D. PROCHAZKOVA, J. PROCHAZKA

*Czech Technical University in Prague, Faculty of Transportation Science,
Praha, Czech Republic*

CRISIS MANAGEMENT PRINCIPLES AND COMPETENT CRISIS PLAN

The article discusses the status of crisis management in a comprehensive management system organizational unit (territory, community, company). For crisis management summarizes the objectives, principles, tasks of research, the specifics of the decision, specific tools, specialty of crisis planning, preparedness principles to solve critical situations and system of response management to critical situations. Based on research that shows the contents of operational crisis plan of the selected municipality with extended competences, which provides qualified response and protection of the population, and is object of engineers lecture at technical universities.

Key words: *safety management, crisis management, tools, objectives and principles, crisis planning for operational response at practice;*

Introduction

Humans everywhere want to sufficient safe living space with development potential, i.e. human's aim is a safe community, a safe area, safe place, etc. Safety is a set of measures and activities, which ensures security and sustainable development of human system [1]. Since the human system is an open dynamic system, ensuring of safe and sustainable development of the territory is also a dynamic process. This means that the measures and activities in various combinations are applied in time and area in order to meet the desired objectives. The process of application of measures and activities is the steering mechanism, which we call safety management system. Its concept is based on adopted security policy. Its instruments are: concepts that set out the objectives of safe policy; strategies that determine the fundamental ways in which objectives will be achieved; plans that detail the activities and include a timetable; instruments and institutions, i.e. resources, forces and means to achieve the objectives of security policy. From the perspective of strategic management it is also necessary:

– continuously monitor the situation in the human system from the point of view of occurrence of disasters, emergency and crisis situations,

– to create tools for management of emergency situations (the education of citizens, trained and ready rescue teams, disaster scenarios, disaster response scenarios, management scenarios) and critical situations (in addition to tools for emergency situations - specific legislation on release of state reserves, increased support for executive branch and restriction of rights and freedoms of citizens, special reserves of all kinds, crisis scenarios, emergency response scenarios, scenarios and procedures for managing emergency situations at reasonable costs and losses, stabilization of the situation and launch of further development),

– to create tools for averting protracted crisis, for prevention of emergency situations and critical situations in particular,

– to develop tools to ensure recovery and start-up of further development,

– to have qualified crisis management in a broader concept than just a response to critical situations [1, 2].

1. Crisis management

Crisis management as such is carried out not only within the state, but within each sophisticated organizational unit, county, municipality, organization, community or human being itself. Succinctly put, it is a form of management that is used when bare existence is threatened. Therefore, it has a clearly defined objective - survival of people and creation of conditions that allow recovery and start of redevelopment. This means that crisis management is focused on ensuring the basic functions of state, and that determines its priorities and instruments used.

The status of crisis management in system of organizational units´ management is in Figure 1. Safety management must also ensure the protection of people from organizational accidents [2-4], the cause of which lies in the decision-making, or errors in the use of the wrong documents. Therefore, also the safety management must be based on high-quality materials, i.e. it must evaluate whether they are made in the risk that sooner or later may cause a problem in a specific

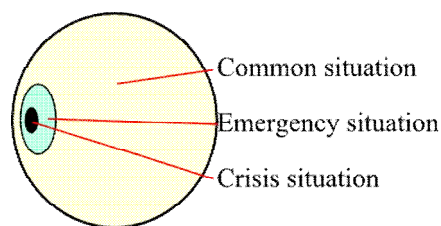situation, i.e. cause an organizational disaster.

Fig. 1. System management levels

The basic objective of crisis management is to ensure that: each emergency situation is managed optimally and that there is a rapid recovery (sometimes described as rapid stabilization and gradual recovery of an organizational unit); none of emergency situations develops into a critical situation; none of critical situations did lasts long (is protracted) and that the recovery starts as soon as possible.

The analysis of [1, 2, 4 - 9] shows that the objectives of crisis management at the state level are: guarantee of important public services (i.e., coordination and management of state administration, and securing critical infrastructure) and continuity of infrastructure functions in critical situations; protection of the human population, socio-economic life, national heritage and cultural sites; coordination of society governance so that loss of life and property caused by critical situation were acceptable, through programs for mitigation, preparedness, training, intervention and response in case of occurrence of each relevant disaster; ensuring resources for the survival of people and supplies necessary for the security forces; fulfilment of international obligations; ensuring the implementation of training in the fields of prevention of critical situations, preparedness and response to critical situations; ensuring an effective response to critical situations and minimization of their impact on population, infrastructure and environment; public support in response to critical situations; guarantee recovery after any critical situation; management of critical situations in order to avoid conflicts; ensuring preparedness for different degrees of critical situations caused by external causes.

Tasks for each organizational unit are formed by elaboration of the objectives above, and their adjustment to conditions of an organizational unit, because in safety management, which includes crisis management, all concerned do have their tasks [1, 2, 4-9].

2. The principles of preparedness to deal with critical situations

To manage and overcome critical situations [1,2,3-9] it is necessary to: identify and characterize possible critical situations in an organizational unit and its surroundings; make a plan for the management of critical situations, i.e. emergency plan in the form of scenarios for managing response to a critical situation; be prepared for the worst (monitor, evaluate, verify the measures of crisis plan to ensure the education and training of concerned personnel); develop a response system, update and verify the system of information flow; make a list of contacts to managers and key response units; have ready necessary measures to prevent panic (verify information, focus on a key group of people, not to make rash and ultimate decisions); have prepared measures to prevent the escalation of critical situations; always evaluate the situation from more than one view; always support and inform potential helpers; during critical situations deal with this situation only, i.e. do nothing else; make gradual transition from a critical situation management scenarios to the normal way of managing; and learn from mistakes before and during critical situations.

Preparedness and response to emergency situations in organizational units [1, 2, 7, and 8] is based on the following four principles:

1. Each executive is also responsible for emergency response preparedness and mastering in the section he manages. If response exceeds his capabilities, then expanding system response is codified.

2. Approach to all hazards is based on the optimization of resources for planning and response, generally applicable intervention scenarios and possible modifications in relation to possible momentary situations are created.

3. System response plans are based on a system of blocks, which can be combined into larger blocks when needed.

4. Emergency preparedness measures are centrally controlled.

5. Emergency preparedness is always governed by a special law that generally codifies: responsibility of the Minister responsible for planning. This is mainly to improve civil preparedness, development of policies and programs to ensure preparedness at regional and local level, providing education and training, improving awareness of the population, analysis and risk assessment and management research in the field of preparedness, coordination and inspection of emergency government plans, the development of measures to ensure continuity of government work, monitoring and reporting on the civil emergency situations, the creation of implementation plans; responsibility of regional and local administration in matters of support for work of security forces, civil protection and ensuring operation of critical infrastructure in the territory; and tasks of legal and natural persons and population.

3. Ready crisis plan

On the basis of the knowledge and experience of the world, compiled in the works [1, 2, and 7] a crisis plan for the territory is the basic document for ensuring the stability and development of the territory. It summarized the principles and measures, which shall be the protection of the protected interests of the state. The plan is based on verified data about the territory, which are handled by the relevant methods. On the basis of the analysis of specialized publications and specific plans in the world [1, 2, 13 - 15] was drawn up the contents of the crisis plan: a list of the legislation; characteristics of the territory; list of specific disasters; scenarios for specific disasters; response to specific disaster scenarios; file of emergency (emergency response, flood and similar) plans for the territory; a list of critical disasters; response scenarios to the critical disasters; and crisis management scenarios. Chapters may be filled with just the necessary accompanying text and links to relevant documents of the lower hierarchy such as scenarios of disasters, the response scenarios to the disaster, etc. According to the experience of the world there are crisis plans in written and electronic form, they are regularly updated and are based on the relevant information. Into their creation it is involved research sphere and for their update they are built a targeted database. If into the plans´ creation there are not involved the experts, so these cannot in a critical situation to provide adequate professional advice, because they don't know the context of the plan and its hinterland.

On the basis of the above-cited publications and the analysis of real plans in the developed countries of the world (e.g. [13-15]) the authors by the method of analogy have compiled the contents of the crisis plan that is appropriate for the entity in the Czech Republic. The effectiveness of processing procedure they verified on the more than 50 state and non-state entities. The content consists of the following items:

– short description of the entity (topography, protected assets, the specific vulnerability of the protected assets);

– the list of disasters that may affect the entity (choose from the list of disasters that is given in [1]) and create a list of the critical disaster;

– the assembly of representative scenarios of the critical disasters impact (empirical isoseismals, models of flood plain territory;

– isolines models; models of dissemination of missiles (debris);

– fire spreading lines; map of seismic zones; map of precipitations; simulations carried out by What, If and the other methods [11], ...);

– response scenarios to the critical disasters (response procedures for local and immediate conditions that use both, the standard and premium resources, forces and means (type plans, reserves, backup-finance);

– recovery plans after disasters of a large scale; and plans for specific activities, which are required in the response.

Experience from practice, and own referred to in the literature (e.g. [8]), indicates that for the real response is the need to have a document that is brief and contains the basic facts. According to the materials referred to in the works [13-15], which methodically correspond, to the cards, which use the civil defence, in the former Czechoslovakia [1], it was proposed a simple document that contains all the relevant data for the response to the crisis triggered by the specific critical disaster, Table 1. The usability and effectiveness of the plan has been validated on the examples of floods in 53 municipalities with extended competence in the Czech Republic [16].

Evaluation of the 68 of seminary work, stored in 2013 at CTU, the job of which it was to construct a crisis plan for the selected municipality according to the pattern below, showed that the students understand the logic of crisis management and gained the capability to actively participate in its preparation and response. On the basis of the above, we believe that the present tool leads to the improvement of crisis management, and due to its great explanatory power is appropriate for the authorities of municipalities.

Therefore, we propose that each municipality with extended competence, or each organization, would have for each critical disaster the crisis plan in the form described in below. Because the data must be locally specific and technically correct, it is necessary that State to ensure professional support, so as to ensure the organisation of the TSO (Technical Support Organisations) in the European Union [1, 7].

The operational plan to the crisis situation caused by the critical disaster is as follows: the territory of the municipality of *XXXXX* is the schema (Figure 1).

In the figure are marked public assets and objects, which may be causes of domino effects.

Fig. 1. The territory of municipality *XXXXX*

The scenario of critical disaster (scenario *X*) obtained by "*What, If*" for a given territory is in Table 1. Responsibilities at response to the disaster *X* are in a matrix of responsibility in Table 2.

Table1

Operational plan to the crisis situation caused by the critical disaster

The possible impact on the lives and health of humans	
The potential impact on the human security	
The potential impact on assets and property	
The potential impact on the welfare	
The possible impact on the environment	
Possible impacts on the infrastructures and technologies that are further broken down into:	
the impact on energy supplies (electricity, heat, gas)	
impacts on water supply system	
impacts on drainage system	
impact on the transport network	
impacts of cyber infrastructure (communications and information network)	
the impact on the banking and financial sector	
the impacts of the emergency services (police, fire, paramedics)	
the impacts on basic services in the territory of the (food supply, waste disposal, social services, funeral services), industry and agriculture	
impacts on the state administration and self-government	

Table 2

Matrix of responsibilities

RESORTS / ACTIVITIES	The Mayor	X_1	X_2...........	X_n
Identification of disaster				
Notification of a crisis staff				
Continuous monitoring of the situation				
Warning the population				
Hide the population				
The evacuation of the population				
………				
Restoration				

The response process: Notify the authorities and response units; the continuous monitoring the situation; warning the population and specific warnings of the Mayor (i.e. it is performed by commissioned person) addressed to management of buildings with a large number of people and with technologies that can caused domino effects; hiding the population; the evacuation of the population, and especially the specific evacuation

of buildings with a large number of people and help to plants with dangerous technologies. According to the needs of the activation of other organisations that carry out activities in accordance with the prepared plans – cleaning of the waste, the care of domestic animals, etc.

For the notification of bodies and components that will be involved in the response, the person in charge of the Mayor for crisis management uses text:

"XXXXXXXXXXXXXXXXXXX" - supplement 1

For warning citizens the IRS uses the sirens and public administration uses radio and other means, in which the person in charge of the Mayor for crisis management will use the text:

"XXXXXXXXXXXXXXXXXXX" - supplement 2

For evacuation of citizens from places A,B to places C,D,E the public administration uses radio and other means, in which the person in charge of the Mayor for crisis management will use the text:

"XXXXXXXXXXXXXXXXXXX" - supplement 3

List of crisis staff́ persons:

Supplement1
Supplement2
Supplement3

Conclusion

In the context of teaching at universities, it is necessary to cover the three objectives: to know the general concept of crisis management and its objectives; to know and to understand the application of crisis management in the state (country); and to learn how to process the ready plan of response to the crisis situation in real conditions in the given territory.

References

1. Procházková, D. Strategické řízení bezpečnosti území a organizace [Text]/ D. Procházková// ISBN: 978-80-01-04844-3.- Praha: ČVUT, 2011. – 483 p.

2. Procházková, D. Krizové řízení pro technické obory [Text]/D. Procházková//ISBN 978-80-01-05292-1.- Praha: ČVUT, 2013. – 303 p.

3. Procházková, D. Analýza a řízení rizik [Text] / D. Procházková // ISBN:978-80-01-04841-2. – Praha : ČVUT, 2011. – 405 p.

4. Procházková, D. Ochrana osob a majetku [Text]/ D. Procházková // ISBN: 978-80-01-04843-6. - Praha : ČVUT, 2011. – 301 p.

5. EU. Vade-mecum of civil protection in the European Union [Text] / European Commission, Brussels 1999. – 133 p.

6. NATO. CEP Handbook 2001. Civil emergency planning in the NATO / EAPC countries [Text]/ISBN 91-7097-086-6. - Svenska Tryckcentralen AB, Avesta 2001.

7. Procházková, D. Krizové řízení [Text]/ D. Procházková, J. Říha// ISBN 80-86640-30-2, MV-GŘ HZS ČR. – Praha, 2004. – 225 p.

8. Gustin, J. F. Disaster & recover y planning: a guide for facility managers [Text] / J. F.Gustin // The Fairmont Press, Inc. - ISBN 0-88173-323-7(FP), 0-13-009289-4 (PH). - Lilburn, 2002. – 304 p.

9. PEMA. Hazard mitigation planning - an on-line introduction. Part III: Hazard vulnerability analysis (HVA). Pennsylvania emergency management agency [Electronic resource]. – Available to: http:// sites.state.pa.us/PA_Exec/PEMA/program s /mitigation.

10. Procházková, D. Konference TIEMS [Text] /, D. Procházková. – 2009. – Vol. 112, № 2. – P. 18-19.

11.Procházková, D. Metody, nástroje a techniky pro rizikové inženýrství [Text] / D. Procházková // ISBN: 978-80-01-04842-9. – Praha : ČVUT, 2011. – 369 p.

12. Procházková, D. Případová studie a metodika pro její sestavení [Text] / D. Procházková // ISSN: 1213-7057. - 2008. – Vol. 112, № 7. – 16 p.

13. USA. Federal response plan [Text] / 9230.1-PL. FEMA 1999.

14. USA. Tennessee emergency management plan. State of Tennessee 1995 [Text].

15. USA. Emergency management plan. State of Texas 2000 [Text].

16. ČVUT. Archiv příkladů z oblasti rizikového inženýrství. Ústav bezpečnostních technologií a inženýrství [Text]. Praha.

ПРИНЦИПЫ КРИЗИСНОГО УПРАВЛЕНИЯ И КОМПЕТЕНТНЫЙ АНТИКРИЗИСНЫЙ ПЛАН

Д. Прохазкова, Ж. Прохазка

В данной статье рассматривается позиция кризисного регулирования в рамках комплексной системы управления организационной единицей (территорией, сообществом, компанией). Приводится общая характеристика целей, принципов, исследовательских задач, специфики решений, специальных средств, особенностей антикризисного планирования, систем мониторинга и принципов готовности к решению чрезвычайных ситуаций. Статья основана на исследовании рабочего антикризисного плана выбранного учреждения с расширенными полномочиями, т.е. такого которое предоставляет квалифицированную помощь и защиту населения. Данная работа является предметным материалом для лекций при подготовке инженеров в технических университетах.

Ключевые слова: управление безопасностью, кризисное управление, средства, цели и принципы, антикризисное планирование оперативного реагирования на практике

ПРИНЦИПИ КРИЗОВОГО КЕРУВАННЯ ТА КОМПЕТЕНТНИЙ АНТИКРИЗОВИЙ ПЛАН

Д. Прохазкова, Ж. Прохазка

У даній статті розглядається позиція кризового регулювання у рамках комплексної системи керування організаційною одиницею (територією, спільнотою, компанією). Наводиться загальна характеристика цілей, принципів, дослідницьких задач, специфіка рішень, спеціальних засобів, особливості антикризового планування, систем моніторингу та принципів готовності до розв'язання надзвичайних ситуацій. Стаття базується на дослідженні робочого антикризового плану обраної установи з розширеними повноваженнями, тобто такої яка надає кваліфіковану допомогу та захист населенню. Дана робота є предметним матеріалом для лекцій під час підготовки інженерів у технічних університетах.

Ключові слова: керування безпекою, кризове керування, засоби, цілі та принципи, антикризове планування оперативного реагування на практиці

Прохазкова Дана – д-р техн. наук, проф., Чешский Технический Университет, Прага, Чехия, e-mail: Dr.Prochazkova.Dana@seznam.cz

Прохазка Жан – канд. наук, Чешский Технический Университет, Прага, Чехия, e-mail: japro2am@seznam.cz