

REPUBLIC OF BULGARIA

NATIONAL REPORT
WITHIN THE FRAMEWORK
OF THE DISCUSSION ON THE NATURAL DISASTER PREVENTION
MEASURES ADOPTED DURING THE FIRST HALF OF THE
INTERNATIONAL DECADE
AND
OF THE 1994 WORLD CONFERENCE ON NATURAL DISASTER
PREVENTION MEASURES

Present-day achievements in all branches of science have broadened man's perspective on various natural phenomena. A substantial part of the natural phenomena that have had disastrous effects have been thoroughly studied and man has learned how to cope with them. Despite the dynamic pace of technoscientific progress, major natural disasters have shown that, as yet, they are not under control and cause considerable damages to the population and economy of the country.

Coping with the effect of natural calamities is frequently attended by sizeable losses in human energy and material resources.

Natural risk factors exist in this country which affect the security and lives of the people and necessitate a reliable system for the protection of the population, for the prevention of disasters and accidents or for minimizing the attendant losses and harmful consequences.

State and non-governmental bodies have been set up for the purpose of providing protection in disastrous situations and with the capacity of limiting their effects promptly and efficiently.

Civil Defence in this country has been well organized to give a high-level performance. We have the potential to render assistance at the request of other countries or to carry out tasks assigned by the UN International Civil Defence Organization.

The effort to cope with disastrous situations has been efficiently approached in two ways: first, in terms of disaster relief measures, and second, as a priority, in terms of preventive action against the causes and factors that may trigger such a situation.

The analysis of the situation likely to occur on the territory of this country in times of natural calamities or industrial accidents has indicated that there are specific problems where unforeseen risks are concerned. The experience gained so far from assessments, analyses and studies, as well as from the existing measures of prevention, has shown that we are still falling short of the objectives related to the protection of the population and the national economy in case of natural calamities.

We have a considerable scientific and technological potential at our disposal which is capable of limiting the damages resulting from natural disasters but the necessary comprehensive measures for its employment have not been adopted yet for lack of adequate means of defence.

I HAZARD ASSESSMENT

1. REASSESSING NATURAL DISASTER HAZARDS

The natural phenomena that are likely to directly affect the Republic of Bulgaria are floods, strong winds, hailstorms, thunderstorms, snowstorms, earthquakes, fires, landslides, ice-overs etc.

Floods may come about as a result of heavy rains and intensive snow melting. The relief of the country is of a kind that favours medium-scale floods. The floods in the valley of the Maritsa river are of this type. Local floods may occur with the rivers of the Rhodope Mountains owing to a powerful influx in the South of humid and unstable air from the Mediterranean in the middle troposphere. Heavy rains fall as a result of the development of convective clouds under the influence of the local orography. These rainfalls cause floods along the river valleys.

The floods in the region of Sofia follow a repetitive cycle of 5 to 10 years and a duration of 2 to 3 hours. The synoptical factors include a passing Mediterranean cyclone with a frontal zone complicated by certain orographic effects.

Major floods occur along the Danube river in May following the massive snow-melt in the Alps and in February and March as a result of ice-break.

Sporadic floods occur along the Black Sea coast owing to strong and persistent Eastern winds and during probable earthquakes the epicentre of which is in the Black Sea.

From a seismological viewpoint, Bulgaria falls into the grade two category. Some 70 % of the country's territory consist of areas with a seventh-degree intensity, while the remaining part is of the eighth-degree and even higher. In accordance with the established seismological division, the territory of Bulgaria is divided into three seismic regions, namely the North-Eastern region, the Sredna Gora region and the Rila-Rhodopes region. Earthquakes of a magnitude of 4 to 8 degrees on the Richter scale are likely to affect these zones. Earthquakes of a higher magnitude may occur in the regions of Shabla, Sofia and the Struma river. These zones include 94 towns and villages with a total population of about 6,340,000 people and the tremors may fully destroy 26 % of the buildings there. Railroad and road transport, as well as many traffic and communication facilities, would be disrupted. Many industrial sites may be set on fire, explosions and escape of toxic gases may be brought about, with epidemics likely to erupt in the affected areas. There definitely exists the hazard of a larger-scale radiation accident at the Kozlodui nuclear power plant. The accident would cause wide-spread radioactive contamination and may affect a large part of the country, as well as some neighbouring states.

The snowdrifts and ice-overs, occurring every 2 or 3 years, mainly in the winter months, in vast areas of Northeastern and Northern Bulgaria, bring about the disruption of transport links and communications. Large areas in this country are left without electricity, water, food and forage supplies, with communications completely broken down.

The country's climatic peculiarities create the conditions for snowstorms that cause substantial material damages. The abrupt change in winter temperatures leads to heavy snowfalls accompanied by strong winds. Snowdrifts are formed along roads and railroads and on alpine ways. Pipelines and open-air communication facilities are iced over.

Summer storms, characterized by intensive rainfalls, hailstorms, thunderbolts and strong winds, cause substantial material damage mainly to agriculture.

Dust storms, or tornados, occur periodically but are difficult to forecast in the different parts of country. Nine tornado-caused disasters have been registered and analyzed in Bulgaria over the last twenty years. They have caused enormous damage to property, forests and people.

Droughts are not usual for the country, their expected cycle of occurrence being 30 to 40 years. Circulation causes are seen as the main causes for droughts here. Rainfalls, especially in summer and autumn, are below the norm and this leads to a lasting tendency of high monthly temperature averages. Humidity supplies in the soil tend to be depleted. Many water reservoirs go dry. A continued drought is a natural condition for the bursting out of numerous fires and makes it difficult to prevent them.

Landslide-caused disasters also occur in this country. 693 landslide- and abrasion-sensitive areas have been registered in Bulgaria, 415 of which are in an active phase of their development and 278 are relatively stabilized. The movement of the Earth's layers and the landslides pose an enormous danger to many populated areas.

As a natural disaster, fires are typical of this country, especially in the vast forest areas. The cause of up to 80 % of the forest fires are rooted in failure to observe fire precautionary measures either at work, or in leisure time or while using various facilities. Not infrequent are the cases of forest fires during thunder storms after a long drought when the temperature of the air is high.

2. VULNERABILITY ASSESSMENT

In times of floods, the gravest complications are associated with flooded fields, destroyed bridges, disrupted energy-producing and communication facilities. These consequences usually affect the valleys of the rivers Danube, Maritsa, Tunja and Mesta, the areas around the dam-reservoirs Iskar, Batak, Trakiets and Topolnitsa and the area along the Black Sea coast.

Heavy rainfalls causing floods in the upper streams of the Yantra river, in the towns of Gabrovo and Dryanovo as well as in the city of Veliko Turnovo have resulted in material and property losses worth about 220 mln. leva /11 mln. U.S. dollars/.

Of special concern have been the floods, caused by torrential rains in the capital city of Sofia. The central parts of the city were thus affected on 29 June 1983, with property losses and material damage amounting to 40 mln. leva /2 mln U.S. dollars/.

Three seismic regions stand out covering about 15 % of the country's territory. The gravest complications are likely to occur in the expected epicentres of the regions, where the destruction of buildings may total 40 to 50 %, with casualties reaching 10-15 %. A total break-down of the power and water supplies is expected, as well as a disruption of transport and communications. That would probably create a critical sanitary and epidemiological situation with grave moral and psychological effects.

The newly erected and the restructured buildings may pose a serious risk. If constructed without either a reliable architectural design or technological control, the buildings may create a risky situation.

The existing buildings need to undergo a procedure of selective certification which would assess disaster hazards resulting from the physical wear and tear of the materials, from general exploitation or poor maintenance. Buildings have been expected to last forever, as it were, and, therefore, designs do not include any technical requirements for regular supervision and maintenance. This poses an ever growing risk and will eventually lead to inevitable collapse.

Most active - and hence constituting life hazard - are the 428 landslides along the Black Sea coast and the valley of the Danube river.

The country's agriculture sustains an annual average of 600 mln. leva /26 mln. U.S. dollars/ worth of losses owing to summer storms.

The Northeastern and Southeastern regions of the country are most frequently subject to ice-overs which disrupt the power supply and transport systems, as well as agriculture. Material losses amounting to about 57 mln. leva were sustained in the interval 6-10 March 1993 as a result of snowstorms and heavy snowfalls in Eastern Bulgaria.

A Disaster Fund was set up with the Council of Ministers' Standing Commission for the Protection of the Population for the purposes of coping with the effects of natural disasters and conducting preventive operations. The Commission decides how to use the funds and allocates them to the respective executive bodies and task forces that take part in the effort to minimize the consequences of disasters. Local governments allot their own financial resources and set up similar funds to meet their most urgent needs during the year.

The Council of Ministers' Disaster Fund is formed by allocating resources from the state budget on an annual basis following a decision adopted by the National Assembly of the Republic of Bulgaria.

II. MEASURES TO MINIMIZE THE EFFECTS OF NATURAL CALAMITIES

A national plan of action has been devised for the protection of the population and the national economy in case of disasters and major accidents.

The plan is based on a situation likely to occur as a result of a natural calamity. Representatives of all key ministries, state agencies and bodies participated in its elaboration. The plan of action in case of natural disasters and major industrial accidents works at the level of ministries, other state agencies and local governing bodies.

Plans on national and local levels are not geared to a definite period of time and are, therefore, periodically updated on the basis of current changes or amendments in the legislative acts.

The Civil Defence organisation of the Republic of Bulgaria has developed a programme for its functioning until the year 2000 /which marks the end of the international decade/. The programme defines specific stages of development depending on the general prognoses in the field, the state of the country and the maintainance of the bodies and task forces which are to act in case of natural calamities.

A process is under way in this country aimed at drafting an adequate legislation and instructions for the proper operation of the relevant structures in times of disasters.

The old construction industry laws are incomplete as regards the construction safety of buildings, facilities and infrastructures. The real property assets are not envisaged in a special and systematized chapter that may provide the normative framework for administrative control.

A programme has been worked out for the operation of a scientific coordination council and of the expert councils under the Standing Commission for the Protection of the Population. The aims of the programme designed to limit the effects of disasters include preventive measures and a scientific approach to the problems related to the protection of the population and the national economy.

The priority items on the programme are:

- forming emergency teams in charge of every aspect of the defence effort;
- designing efficient communication and information systems in case of disasters and accidents;
- forecasting and estimating the damages in case of earthquakes, landslides, etc;
- designing an operational hydrometeorological system to back-up emergency rescue operations in times of disasters and accidents;
- designing an automated system for express meteorological research.

The foundations have been laid in this country for a comprehensive realisation of the preparation of the population for defence against natural calamities and major accidents. This is effected mainly through the media. Every week Bulgarian National Television and Bulgarian National Radio broadcast debates, documentaties, information and education programmes on the subject. A journalists' club named Defence has been set up thanks to which the topic of civil defence makes headlines in the national press.

Certain results have been achieved in the training of pupils and students during regular Civil Defence classes.

The question of securing the training of students on university level is problematic and still awaits its solution.

Inspite of what has been achieved so far and the existence of a large technoscientific potential in the country in the field of civil defence, scientific research has not been adequately used in estimating the hazards in case of natural disasters.

State institutions are yet to live up to their responsibilities in adopting and implementing civil defence measures.

Omissions and difficulties have been registered in the interaction between the competent central bodies and local authorities in organizing the measures intended to minimize the effects of natural calamities. These lapses result from flaws in the legislation regulating civil defence operations.

III. ALERT

The major systems designed to register disasters and accidents and inform the population about them are deployed both on national and local levels.

A number of systems for observation, registration and information about disasters in the country have been put into operation by bodies, such as the Geophysical Institute and the National Institute of Hydrology and Meteorology at the Bulgarian Academy of Sciences.

A national telemetric system has been set up in the country to provide seismological information. The system includes a seismological centre which receives information about earthquakes from 13 seismic stations deployed in various regions of the country.

Information about earthquakes is promptly sent from the centre to the state institutions, the Civil Defence and the media.

A programme for operational and practical activities and observations is conducted by the Scientific Research Institute of Meteorology and Hydrology and its branches deployed on the territory of Bulgaria. Data about the current meteorological situation in the country are transmitted through an information network to the civil defence units twice daily and periodically to the media.

In the international context of the programmes of the World Meteorological Organization, the Institute of Meteorology and Hydrology has been transmitting and exchanging daily information of the Synop and Storm types related to advance warnings about natural disasters. The Institute's hydrometeorological system for observation, forecasts and advance warning deployed on the territory of Bulgaria has been incorporated into the organization. The efficiency of this system is still less than high because of its low degree of automation, the lack of sophisticated technology and the high communication-related expenses.

The Civil Defence has built an automated system to notify the population in times of natural calamities and industrial accidents. The system is centrally managed countrywide and guarantees the notification of the population in critical situations within three minutes.

The possibility has been guaranteed for a decentralized notification at lower levels: district, regional and municipal.

The transmission of information about the character of the disaster and of instructions for the safe conduct of the population is effected through several

subsystems of the civil defence automated system for population notification. The subsystems include:

- the "sirens" subsystem - a siren-signalling network deployed throughout the territory of the country.
- "radiotransmitters" subsystem - it secures an automated switch-over to the central studio of the National Radio. The national transmitters on a regional level are used on the same principle.
- the "screen" subsystem - it secures the automated switch-over to the emergency studios of the National Television.
- the "radio-relay" subsystem - it provides an opportunity for automated tuning-in to the radio-relay junctions in the towns and villages of every district and municipality.

Information about natural calamities and accidents is transmitted daily to the Civil Defence of Bulgaria via a system set up by the Civil Defence organization's branches at the mayor's offices, the regional and district councils. Integrated into the same system are the ministries and some major state agencies that are also responsible for the defence of the population and the national economy in times of disasters. These bodies transmit the relevant information.

The information summed up by the civil defence units, the observation posts, the ministries and the respective agencies is transmitted daily to the state authorities.

The system under discussion allows the alert team at the Civil Defence to timely notify the population of a disaster via the communication networks and the media.

A government regulation enables ministries, agencies and local bodies, involved in efforts for minimizing the effects of natural calamities, to be put on the alert in emergency cases through the nationwide automated management and notification system.

IV. INTERNATIONAL COOPERATION

The Republic of Bulgaria has been conducting an active international policy in the field of civil defence cooperation.

Attention has been concentrated on the cooperation directed towards the achievement of practical results and the opening-up of the national civil defence system to other countries in the region, in Europe as a whole and to the international organizations.

In 1993 the Civil Defence of the Republic of Bulgaria held consultations and working meetings and its representatives took part in courses and seminars devoted to civil defence problems together with experts from Romania, Switzerland, Germany, Russia, Belgium, Poland, Greece, Great Britain, Austria and France.

The aim of the international cooperation was to minimize the losses resulting from natural calamities through coordination of international action and the application of worldwide experience and expertise in the field.

Representatives of this country's Civil Defence organization have taken part in the following major international conferences and events:

- 14-15 December 1992, Brussels, Belgium - " The Use of International Forces in Disaster Relief Operations", organized by the U.N. Department of Humanitarian Problems;
- 10-13 May, 1993, Warsaw, Poland - A working meeting of the UN Economic Commission for Europe on accident prevention and disaster relief;
- 18-20 May, 1993, Moscow, Russia - Second International Conference on cooperation issues in the field of civil defence and protection against accidents;
- 10-16 July, 1993, Lancaster, Britain - Conference on Emergency Planning in 1993 involving participants from 25 nations;
- 1-8 September, 1993, Vienna, Austria - An international model rescue operation under earthquake conditions.
- 27 September-8 October, 1993, Germany - International Seminar on the Defence Measures in Case of Natural Calamities and Accidents.

Taking into account the consequences of large-scale natural disasters and accidents, the Civil Defence of the Republic of Bulgaria attaches an increasing importance to international cooperation.

Mechanisms have been devised within the framework of international and domestic legislation for both receiving aid and rendering assistance to other countries as far as the country's potential permits it.

The international efforts already under way have confirmed the necessity to improve the opportunities for bilateral and multilateral cooperation on a regional level with the participation of specialized international organizations.

Every month articles and reports are contributed to the International Civil Defence Organization's magazine related to the activities of the Civil Defence organization of the Republic of Bulgaria.

Our problems in international cooperation are primarily of a financial nature. As a result of the economic crisis this country is going through, individual means of defence are inaccessible and there are only limited resources for the participation of our experts and delegations in various fora and seminars.

GENERAL ASSESSMENT AND FUTURE ACTION WITHN RESPECT TO THE
SET OF TASKS FOR THE INTERNATIONAL DECADE

On the basis of our experience, of assessments of the likely situation, of the research into and the analyses of natural disasters in this country, we have reached the conclusion that there are preventive measures which can help us, to a certain extent, to prevent or relieve their negative effect and minimize the loss of people and material resources.

The emergency measures planned to relieve the effect of natural disasters on a national scale will also contribute to the prevention of accidents of industrial or technological nature.

The assessment of the national plan indicates that not all the hazards which are likely to lead to a disastrous situation have been fully specified. This fact should be brought to the attention of the relevant persons and institutions in this country. Additional pertinent legislation has yet to be passed so as to fully implement the meassures of disaster prevention and relief /e.g., the Civil Defence Act, a new Construction Industry Act, Comprehensive Architectural Design Regulations, Regulations For the Use of Land and Water Resources, etc./

Owing to the changes taking place in Bulgaria, the planning process of the national civil defence does not yet involve some of the bodies in charge of the socio-economic development of the country on a national and local level, or representatives of the private sector.

The trade unions, the technoscientific unions, the humanitarian organizations and other non-profit organizations, too, remain outside the process. They could contribute significantly to the natural disaster prevention and relief effort.

The financing of the civil defence effort encounters many difficulties for lack of adequate resources.

We think that at present all risk factors have been taken into account and the attention of the responsible civil defence institutions has been drawn to them. Finances have been allocated mainly for the implementation of those measures that require relatively low investments but could prevent the recurrence of natural disasters, such as forest fires, floods, landslides, snow-drifts, etc.

We believe that, in the long run, it would be necessary for the U.N. to increase its efforts in the sphere of international cooperation aimed at the prevention of natural disasters and accidents and at the provision of assistance to minimize their effect.

NATIONAL FOCUS CENTRE
OF THE REPUBLIC OF BILGARIA
FOR NATURAL DISASTER
PREVENTION MEASURES

Sofia,.....1994