"El documento original contiene imágenes en mal estado."

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ON CIVIL AND TERRITORIAL PROTECTION FROM NATURAL DISASTERS IN THE REPUBLIC OF KAZAKSTAN

The years 1990 – 2000 have been declared by UN the International Decade on Natural Disasters Reduction. In 1994 in Japanese Yokohama the first global results on plans implementation of this decade have been made, the long-term action Strategy of the world Community and natural disasters reduction. The outcome of the World Conference in Yokohama, Strategy and Plan of Action for a safer world, adopted at the Conference are fully backed and supported in the Republic of Kazakstan.

We express hope that the Asian Conference on natural disasters reduction convened by the initiative of the honourable Prime-Minister of Japan will contribute to solution of civil and territorial protection from natural disasters.

This summary report submitted to the Asian Conference on natural disasters reduction in Kobe presents information on the activities undertaken in the Republic of Kazakstan in the sphere of civil and territorial protection from natural disasters.

1. Vulnerability of the territory of the Republic of Kazakstan to natural disasters

The Republic of Kazakstan ranks ninth according to its size with territory of 27 mln. sq.km. and population of approximately 17 mln. Wide diversity of climatic zones is very characteristic of the Republic; the highest frosen mountains (more than 2 thou.sq.km.), lowlands and plains, deserts, oasis, forests, small and large lakes, "seas"(Aral and Caspian). The manufacturing base, represented by different sectors is

sufficiently developed: mining and refinery, power energy, agriculture. Due to some reasons the main negative feature of industrial enterprises is the wear-out of technological equipment up to 60-80 %. More than 550 enterprises function using in the technological cycle more than 440 thou.tons of virulent poisonous substances. The diversity of natural landscapes, developness of the manufacturing sphere and lack of the sufficient technological equipment presuppose the high hazardous level of catastrophes either of natural or technogic nature.

Southern and South Eastern part of Kazakstan (about 450 thou.sq.km.), as territories of many other parts of Central Asia is very seismic with earthquake magnitude up to 6 - 9 and higher (by MSK scale - 64).These regions saw the most destructive earthquakes: Vernoye (1887, M-7.3), Chilikskoye (1889, M-8.3), Keminskoye (1911, M-8.2), Zaisanskoye (1990, M-6.3), Baisorumskoye (1991, M-6.5), Tekelinskoye (1993, M-7.3). Seismically zoned about 27 towns and cities, more than 400 other settlements, with more than 40% of industrial potential of the republic, and 6 mln.people residing there. That makes 1/3 of the population of the country.

In all mountanous regions of Kazakstan (160 thou.sq.km.) hazardous exogenic phenomena are widely spread - floods, avalanches, snow-slides, landslides, hurricanes, and the vulnerability of the population to these phenomena makes 4 mln. people.

Significant annual losses are connected with hazardous phenomena of hydrometeorological nature: avalanches, floods, snow-slides, landslides, storms, hurricanes, frosts, drought. Practically the territory of the whole Kazakstan is vulnerable to all these phenomena, but they bear the heaviest negative impact on the plain territories.

The Caspian Sea problem has gained the emergent nature. From 1987 its level increased to 24 metres. Within Kazakstan the territory of 20 thou.sq.km. is under waters.Coastal sea line has moved to 20-40 km. and in some places - up to 70 km. The situation is worsened by winds (height up to 2,5-2,7 metres). According the available data the Caspian Sea level increase will go on up to 2010 and the acceleration of its level can make

additionally to the present level more than 1 meter.

Alongside with it lots of settlements, oilfields and agricultural territories are under waters for now. With further sea level increase large industrial and territorial complexes can be under waters, and then there would be ecological catastrophe hazard.

Opposite situation is with Aral Sea. As a result of unthoughtful using of water for irrigation purposes from Syr-darya and Amu-darya the Aral Sea shallowed and practically there is no sea for now.

It entailed in critical environmental situation in coastal and adjacent to it ares.

Situation with infectious diseases is unstable in the Republic. About 2 mln. diseases are registered annually. Special concern is for such diseases as infectious hepatitus, diphtheria, venereal and intestinal diseases, there are some cases of cholera and malaria infected outside the country. Some regions of the country are the natural seats of plague. The sanitarian and epidemiological situation analysis testify that one of the main reasons of infectious diseases acceleration is using of water from open water reservoirs for communal purposes. Besides, the intensive development of international contacts, significantly increased level of international cargo and passenger transportation add to dissemination of quarantine infectious diseases in the Republic.

Due to wear-out of principle funds, equipment and lack of the possibility to renovate them, the number of catastrophies and accidents in industry and transport is still significant (more than 100per year). Annual loss because of impact of disaster of natural and technogenic nature makes tens and hundreds million US dollars.

2. State Regulation of preventive measures from natural disasters.

In the Republic of Kazakstan on the State level the solution of the problem of natural disasters prevention is endowed to the State system of prevention and actions within emergencies. Structural subdivision of 19 regions, corresponding

division of ministries, institutions, state enterprises, concerns despite of their forms of property ontor this system. The nucleus of this system is the State Committee of the Republic of Kazakstan for Emergencies. It provides for the functions and development of the state system of prevention, loss reduction and liquidation of consequences of emergencies. Within this system the search and disaster renewing services are being formed, the issues on real rates of economic and legal measures to provide for safety of the population, environmental protection from disasters are being worked out, the order of funds logistical resources and reserves is being defined, the system of training and exchange of expertise with overseas countries is being organized

3. Legislative Basis

The legislative basis for State Preventive System functions within emergencies is the package of the President's and Government decisions, which provide for realization of the tasks endowed to the system.

Within the last 3 years a number of governmental decisions on formation of repair-rescue services of the Republic comprised of all professional repair-rescue and antifire teams alongside with civil protection military unitshas been made. Presently the work-out of draftlegislative acts on civil, environment and economic protection from natural disasters is under way. The above-mentioned laws enlarge and add the legislativeand normative-legal basis of the State Preventive System within emergencies.

4. Planning

The current activity of the State Preventive System within Emergencies is implemented in accordance with annual plan and long-term programme, approved by the Enactment of the Government in 1994.

The long-term programme on prevention and actions within emergencies stipulates the solution of problems in the sphere of natural disasters scientific research formation and innovation of

methods and techniques to forecast of hazardous phenomena, development of the experts system, collection of logistical, foodstuff, medical and other resources, upgrading of the system of communication, automatic informative systems of prevention and actions within emergencies, establishing of data base, implementation of engineering and technical arrangements in seismic constructions, preparations of draft legislative acts for legal provision of the republican system on prevention and actions within emergencies, planning of international cooperation and etc.

5. Financing

Arrangements on civil protection, alongside with the protection of economic entities and land in Kazakstan is implemented out of federal and local budget, ministries, enterprises resources and also of private contributions. In case of catastrophical emergencies the Government reserve to finance emergencies is envisaged. In 1995 its volume made 1172 mln. tenghe (about US$ 20 mln.) Using of these funds is implemented in accordance with proposals of the State Committee for Emergencies and with its lack the additional grants can be allocated out of federal budget by the Government decision.

6. Reserves

To implement the tasks on civil protection from natural disasters in the State System of Prevention and Actions within Emergencies the setting of medical and logistical reserves is stipulated. Reserves are established on the state or local and institutional levels to liquidate accidents and small scale natural disasters. Presently due to difficult economic situation keeping of reserves for emergencies encountered with certain difficulties

7. Equipping of repair-rescue services

The central and local executive authorities, despite the difficult economic situation is to undertake possible measures

to equipping the repair rescue services with special technique and tools, increasing their preparedness to rescue works while liquidating the consequences of natural disasters.

8. Population and experts' training and exercises.

Special attention is paid in Kazakstan to training civil people and heads of enterprises to rules and action plans within emergencies. Training is organized given the categories of the population. Students are taught the course "The basics of strategy" at schools, Universities, heads of the enterprises are taught during the civil defence workshops on federal and local levels.

Training of all categories is made through mass media (radio, TV, press), and also with the help of trainings and exercises according to different types of emergencies. earthquakes, overflow of poisonous substances, avalanches etc.

Special attention is placed to holding of seismic trainings in seismically hazardous regions of the republic.

In average annually about 50 thousand of heads of the institutions and experts get training and approximately 1,5 mln. different kinds of leeflets are disseminated among the population, and a number of Radio-televisioned programmes are on air.

9. Main achievements on task realization of UN International Decade on Natural Disaster Reduction.

During the 1st half of the UN International Decade on Natural Disasters Reduction Kazakstan has made a signicant part of work of preventive kind on civil protection, alongside with the protection of environment, economic entities from natural disasters impact and their prognossing.

a) seismic research

Currently in Kazakstan the republican system of seismic research and earthquake prognosing is under formation now. The system is comprised of 36 seismic stations, 9 geophysical observatories: at 11 stations the hydrochemical and hydrodynamic observations are held, at 3 observatories the deformographic

measurements are done, 6 stations serve as places for researching the unusual animals behaviour.

The Republican system of seismic research and earthquake prognoses are comprised of the Institute of Seismology, National Academy of Sciences and a number of other concerned Institutions involved in seismic hazards research. The Scientific Community of the Republic of Kazakstan worked out methods of assessing seismic hazards and short term earthquake prognossing. Definite progress has been achieved in solving of middle-term and long-term earthquake prognossing. Special centres for seismic monitoring in the most hazardous regions have been established.

b) seismic construction

Sound program has been achieved in seismic construction. Specialized Institute of seismic construction with pilot base which is considered to be one of the leading institutes of the former USSR is established in the Republic. With its active involvement the normative and standard ruleson seismic constructions of civil and industrial buildings, systems of seismic isolations, and also constructions with changeable dynamic parameters etc. has been worked out. The recommendations classifying present buildings, methods of their hardening, adopted in CIS countries has been designed. The Institute possesses its own engineering - seismometric service for investigation of constructions during earthquakes.

c) protection from hazardous exogenic phenomena.

Regional projects of complex civil and territorial protection from avalanches, landslides, and snowslides are under stage-by -stage realization specialized state "Kazselezshchita" (Kazakstani snowslide protection) institute is functioning that is in charge of realization of the above mentioned projects.

d) protection of coastal territories of the Caspian Sea

To protect coastal territories of the Caspian Sea from floods Kazakstani - Caspian Sea Feasibility Project has been developed, which assesses the consequences of the possible flooding of these territories and the list of the required protective measures is justified there, with definition of the volume and cost of the anticipated works.

Currently the works moving a number of settlements from the zone of flooding with erection of dambs are under way.

e) protection from hazardous technogenic phenomena

At some enterprises with hazardous manufacturing process changing of the technological equipment has been executed, and work at some of them has been stopped.

f) antiepidemic measures

State sanitarian - quarantine services have been established in Kazakstan. Active measures on dissemination of diseases prevention and protection, anticpidemic and deratisational measures are held in the Republic.

10. Liquidation of Zaysan earthquake consequences

Zaysan earthquake (June, 14. 1990) was entailed in significant destructions of buildings at a vast territory of Eastern-Kazakstani and Semipalatinsk region of the republic with a heavy economic loss.

Within the first days of the natural disaster the Government of the Republic of Kazakstan and specially established Government Committee settled the issues like provision for those who suffered during the earthquake and rendering to them of the first medical aid. 4270 tents, 3590 jurts (Kazak houses) 1090 special trucks, 3230 gas stoves and many other goods and foodstuff were taken to these places and distributed among people by all kinds of transportation.

From 1990-1993, for the whole period of renovation works, more than 6600 flats (totally 550 thou.sq.m.) were constructed, 16 schools (for enrollment of 2470 pupils) were put into operation. Practically in the region suffered from the earthquake the construction of new settlements was organized.

11. International cooperation.

Within the UN International Decade on Natural Disasters Reduction the international cooperation has gained momentum in different directions in the Republic of Kazakstan. Currently it is widely made in seismology and seismic construction sphere. Kazakstan scientists have close contacts China State Seismic Bureau, Department of Geology of University of Indiana, US Iris Corporation, Department of University Milano, scientific

community of Russia, Kyrgyzstan, Uzbekistan, Tajikistan and many other countries including Asian countries as well.

Research-Scientific Institute of Seismic Construction and Architecture of the Republic of Kazakstan has partnership relations with enterprises and institutes in CIS countries, Germany, India, Turkey, USA and others. The Republic of Kazakstan is a full member of the Interstate Council on Emergencies of natural and technogenic nature of CIS countries. Within the framework of this Council decisions are discussed and made over joint actions in the sphere of prevention of emergencies and liquidation of their consequences. Besides, Kazakstan has signed bilateral agreement on protection and liquidation of emergencies with Russia.

Between Government of Kazakstan, Kyrgyz Republic and Uzbekistan the tripartie agreement over cooperation and mutual actions in the sphere of earthquake investigation and seismic hazard prognosing was signed.

Medical authorities of the Republic of Kazakstan regularly provide for exchange of information over epidemic situation with neighbouring countries . Cooperation with WHO, UN, far and near countries, namely with Russia, Uzbekistan, France, Central and Western European countries, Central Asia is implemented.

12. Humanitarian Aid

Despite the difficult economic situation Kazakstan in 1992-1995 rendered required humanitarian aid to a number of countries and republics during emergencies. Among them: Kyrgyz Republic, Tajikistan, Armenia, Chechnya, Afghanistan, Russia. Mainly this aid has been realized with foodstuffs, medicine, construction and fuel materials. Totally Kazakstani humanitarian aid made up approximately US$ 2 bln.

13. Proposals on international cooperation development

The main efforts in the natural disasters reduction in the Republic of Kazakstan are directed to setting of a reliable system on mitigation of hazards from earthquakes. This system is to be comprised of true seismic hazard prognosis, rational

planning of construction works in seismic zones, setting and application of advanced building constructions, efficient seismic hardening of current sites and civil preparedness to rules and way of behaviour within emergencies.

The above-mentioned problems globally are far from being finally settled, and the existence of vast national territories subject to earthquake hazard, with population of 1,6 bln. people put them to the level of humane. They have special place in Kazakstan. But economic hardships and lack of investments don't allow to provide the people of seismic zones with the appropriate housing and establish reliable life provision systems.

I believe the same picture is characteristic for the bulk of Central Asian countries (Kyrgyzstan, Tajikistan, Uzbekistan, Afghanistan, India, Pakistan etc.)

Losses due to earthquakes deprive these countries of significant financial and material resources, which otherwise could be used for the purpose of their economic development.

We would like to draw attention of the esteemed forum to the necessity of working out and realizing of the Interinstitutional Programme on earthquake reduction in Asia. With the appropriate investment backing rendered by UN bodies, donor- countries from developed countries this programme would enable to hold long-term and logical scientific research and practical work given the global expertise and pecularities of living and traditions of Asian peoples and would contribute to realization of human rights to life safety and standard living opportunities. Such a programme could be worked out in 1996-97 involving experts and scientists from Japan, alongside with experts of other states.

To coordinate the works over the Programme and provide its practical implementation it is thought as appropriate the establishment of the International Centre in Central Asian region over issues and problems of seismic construction and seismology. Given the availability in the Republic of Kazakstan of the significant research and practical potential in seismic construction and seismology, and support rendered by the Secretariat of the International Decade on Natural Disasters Reduction and the corresponding resolution of the Central-Asian

Conference on regional cooperation, convened under UN aegis (Kyrgyzstan, June, 5-7, 1995). Government of the Republic of Kazakstan could provide with the research potential available in the Republic to the disposal of the International Centre and suggests Almaty as the Centre headquarters.

Kazakstan stands ready to participate in preparation and solution of the required organizational and any other practical issues on working out of the programme and establishing of International Centre with the following main tasks:

- organization of joint research of scientists of different countries in the sphere of setting effective seismic constructions;
- work out of economic methods of antiseismic hardening characteristic for Central-Asian regions;
- consideration and analysis of heavy earthquakes consequences and their impact on the construction of different types with the aim of working out the corresponding construction;
- swift exchange of seismological data;
- work out and design of a new seismic equipment for dynamic tests of building constructions;
- training of experts in different spheres over the problems mentioned above.

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