

Kazakhstan Country Report 1999

Agency for Emergency Situations

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I . Introduction

The Republic of Kazakhstan is a sovereign state located in Central Asia. With an area of 2,717,300 sq km, it is the ninth largest country (in area) in the world. The Republic is located between 40° 56' and 55° 26' latitude north and 45° 27' and 87° 18' longitude east. Kazakhstan borders the Russian Federation, Uzbekistan, Kyrgyzstan, Turkmenistan and China. The total length of the Republic's national border is 15,000 km. The population of Kazakhstan is approximately 15 million. The capital is Astana.

The Republic of Kazakhstan is a unitary state with a presidential form of government. Nursultan Nazarbayev is the President of Kazakhstan. The Republic of Kazakhstan has a National Governmental structure with a 2 chamber Parliament.

II . Natural Hazard Assessment

The natural features of Kazakhstan include the high mountains of the Tien Shan and Altai, extensive lowlands and plains, deserts, forests, large rivers and reservoirs, including the internal Caspian and Aral Seas. They

contribute to several different threats of natural disasters. The wide spectrum of potentially dangerous natural phenomena characteristic to Kazakhstan includes:

- a) Earthquake;
- b) Debris flows;
- c) Floods (including seasonal flash flooding);
- d) Snow avalanches;
- e) Forest and steppe fires.

In the south and southeastern areas of Kazakhstan there are 27 cities and more than 400 occupied settlements. These areas comprise more than 40 % of the industrial potential of the country. Approximately 6 million people, (more than one third of the country's population) live here. In the last century, earthquakes have repeatedly been reported, some greater than force 8 on the Richter scale. In these areas the most powerful earthquakes were: Vernoye (1887, magnitude = 7.3), Chilik (1889, I = 8.3), Kemin (1911, I = 8.2), Zaisan (1990, I = 6.3), Baisorum (1991, I = 6.5) and Tekely (1993, I = 7.3).

Owing to intensive development of the economy, the increase in potentially dangerous processes and materials and the concentration of the population in seismic risk areas, the potential damage from strong earthquakes has increased drastically. The Agency for Emergencies of the Republic of Kazakhstan estimated that in the case of a magnitude 9 Richter earthquake in Almaty with its population of 1,350,000 people, that the total number of people injured or affected would be 300,000. Of these, some 75,000 people would likely be killed. Approximately one third of all residential buildings in Almaty would be destroyed.

Among the wide spectrum of dangerous natural phenomena characteristic of Kazakhstan, debris flows are some of the most serious in both scale and consequences. These drastic events have repeatedly struck the south-eastern region of the country for last 45 years. In the mountainous areas of Kazakhstan there are: 2,720 glaciers, 5,140 debris catchment areas, more than 300 debris basins, and over. 500 dangerous glacial lakes. Many debris flows have resulted in significant destruction and loss of human life.

The direct material damage from even one of these debris flows can exceed tens of millions of dollars (US). As a rule, these debris flows result in drastic damage to the environment and its flora and fauna. They also interfere with effective development of mountainous areas.

Significant annual losses are also connected to the following dangerous hydro-meteorological phenomena: floods, seasonal flash floods, downpours, thunder-storms, heavy snows, heavy frost, ice, severe wind storms, and droughts. The entire territory of Kazakhstan is exposed to these phenomena. However, the plains of the central and northern territories are at greatest risk.

A dangerous situation develops annually on the coast of the Caspian Sea. This occurs when high winds cause waves of heights up to 2.5 -2.7 meters. Low territories are exposed to flooding for distances up to 20-25 km from the sea. This results in the breaking of protective dams and levees of petroleum storage areas, isolation of settlements, and damage to communications. The threat of this type of flooding has grown with the drastic rise of the level of the Caspian sea. This has aggravated the detrimental effects of wind-induced surges and spring flash floods.

Among the various hazards experienced in 1999 (for nine months) there were 21094 emergencies (on 14,1% less than in 1998 for the same period), in which 15887 persons have suffered persons (on 14,2% less than for appropriate period of 1998). Loss of life totaled 2393 persons (on 24,9% less than for 9 months of 1998). The material damage was estimated at 2500 mln. Tenge (in 1998 for the same period - 4075,4 mln. Tenge).

III. State management in emergency situations

The legal foundation in the field of emergency management of natural disasters in the Republic of Kazakhstan is based on ratified international agreements and contracts, the Constitution, Decrees of the President, and Laws of the Republic of Kazakhstan adopted in recent years. Among these laws are: "Law on Civil Defense ", "Law on Emergency Situations of a Natural and Technological Character", "Law on Fire Safety ", "Law on the Emergency Rescue Services and the Status of Rescuers", "Law on the National Safety in the Republic Kazakhstan ", "Law on the Health and (Epidemiological) Welfare of the Population ", "Law on the Legal Regime of Martial Law" etc.

The state management of the protection of the population, territories and enterprises from emergencies is carried out on a multilevel basis, beginning with the highest official in the state - the President of the Republic of Kazakhstan - down to the structures and organizations of the lower levels. The interaction of Government, central and local executive bodies, and other organizations is carried out within the framework of the overall state system for the prevention and reduction of emergency situations.

The Prime Minister heads the civil defense of the country. The direct management of activities by state bodies in emergency situations is assigned to the Chairman of the Agency for Emergencies of the Republic of Kazakhstan.

The Agency for Emergencies of the Republic of Kazakhstan is the central management body responsible for prevention and reduction of the consequences of natural disasters. Among its basic functions are:

- Development of proposals and implementation of the state policy in the field of protection of the population and territories from natural disasters;
- Maintenance and operation of the state system for prevention and response to emergencies;
- Coordination of actions of central and local executive bodies in the field of prevention and reduction of the consequences of natural disasters;
- Emergency civil planning;
- Training of the general population, officials of bodies of management, administrative boards of all levels, and emergency rescue formations in the steps to be taken in emergency situations;
- Realization of international cooperation, integration of the national system of civil protection with the relevant international structures;
- Realization of a system of measures to reduce the danger of natural hazards, preparation for and response to emergencies;
- Operative management of the activities of the emergency rescue services;
- Coordination of activities, control and maintenance of readiness of monitoring systems, communications and warning, Republican automated emergency information management system;
- Warning of the general population of emergencies;
- Organization and implementation of research on the problems of protection of the population and territories from emergency situations.
- State expert appraisal of compliance of construction projects and town-planning documentation as a part of the requirement for civil protection;
- Facilitation of humanitarian operations and the coordination of international humanitarian assistance.

The Agency for Emergencies has local bodies at the Oblast, Region and City levels. These are the: Oblast, Regional and City Departments, Civil Defense and military divisions, Centre for Emergency Medicine, Republican Emergency Rescue Unit, Republican Fire-Prevention and Anti-Debris Flow Service, training and information centers, the Water Rescue Service, the State Inspection of Prevention and Reduction of Emergencies, Territorial Emergency Rescue Formations, and also other enterprises and organizations. The total staff of the Agency is approximately 20 thousand.

All of the following bodies operate under the aegis of the Agency. They include : Interdepartmental State Commission for the Prevention and Reduction of Emergency Situations, Interdepartmental Commission for the Provision of Safety of Road Transportation, The Republican Epidemiological Emergency Commission, and the Scientific and Technical Council.

IV. Measures for the Reduction of Danger of Natural Disasters

In Kazakhstan, activities in the field of danger reduction from natural disasters are carried out according to the basic principles and tasks set forth by the international community within the framework of the UN's International Decade for Natural Disaster Reduction (IDNDR). In the Republic, a national IDNDR committee has been created and is headed by the Chairman of Agency for Emergencies. Its basic purpose is to implement internationally agreed principles to mitigate the effects of natural disasters and to improve the stability of the economy and society at the local and national levels.

1. Emergency Planning

Emergency planning issues are under the constant attention of the Agency for Emergencies and the Government of the Republic of Kazakhstan. The key laws and other regulatory legal acts adopted by the Republic in recent years form the basis for the implementation of emergency planning for natural disasters. Plans for response and reduction of consequences are developed for different types and scales of disaster events.

The plans for interaction with central executive bodies, and civil-military cooperation on the issues of response to emergencies are also developed.

Interested Ministries, Departments and central executive bodies carry out their planning within the framework of the overall plan of Civil Defense.

Planning of integrated actions of national Civil Defense forces within the framework of the Corps of the CIS countries is jointly conducted.

With the support of UNDP and with the participation of international experts, The Agency for Emergencies has begun working on a comprehensive Kazakhstan Natural Disaster Preparedness Plan. The project's goal is to eliminate existing gaps in emergency planning at the national level.

2. Training of Specialists and the General Population

Special attention is paid within the overall system of measures on reduction of danger, prevention and reduction of consequences of natural disasters in Kazakhstan to the training of the general population in actions required during emergency events. Dissemination of information and awareness about natural hazards specific to particular regions of the country is also being carried out. Training and re-training of emergency management staff and associated personnel is also conducted.

Republic's 27 training centers have trained more than 50 thousand trainees annually. Among these people are officials from different levels.

Practical instruction and realistic exercises form the basis of Civil Defense training. The main effort has been directed towards the preparation of rescue, engineering, reconnaissance, and other specialized formations. Training has focused on practical actions to be taken in the event of emergencies.

For the training of school children and students in different institutes, a special course was designed. It is called "Protection of Critical Life Support". Specialized schools and colleges follow another course called "Basics of Life Support".

The mass media is actively involved in the training of the population. Hundreds of announcements and short topical advisories are presented by specialists from the Agency on radio and TV annually. Ongoing dialogue with the population is carried out through booklets, videofilms and pamphlets.

Specialized training is conducted for headquarters staff. Also military training and exercises are ongoing. These measures are undertaken to train the emergency rescue teams and other related personnel.

3. Prevention of Emergency Situations

One of the most important directions of the Agency for Emergencies is the implementation of preventive engineering measures. All of these measures are directed towards the protection of the population and territories from natural disasters and the reduction of their consequences.

A unique complex of anti-debris flow protection structures has been created in Almaty City and Oblast. The total cost of the complex is in excess of 200 million US dollars. This complex includes large debris barriers, channel stabilization and sand-check dams for debris flows and seasonal flooding.

Reinforcement and protection of river banks in flood-prone regions of the country have been carried out. The complex of debris flow control structures is located in Almaty and Eastern Kazakh Oblasts.

Methods for coping with debris flows have been developed and realized in the mountainous areas of Kazakhstan. Snow avalanches are prevented by placement of tactical explosive charges.

Systems of warning and observation of debris flows, avalanches, seasonal flash flooding, and flooding are ongoing. Monitoring of seismic activity is also routinely carried out.

The state program for the seismic reinforcement of buildings and other structures in cities and settlements located in seismic zones has been implemented. New building norms and rules of construction in seismic zones are developed.

The modernization and improvement of the structure of the Emergency Rescue Service is being carried out.

V. International cooperation on Reduction of Natural Disaster Effects

The internationally recognized basis for international cooperation on the reduction of natural disaster effects and provision of assistance in case of emergencies, is defined by the following international agreements which are in force in the territory of the Republic of Kazakhstan (as of October, 1999):

- a) Intergovernmental agreement on interaction in the field of the prevention and reduction of consequences of natural and technological disasters - participants of CIS countries (Minsk, 1993)
- b) Agreement on cooperation and interaction in the field of study of earthquakes and forecasting of seismic danger of the countries of the CIS (Moscow, 1993).
- c) Agreement between the Governments of the Republic of Kazakhstan, the Kyrgyz Republic and the Republic of Uzbekistan on cooperation and interaction in the field of research on earthquakes and forecasting of seismic danger (Bishkek, 1995).

- d) Agreement on interaction of the states - participants of the Commonwealth of the Independent States in case of evacuation of their citizens from third countries in the event of the occurrence of natural disasters (Moscow, 1996).
- e) Agreement between the Government of the Republic of Kazakhstan and the Government of the Russian Federation on cooperation in the field of prevention of industrial failures, accidents, acts of nature and the reduction of their consequences (Moscow, 1994).
- f) Agreement between the Government of the Republic of Kazakhstan and the Government of Georgia on cooperation in the field of the prevention of industrial
- g) Decision about the Interstate purposeful program of the development of CIS Corps forces for liquidation of consequences of natural and technological disasters on period till 2010 (Moscow, 1998).
- h) Decision about the Interstate scientific and technical program of creation of the system of seismological monitoring of territories of the CIS states – participants (Moscow, 1998).
- i) Agreement between the Republic of Kazakhstan, Kyrgyz Republic, Republic of Tadjikistan and Republic of Uzbekistan about cooperation in the field of prevention and liquidation of emergencies (Cholpon-Ata, 1998).
- j) Agreement between the Government of the Republic of Kazakhstan and Cabinet of the Ministers of Ukraine about cooperation in the field of prevention emergencies and liquidation of their consequences (Kiev, 1999).

Kazakhstan enjoys the rights and privileges of full membership in the International Civil Defense Organization (ICDO). With these rights, Kazakhstan actively develops international relationships. Kazakhstan joined the IOCD in 1996 (the Law of the Republic of Kazakhstan ratified this decision in October, 1997). The representatives from Kazakhstan participated in the 12th and 13th sessions of the General Assembly of the ICDO. They were held in 1997 in Moscow and in Beijing in 1998.

After signing the framework document of NATO in 1994, Kazakhstan has become country - partner of NATO and a participant of the Program "Partnership for Peace According to the new strategy of NATO in the field of civil-military planning an cooperation in emergency situations, active bilateral contacts within the framework of the general program have been made. In 1997 the protocol on cooperation with the Federal Emergency Management Agency of the United States (FAI A) was signed. The working program of partnership between Kazakhstan and USA has been developed and is now being realized with participation of the USA through the National Guard of the State of Arizona, and from Kazakhstan by the Agency for Emergencies.

VI. International Workshop for Earthquake Response (IWER'99).

Almaty, 17-21 May 1999.

In period from May 17 till May 21, 1999 in Almaty (Republic of Kazakhstan) within the framework of the NATO program "Partnership for Peace" the International Workshop for Earthquake Response is conducted.

On stretch 1997-1999 Emergency Agency of the Republic of Kazakhstan together with Arizona National Guard (USA) was conducted work on preparation and realization of the given international measure, which was included in the 1999 Plan of international measures of the Republic of Kazakhstan.

With the purposes of realization of the given project the American party (Arizona National Guard and US CENTCOM) organized computer course in January, 1999

(Phoenix, USA) and also the costs connected to travel, accommodation and feed of the US delegation, on installation of five computer workstations and software, issuing of the publicity leaflet are covered.

The Kazakhstan party supplied aeronavigation and air service of special flight of the military transport plane from USA; transport maintenance of the participants of the Workshop, including the distinguished visitors; expense accounts and hardware.

The representatives of civil protection systems neighboring with Kazakhstan states have taken part in work of the international Workshop:

- Kyrgyz Republic

- Turkmenistan

- Republic of Uzbekistan

the observers from a number of CIS countries:

- Georgia

- Moldova

- Ukraine

- Romania

the representatives international and non-government agencies:

- NATO

- US Federal Emergency Management Agency

- International Federation of Red Cross and Red Crescent Societies

- Kazakh Red Crescent and Red Cross Society

- The Central-Asian Academy of Sciences of an Ecology both Safety of the Person and Nature

- European Bank for Reconstruction and Development

- Office for Foreign Disaster Assistance (USA)

- Organization "Doctors without Borders"

- Mercy Corps international and also employees of diplomatic missions accredited in the Republic of Kazakhstan. The main purposes and problems of the International Workshop were:
- Further solidifying of cooperation in the field of warning and liquidation of emergencies;
- Increase of a level of organizing work of civil protection services and rescue savings formations professional skills;
- The solidifying and coordination of activity of civil protection services of Central Asian region countries;
- Engaging of a public attention and broad stratum of the population to problems of preparation to acts of nature and minimization of possible negative consequences from such events.

Within two days of the International Workshop the computer simulation of the script of destructive earthquake in Almaty was conducted. The process of computer simulation was conditionally divided into 8 stages:

- Stage 1 - 10 hours after event
- Stage 2 - 24 hours (1 day)
- Stage 3 - 48 hours (2 days)
- Stage 4 - 72 hours (3 days)
- Stage 5 - 1 week (7 days)
- Stage 6 - 10 days
- Stage 7 - 2 weeks (14 days)
- Stage 8 - 40 days

The given simulation has allowed to complete a necessary complex of measures on response on this act of nature, which includes development both own rescue saving formations and adjacent with Kazakhstan states, their joint operations and coordination. The most complicated problems connected to saving, shelter and evacuation of the population, and also rendering of the first medical aid were considered.

The participants of the Workshop used the special software EIS/GEM Infobook, which was developed by the emergency managers for effective management in case of various crises and maintenance of a full spectrum of necessary saving works. This system is widely used in USA and number of other countries of the world.

Kazakhstan and all countries-participants (Kyrgyzstan, Turkmenistan and Uzbekistan) have received access to Partnership for Peace Information Management System (PIMS), which is the special program of the US Department of Defense and supports US and NATO goals on development of a joint database between USA and countries-partners. The management of work and service for PIMS is ensured from the main server in Belgium, whence all system changes and upgrades implemented here and distributed to other PIMS servers worldwide.

By the important stage of the International Workshop were the joint demonstration doctrines of the rescue saving formations of Kazakhstan, Kyrgyzstan and Uzbekistans shown excellent physical and technical training of the salvors and their precise coordination and coordination in operations in conditions maximum approximate to actual. Thus, the necessary theoretical and practical skills on management in extreme situations for conditions of Kazakhstan and, in particular, for Almaty City were obtained. During the International Workshop signing the 1999 Work Plan of American-Kazakhstan Cooperation in the Field of Emergency Preparedness and Disaster Management between US Federal Emergency Management Agency and Emergency Agency of the Republic of Kazakhstan was held. This document provides realization of seminars, courses and training, and also close information interchange and transfer of the scientific allowances, manuals and directories developed by FEMA to Kazakhstan party, which doubtlessly will be the valuable contribution to affair of warning and liquidation of consequences of extreme situations in the Republic of Kazakhstan. By the participants of the International Workshop is marked, that the regular realization of similar measures on various subjects on most typical for Central Asian region to acts of nature considerably will increase preparedness of all civil protection services to similar extreme situations. Realization of such measures in each from countries of Central Asia and, in particular in Uzbekistan in 2001 hereafter is possible.

VII. Turkey Earthquake. Kazakhstan Search and Rescue Team

In accordance with the Decree of the Government of the Republic of Kazakhstan the Search and Rescue Team of the Emergency Agency of the Republic of Kazakhstan conducted the humanitarian operations in the region suffering from the destructive earthquake in Turkish Republic August 19-27, 1999.

Structure of the Kazakhstan Search and Rescue Team included 19 persons: 15 first class salvors of the Republican Operative Rescue Detachment, 3 doctors of the Disaster Medicine Center. Mr. Valery Petrov (Deputy Chairman) supervised over work of the operating group.

The results of the Kazakhstan SAR Team activity:

1. 56 persons (one alive) are extracted from under blockages.
2. The first medical aid is rendered for 262 suffering among the local population.
3. More than 500 kgs of medicines to local state hospital are handed.
4. The products of a feed from a reserve of operating group and tent are handed to homeless inhabitants.
5. There was a practical help to other foreign saving subdivisions.
6. During the 4-th day the coordination of operations of the salvors and voluntaries from Germanium, Italy, Israel, enterprises of Turkey in Degirmrnderere was carried out.

In accordance with the Decree of the Government of the Republic of Kazakhstan (September, 1999) the additional humanitarian aid on a total sum more than \$ 100.000 was rendered to Turkish Republic (tents and medicines).

VIII. Conclusion

Taking into account its geography, natural conditions, and presence of a wide spectrum of natural hazards in the territory of Kazakhstan, the reduction of natural disasters and their consequences is an important priority in the strategy and policy of the Government of the Republic of Kazakhstan.

Appendix

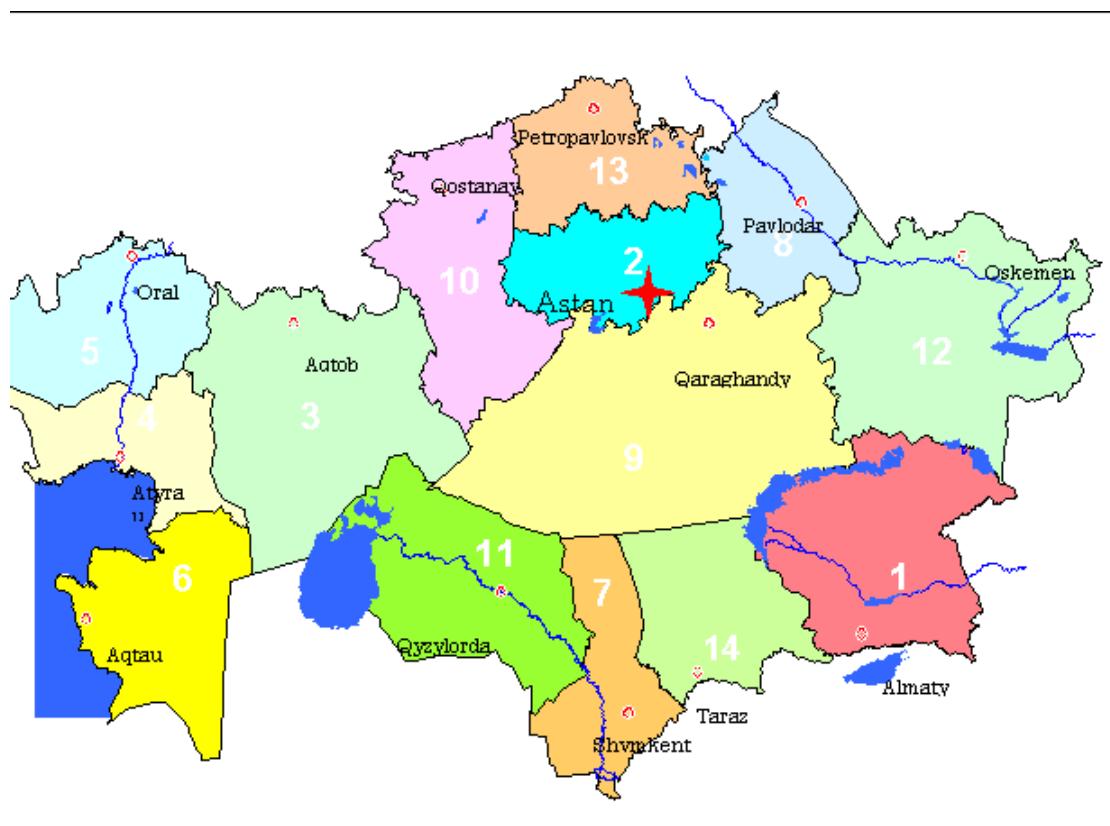


Figure 1. Republic of Kazakhstan

1. Almaty Oblisy, 2. Alcmola Oblisy, 3. Aktobe Oblisy, 4. Atyrau Oblisy, 5. West Kazakhstan Oblisy (Oral), 6. Manghystau Oblisy (Aktau), 7. South Kazakhstan Oblisy (Shymkent), 8. Paviodar Oblisy, 9. Karaghandy Oblisy, 10. Kostanai Oblisy, 11. Kyzylorda Oblisy, 12. East Kazakhstan Oblisy (Oskemen); 13. North Kazakhstan Oblisy (Petropavlovsk), 14. Zhambyl Oblisy (Taraz)



Figure 2. Ruptures of the earth surface formed during Kemin earthquake (1911).



Figure 3. Disastrous debris flow on the Malaya Almatinka River (1973).