

## AN EXERCISE IN CRISIS MANAGEMENT PREPAREDNESS IN THE CASE OF GAS SUPPLY DISRUPTION

### CVIČENIE - PRIPRAVENOSŤ NA RIADENIE KRÍZ V PRÍPADE VÝPADKU DODÁVOK PLYNU

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#### ABSTRACT:

*The growing number of anthropogenic and natural disasters and their impact put pressure on the increasing level of prevention and crisis preparedness both in the public and private sectors. For this reason, authorities of crisis management try to adopt technical, organizational, legal, financial and informational measures to ensure the resistance of the society against disasters and which at the same time would lead to the strengthening of sustainable development. Crisis preparedness is a tool aimed at reducing vulnerability of the public, property, and environment to disasters. Exercises of the authorities of the crisis management, which test and verify both plans and capabilities, form part of the crisis preparedness. This article deals with the preparation and implementation of the exercise of crisis management authorities in the South Bohemia region, the Czech Republic. Preparation of the exercise with the topic of large scale disruption of natural gas supplies during winter is presented. Based on the results of the exercise, evaluation, in which problems in the field of material and technical equipment of the facilities of the crisis management departments, implementation of the activities of crisis management, communication, and crisis documentation were detected, has been carried out. The simulator in development that allowed to record communication, development of the situation and fulfilment of tasks and thereby to help to create conditions similar to the real situation, was tested during the exercise.*

**KEYWORDS:** Crisis exercises. Preparedness. Risk reduction. Scenarios.

#### INTRODUCTION

The environment is influenced by human activities both on the global and regional levels, which create risks and uncertainties that may demonstrate themselves in the form of natural and anthropogenic disasters. Disasters carry a wide range of negative impacts on people, property, environment, economy, social system, etc. The vulnerability of society to existing disasters has been increasing. In some areas, the accumulation of hidden dangers, e.g. increasing population, urbanization, climate change, and variability, lack of ecosystem services, social and economic security, appears. Disaster incidence increasingly reveals a large accumulation of risks with unleashing unexpected impacts. Disasters occurring in the current globalized world can have impacts even in remote areas. World interconnectedness raises a shared responsibility and a need for prevention, resolution, and removal of disaster

consequences. For this reason, states, as well as international organizations, started to apply a holistic and multidisciplinary approach to security solutions and risk and crisis management. The main responsibility for disaster risk management should be taken at the central level by the government. Governments must decide what level of risk they are willing to accept and which instruments will they implement to control the risk [1]. For this purpose, they establish crisis management authorities both at central and local levels and determine requirements for preventing, minimizing and monitoring the risks as well as preparedness and response through acts of legislation. All these activities should contribute to minimizing negative impacts and maintaining the sustainable development of the state. Achieving sustainable development, the area is loaded with a variety of dynamic changes and influences, which crisis preparedness helps to be prepared for.

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## 1 BACKGROUND OF CRISIS MANAGEMENT AND SUSTAINABLE DEVELOPMENT

Crisis management contributes to prevention, resolution, and removal of the disaster consequences. Its application supports ensuring sustainable development.

### 1.1 Position for crisis preparedness in crisis management

Crisis management is a sub-aggregate of the general manager. The process of crisis management includes risk management, preparedness, and documentation which is essential for the protection and preparedness for disasters (i.e. crisis preparedness), implementation of rescue and liquidation work, construction and enlightenment (recovery after the disaster). Preparedness means a state of readiness and capability of human and material resources achieved as a result of action taken in advance, enabling them to ensure effective and rapid response to the disaster [2]. The scope of the crisis preparedness is

implemented with respect to the identified hazards and their risk level. Preparedness is based on a sound analysis of disaster risks and good linkages with early warning systems, includes such activities as contingency planning, stockpiling of equipment and supplies, development of arrangements for coordination, evacuation, and public information, as well as associated training and field exercises. These must be supported by formal institutional, legal and budgetary capacities [3].

Today we recognize that all organizations, whether they are private, non-governmental, or governmental, are susceptible to the consequences of disaster and must, therefore, ensure their preparedness [4]. Crisis preparedness is based on the resilience of society [5]. Crisis preparedness means long-lasting, systematic and complex processes built on planning and shareholders coordination, as shown in Figure 1. This cycle recognizes the importance of the four major components of any preparedness effort: planning, equipment, training, and exercise [6].



Figure 1 The preparedness cycle

Process outcomes are represented by crisis plans and plans of crisis preparedness. Their processing essentials are based on Czech laws [1]. The plans have to contain:

- characteristics of the organization of crisis management;
- overview of possible risk recourses and analyses of threats;
- overview of stakeholders who enforce fulfillment of arrangements;
- overview of crisis measures and means of their fulfillment;
- plan of necessary supplies;
- overview of connections to subjects taking part in crisis situations preparedness and their solutions;
- procedures of crisis situations solutions that were identified in threats analyses.

By execution of high-quality and effective crisis preparedness, it is possible to decrease losses on lives, properties, and the environment.

Training of emergency response officials is paramount to their ability to conduct the tasks required of them [7]. Training represents the crucial element of preparedness. By means of different forms of training the stakeholders gain skills that are essential for successful crisis solutions. Training is a learning process that includes the education of crisis management professionals so as to build the necessary knowledge, skills, and abilities in these individuals that will enable them to reach the goals of an organization. This learning process helps individuals both to develop themselves and to enhance the team's overall expertise [8]. Exercises play a vital role in national preparedness by enabling the whole community of stakeholders to test and validate their plans and capabilities and identify both capability gaps and areas for improvement. Exercises bring together and strengthen the whole community in its efforts to prevent, protect against, mitigate, respond to, and recover from all hazards. Generally, exercises are cost-effective and useful tools that help to practice and refine collective capacity to achieve core capabilities [4]. Exercises reveal the potential defects and weaknesses in plans and identify challenges in their implementation [9]. The Lessons Learned Information Sharing (LLIS) states that it is necessary to increase effort in the area of training in order to strengthen community endurance [10]. The second part of the article focuses on exercise of crisis management authorities, its preparation, and its implementation. Software and simulation tools [11] that support its effectiveness and

contributes to a higher level of reality can be used during the exercise.

## **1.2 The linkage between crisis management and sustainable development**

The key international linkage between crisis management and sustainable development was founded on the grounds of the United Nations (UN), so the text focuses on the opinions and conferences organized under its patronage. The linkage between crisis management and sustainable development began to form at the UN Conference on Environment, Earth Summit in Rio de Janeiro in 1992. The participating states acknowledged the need to incorporate the issue of natural disasters into national plans for achieving sustainable development. Reducing the consequences of disasters effects the strengthening of sustainable development [12]. Agenda 21 further emphasized that there are close links between the losses caused by disasters and environmental degradation.

The growing number of disasters and their significant impacts led to the creation of the International Decade for Natural Disaster Reduction (1990-1999). It was stated at its end that the decrease in the vulnerability to disasters forms part of achieving sustainable development and therefore prevention of disasters should be perceived as a public value embedded in the legislation, particularly in urban planning [13] and building regulations, preparedness plans and warning systems.

It has been recognised by the International Strategy for Disaster Reduction (ISDR) that the world is increasingly threatened by large-scale disasters that have adverse social and environmental impacts on the society and limit the ability of mankind to ensure sustainable development and investments, especially in developing countries [14].

The Millennium Ecosystem Assessment (2001-2005) noted that 60% of the assessed ecosystem services are being degraded or used unsustainably [13], which significantly affects safety. Security can be, in the regulatory ecosystem services, affected by the change in natural disasters, disease, pest, erosion, climate, air quality, and water control. In the area of supply services, security is threatened especially in food, fuel and fresh water supplies. Impacts of support services on security have a mainly indirect and long-term character in the form of changes in water and nutrient cycles,

primary production and photosynthesis. Anthropogenic degradation of ecosystem services can be a major obstacle for disaster consequences reduction and a key security threat in the future.

On the other World Summit on Sustainable Development in Johannesburg in 2002, 5 general commitments and initiatives were defined. The last fifth was devoted to the development and strengthening of activities to improve the prevention of natural disasters and the ability to respond to them. The outcome of the Summit was the Implementation Plan, which in paragraph 37 calls for an integrated approach to the solution of vulnerability, risk assessment and disaster management including prevention, mitigation, preparedness, response and recovery as fundamental elements for a safer world [16].

The Second World Conference on Disaster Reduction in Kobe in 2005 adopted the Hyogo Framework for Action [17]. The Framework formulated an expected result as was a substantial reduction in losses caused by disasters on lives and the social, economic and environmental assets of the communities and countries [17]. To achieve the expected result, strategic objectives were adopted. One of the objectives was to consider the effective integration of disaster risks into sustainable development policy, planning and programming at all levels, with special emphasis on prevention, mitigation, preparedness and vulnerability reduction of disasters.

UN Conference on Sustainable Development in Rio de Janeiro, Rio + 20, held twenty years later, confirmed the validity of the principles of sustainable development. The result was the adoption of the final document The Future We Want [18], which also contained a commitment to disaster risk reduction. Within the area of risk reduction was emphasized building of resilience to disasters, incorporation of its problematic into the legal and strategic tools, budget and forces resources creation as well as strengthening in using means of early warning systems, technological assistance, technology transfer, training and transfer of experience both at national and international levels, ensuring the integration of strategies for disaster risk reduction and climate changes into public and private investments, decision-making processes and procedures for dealing with disasters. The Third World Conference on Disaster Risk Reduction was held in 2015. The meeting resulted in the adoption of the Sendai Framework for Disaster Risk Reduction for the

period 2015-2030 (Sendai Framework) [19]. Sendai Framework seeks to achieve a substantial reduction of disaster risks and losses. It shifts the focus from disaster management to disaster risk management with an emphasis on improving the understanding of disaster risks and implementation of sustainable development, strengthening of risk control to achieve better disaster risk management, investing in disaster risk reduction by increasing the resilience and disaster preparedness for effective response. Sendai Framework determined seven global targets for reducing disaster losses which should contribute to achieving the new objectives of sustainable development.

The second significant event of 2015 was holding of the UN Summit on Sustainable Development in New York. The negotiations resulted in a programme called Transforming our World – the 2030 Agenda for Sustainable Development [20]. It determines 17 related objectives and 169 partial goals that aim by 2030 at eradicating extreme poverty, promote the prosperity and welfare of people while protecting the environment. The new programme emphasizes disaster risk reduction across a whole range of industries. Disaster risk reduction is included in the programme in three forms.

The first is direct references related to the World Conference on Disaster Risk Reduction in Sendai and Sendai Framework [19]. The second form of links to disaster risk reduction is crucial for achieving a goal or a partial goal. The third method is for goals and partial goals, which help approaches to disaster risk reduction. Six out of 17 goals have the first form of direct relation to disaster risk reduction [21]. These are the objectives 1, 4, 9, 11, 13 and 15. In the other goals can be found a link to reduce the impact of disasters via promoting the principle of early warning and dealing with disaster risk factors with the aim to reduce vulnerability, exposure or both for the people and the planet [20]. At the UN Summit on Sustainable Development was emphasized that the prevention lags behind providing assistance after a disaster [22].

## **2 EXERCISE IN THE SOUTH BOHEMIA REGION**

### **2.1 Preparation of the exercise**

Preparing the exercise was based on the analysis of crisis situations that may threaten

the South Bohemia region (the Czech Republic). Large-scale disruption of gas supplies due to a simulated accident at the high-pressure pipeline in natural gas distribution system was selected as a crisis situation. The main aim of the exercise was to verify the readiness of crisis management authorities at the level of regions, municipalities with extended powers (MEP), mayors, administrative authorities with territorial competence and other entities involved in solving a specific type of crisis situation. Secondary objectives were practicing and verifying activity and collaboration of crisis staff, usability of crisis documentation, activity of the PANEL of nongovernmental non-profit organizations in providing assistance and crisis communication requirements for training solution of the simulator.

Stakeholders essential for participating in the exercise were identified based on the definition of the targets. About 20 primary stakeholders were identified. Primary stakeholders were subsequently able to determine the others. Planning the schedule of exercise, scenarios, and design of the simulator proceeded according to the set topic of the exercise. Planning of the exercise took place seven months before the actual implementation. Mainly South Bohemia Region, gas distributor, the Fire Brigade of the South Bohemia region and the creators of the simulator participated in the planning of the exercise. Other stakeholders were involved in the case of preparation or partial documentation or scenarios. The real outage of natural gas supply and consequent recovery in all affected customers would take approximately 10-20 days. For this reason, a few time leaps were incorporated in the plan in the phase of its creation, since the requirement was to practice all the planned activities during one and half days. For all participants of the exercise, it meant shortening of the time of extreme load.

Scenarios served as an outline or model of the simulated sequence of events for the exercise. They were based on credibility and realism. Scenario's reality served for the closest approach to the real conditions of the real crisis situation. Scenarios were created so as to permit the development of the exercise, and thus they resulted in the verification of exercise goals and abilities of the participants. After their creation, they were incorporated into the timeline of the exercise. A total of 43 scenarios, 13 aimed at Municipality with extended power

Prachatice, 8 aimed at Municipality with extended power Vimperk, 5 at crisis staff of South Bohemia Region, 5 at press group of crisis staff of South Bohemia Region, 10 at Operational and Information Centre of Fire Rescue, 2 at Regional Police Directorate of South Bohemia Region openings were created, which were designed for different stakeholders involved, especially for crisis staffs of individual municipalities, gas distributor and components of the integrated rescue system. Scenarios contained partial objectives that were distributed to trainees in consecutive steps as the crisis situation progressed. Overview of basic prepared and used scenarios in the training:

- announcement of the accident,
- weather forecast for the affected area,
- proclamation of a state of emergency in the gas industry,
- handing over the list of municipalities affected by the gas blackout,
- requirements of legal and natural entities for maintaining activities in MEP Prachatice (hospitals, care homes, children's homes, founders of secondary, primary and nursery schools and critical infrastructure entities for providing heating and water heating),
- requirements of legal and natural entities for maintaining activities in MEP Vimperk (hospitals, founders of secondary, primary and nursery schools),
- providing emergency survival for citizens,
- requirements for units of integrated rescue system,
- providing childcare of people in need,
- requirements for the protection of important cultural monuments.

Each scenario contained a context, the desired goal which allowed to demonstrate the knowledge and skills of the participants, and technical details, as shown in Figure 2. The scenario contents including the location of an accident and the extent of the area affected by the simulated outage of natural gas supplies were not previously known (excluding a gas distributor) to the participants of the exercise. A prototype of the simulator which has been designed to support the exercise of crisis management authorities and other stakeholders was used for the purposed of the exercise. The simulator is comprised of technical and programming means covering the area of the simulation system, communication system and means for supporting the evaluation of the exercise.

Rozehra č. 1/1	Oznámení havárie plynovodu občanem dne 21. 1. 2016 v 12:10 na OPIS HZS – Stel 112
Čas roze hry:	12:10 24. 05. 2016
Člen roze hry:	K3/Miloslav Soukup
Telefon roze hry	950
Text roze hry:	Milan Novák, dobrý den.  Jedu z Velkého Boru směrem na Strunkovice - po levé straně v poli na kopci vidím obrovský zvláštní oheň. Stojím teď na silnici, číslo nevím, je to okreska, asi tak cca 2 minuty jízdy od Velkého Boru, nevím. Jsem dost daleko. Ten plamen šlehá do výšky několik metrů.  Milan Novák, tel. 950  Odpověď na případné dotazy OPIS HZS
Přílohy:	Mapa s místem události

Figure 2 Scenario example – notification of a gas pipeline accident by a citizen to the emergency number 112

## 2.2 Exercise implementation

The exercise was carried out from 24 to 25 May 2016 (Figure 3) as a multi-level staff exercise, even if it simulated a period from 16 to 31 January 2016. This period was characterised by snowing and daylong frosts reaching at night to -17°C. Selected activities, in particular, the training of the activities of the Fire Rescue Service of the South Bohemia region and natural gas distributor at the place of a simulated gas leak were tested practically.

The exercise was carried out in four phases, which followed one another as the development of the emergency was in progress. The first part took place on 24 May from 12:00 to 5.00 p.m. In this period, the notification of the accident emergence, by calling the hotline, took place, followed by a subsequent set off of the components of the fire brigade, announcement of the 2nd and then 3rd alarm stage, the distributor declared a state of emergency in the gas industry and crisis staffs of the affected MEP, held meetings.

The other three phases of the exercise took place on the second day. The second phase consisted of the crisis staff of the South Bohemia Region meeting and declaring a state of emergency for the affected area with determined specific crisis measures. The duration of the second phase was approximately 2 hours. The third phase followed consisting of dealing with the impacts of the crisis situation in the affected area. It particularly dealt with the emergency supply of the inhabitants, closing / restricting of schools, health, spa, cultural, sports, business, dining

and recreational facilities with the accumulation of people, demand and allocation of humanitarian aid.

Most of the scenario openings, 10, were directed to this part and it lasted for 5 hours. The fourth phase of the exercise was focused on the process of restoration of natural gas supply and was focused mainly on the distributor and the regional authority. The distributor had to develop a plan for the gradual restoration of gas supplies. Together with the press group, it focused on providing information to the public about the progress of recovery. The last phase of the exercise lasted for 2 hours. Restoration of natural gas supply would be very time-consuming for the distributor because it is necessary to visit each facility and implement technical measures on every main gas seal. After the restoration of gas supplies to all customers, the regional governor would cancel the state of emergency.

During the exercise, all scenarios were distributed to the participants of the exercise through the simulator. The participants further used special phones and e-mails, which enabled them to gain a realistic image of the development of the exercise. The obtained recordings will allow faster evaluation of the exercise.

Judges and observers who were instructed on their rights and obligations at the beginning of the exercise were prepared at every workplace of the crisis staff. Judges should have observed the participants of the exercise and check the form of their activities and fulfillment of given scenarios and goals. After completion of the

exercise, they handed in a report on the activities to the relevant staff. The report served for evaluation purposes and for comparison with the records from the simulator.

The press group whose task was to provide

information to the public, the mayors, the media, etc., played an important role in the exercise. The press group consisted of spokespeople of the exercising subjects. It should lead to a common, consistent and coordinated approach to providing information.



Figure 3 **Crisis staff workplace and simulation centrum** [own source]

### 3 RESULTS

The following part of the text focuses on the part of the findings of the exercise, especially in the gas distributor, in the documentation of crisis management, in crisis staff workplace equipment, in the use of the simulator and in the press group.

Assembling of the crisis staff of the natural gas distributor was carried out via its in-house information system without any problems. Each member of the crisis staff had to confirm receiving the information about assembling the crisis staff. The distributor of natural gas was fulfilling the tasks in accordance with the schedule of the exercises. The distributor completed the schedule with its own tasks and activities that must be undertaken. This schedule served as a basic document of the exercises. It was not clear from the course of the work of the crisis staff if the distributor has emergency documentation elaborated, according to which it would proceed in the case of a really occurred emergency and could not make use of the already prepared documentation of the exercise. Crisis staff and a spokesperson of the distributor exchanged a small amount of information because the distributor representative was present during

the planning of the exercise and knew all the circumstances and so everything was prepared for the spokesperson. The record of the course of the exercise which documented implemented steps (activities) and proposals of the measures by crisis staff was not carried out. Preparedness of the employees who were responsible for the removal of defects on the pipeline and creating a recovery plan for supply restoration was at a high level. An interesting fact seemed to be that the crisis management employees of the MEP or region did not require more information from the crisis staff of the natural gas distributor. Only one crisis staff requested help of the distributor employee for the corresponding area.

It was found out that the plans of crisis preparedness of individuals and legal persons, whose they are not founders, are not available in the crisis documentation neither of MEP nor of the region.

One workplace of a crisis staff of the municipality with extended powers was placed in unsuitable facilities with insufficient both material and technical equipment (lack of recording equipment from the negotiations, alternative sources of electricity, means of communication and their backups) and the

space for having a rest of the members of the crisis staff has not been created. Allocated workplace of the crisis staff was evaluated by judges as unsatisfactory. The second workplace of the crisis staff of MEPs was located in the building of the fire brigade. In terms of material and technical equipment, it was at an appropriate level and met all the requirements. Deficiency could be seen in not placing it directly into the municipal office building, which reduces the availability of the staff from relevant departments, and everything was solved via telephone or electronic communication. Due to time pressure, participants of the exercise did not send information about completing the task through the simulator. In that way, it was not possible to evaluate the fulfillment of certain tasks in the simulator. Moreover, various levels of the knowledge of crisis documentation and low level of its use have been found among the participants of the exercise.

In the context of the simulator use, the major benefits were found in the field of call recording and recording the course of implementation of various activities of the participants. The problem is that the telephone and email communications must be carried out via special phones and emails different from those listed in the emergency plans. There was also a problem with the quality of the Internet connection, which affected communication and recording of the simulations during the exercise.

Taking into account the trainee view, as the biggest defects of opening scenarios were identified:

- The aspect of the reality of opening scenarios that was caused by:
  - wrong understanding of opening scenario by trainees even though they underwent preparation,
  - not keeping the rules for the activities.
- Problem with time sequence/orientation in time of the “real” solution of the situation, because the opening scenario contained time and date of the situation creation. These data (8-10 real days) did not correspond with “real” time because of cumulation of activities for the training within 1.5 days, time from Jan 21st to Jan 31st 2016.
- A great number of opening scenarios during exercise for MEPs. The opening scenario was set up to simulate the difficulty of the activities of the working body. When extensive pressure on crisis staff of MEP occurred, the crisis staff were supposed to hand over the activities to crisis staff of the

South Bohemia Region, due to reasons like unavailability of power and resources. There was a chance that not all opening scenarios would finish. The formality of solutions, avoiding solutions using crisis measures of the Regional Commissioner occurred here.

The scenario openings were demanding in terms of the number of operators and premises. It is necessary to reduce the number of professionals and technical equipment, which is necessary for the implementation of scenarios and operation of the simulator. The scenario openings should become more automated with the possibility of adaptation of the text or time. The current method of displaying task fulfillment in the simulator through traffic lights is not sufficient. It is necessary to supplement the display of the received scenario openings on the screen of the participant. This means that the participant of the exercise obtains a scenario opening, a new task, and will record the degree of elaborating the task - the task acceptance (who received it), progress (who and how deals with solving the task, meeting deadlines), task completion (completion time and result), as shown Figure 4. In this way, the instructor will see all the tasks and their level of development. At the same time, times for completing the tasks can be set from the scenario opening part and the simulator can count down how much time has been left to the participants to complete the task. Measures in municipalities (warning, notification, information, evacuation, supply) were not shown on the map of the simulator during the exercise. It is appropriate that the participants work more with the simulator, not only via telephone and email communication. The instructor should see in the simulator the timeline of the exercise to be aware of what phase of the exercise he is. Display of the time leap will help in better orientation in the exercise, in which a number of time leaps is implemented.

Within the press group, mutual awareness and passing information as well as providing uniform information that did not have duplicate nature was ensured. At the same time, avoiding misunderstanding of information and spreading panic among the public, was prevented. The presence of a psychologist in the team who carried out the correction of texts before publishing them proved to have a very positive effect.

The preparation of the exercise was based mainly on the method of brainstorming (Osborn, 1963) and discussions. The preparatory group



met in regular two-week intervals. The preparatory group was formed by the head of the crisis management department, security liaison employee of gas-distributing company, fire brigade representative, simulator developing organization representative and representatives of academic workers.

The group created a plan of the exercise and ideas for different scenarios on the basis of their knowledge and experience, which were subsequently verified by interviews with relevant entities. Personal or telephone discussions were carried out. The calls were focused on the potential impacts of gas supply interruptions and their manifestations at individual entities. The feasibility of the proposed scenarios and the possibility of their application were verified through interviews.

For evaluation of the exercise at trainees, judges, observers, the press group and participants of the scenario opening, questionnaires were used. The questionnaire survey was divided into the following phases: the structure design, data collection, and

analysis. As part of the structure, the concept was designed and chosen questions connected with training progression, especially communication, information exchange, trainers preparedness, ability to deal with stress, quality of crisis documentation, material and technical facilities of crisis management offices. The questions were focused on the implementation of exercise and work with the simulator. Contact, filtering, identification, and control questions were used. The questionnaire was composed of 21 closed questions with answer yes or no, or excellent, good, suits, wrong. In the last part of the questionnaire, space was created for the written commented replies of the participants of exercise. The questionnaire was answered by respondents of training in positions – trainee, referee, and observer one day following the training end, when the final evaluation took place. Overall there were collected 50 questionnaires with answers.

SWOT analysis of SIMEX exercises is presented in the article Exercises of the Crisis Management Authorities [23].

Figure 4 Design of additional subsystem for the simulator

## CONCLUSION

To meet the requirements of the Sendai Framework [19], it is necessary to focus

attention on disaster prevention. The basic building block of prevention is clearly the emergency preparedness, which is part of crisis management. The best method to check the

abilities of human, material and technical resources for the effective and rapid response to the disaster exercises. Skills are acquired and the functionality of the proposed measures is verified through exercises. Timely and proper response minimizes the losses and contributes to promoting sustainable development and community resilience.

The two-day exercise aimed at one of the potential crisis situations – large-extent disruption of natural gas supplies was carried out in the South Bohemia Region. Such training has not happened in the region so far. For the implementation of exercise, we selected such part of the region, where harsh weather conditions together with failure in the supply of natural gas could cause the biggest problems. Areas, where the exercise took place, were materially, organizationally and personally checked.

The article describes the preparatory and implementation phase of the exercise, including part of the obtained results. The preparatory phase of the exercise concentrated on schedule and scenario creation and cooperation with stakeholders. Prepared scenarios should simulate secondary or tertiary impacts caused by crisis situations that need to be handled by crisis management authorities in the time of the real situation. Deficiencies in organizational (modification and completion of crisis documentation, specifications of some exercise scenarios, especially solution of impacts of failure in the supply of natural gas at subjects, not involving representatives of the municipality with extended power into crisis situation solution, low cooperation with nongovernmental non-profit organization panel), technical

(improvement of material and technical equipment of workplaces of crisis management or their dislocation) and communication (communication among crisis management authorities - Mayors of the MEPs did not let the Security Council of the Municipality with extended power know about the crisis situation, insufficient communication between crisis staff of MEPs and crisis staff of the South Bohemia Region) area aroused from the results of the exercise. In the frame of the developed simulator prototype, deficiencies were found in providing feedback on the development, communication, and evaluation of the exercise. However, it shows out that the use of the simulator for the needs of exercise supports decision-making processes as it approximates realistic scenarios is appropriate. It can contribute to cost, time and space savings as well as to the credibility of the exercise.

Exercise itself as well as the obtained results will contribute to enhancing the ability of all entities to provide faster and more effective responses to possible emergencies of such character. Further, they will contribute to the implementation of corrective measures in different areas.

*Results presented in this article were obtained as a part of the solution of the project by Technology Agency of the Czech Republic with the topic Research and Development of Simulation Instruments for Interoperability Training of Crisis Management Participants and Subjects of Critical Infrastructure (research project No. TA04021582).*

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