Crisis Staff Exercise - Aviation Accident

Vježba posade za krizne slučajeve – zrakoplovna nesreća

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Summary

Safety at the airport has been current and frequently discussed topic. To ensure safety at the airport in case of an extraordinary event, crisis staff participates. Based on this fact, there follows necessity to train members of crisis staff. The article describes phases and modules of education process, software for scenario creation and then follows description of preparation for exercise – an aviation accident in Moravia-Silesian Region. The presented preparation of the exercise is a part of specific course, provided by the project called "Simulation of Crisis Management Processes in the System of Whole-life Education of the Integrated Rescue System Units and Public Administration Bodies".

Sažetak

Sigurnost u zračnim lukama aktualna je i često raspravljana tema. Kako bi se osigurala sigurnost u zračnoj luci u slučaju izvanrednih okolnosti, postoji posada za krizne slučajeve. Slijedom toga, posadu za krizne slučajeve potrebno je uvježbavati. U ovom radu opisane su faze i moduli obrazovnog procesa, software za stvaranje scenarija. Nakon toga dat je opis priprema za vježbu – zrakoplovna nesreća u regiji Moravia-Silesian. Opisana priprema vježbe dio je specijalnog tečaja u okviru projekta nazvanog „Simulacija procesa menadžmenta u slučaju krize u sustavu cjeloživotnog učenja jedinica sustava integriranog spašavanja i tijela javne uprave".

KEY WORDS
crisis staff
exercise of aviation accident
software

KLJUČNE RIJEČI
posada za krizne slučajeve
vježba zrakoplovne nesreće
software

INTRODUCTION

In 2010, the Faculty of Safety Engineering at the VSB – Technical University of Ostrava has got down to work in the project called Simulation of Crisis Management Processes in the System of Whole-life Education of the Integrated Rescue System (IRS) Units and Public Administration Bodies (SIMPROKIM). The SIMPROKIM have two main aims:

1. To prepare the specification of crisis management processes for selected crisis situations in the form of obligatory methods accepted by Ministry of Interior of the Czech Republic;
2. To create the support system for the systematic training of permanent crisis management group members at the level of municipalities with extended competence, including its software that provides regular training of crisis management group member for overcoming selected crisis situations. [1]

Crisis management is an important tool in providing assistance to the public during emergencies. A two-stage crisis management model was selected for the needs of this project: the Protection and the Response module. Each module is defined by a knowledge base and set of skills that a participant of the project should obtain during the educational process. The "Protection" module includes a complex of activities executed during the preparation for emergency. Generally, it includes identification of possible emergencies in the area, evaluating their risks, reducing the effects of emergencies and emergency preparedness. The "Response" module in general includes a complex of activities needed for dealing with the consequences of emergencies that occur in the territory. [2]

The educational process in both modules operates in three stages:
- Teaching,
- Training,
- Testing.

The "Teaching" phase is executed in the form of guided lectures that cover theoretical interpretation of the individual modules. The "Training" phase includes testing the skills obtained by participants in the "Teaching" phase. The "Testing" phase includes validation of skills obtained in skills phases. [1][2]

TOOLS AND METHOD

Worldwide volume of passenger air transport will more than double in next twenty years. It is a prediction of International Air Transport Association. According to the prognosis, number of passengers should reach 7,3 milliard in 2034, compared to 3,3 milliard this year. Thus average speed of growth in passenger air transport is to overreach 4 per cent a year. [4][5][6]

Based on this fact it is necessary to improve safety of air transport. Safety at the airport is divided into branches of "Security" and "Safety". "Security" deals with protection of civil aviation against law violations and it is roofed by Safety control department. "Safety" deals with operational safety at international airport; control department for this field is represented by Area Traffic Management. For purposes of this project, safety at the airport is perceived as the area of "Safety" [7][8]

For purposes of this article and in accordance with standard activity of IRS, aviation accident is understood as an extraordinary event connected with operation of airplane, having occurred between the time when all these persons leave the plane and at which:

-   some person are lethally or severely injured as a consequence of their presence on the plane or of direct contact with any part of the airplane, including the parts that tear apart from it,
-   the airplane is demolished or damaged,
-   the airplane is missing or is at inaccessible place. [9]

Aviation accidents can violate protection of persons on the airplane or its surroundings. The probability of their occurrence is low; however frequently they have disastrous impact. This fact is reflected in Table 1, showing the number of aviation accidents between years 2009 and 2013 in Moravian-Silesian Region (MSR). [10]

Table 1 Airport accident in the MSR [10]

Date	Place	Event description
10. 7. 2013	Frydek Mistek	emergency landing of glider
16. 8. 2012	Opava	fall of plane onto field
18. 6. 2012	Opava	fall of ultralight aircraft

PREPAREDNESS AT THE PRACTICAL EXERCISE

Software system supporting the training of crisis staff (CS) has two main functions: simulate the course of crisis situation and support the activities of CS. The group has to perform in order to fight the crisis situation effectively. The system support is planned during the whole organization of training and educational process, from the course announcement to the registration of participants, to creating their accounts to final issuing of certificates on passing the course. SIMPROKIM is going to offer three different types of course: base, extension and special.[11]

Each course follows relevant scenario (Figure 1) whose length must match the planned duration of the course. The aim of the scenario is to represent the issues taught. These issues are artificially created emergencies and the process of dealing with them is controlled by sequence of predefined steps. The scenario covers the content of the entire lesson. It consists of a set of events that must be already prepared. Events do not have to be included in the scenario in sequential succession. Partial or complete parallel concurrence of two or more events is allowed and expected. More information about software is in [11][12].

TRAINING OF AVIATION ACCIDENT

The training workplace is divided into three workplaces:
-   the workplace of CS
-   the workplace of communication with media and
-   director workplace

The whole training system is designed in such a way that the training can be realized either in regular spaces established for this purpose, or in mobile form in the room provided by the subject whose employees will be trained.

The software solution in the form of server part communicating with mobile computer workstations, the separate telephone system based on IP telephony, and mobile center for the support of multimedia communication are adjusted to this purpose. [1][11][13]

The aim of the training has been to test some of the proposed procedures, especially the time allocation, realistic assignment of tasks in a prepared scenario, reaction of the participants to the assignment and other. Total training time takes 240 minutes. Table 2 presents detailed time analysis. [11]

Table 2 Time analysis of the training of accident at the airport[13]

Part of training	Time allocation
Theoretical part	60 min
Practical part	120 min
Break	2 x 15 min
Evaluation of the training	30 min

The theoretical part of the training has been executed in the form of lectures using audio visual techniques. The lecture has contained of introduction to the safety and security situation in the territory of airport and information which are necessary to the operation of CS. Participants have been divided into roles of CS in the theoretical part of training.

In the frame of a specific course, SIMPROKIM project offers preparedness to all members of airport CS. CSis called by Control department according to airport emergency plan. [7] The activity of CSconsists of meetings in accordance with organizational structure, see Figure 2.
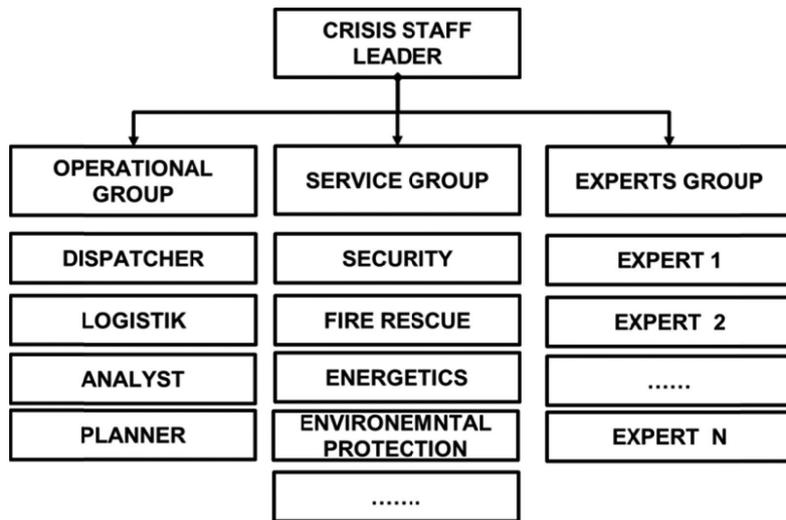
Figure 2 Structure of CSin airport[13]

Leader of CS controls and organizes the activity of CS, taking advantage of Service Group. Operational group carries out support of CS concerning the processes, i.e. assessment of situation, decision-making of CS leader and putting the decision into praxis, inspection of assigned measurements. Expert group prepares of technical documentation for the preparation and execution of CS.[13]

For the training there have been prepared several documents:
- Airport Emergency Plan
- hydrologic situation
- safety and security situation.

These documents are available participants during whole training.

Each of the course participants has notebook at their disposal, there can be found all documents needed, including forms for recording of solution process of each stable work group, reports to superior CS, responsibility descriptions of the positions and shared access to Crisis Plan of region, etc. further on mainly for displaying map documentation (Figure3) there is interactive board (SmartBoard) where it is poosible to make graphic marks, e.g. during the exercise it is possible to use also the system of videoconference for assigning certain taksks.[11][14]
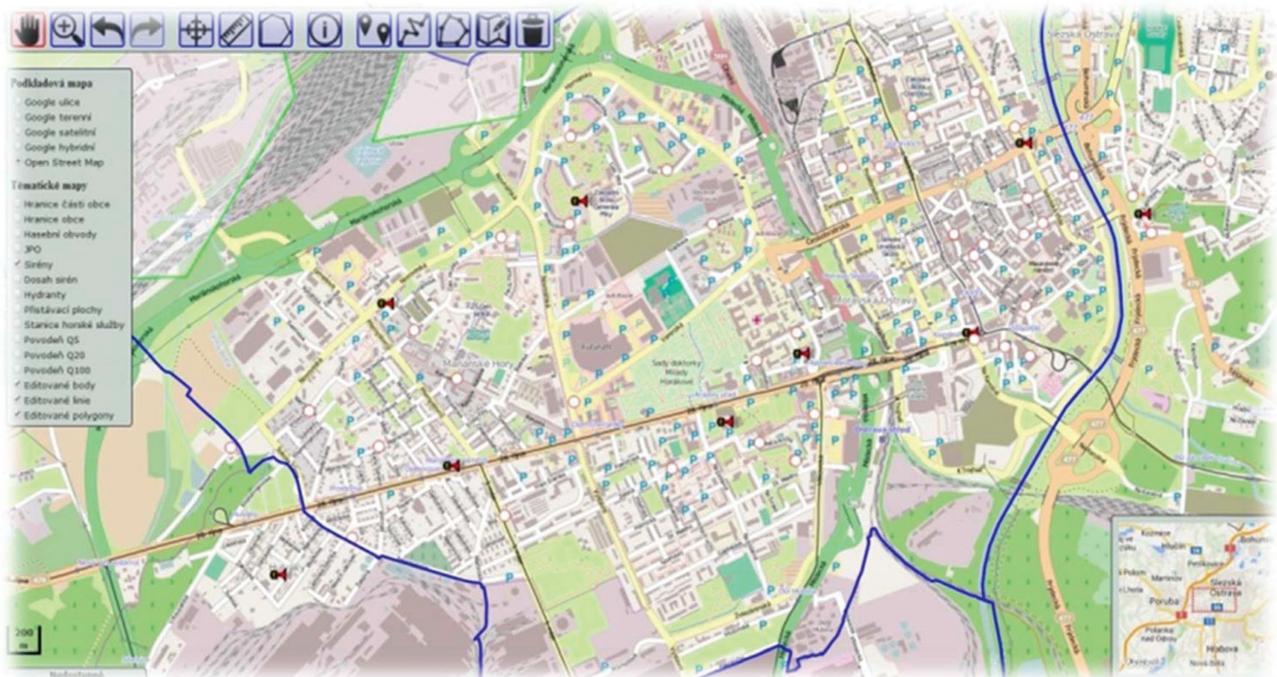

Figure 3 Software GIS[12]

The training of crisis situation fighting runs in two time lines simultaneously. The first time line deals with emergency that has its characteristic course corresponding to the real crisis situation development in given territory (operational time). The second time line represents the time needed for the actual training (astronomical time). Observers of the training have observed the communication between of the CS and the correctness of the proposed measures and procedures.[11]

CONCLUSION

The aim of SIMPROKIM project is to resolve two problematic fields of crisis management in the Czech Republic. Firstly, there does not exist unified specification of crisis management processes for dealing extraordinary events. Secondly, there absents systematic preparation ofcrisis management group members on the level of municipalities with extended competence and companies. The article shows preparation of airport crisis staff exercise in case of aviation accident in Moravian-Silesian Region. In respect to that we specify tasks of education process and their phases. Software supported scenario creation is an important part of it. The software had been developed in the frame of SIMPROKIM project.

ACKNOWLEDGMENT

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