for body recovery, body storage and preservation, the identification process (especially visual identification) and organization of viewing areas were reported to be in place.

Key element:	6.2 Emergency medical services system and mass-casualty management
Essential attribute:	36. Capacity for mass-casualty management

The capacity and capability for response to the health consequences of mass-casualty incidents is very well developed, albeit (and fortunately) not tested in recent years. The strategic planning for all crises is the responsibility of DEMP, which can activate the system and provide surge capacity through its response teams and stores of equipment and supplies (including drugs and medical equipment). Dedicated hospitals have large quantities of equipment for resuscitation or life-saving procedures and there are plans for adapting rooms for mass casualties. The triage reception areas of the hospitals visited were clearly designed to manage daily emergencies and mass-casualty incidents.

Box 1. Emergency services during 25th Winter Universiade, Erzurum,

27 January to 6 February 2011

The Turkish Government allocated a budget of 290 million euros for the games, and a significant proportion of which was used to strengthen the capacity of the emergency services of Erzurum Province to manage an expected influx of 30 000 visitors. During the mission, the team discussed arrangements for the games with the Deputy Governor and the Provincial General Director of Health, as well as with the staff of the 112 Service, the Provincial Training and Research Hospital, the Regional Reference Laboratory, the local Turkish Red Crescent Society and the Municipal Fire Department, and site visits were made to all of the major games' venues. Although the team had no specific expertise in the organization of major sporting events, the arrangements made for the protection the health and safety of the competitors and spectators were very impressive, particularly the attention paid to meeting the needs of the emergency services during the games by strengthening existing institutions and arrangements, rather than by building a parallel, games-specific system.

Picture 4: Simulation exercise for the 25th Winter Universiade, Erzurum

Source: Ministry of Health, Turkey.

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

The components of an emergency preparedness programme (planning, exercises, training, information management and communication) exist at the hospital level. In most cases, existing staff are assigned activities relating to these components in addition to their usual responsibilities. In the Regional Hospital in Erzurum, a full-time position is dedicated to emergency preparedness and response, namely that of civil protection officer; in the district hospital visited, the preparedness and response function is under the responsibility of the deputy director.

The risk reduction programme for hospitals ("Safer hospitals") carries out monitoring and evaluation of structural risk. Nearly all of the 843 Ministry of Health hospitals in Turkey have been assessed for their seismic vulnerability and nearly half of them have been reinforced or retrofitted. By 2015, all hospitals will be compatible with the earthquake regulations. To be accredited, new public or private hospitals have to comply with the new construction standards for health facilities. For example, in the Erzurum Province, one hospital was demolished because it did not meet the minimum criteria. In contrast, the construction of the Regional Hospital built three years ago using a shock absorber technique, can withstand earthquakes of magnitude 9 on the Richter scale.

Apart from the Regional Hospital, which has its own engineer, evaluation of the structural safety of hospitals is carried out by the provincial directorate of health rather than by the hospitals. The non-structural and functional safety of hospitals is not routinely assessed. The capacity and skills for carrying out an immediate assessment of the structural, non-structural and functional safety of hospitals after an emergency event do not seem to be adequate.

Emergency and response and recovery plans exist for each hospital. These were developed by hospital committees (including hospital directors and other responsible staff trained in this exercise). The plans are adapted to local threats and are sent to the Ministry of Health for validation. If the validation criteria are not met (according to a checklist), support is provided to address the gaps. It is a requirement of the Ministry of Health that in order for hospitals to be accredited, they must have annually updated and exercised emergency response and recovery plans. This also applies to the private sector. The plans are distributed to all stakeholders that are directly involved.

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

Turkey has commendable capacity and capability for response in the form of its pre- and in-hospital emergency medical system, which places increasing focus on preparedness and risk mitigation activities. Although there is a system for monitoring public health, there are no specific disaster-related preparedness plans for monitoring specific programmes (e.g. on reproductive health, nutrition and psychosocial support) that could be put into effect during a response. The functional networking of hospitals is conceptualized and there are mechanisms for sharing staff in major emergencies and in connection with the transfer of patients, even between neighbouring provinces. The health facilities at district and village levels are required by law to have emergency plans that provide for the continuity of primary health care; the municipalities are responsible for providing sufficient food and water. The Turkish Red Crescent Society and other NGOs support the feeding of malnourished people in non-emergency times and it is assumed that this would continue during disasters.

Provincial disaster plans include the referral of chronically ill patients to non-affected areas in disaster situations, and to this end the EMS system provides two ambulances to each district.

The management of lifelines (shelter, provision of food and water) for internally displaced persons is under the responsibility of the local authorities. The health directorate will deploy teams to assess the situation with respect to water, sanitation and communicable diseases and to implement the necessary monitoring activities. Protocols for emergency situations are available, care is free of charge and there is even a specific volunteer programme ("Translators in disasters") that can be provided to reduce language barriers.

The communicable diseases surveillance and early warning system continues in a crisis situation. It was not clear, however, whether the public health laboratories have the capacity to provide laboratory support through their substations, enabling the hospitals to continue their services.

Identifying environmental hazards is the responsibility of the Ministry of Environment.

Mental health and psychosocial support to high risk groups, such as children, is included in the crisis plan, which involves cooperation with the Child Protection Unit of the Ministry of Health.

Psychosocial support is provided to responders by several organizations. The format and quality of this support vary; it is not delivered in a harmonized or standardized fashion. The Ministry of Health has a special team responsible for its staff, especially those participating in teams involved in international disasters.

Key element 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, clearly represent one of the strengths in Turkey. The provincial authorities, the Turkish Red Crescent Society, the Ministry of Health and the Military can all provide highly sophisticated and equipped back-up services, including mobile communication centres, back-up communication, radio communication (VHF), Internet services and satellite telephones, even in district hospitals. The EMS system (and the Turkish Red Crescent Society) can provide mobile hospitals suitable in adverse climates, mobile laboratories, mobile emergency operations' centres and mobile staff accommodation.

In normal times, private companies ensure hospital security. Once a crisis is declared, this duty is transferred to the police in urban areas and to the gendarmerie in rural areas. Military back-up can provide further manpower but the police retain control.

The Provincial Directorate for Disaster and Emergency Management in Istanbul, for example, has taken a broad range of preparedness measures to support services during emergencies: in addition to 204 ambulances of the Provincial Health Directorate, 29 ambulances and 2500 emergency aid kits, as well as medicine and equipment for one year, are on stand-by for disasters. Tent areas have been identified in Istanbul and their water and sewage infrastructures have been completed. Portable toilets and showers have been procured. The Istanbul Water and Sewage Service (ISKI) and the Istanbul Gas Service (İGDAŞ) have prepared their own "state-of-emergency plans" using the latest technical systems. The Directorate of Road Maintenance and Repair maintains equipment, such as multifunctional vehicles, in over 200 places in critical areas.

Contractual arrangements for the evacuation of people have been made with the Istanbul Bus Company (İETT) and the Istanbul Sea Buses Company (İDO). The Istanbul public bread factories have been included in the response plan, and are supposed to provide, store and distribute up to two million loaves of high-calorie bread during a crisis.

Recommendations on service delivery

- The Ministry of Health could lend its support to strengthening the interoperability of the EMS and early warning systems by sharing relevant information with the disease surveillance, hydrological, meteorological and air-quality monitoring networks.

- The introduction of a nationwide 112 number for all emergencies is strongly advised.

- The Ministry of Health may consider including non-structural and functional vulnerability, as well as structural vulnerability, in hospital safety assessments and hospital preparedness activities. In carrying out standardized non-structural and functional hospital safety assessments, the *WHO hospital safety index: guide for evaluators* (*24*) could be used[6] .

- The audience for the provincial and hospital emergency and response plans could be broadened to include security and auxiliary staff as well as the general community.

- SAKOM could take the lead in integrating primary health care programmes in the emergency plans

- SAKOM may also wish to clarify the role of the health sector in dealing with mass fatality, missing persons and identification of the deceased, and to ensure that the relevant procedures are in place.

- The Ministry of Health may consider facilitating an integrated approach to addressing the most urgent mental-health and psychosocial issues in emergency situations for staff and victims alike.

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6 According to WHO definition:

(1) evaluating the structural safety of a facility involves assessment of the structure (type, materials, and previous exposure to natural and other hazards) to determine if it meets standards for providing services to the population even in cases of major disaster, or whether it could be impacted in a way that would compromise structural integrity and its functional capacity;

(2) evaluating the *non-structural safety* of a facility includes verifying the stability of its non-structural elements (e.g. supports, anchors, and secure storage) and whether equipment can function during and after a disaster. It also includes assessing: the safety of critical networks (e.g. water system, power, communications); heat, ventilation, and air conditioning (HVAC) systems in critical areas; and medical diagnostic and treatment equipment. Architectural elements such as facings, doors, windows, and cantilevers are evaluated to determine their vulnerability to water and the impact of flying objects. Safety of access to the facility and internal and external traffic are also taken into account, as well as lighting systems, fire protection systems, false ceilings, and other components;

(3) evaluating organizational or functional safety includes looking at the general organization of hospital management, implementation of disaster plans and programmes, resources for disaster preparedness and response, level of training and disaster preparedness of the staff, and the safety of the priority services that allow the hospital to function.

IHR core capacity

With the coming into force of the revised IHR in 2007 *(22)*, States Parties committed themselves to assessing the ability of their national structures and resources to meet the minimum national core capacities for surveillance and response, as specified in Annex 1 of the Regulations, and ensure that these capacities are present and functioning throughout their territories by 2012.

WHO is mandated to provide States Parties with the appropriate tools, guidance and support to help them achieve these goals. For this purpose, a monitoring framework[7] was developed representing a consensus of technical expert views drawn globally from WHO Member States, technical institutions and partners, and from within WHO. The IHR monitoring framework identifies eight core capacities, as well as capacities at points of entry, and capacities needed to respond to hazards relevant to the IHR: biological (including infectious, food safety and zoonoses), chemical and radio-nuclear.

The IHR monitoring framework was used to evaluate the IHR core capacities in Turkey as part of the overall preparedness assessment. The following is a summary of the findings, which are related to throughout the report.

Core capacity 1: National legislation, policy and financing

States Parties were required to implement the IHR starting with their entry into force in 2007. To do so, they were to review and, if necessary, adjust their legal frameworks to comply with the provisions in the IHR. In Turkey, after the 1999 Marmara and Düzce earthquakes, the legislation in relation to disaster management was modified extensively and new institutions were established. However, currently there is no policy or legislation that explicitly mandates an IHR or all-hazard, multidisciplinary approach as a basis for a national risk reduction and crisis management programme. Structures, roles and responsibilities for implementing the IHR are defined within ongoing public health policy activities.

Further details regarding national legislation, policy and financing can be found in the section entitled "Stewardship and governance".

Core capacity 2: Coordination and national focal point communications

The coordination of national resources, including the designation of a national IHR focal point, is a key prerequisite for IHR implementation. Turkey has designated the General Directorate of Primary Health Care within the Ministry of Health as the National IHR Focal Point. As such, the Directorate is accessible and able to communicate with WHO and all relevant sectors and other stakeholders in the country at all times. In Turkey, coordination is very strong in the event of an emergency. Emergency operation rooms exist across the country, both with NGOs and regional governments, to support coordination in times of disaster. Routine collaboration and sharing of information in non-emergency situations need to be strengthened. There is no formal reporting process or formal sharing of early warning data among ministries. DEMP, under the Prime Ministry, was established in December 2009 (Law No. 5902) to function as the national emergency management and operational entity.

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7 Available at: http://www.who.int/entity/ihr/IHR_Monitoring_Framework_Checklist_and_Indicators.pdf.

The Refik Saydam Hygiene Center Presidency is the contact point for the EWRS and the RASFF.

Further details regarding coordination and communication can be found in the section entitled: "National multisectoral institutional framework for emergency management".

Core capacity 3: Surveillance

The IHR require rapid detection, prompt risk assessment and notification of, and response to public health risks. A sensitive and flexible surveillance system with an early warning function is crucial.

In Turkey, the IHR requirements in relation to communicable diseases are met to a large degree but this is not completely the case as regards other public health threats under the IHR. Event-based surveillance and early warning systems are currently being strengthened. The present surveillance system has a list of 51 mandatorily notifiable diseases. A functioning early warning and response (EWARN) system exists in Ankara but, currently, it covers only communicable diseases. There is also room for improvement as regards timely information exchange among the different ministries.

The Ministry of Health of Turkey could further specify the role of laboratories in emergencies, as well as mechanisms for information-sharing between the EMS and the surveillance systems. A public health laboratory should be instituted in every province.

Further details regarding surveillance can be found in the section entitled: "Information management systems for risk reduction and emergency preparedness programmes".

Core capacity 4: Response

Mechanisms of command, communications and control are required to coordinate and manage operations in the event of outbreaks and other public health events. In Turkey, subnational health emergency response plans are based on the national policy developed after the Marmara earthquake in 1999. Since 2003, all provinces have plans in place, which include mitigation, response and prevention activities; these are based on the national template and adapted to local situations. The surge capacity for subnational health-sector response seems to be well developed. All public hospitals in Turkey are responsible for their own infection prevention and control (IPC) programmes. Data on hospital surveillance is collected by the Ministry of Health. Additionally, two to three training programs for IPC and CBRN are conducted annually at hospitals.

Further details regarding response can be found in the section entitled: "Response capacity and capability".

Core capacity 5: Preparedness

Preparedness includes the development of national-, provincial- and local-level emergency response plans for relevant CBRN hazards. Turkey has mapped potential hazards and hazard sites, identified available resources and developed appropriate national stockpiles of resources. Also, the capacity to support operations at the intermediate and local response levels during a public health emergency has been defined. Emergency disaster plans exist that clearly designate roles and responsibilities (e.g. of the IGDAS response team for gas; the ISKI response team for water and sanitation; the fire departments, AKOM, S&R, the Directorate of Roads and Repairs, funeral services (including mobile morgues), mobile bakeries, civil defence, etc.). Risk assessments are coordinated by DEMP and conducted at the provincial and municipal levels.

Further details regarding preparedness can be found in the section entitled "Information management systems for risk reduction and emergency preparedness programmes".

Core capacity 6: Risk communication

Risk communication should be a multilevel and multifaceted process aimed at helping stakeholders define risks, identify hazards, assess vulnerabilities and promote community resilience, and, thereby, at promoting the capacity to cope with an unfolding public health emergency. A risk communication and public information strategy for emergency situations exists in Turkey. The set-up and availability of emergency logistics and support functions are clearly one of the strengths in Turkey. The risk communication strategy includes communication with the general public, families and communities about public health risks and events. Risk communications have been drafted in preparation for various situations.

Further information regarding risk communication can be found in the section entitled "Risk communication".

Core capacity 7: Human resources

Strengthening the knowledge, skills and competencies of public health personnel is critical for the effective implementation of the IHR. Turkey has been working to this end through appropriate training and development courses.

The Ministry of Health has a human resources plan until 2020 and a database of staff with contact details and information about specialization, including training and education. As Turkey regularly supports countries in crisis situations, the human resources plan is also used to identify the appropriate expertise.

Further information regarding human resources can be found in the section entitled "Human resources for health and emergency management".

Core capacity 8: Laboratory

Laboratory networks exist in Turkey. The local public heath laboratories are directed by and report to the regional central laboratories, which in turn are directed by the National Reference Laboratory. The regional centres are responsible for sample collection and transport; most analyses are done at the National Reference Laboratory.

Private laboratories in Turkey are licensed and share data and notifications with the Ministry of Health. The CBRN laboratory still needs further development to meet the minimum requirements.

Essential laboratory services and basic laboratory testing are supplied by the provincial or national laboratories; there are no plans for establishing laboratories at scenes of disasters. Nevertheless, the provincial central laboratory (in Erzurum for example) has a mobile clinical laboratory (Bio-safety level 2plus for routine biochemistry, haematology, microbiology, etc.) but CBRN detection is done in Ankara. Sufficient buffer stock is available and procedures exist for periodic testing, rotation and disposal.

Further information regarding laboratories can be found in the section entitled "Medical supplies and equipment for emergency response operations".

Points of entry

The IHR include specific provisions relating to points of entry (ports, airports and ground-crossings). According to IHR, States Parties are committed to designating certain points of entry and to developing and strengthening their IHR core capacities. Turkey has currently designated 45 ports and 5 airports, all of which meet the requirements of the IHR and have a competent authority. Coordination with other sectors and other levels is defined in action plans developed for all hazards.

All States Parties to the IHR are requested to send to WHO a list of all ports authorized to issue ship sanitation certificates. Turkey has authorized 45 ports to do so. The list has been published by WHO[8] .

At ground crossings, there is bilateral cooperation between the neighbouring countries that share resources and provide support in disaster situations. In the event of a public health event at a point of entry, the Ministry of Health, the national IHR focal point, the border control services and the regional deputy governor are notified. Hospitals have been designated to receive travellers identified for quarantine at points of entry. Requests for any additional personnel or expertise needed during a crisis or public health event are addressed to the Ministry of Health.

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8 Available at: http://www.who.int/ihr/ports_airports/portslanding/en/index.html.

Concluding remarks

Turkey has based its disaster and emergency management system on lessons learnt, especially from the devastating earthquakes, which occurred in 1999 and has made quite a dramatic improvement in its management and coordination structure though the country is still in the transition period of institutionalizing the most recent changes. The "new system" has, fortunately, not yet been tested at the national level.

Turkey has a high level of political commitment to crisis preparedness and the proven capacity to respond to national and international disasters. The emergency response system has a strong legal framework; it is adequately staffed and well equipped. Regulations and detailed instructions at the national and regional levels define the coordination bodies, the designation of authority and the contingency requirements. Dedicated emergency and contingency funds are available at each administrative level. Resources for response and the surge capacity of the health facilities and the EMS system are available at all levels (national, provincial and local).

Hospital capacity is huge in terms of number of beds, availability of trained staff, and accessibility to equipment, contingency supplies and modern medical technology. The EMS is well resourced with staff, ambulances (many with full resuscitation capacity), contingency, dispatch centres, etc. Preparedness activities are ongoing; these include community and staff training, as well as exercises and drills carried out jointly by different institutions. Every hospital is required to have a dedicated focal point for emergency preparedness, as well as an emergency response plan. Health promotion activities at the community level include emergency response and awareness-raising. A strategy for risk communication and public information during emergency situations exists.

The Ministry of Health could address a few issues, such as strengthening the capacity to assess the non-structural and functional vulnerability of critical health facilities and to introduce rapid health needs' assessments as a key management issue for relevant decision-making in the first 24 hours of an event. This would be part of a full-scale emergency preparedness programme.

Within the context of the global economic slowdown, it might be expected that the Ministry of Health of Turkey could face challenges in securing the necessary funds to sustain its highly sophisticated disaster and emergency management system. However, the economic indicators for Turkey show that, although health expenditure has risen rapidly since 2003, increases in both total and public health expenditure have remained affordable, attributable seemingly to an equally rapid economic growth in the country. *(24)* In addition, these increases in expenditure have been parallel since 2003 *(25)*.

Because of Turkey's unique position, with its broad experience in disaster situations and its advanced disaster and emergency management system, the country could play a leading role in training and research related to disaster risk reduction at global level.

The findings and recommendations outlined in this report could be used to identify priority areas for further joint Ministry of Health–WHO projects and activities. In this context, the Ministry of Health may wish WHO to facilitate the implementation of the IHR core capacities by introducing the *Hospital safety index: guide for evaluators (26)* for use in assessing the non-structural and functional safety of hospitals. As the given scenarios of a major earthquake include mass fatality situations, WHO could also assist by organizing a national workshop on the key issues related to the management of the dead and missing in disaster situations.

From their numerous international and national operations, Turkey has amassed vast experience in delivering medical aid in disaster situations. This experience should be shared and used for joint capacity-building activities in the WHO European Region. In this connection, WHO could also contribute by sharing with the Ministry of Health its experience in developing public health and emergency management courses for national and international managers.

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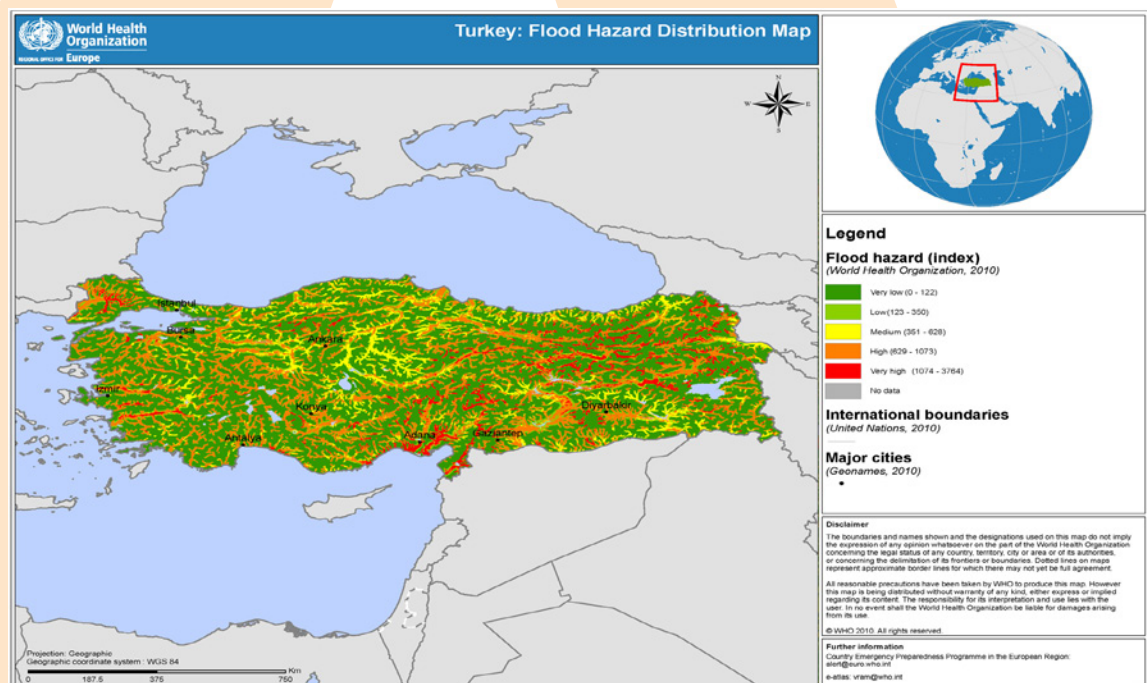
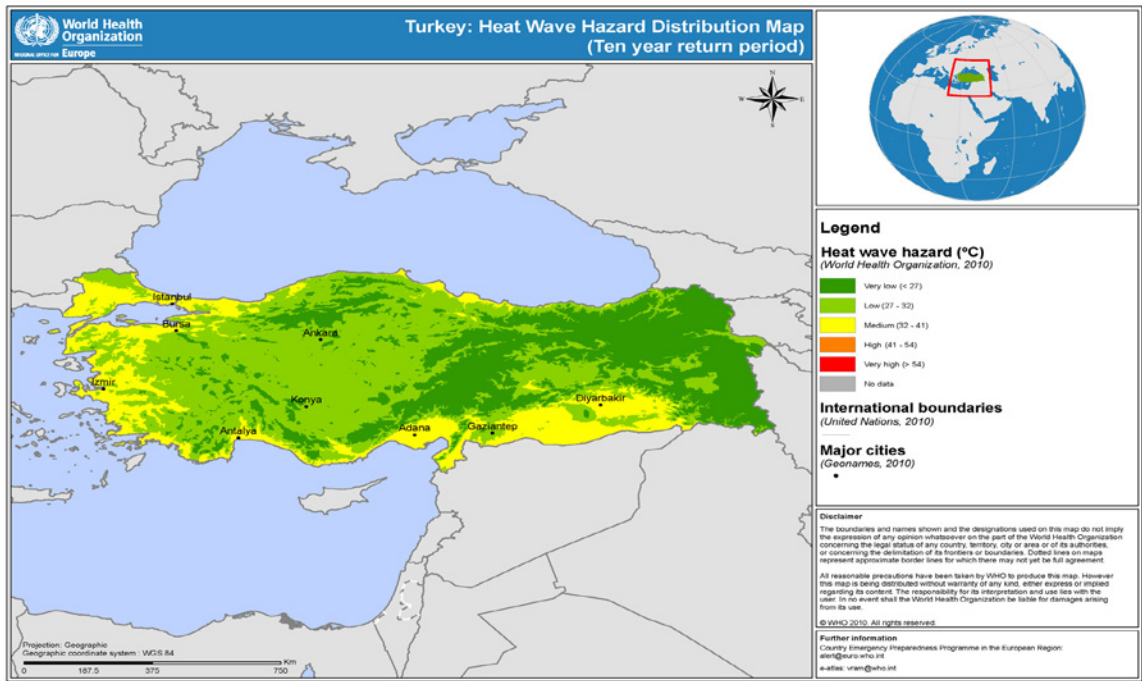# Annexes

Annex 1. Hazard distribution maps
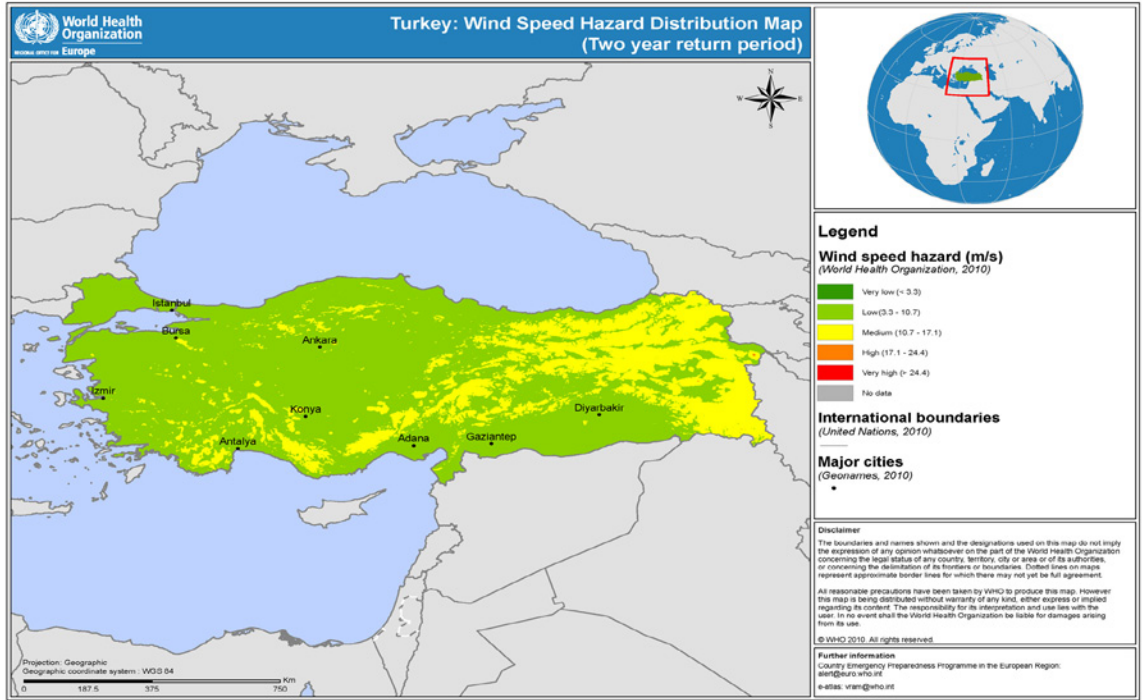
Map 1. Seismic hazard distribution in Turkey
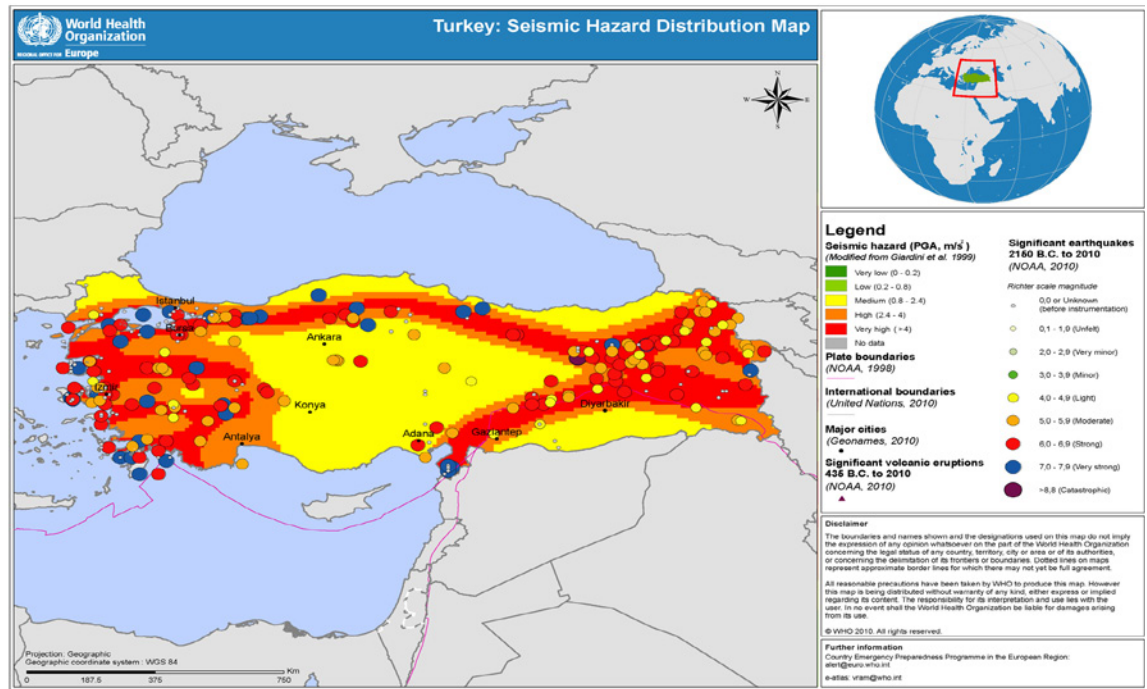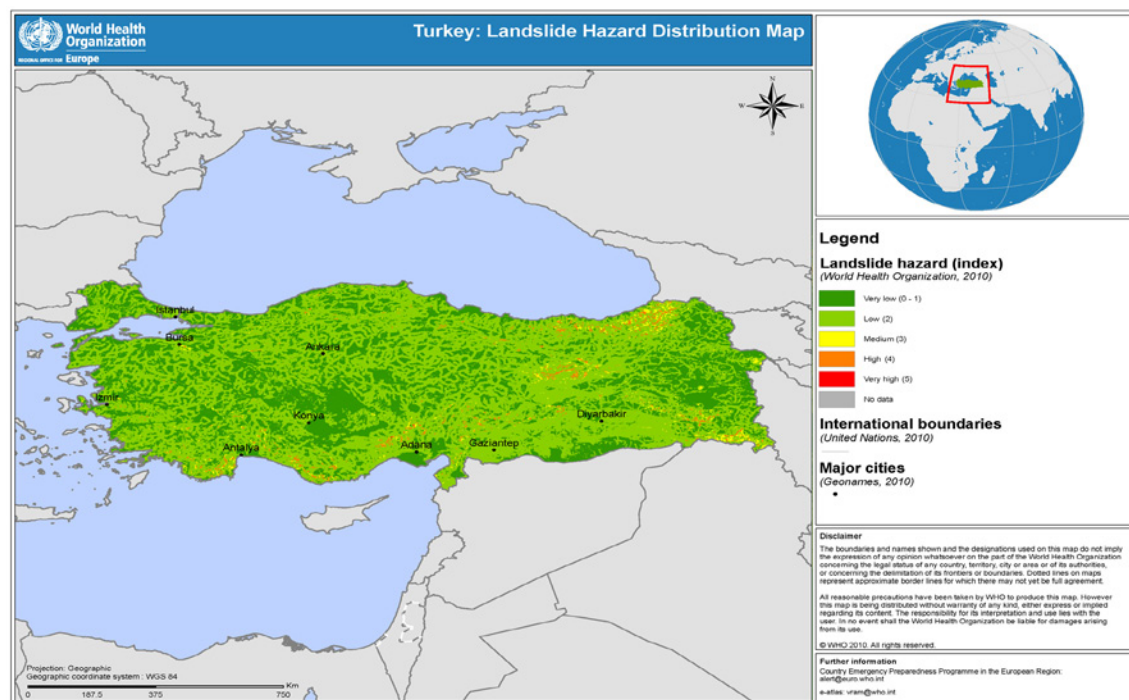

Map 2. Flood hazard distribution in Turkey

Map 3. Heat wave hazard distribution in Turkey

Map 4. Wind speed hazard distribution in Turkey

Map 5. Landslide hazard distribution in Turkey

60

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Annex 3. National workshop on assessment of health systems' crisis preparedness in Turkey, Ankara, 27–28 September 2010

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Deputy Head

Annex 4. Institutions and organizations visited

Erzurum

Fire Brigade

Pasinler State Hospital

Pasinler District Hospital

Erzurum Regional Hygiene Institute

112 Command Center

Provincial Health Directorate

Erzurum Provincial Crisis Center

Erzurum Regional Training and Research Hospital

Helicopter Ambulance Service

Provincial Directorate of Youth and Sports

Ankara

Emergency Section of Provincial Health Directorate

112 Command Center

Ankara National Research and Rescue Team

Hacettepe University Disaster Research and Implementation Center

Public Health Department of Hacettepe University Medical Faculty

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Istanbul

Governship of Istanbul (Provincial Disaster and Emergency Directorate)

AKOM (Disaster Management Implementation and Research Centre)

Bakirkoy Dr Sadi Konuk Training and Research Hospital

112 Provincial Ambulance Service, Command and Control Centre

National Medical Rescue Crew Centre

Provincial Health Directorate depots

Bogazici University, Kandilli Observatory and Earthquake Research Institute

Emergency Public Hospital

Umraniye Training and Research Hospital

Heliport of Umraniye Training and Research Hospital

General Directorate of Health for Borders and Coasts

AKUT (Search and rescue organization)

MAG, Prince Island's Disaster Volunteers' Organization

Governship of Istanbul, Research and Rescue Unit Directorate (YESILKOY)

Annex 5. Structure of the WHO tool for assessment of country preparedness for crises

(By WHO health systems' building blocks, key components and essential attributes)

1. Leadership and governance

1.1. Legal framework for national multisectoral emergency management

1. Laws, regulations, administrative requirements, policies or other government instruments and procedures relating to multisectoral emergency management
2. National multisectoral emergency management structure

1.2. Legal framework for health-sector emergency management

3. Laws, regulations, administrative requirements, policies or other government instruments and procedures relating to health-sector emergency management
4. Health-sector emergency management structure
5. Regulation of external emergency health assistance

1.3. National multisectoral institutional framework for emergency management

6. National multisectoral emergency management committee
7. National multisectoral operational emergency management entity

1.4. Health-sector institutional framework for emergency management

8. National health emergency management committee
9. Health sector operational emergency management entity
10. Coordination and partnerships mechanisms

1.5. Health-sector emergency management programme components

11. Health-sector risk reduction programme
12. Emergency preparedness programme
13. National emergency response plans
14. Research and evidence base

2. Health workforce

2.1. Human resources for heath-sector emergency management

15. Human resource development
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 activities, hospitals, temporary health facilities and public health
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. Risk assessment and preparedness programme information system
22. National health information system
23. National and international information-sharing
24. Surveillance systems

4.2. Information management systems for emergency response and recovery

25. Rapid health needs' assessment
26. Multisectoral initial rapid assessment
27. Emergency reporting system

4.3. Risk communication

28. Risk communication strategies for the public and the media
29. Strategies for communicating risks to responders involved in emergency operations

5. Health financing

5.1. National and subnational financing strategies for emergency health management

30. Multisectoral financing mechanisms for emergency preparedness and management
31. Health-sector financing mechanisms

6. Service delivery

6.1. Response capacity and capability

32. Subnational health emergency response plans
33. Surge capacity for subnational health-sector response
34. Management of prehospital medical operations
35. Management of mass-fatality situations and missing persons

6.2. Emergency medical services 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 emergency response and recovery plans

6.4. Continuity of essential health programmes and services

    39. Health services and continuity of delivery of essential hospital services

    40. Prevention and control of communicable diseases and immunization

    41. Mother and child health care and reproductive health

    42. Mental health and psychosocial support

    43. Environmental health

    44. Chronic and noncommunicable diseases emergency preparedness programme

    45. Nutrition and food safety

    46. Primary health care

    47. Ensuring 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

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.

Member States

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Austria
Azerbaijan
Belarus
Belgium
Bosnia and Herzegovina
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Cyprus
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Estonia
Finland
France
Georgia
Germany
Greece
Hungary
Iceland
Ireland
Israel
Italy
Kazakhstan
Kyrgyzstan
Latvia
Lithuania
Luxembourg
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Norway
Poland
Portugal
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Romania
Russian Federation (the)
San Marino
Serbia
Slovakia
Slovenia
Spain
Sweden
Switzerland
Tajikistan
The former Yugoslav
  Republic of Macedonia
Turkey
Turkmenistan
Ukraine
United Kingdom (the)
Uzbekistan

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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