

The National Report of the Russian Federation
for the Medium-Term Review of IDNDR and the World Conference
on Reduction of Natural Disasters Danger for the Year 1994

1. The General Review and the Brief Progress Report.

The ideas of IDNDR enjoy a wide support and understanding in Russia. In 1993 the Russian Federation joined the member states of IDNDR which was proclaimed by the General Assembly of the United Nations for the period up to the year 2000.

The target of the Decade meets the interests of the whole world community including the Russian Federation where around 150 various natural disasters take place^{annually}, which do considerable damage. Therefore the government of the Russian Federation has taken a decision on setting up the National Committee on IDNDR in Russia. The National Committee comprises representatives of ministries and agencies, research institutions, and mass information media. The individual personnel of the National Committee is approved by the government of the Russian Federation. The National Committee holds its meetings at least two times per year.

The Presidium is formed in the National Committee, which considers operative questions and numbers eleven persons. Seven subcommittees are set up on different problems of reduction of natural disasters danger.

The Scientific Council is established on IDNDR problems in the Russian Academy of Sciences.

The Inter-State Council of the Community of Independent States (CIS) on Emergency Situations of Natural and Technogenic Character has approved the proposal of Russia for coordination of activities of the CIS member states which have signed the Agreement on Cooperation in Prevention and Elimination of the Consequences of Emergency Situations of Natural and Technogenic Character. At its last meeting in October 1993 the Council supported the offer of the Director of the IDNDR Secretariat Dr. O.Elo of holding a regional working meeting on lessening of natural disasters danger on the territory of the CIS member states. The meeting was held in the city of Bishkek in Kirghizstan

in December 1993.

The National Committee on IDNDR of the Russian Federation has worked out a draft programme on participation of the Russian Federation in execution of IDNDR.

The programme at large will serve the basis for annual planning of specific projects, research and development work, practical steps for providing progress in different spheres of tackling the problem of natural disasters reduction. The programme can be corrected when needed. It will be accomplished by the year 2000. It is hoped that the programme will result in providing applied, standardized, methodological, technological and organisational documents and materials on the space-and-time evaluation of natural disasters danger, practice of safe land utilization and construction in the areas subjected to natural disasters, organisation of control, early warning and readily-responding systems, and also on questions related to the objects and interests of natural disasters reduction on the territory of Russia.

Specific subjects of research and development work which meet the objects and tasks of the Decade are considered in the research and technology programmes "Security of Population and National Economic Installations with an Account for a Risk of Natural and Technogenic Catastrophes" (Security Programme), "Global Changes Changes in Natural Habitat and Climate" and "Ecological Security of Russia".

Security Programme works out the research and technology, legal and socio-economical foundations of the national policy in providing security and protection of man, territories and environment against natural disasters and technological damages and catastrophes. The Programme is worked out for two stages, the periods of 1991 - 1995 and 1995 - 2000. Realization of the practical results of the Programme creates the necessary prerequisites for 2 to 3 times decrease in damages and natural disasters.

Global Changes in Natural Habitat and Climate Programme is aimed at elaboration of scientifically based forecasts of global changes in natural habitat and climate, their consequences, the methods of monitoring, and also of a system of steps which provide reduction in negative influence on economy and man and less effect of economic activity on natural habitat and climate. The Programme is planned for the period of 1991 - 1995. The Programme will result in forecasting the changes in climate and natural habitat which threaten to ecological systems and man or lead to grave consequences in economy. The Programme will enable development of detection and warning systems for population about geological, hydrometeorological, climatic ^{and} other dangerous natural phenomena. Above 200 research institutions take part in the Programme.

Ecological Security of Russia Programme is directed to concentrate and coordinate efforts of the science and technology potential of the country for tackling the urgent problems of providing stabilization and improvement in ecological situation. Besides, in the respective sections the Programme is oriented to reduction of dangerous effect of natural phenomena upon electric power and industrial installations, which can cause extreme ecological situations and disasters. The Programme is planned for the period of 1993 - 1995.

Lately a number of joint arrangements on IDNDR problems was held in the Russian Federation, namely:

- All-Union conference "Catastrophes and Mankind" (Suzdal, February 1991)
- meeting on the international project "Non-stability of Large Populated Territories" (Moscow, March 1993)
- All-Russia practical-scientific conference "Role of the Russian System of Warning and Actions in Extreme Situations in Combatting the Problem of Forming Safe Habitat for Man and Warning and Eliminating Extreme Situations" (Suzdal, May 1993)
- meeting on the international project "Evaluation of the Global Seismic Risk" (Moscow, October 1993)

- meeting of the working group of IDNDR Committee of the International Association of Seismology and Physics of Inner Structure of the Earth "Evaluation of Economic Losses Caused by Earthquakes" (Moscow, October 1993)
- working regional meeting on natural disasters reduction on the territory of the member states of the CIS (Bishkek, December 1993).

2. Evaluation of Risk.

The territory of the Russian Federation covers above 17 million square kilometers. It occupies the greater part of the Eastern Europe and the Northern Asia. It stretches to 4,000 kilometres in the meridian direction and to 9,000 kilometres in the latitudinal direction. The territory is remarkable for a variety of natural conditions and comprises several geographical zones and natural areas. Round 70% of the whole territory is occupied by vast plains while its rest part represents mountains and plateau. About 120,000 rivers run on the territory of Russia and their total length exceeds 2.3 million kilometres. They relate mostly to the sea basin of the Arctic Ocean. The total discharge of all rivers is approximately 4,000 cubic metres per year.

Because of such variety of natural features most of possible dangerous natural phenomena can occur on the territory of Russia. Moreover, the tendency of growth in their number is observed. For example, in the first half-year of 1993 they were recorded by 6% more than in the similar period of the previous year. The situation is complicated by economic utilization of the lands which are subjected to floods, tsunami, volcano eruptions and other negative and natural actions, and also to ecological troubles.

The situation in respect of natural disasters threat on the territory of the Russian Federation is complicated enough.

The seismically active zones include vast areas in the Far East, the Transbaikalian region, the Northern Caucasus where earthquake intensity can reach 8 to 9 magnitude. The general area of seismically

hazardous areas makes up about 20% of the territory. Earthquakes, like many other natural disasters, are dangerous not only by their direct aftereffects but also by their secondary affecting factors which happen as a result of damaged radiation and chemically dangerous installations. Reduction of possible consequences of the earthquake forecasted on the Kamchatka peninsula is an urgent problem now for the country.

Kamchatka and the Kuril Islands present another dangerous geophysical phenomenon, namely volcano activities. 41 volcanoes act on the Kuril Islands, with frequency of eruption once in one and a half years. Populated areas, especially on Iturup and Paramushir islands, find themselves in the zone of volcano activities. Reconnaissance of volcanic activities on these islands have showed that among 15 populated areas 5 are situated in the zone of volcanic danger, 7 are in the zone of high danger and 3 are in the zone of catastrophic danger. A number of populated areas on Kamchatka are also in zones of volcanic danger. The minimum distance here to the active volcanoes is 25 km which supposes a lower danger than on the Kuril Islands. As 56 volcano eruptions took place on the Kuril Islands alone during the present century, the volcanic threat is real enough.

On many territories of Russia, especially mountaneous territories, such geological, or exogenous, danger natural phenomena are typical as landslide, caving-in, avalanche, karst, abrasion, erosion, etc. Mud flows and snow-slips are especially dangerous. They have an effect upon populated areas, industrial installations, communications, vocational establishments and routes in mountaneous areas. Mud flows are typical of Caucasus, the mountains in the Southern Siberia and in the south of the Far East. Snow-slips occur annually in the areas of Caucasus, Khibiny and the Sakhalin Island. Mass snow-slips are recorded here once every 10 to 11 years. Snow-slips are less frequent in the mountains of Sayany, Chukotka and Kamchatka. Most extreme situations in our country are caused by dangerous

meteorological, agrometereological and hydrological phenomena such as storm, hurricane, tornado, squall, downpour, snowfall, hail, ice-covered ground, severe frost, heat, drought, flood. These phenomena are recorded annually from 100 to 150 on the territory of Russia. Upon estimations, the annual losses to the economy of the Russian Federation from floods, droughts, tornadoes and avalanches make up 3 to 4 milliard roubles (in costs of the year 1990) and 10 to 15 milliard roubles in individual years. Dangerous are sea hydrological phenomena especially tropical cyclones (typhoons) and tsunami.

Strong winds give a great deal of trouble. Especially heavy losses in men and materiel are caused by tornado. This disaster is hard to forecast and it happens on the territory of the country actually every year. It occurred above 200 times during 1950 - 1988. Most number of tornado is observed on the sea-coast of Caucasus, in the Rostov region, the Central Chernozem area, the Central area, seldom on the Urals and insignificant number is recorded in the south of the Western Siberia. Cyclones which are accompanied by strong winds and snowstorms, ice-covered ground and snow-drifts cause a considerable damage to the northern industrial areas in winter time. They result often in interruption on electric supply, malfunction of communication, stoppage of enterprises and transport.

Droughts are considered the most large-scale and prolonged natural disasters in Russia. They happen each 2 to 3 years in the Volga area and the Northern Caucasus and less frequently, each 3 to 5 years in the Central Chernozem area and the Eastern Siberia. Probability of droughts in the Non-chernozem area and the Western Siberia is less namely once in 3 to 10 years. Drought damage is calculated in milliards roubles. Grain shortage in relation to the average gross yield of grain during the previous five years was about 23% in the years of severe droughts.

The analysis proves that floods rank first from the standpoint of caused damage. Besides, this disaster is the most frequent. Floods

are displayed in the form of high waters, rain floods, wind waters, and also happen as a result of ice blockages and ice jams. Heavy rains are the prevailing cause of floods. In the Chita, Amur and Sakhalin regions, and in the Khabarovsk and Primorsk territories floods happen approximately each 5 years. Floods during the spring thawing can occur practically on all rivers of Russia but mostly they are observed on the rivers of the north-east and the east of the European part of Russia. The cities of St. Petersburg, Kalinin-grad, Rostov-on-Don, Arkhangelsk and others which are situated in the mouth of rivers are flooded by water forced by wind from the sea. Destructive consequences of this disaster are extremely high. For example, the flood on the Primorsk territory as a result of typhoon Judy caused the damage in the amount of 500 million roubles in July and the beginning of August 1989 in the costs of that time. 109 populated areas and 200,000 hectares of agricultural land were flooded, and about 300 bridges and 1,800 kilometres of roads were damaged. The flood in Buryatiya caused the damage in the amount of 53 milliard roubles in August 1993.

It is appropriate to mention here tropical cyclones, or typhoons, which cause damage quite regularly to the economy of the Far East. 3 to 4 typhoons fall upon the coast of the Pacific ocean annually on the average. In individual years their number reaches 8. The highest probability of occurrence of intensive typhoons is in the period from July to September. Passage of typhoons is accompanied by storm waters, downpours, heavy floods, landslides, mud flows. The annual economic damage caused by typhoons makes up about 100 million roubles (in costs of the year 1990) on the whole territory of the Far East.

Such terrible sea hydrological phenomenon as tsunami presents a considerable threat to the population of the Pacific ocean area. During the last 90 years above 100 tsunami were observed which reached high intensity, including nearly 20 tsunami by the coasts of Russia. The most catastrophic tsunami took place near our coasts in 1923 (Ust-Kamchatsk) and in 1952 (Severo-Kurilsk). Severo-Kuri-

Isk was actually destroyed. Above 10,000 people were perished. With the modern economic development of the coastal area of the Far East seas, tsunami of such scale will lead to the more heavy consequences.

Forest and peat fires are typical disasters of Russia and they create a serious threat to the population, the economy and the natural habitat. About 35% of the territory of the country are subject to these fires. As a result of prolonged dry weather, from 100,000 to 300,000 fires, including around 20,000 conflagrations, happen annually on the territory of Russia. The graviest fire-hazardous seasons repeat 2 to 3 times each ten years. Besides, in 2 to 3 regions of the country with the most unfavourable weather conditions forest fires assume a character of the natural disaster. In the last three years alone the fires destroyed or damaged above 4.8 million hectares of forests and the losses made above 430 milliard roubles in terms of the first quarter of 1993. Fires on the areas subjected to radioactive contamination present an extreme danger. Radionuclides are transferred together with smoke to non-contaminated territories.

Seats of natural infections such as plague, smallpox, cholera, ulcer and other dangerous illnesses of people and animals are preserved in the country. In 1993 locust, a terrible agricultural vermin, revealed itself.

Thus, the potential threat of natural disasters and other dangerous natural phenomena is extremely high on the territory of Russia.

When we speak about natural disasters on the territory of Russia we must mention the threat of extra, secondary affecting areas as a result of the effect of nature on industrial installations and economic infrastructure. Destroyed units of nuclear power engineering and escape of radioactive substances to atmosphere can cause extremely heavy consequences. Damage or destruction of units with other hazardous production can lead to fires, explosions, escape of virulent substances and biologically dangerous substances. Natural disasters can provoke transport crashes, damages on electric power systems, municipal life-support systems, industrial sewage disposal plants. Hydrodynamic damages characterized by break through overflow

weirs, dams or locks present a great danger. They can result in formation of shock waves and catastrophic flooded areas, uncontrolled high waters, and in washing away fertile soil or alluvium sediment on vast territories.

All the above said proves that the danger of natural disasters is not confined reduced only to the effect of the elements but is also fraught with a high secondary technogenic risk.

3. Activity Aimed at Lessening of Consequences of Natural Disasters.

Minding the importance of counteraction to emergency situations caused by damages, catastrophes, natural and ecological disasters the government of the Russian Federation adopted the resolution № 26I on April 18, 1992 "On Creation of the Russian System of Prevention and Actions in Emergency Situations (RSES)".

The main purpose of RSES is mastering of coordination in activity of state control bodies and unification of efforts of organisations, institutions and enterprises and their means for tackling the tasks of prevention and elimination of emergency situations including natural disasters.

RSES is headed by the State Committee of the Russian Federation on Civil Defence, Emergency Situations and Elimination of Natural Disaster Consequences (SCES). Placement of RSES under the guidance of the state committee made it possible to attach national importance to its activity and to raise it to the level of the state policy. RSES comprises territorial, departmental, functional subsystems and other bodies. The one and a half year existence of RSES has proved expediency of its creation.

Thus, as a member of the international Decade Russia has a system upon which it can support in this activity.

The target functions of the Russian system are:

- prevention of origin of emergency situations
- reduction of losses and damage from emergency situations
- elimination of emergency situations.

These functions are realized by control bodies, means and efforts of RSES.

As far as the possibilities for prevention of natural disasters are limited due to incommensurability of energy potential of the elements, on the one hand, and of the society, on the other hand, and also due to other reasons, the activity of RSES is restricted to prevention of relatively small-scale dangerous natural phenomena. For example, such measures are taken as destruction of obstacles in river-beds after landslides, premeditated release of accumulated mud lakes, preventive release of avalanches, prevention of hail after-effects, etc. These operations are conducted both by the existing services (avalanche fighting service and hail prevention service of the Russian State Committee on Hydrometeorology) and also by the units which are purposely set up for lessening of potentially dangerous situations.

Prevention or reduction of the level of possible losses and damage is carried out by a more wide range of measures. They include monitoring of natural habitat, forecasting of natural disasters, examination of construction projects, rational siting of productive forces from the standpoint of natural hazards, warning and other preventive measures for protection of population and the staff, improvement in physical strength of industrial installations, creation of protection hydrotechnical anti-mud, anti-avalanche and other engineering constructions, and other measures.

In Russia dangerous hydrometeorological phenomena are forecasted and early informed by the Federal Service of the Russian Federation on Hydrometeorology and Monitoring of Environment. On the basis of the Federal Service a functional subsystem is established in RSES for observation and inspection over natural hydrometeorological and heliogeophysical phenomena.

Ground observation network of the Federal Service includes above 2,000 hydrometeorological stations and 3,000 observation posts.

It is supplemented by space observation subsystem which operates by means of satellites Meteor-2, Meteor-3, Okean-OI, Resurs-OI. The observation data come into the prognostic departments of the Federal Service, which are included into the subsystem of information processing and elaboration of hydrometeorological forecasts. This subsystem can forecast, reliably enough and 1 to 4 days in advance, heavy prolonged rains, snowfalls, snowstorms, strong winds, floods and abrupt cold spell. Possible squalls, local downpours and hail are forecasted mainly 1 to 12 hours in advance. The timely forecast of the expected area of typhoon, the intensity of precipitation and the speed of wind 3 to 4 days in advance reduces the damage by 15%.

Forecasts of the maximum levels of spring high water are worked out for the whole territory of Russia 1 to 2 months in advance. Forecasts of rain floods and wind waters in the mouth of rivers are given from several hours to several days in advance. Data on the expected low water-levels are prepared one or more months in advance.

Snow-slip forecasts are compiled for mountain systems, mountain ridge slopes, main roads, sports constructions, economic and other installations. The available methodological basis provides snow-slip forecasts of 75 - 85% justification.

The Russian State Committee on Hydrometeorology includes a subsystem on tsunami prevention. It comprises 6 seismic stations and 53 observation posts at coastal hydrometeorological stations. Forecasting and respective information are based on recording of seismic waves which outstrip tsunami, on determining of the magnitude and the coordinates of the initiated earthquake, on estimation of probability of tsunami origin by the magnitude and geographical criterion. So far this system is inadequately efficient.

The United System of Seismological Observations operates in the town of Obninsk in Russia. It determines the sites of earthquake origin and its magnitude. The System has two levels namely supporting stations and regional centres. Stations of supporting network belong to the Russian Academy of Sciences and they submit efficiently data on earthquakes of above 4 magnitude to the Obninsk centre. Besides,

there are other stations which belong to different departments. Some of them form permanent seismic networks which are connected with the Far East Centre (Petropavlovsk) and the Western Siberia Centre (Novosibirsk). The specified and preliminary processed data are submitted by all centres to the Institute of Physics of the Earth of the Russian Academy of Sciences. New opportunities will arise, after the State Seismic Service is established, for observation and estimation of earthquakes.

The theory of earthquake forecasting and the principles of rational reacting on forecasts are still inadequately elaborated. It results in lacking of a reliable system of accumulation and transfer of information of prognostic character to the state bodies, and also of a mechanism of transfer on the basis of these data to the real measures aimed at preparation to a disaster.

The problem of forecasting the time and the place of volcano eruption is generally solved. This forecast is based on analysis of geophysical, geochemical and geological indications which testify, with different degree of probability, to the approach of eruption (seismism, deformation, temperature, composition and discharge of gases, variations of geophysical fields, etc.).

Observation of natural processes, forecasting of natural disasters and warning about them are needed to take measures beforehand for protection against them. In particular, in case of warning about the expected flood the committees in charge will specify the evacuation plans for population and material values and will arrange for control of flood release, adding of territories, measures on strengthening of the banks and deepening of the bottom, strengthening of dams and other hydrotechnical constructions. In case of other natural disasters there are also standard preventive measures which are quite efficient if they are taken timely.

The optimal account of natural risk in siting, designing, construction and running of economic, residential and social installations, and populated areas on the whole is the required condition for pro-

tection of people and production.

The results of observations of natural phenomena for many years are utilized by the State Committee of the Russian Federation on Architecture and Construction (Gosstroy of Russia), the Federal Inspection of Russia on Nuclear and Radiation Security (Gosatomnadzor of Russia), the Russian Committee on Hydrometeorology, and other ministries and departments of Russia in working out standards for construction and other types of designing. Among these standards there are "Climatic Conditions and Geophysics in Construction", "Loads and their Effects", "Determination of Designed Hydrological Characteristics", "Recommendations for Determination of Designed Characteristics of Tornadoes in Siting of Nuclear Power Stations", "Methodological Recommendations for Determination of Rated Speeds of Wind for Evaluation of Specific Effect on Constructions of Buildings and Premises of Nuclear Power Stations", instructions on determination of designed characteristics of rain mud, on designing and construction of anti-avalanche and anti-mud protection constructions, maps, cadastres and atlases of natural disasters of different kinds.

The following functional subsystems are created in RSES:

- protection of forests against fires on the basis of the staff and means of the Federal Service of Russian Forestry (Rosleskhoz)
- sanitary and epidemiological supervision on health of population in respect to environment on the basis of the staff and means of the State Committee of Sanitary and Epidemiological Supervision (Gossanepidnadzor of Russia)
- ecological security on the basis of the Ministry of Protection of Environment and Natural Resources of the Russian Federation (Minprirody of Russia).

These subsystems deal with realization of all target functions of RSES in its field but their role is especially great in carrying out of the first two preventive functions.

The third target function of RSES is elimination of emergency si-

tuations including the consequences of natural disasters. It includes collection and processing of effective information, cooperation with systems of communication and information, setting up of control, urgent reacting, rescue and other urgent jobs, material and financial supply, humanitarian aid, reconstruction, etc. At present RSES has at its disposal the formed control bodies and the staff which are able to solve this task.

SCES and also the ministries and the departments which participate in RSES are the control bodies which coordinate actions aimed at elimination of the consequences of natural disasters on the federal level.

To provide decentralization of control in the matters of counteraction to emergency situations Russia is divided into the following nine regions: Central, North-Western, Northern Caucasus, Volga, Urals, Western Siberia, Eastern Siberia, Transbaikal and Far East regions. Coordination of activity in the matters of counteraction on the regional level is carried out by regional centres of civil defence, emergency situations and elimination of the consequences of natural disasters, which are at the head of each region.

Coordination of activity in the matters of counteraction to emergency situations including elimination of the consequences of natural disasters is conducted in the republics within Russia, territories, provinces, cities and districts by committees on emergency situations, which are created by the respective bodies of executive power. Headquarters of civil defence and emergency situations act as working bodies of these committees.

The immediate executors of rescue and other urgent operations in the course of elimination of natural disasters are given below:

- troops of civil defence
- troops of the Ministry of Defence of Russia, which are purposely provided for elimination of emergency situations
- the Central aeromobile detachment
- regional rescue services
- troops and subdivisions of fire-prevention service of the Ministry

- of Internal Affairs of Russia
- fire-prevention, rescue and reconstruction units of ministries, departments and organisations
 - establishments and units of emergency medical and veterinary services
 - rescue units of public organisations.

Readiness of control bodies, forces and means of RSES is provided by introduced three modes of functioning the System:

- mode of every day activity
- mode of intensified activity
- emergency mode.

Qualified specialists are needed as well as population which is ready to act in emergency situations for successful solving of a number of problems related to reduction of natural disaster danger. It is achieved by training of control bodies, units, managerial staff, specialists and population. The system aimed at preparation of the Russian citizens for actions in emergency situations embraces each citizen by training, starting from his school years. Managerial staff of RSES is trained in the Academy of Civil Defence, teaching and methodological centres of civil defence and emergency situations, in some institutions of higher education, institutions for advanced studies and retraining. Teaching of population is provided regularly enough in comprehensive secondary schools and in institutions of secondary and higher education. Of a special importance here are such curricula as "Foundations of Security of Vital Activity" and "Security of Vital Activity". Training of working and non-working population in contrast to student youth is arranged worse and less efficiently.

The National Committee of the Russian Federation on IDNDR has worked out a draft programme for participation of the Russian Federation in implementing of IDNDR. The draft programme includes:

- the objectives which, when achieved, will provide creation of a regular system of local and regional means and adoption of respective measures of protection for population, economic structures and state control bodies against natural disasters and their consequences

- tasks which, after they are solved by consecutive elaboration of specific projects and subjects and are implemented into life, must secure achievement of the set objectives.

The programme will serve the basis for annual planning of specific projects, research and development work which provide progress in different spheres of tackling the problem of natural disaster reduction.

It is planned to accomplish the programme by the year 2000. It is hoped that the programme will result in providing applied, standardized, methodological, technological and organisational documents and materials on the space-and-time evaluation of natural disaster danger, practice of safe land utilization and construction in the areas subjected to natural disasters, organisation of control, early warning and readily-responding systems.

Specific research and development work and practical steps which meet the objectives and tasks of the Decade are considered in the research and technology programmes "Security of Population and National Economy Installations with an Account for a Risk of Natural and Technogenic Catastrophes" (Security Programme), "Global Changes in Natural Habitat and Climate", "Ecological Security of Russia".

Security Programme works out the research and technology, legal and socio-economic foundations of the national policy in providing security and protection of man, territories and environment against damages, catastrophes and natural disasters.

One trend in Security Programme is devoted to elaboration of the methodological foundations for reduction of the negative consequences of natural and natural-technogenic catastrophes. It is planned to work out the conception of risk, the standards for protection of population and material values, and the models of the origin and development of catastrophes. The problems of seismicity, seismic stability and seismic risk are received a particular importance. Compilation of maps of risk in relation to tsunami, hurricanes, typhoons and volcano eruptions is also considered an important job.

Another trend of Security Programme is creation of normative base and organisational and technical systems of warning and elimination of the consequences of natural disasters, and also tackling of other questions dealing with security. First of all, it relates to civil engineering installations and construction of populated areas and towns with an account for natural effects.

The State Science and Technology Programme "Global Changes in Natural Habitat and Climate" is aimed at elaboration of the scientific foundations of activity of the state under the conditions of global changes in natural habitat and climate. The Programme is planned till the year 1995 and it is supposed that it will result in forecasting the changes in climate and natural habitat which threaten to economic systems and man or lead to grave consequences in economy.

The State Science and Technology Programme "Ecological Security of Russia" is called to concentrate and coordinate efforts of the science and technology potential of the country for tackling the urgent problems of providing stabilisation and improvement in the ecological situation. The Programme is oriented to elaboration of the projects related to the problem of reduction of dangerous effect of natural disasters upon industrial and power engineering installations whose destruction can lead to emergency situations of the ecological character.

Within the Federal Target Programme "Creation and Development of the Russian System of Prevention and Actions in Emergency Situations" (RSES) the following three subprogrammes are worked out:

- training of population and specialists of the state control bodies of the Russian Federation and rescue forces in actions under emergency situations
- creation of automated information and control system of warning and actions under emergency situations
- equipping of rescue forces with technical means.

Realisation of these subprogrammes will improve readiness of the state control bodies, forces and means to actions in emergency situations.

The Programme "Construction in Areas of Extreme Natural Conditions" is aimed at reduction of socio-economic damage and prevention of death of people in the areas of dangerous natural and technogenic processes.

4. The System of Population Warning in Cases of Outbreak of Emergency Situations.

At the threat of outbreak of emergency situations and in the process of their development an important measure, directed to protection of people, is operational warning and information of population in the areas of disasters about the character and the scale of the threat, and the way of its conduct in the situation.

This is achieved by means of special systems of centralized notification of population, which include territorial and local systems.

Territorial systems of centralized notification of population are established within the boundaries of the subjects of the Russian Federation and they are organisational and technical amalgamations of services on duty, special control equipment and means of notification, and also channels and lines of communication for transmission of conventional signals of notification and speech information in emergency situations on the territory of the subjects of the Russian Federation. The systems are controlled from the respective headquarters of civil defence and emergency situations in which the equipment of the upper level of control is installed and the twenty-four-hour duty of the staff is arranged, who is responsible for operation of the territorial systems of centralized notification of population.

At outbreak of an emergency situation the managerial persons must be summoned in the first instance, who take decisions on appropriate steps for elimination of the consequences. A special equipment of conference call is used for operational notification of these persons. This equipment is installed in unattended telephone exchanges and, when switched on, provides

transmission of the previously recorded information to office and home telephones of the respective managerial persons. This equipment is an integral part of territorial systems of centralized notification.

Local systems of notification are used for notification of the staff of potentially dangerous installations (nuclear power stations, dangerous chemical enterprises, etc.) and the population who lives in the immediate proximity to these installations.

Local systems are organisationally and technically integrated with territorial systems and are integral parts of the latter.

5. International Cooperation.

The main trends of activity in international cooperation within the framework of IDNDR for SCES of Russia were and remain the following aspects:

- creation of the contract and legal documents and development of multilateral and bilateral cooperation on the basis of these documents
- development of cooperation with specialized organisations of the United Nations
- assistance in integration of the Russian System of Warning and Actions in Emergency Situations (RSES) with foreign systems of similar designation
- organisation of study and dissemination of foreign experience
- providing measures dealing with supply of humanitarian aid to foreign countries.

The contract and legal documents must include continuity of obligations arising from the agreements of the former USSR and also new initiatives of the Russian Federation in foreign policy. In January 1993 an inter-state agreement of the CIS was signed on cooperation in prevention and elimination of the consequences of emergency situations of natural and technogenic character. It specifies the principles of cooperation, the mechanism of working out and taking decisions in case of heavy catastrophes and the creation of the Inter-state Council.

Bilateral agreements with some states of the CIS are initialled and with other states are in the process of drawing up. Similar work is under way with competent bodies in the Central and Eastern Europe. On May 18 - 20, 1993 in Moscow the Second International Conference of the countries of the Central, Eastern and South-Eastern Europe was held on cooperation in civil defence and protection against catastrophes. The Conference was also attended by representatives of the states of Transcaucasus and the Middle Asia. Delegations from 22 states and 6 international organisations took part at the Conference as well as Deputy Secretary-General of the United Nations, Director of Department of Humanitarian Matters Mr. Jan Eliasson.

The Conference consolidated the intention of the parties to cooperate both on the bilateral and regional basis and created the conditions for working out a convention on coordinated assistance in emergency situations in this region of Europe. A draft convention was proposed by Russia. Russia set an example of expediency and possibility of regional interaction to the world community.

Considerable attention is paid to creation of the contract and legal documents and to development of business relations with highly developed countries in the world such as the Federal Republic of Germany, Italy, France, Finland, Spain, Switzerland and other countries.

Active cooperation is developing with the state rescue service of Sweden.

Regions are developing cooperation with their neighbouring states especially in boundary areas. Such cooperation is developing in the North-Western, West-Siberian, East-Siberian, Transbaikal and Far East regions.

An important direction in activity of the Russian National Centre is development of cooperation with specialized agencies of the United Nations such as Department of Humanitarian Matters (DHM), Centre of Urgent Ecological Assistance (CUEA), Office of the United Nations High Commissioner for Refugees (UNHCR), Eco-

conomic Commission for Europe (ECE), and also with other international organisations including European Economic Community, Partially Open Agreement of the Council for Europe on Forecasting, Prevention and Rendering Assistance in Natural Disasters and Technological Catastrophes (POA), International Organisation of Civil Defence (IOCD), NATO and others. The Russian government appointed SCES the leading body in interaction with DHM, POA and in matters dealing with joining our country IOCD.

The meetings of the permanent representatives and later the ministers of the competent bodies of the member states of POA which took place in Moscow and the discussions which were held between the leaders of SCES of Russia and DHM, UNHCR, Secretariat of IDNDR, IOCD have created prerequisites for purpose granting positions in these organisations to Russian representatives of SCES, which enables Russia to maintain a more goal-oriented cooperation with them.

SCES of Russia has worked out a draft agreement between the government of Russia and the Centre of Urgent Ecological Assistance of the United Nations about cooperation in prevention and elimination of emergency situations, exchange of necessary information and providing services on the non-free basis for its participation in elimination of damages and catastrophes which can lead to heavy ecological consequences. A draft agreement is also worked out between our government and Office of the United Nations High Commissioner for Refugees about ^u participation of SCES of Russia on the non-free basis in operations of the United Nations on rendering humanitarian assistance to the victims of international conflicts.

Russia supports actively the programme launched by DHM about utilization of resources of the armed forces and the civil defence for providing international assistance in natural disasters. Together with European Economic Community and NATO SCES of Russia works out one section of this programme.

Joining IOCD has created prerequisites for opening a regional centre of IOCD in Moscow, which in its turn will make it possible to draw into its activity ^u the CIS countries on a wider

scale. Besides, active participation of Russia in IOCD will provide access of the Russian rescue and other special equipment to the markets of the developing countries.

The contacts with the Department of Civil Planning of NATO in emergency situations have revealed the existence of a joint basis for cooperation. In particular, it is planned on the initial stage to exchange by groups of specialists and scientists with the purpose of working out joint programmes on planning and taking actions in emergency situations, and to carry out work on the DHM project on utilization of resources of the armed forces and the civil defence in the areas of natural disasters.

The third trend in international cooperation is assistance in integration of the Russian System of Warning and Actions in Emergency Situations with foreign systems of similar designations. For this purpose information exchange is undertaken with the European System of Notification, which is established within the framework of POA, with the system of notification of the DHM branch in Geneva and also with communication posts of national and international centres which participate in tackling the problems of prevention and elimination of emergency situations. The reliable and timely communication with foreign partners is a pressing task which contributes to this cooperation.

In the integration plans priority is given to coordination and joint actions of inter-national forces which ensure quick responding and intensification of efforts in different emergency situations. SCES of Russia has actively entered the activity of the International Consultative Group of the United Nations on Rescue operations via the Central Aeromobile Rescue Detachment of SCES.

A question is studied now about creation of a centre for preparation for deployment of joined forces for elimination of the consequences of emergency situations on the basis of one or two military installations in Europe which will be released

in the process of disarmament.

Another trend in international cooperation is organisation of study and dissemination of foreign experience. Exchange of delegations, participation in different conferences and seminars, training of specialists of the Russian SCES at courses abroad are important elements of this activity. However, shortage of financial resources, and first of all currency reserves, prevents from drawing of the required number of specialists into these measures.

One more trend in international cooperation is conducting of measures on devivery of humanitarian assistance to foreign countries. In 1992 and 1993 such actions were undertaken in Kirghizstan, Tajikistan, Southern Ossetia, in the area of the Georgian and Abkhasian conflict, the Dniester region, Armenia, Azerbaijan, and also in Turkey, Afghanistan, Nicaragua, Chernogoria, Albania and Cuba.

Office of the United Nations High Commissioner for Refugees, Department of Humanitarian Matters of the United Nations, European Economic Community, and United States Office for Rendering Assistance in Emergency Situations Abroad display great interest in utilization of the Russian transportation facilities and first of all of air facilities.

In development of this trend in international cooperation the Chairman of the Russian SCES Mr. S. Shoigu proposed, in his discussions with Deputy Secretary-General of the United Nations and Director of Department of Humanitarian Matters Mr. Ya. Eliasson and Director of Section of the same Department Mr. L. Luminier in Geneva, that a network of bases for storage of goods of the international humanitarian assistance should be set up on the territory of Russia under the auspices of this department with the purpose of quick delivery of goods to the areas of disasters upon instructions of this department. In this case utilization of the Russian forces and means can be considered as a contribution of Russia into activity of the international community.

6. The General Assessment and the Long-term Programme of Activity Within the Framework of IDNDR.

The National Committee of the Russian Federation gives a high appraisal to the results of activity of the United Nations and other international organisations within the framework of IDNDR in the past period.

The measures which were taken within the framework of IDNDR made it possible to draw the world public opinion to the important problem of protection of population against natural disasters and to work out and implement a number of science and technology programmes and other specific measures in this field.

In our opinion, the basic organisational matters are now settled on the national and inter-national levels, and a basis and the needed prerequisites are created for successful accomplishment of IDNDR.

As regards the Russian Federation proper, its participation in IDNDR has undoubtedly brought a positive effect to tackling the problem of providing security to population and territories against natural disasters.

We can note the following measures which were taken in the Russian Federation within the framework of IDNDR:

- the global forum on protection of environment and development for the purpose of survival, in Moscow in 1990 (attended by representatives of 120 countries)
- international seminar "Planning of Preparatory and Preventive Measures Against Natural Catastrophes" under DHM programme, in Moscow in 1991 (attended by representatives of 23 countries)
- exhibition "Protection of Population in Emergency Situations", in Moscow in 1991
- international conference on cooperation in civil defence and protection against catastrophes, in Moscow in 1993 (attended by representatives of 22 countries)

- creation of the unified state system of prevention and actions in emergency situations
- development of a complex of research work within the framework of the unified science and technology programme "Security"
- creation of aeromobile rescue forces.

The long-term national programme of the Russian Federation within the framework of IDNDR for the period till the year 2000 includes:

- completion of a complex of research work under the programme "Security"
- re-equipment of rescue forces with new technical means
- commissioning of the automated control system for measures on prevention and elimination of the consequences of natural disasters
- elaboration of the legal and standards basis for conducting measures on protection of population and territories against natural disasters
- strengthening of international cooperation on providing mutual assistance in natural disasters
- mass training of specialists and population in actions under natural disasters
- organisation of the international exhibition of means used for protection and elimination of the consequences of natural disasters
- conducting of large-scale exercises with profound research work and participation of foreign specialists
- reorganization of rescue units with the purpose of improving their professional skill, readiness and mobility.