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960 01 Zvolen // 960 01 Zvolen
Slovenská republika // Slovak Republic
Tel.: +421 45 5206 828
e-mail: ludmila.terenova@tuzvo.sk
IČO 00397440

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EVALUATION OF PUBLIC AWARENESS AND PREPAREDNESS TO COPE WITH EMERGENCY

Andrea Majlingová – Zuzana Lubinszká – László Komjáthy – Danka Boguská

Abstract:

In the paper we introduce the results of analysis focusing on awareness and preparedness of citizens of Moldava nad Bodvou town to flash floods. For the analysis purposes the methods of questionnaire survey and inquiry were applied. The citizens were asked to fill the questionnaires by e-mail and the other questionnaires were filled during the inquiry realized in the streets of Moldava nad Bodvou town. The questionnaire survey and inquiry were realized during the summer 2013. The results showed that the situation in preparedness of citizens of Moldava nad Bodvou to cope with flood is not satisfying. It is evident from the evaluation of questions related to the flood risk and situation of area of flooding in the town in particular. Those issues are known only by ca. 40 % of respondents. The citizens are also not well familiar with principles of self-defense during flood situation (less than a half of respondents asked know). This is probably caused by a nonexistence of any civil protection information portal on the town level, e.g. web page of the municipality.

INTRODUCTION

The public awareness and preparedness to cope with emergencies is a basic prerequisite to reduce the vulnerability of a community in the emergency endangered area.

Vulnerability is a component of risk that talks about the impact of the emergency not only on the public (community), but often also on environment and economy of the town or region at all. To reduce it is necessary to plan and then realized the effective preventive measures in all mentioned spheres as well as to plan sufficient personal, technical, technological, material financial and other sources to cope with the emergency and to reduce its impacts as soon as possible (see Figure 1). The resources necessary to cope with emergency as well as the preventive measures characterize the other component of risk – resilience.

Under resilience we can understand also the public awareness and preparedness that is analyzed in the framework of this paper for the flood situations in the territory of Moldava nad Bodvou town, as a part of the project TÁMOP-4.2.1.B-11/2/KMR-2011-0001, focusing on the protection of the critical infrastructure objects.

EXPERIMENTAL AREA

Town Moldava nad Bodvou is situated in the west part of the Kosice basin on the fluvial cone of Bodva river (Figure 2) in altitude of 216 meters above sea level [2].

The town is divided to three basic urban areas named: Sidlisko, Old town and Kopec. Through the town flows Bodva river (Figure 3).

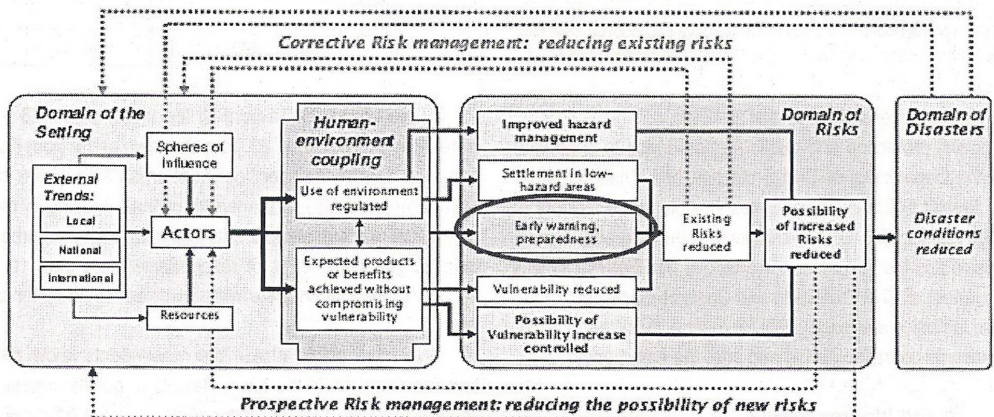


Figure 1 Risk management framework (Source: Villagrán de León 2008 [1])



Figure 2 Situation of the Moldava nad Bodvou town in the Kosice basin (Google Earth, 2013)

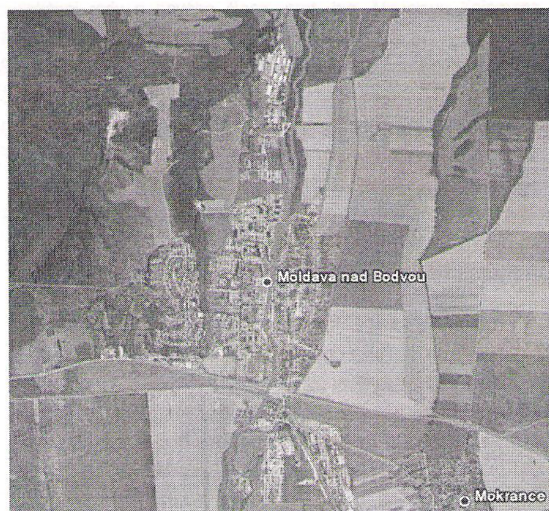


Figure 3 Situation of the Bodva river body in the Moldava nad Bodvou town (Google Earth, 2013)

It had 10 006 citizens at the end of 2012 [2].

For the civil protection and public preparedness to cope with emergency the Department of Civil Protection and Crisis Management of the District Office in Kosice is responsible in the territory of the town. The municipality, District Directory of the Fire and Rescue Corps in Kosice and the Fire Station in Moldava nad Bodvou as well as the Department of Civil Protection and Crisis Management of the District Office in Kosice are responsible for rescue, localization, eliminative and security operation during and after the emergency.

Questionnaire and inquiry survey

The questionnaire and inquiry surveys were realized during the summer 2013. In the survey as well as in the inquiry the same questions were asked. In the beginning we focused on the questionnaire survey based on e-mail communication of respondents, but it was

not successful enough, because for evaluation we required to have the statistical file with 100 respondents (1 % of the population living in the town). That is why we have completed the questionnaire survey with the inquiry in the streets of Moldava nad Bodvou town. There were asked totally 12 questions, based on the enhanced methodology introduced in the work of Lubinszka [3].

Here we introduce the questions from the questionnaire: 1. Gender; 2. Age category; 3. Urban area; 4. The length of the housing in the area; 5. Knowledge on flood risk in the town; 6. Knowing the flooding area in the town; 7. Knowing the housing surroundings; 8. Living in the flooding (inundation) area; 9. Knowing the procedure of self-defense during the flood situation; 10. Importance of flood trainings realization; 11. Importance of having a flood insurance; 12. Have you the flood insurance?

To process the data obtained by the questionnaire survey and inquiry we have used the MS Excel to summarize the data and Statistica software environments to study the dependency of answers of different age categories respondents on selected analyzed areas, based on the questions asked).

RESULTS AND DISCUSSION

According to the basic evaluation of the questionnaire and inquiry survey we obtained the following information. The total number of evaluated questionnaires was 100. In the questionnaire and inquiry survey were totally 53 women and 47 men involved. The age categories of respondents involved are shown in Table 1.

Table 1 Age and gender structure of questionnaire and inquiry survey respondents

Age category	Respondents number	Male	Female
0–20	2	2	0
20–40	60	26	36
40–60	24	14	8
60–80	14	5	9
Total	100	47	53

Respondents came from all the urban areas: 68 respondents were from Sidliisko area, 23 from Old town and 9 from Kopec suburban area. Except the specification of urban area where they live, we were interested also in the length of their housing in the specified urban area: 18 % of respondents live in the same suburban area less than 10 years and 82 % of respondents more than 10 years. The majority of respondents live in the same area in the interval of 20–30 years.

We have asked also if the respondents know the flood risk and flooding area in the town. Results of questionnaires evaluation showed that only 42 % of respondents know the flood risk in the town and also only 39 % of respondents know the flooding area in the town.

Among the other questions asked belonged those focused on knowing the housing surroundings and knowing if the respondents know they live in flooding (inundation) area. From evaluation of those

questions we observed that 91 % of respondents thought they know their surroundings, only 13 % of respondents answered they live in flooding area, 62 % they do not and 25 % do not know.

From the evaluation of questions focused on knowing the procedure of self-defense during the flood situation and opinions on importance of flood trainings realization came out that 44 % of respondents know the principles of self-defense during the flood, 49 % do not know what to do in case of flood situation warning/alarm and 7 % of respondents are not sure. The realization of the flood trainings 87 % of respondents considered as necessary.

The last two questions were focusing on the opinion of respondents on having a flood insurance and they also were asked if they already have had such insurance. 65 % of respondents thought that flood insurance has an importance, however only one respondent confirmed having it. 79 % of respondents do not have and 20 % of respondent do not know.

Overall, from the results obtained we can deduce that the situation in preparedness of citizens of Moldava nad Bodvou to cope with flood is not satisfying. It is evident from the evaluation of questions related to the flood risk and situation of area of flooding in the town in particular. Those issues are known only by ca. 40 % of respondents. As the respondents do not know the situation of flooding area in the town, they do not know whether they live or not in it. This situation is expressed by more than 80 % of citizens. The citizens are also not well familiar with principles of self-defense during flood situation (less than a half of respondents asked know). This is probably caused by a nonexistence of any civil protection information portal on the town level, e.g. web page of the municipality. There is not published any information on flood risk or situation of flooding area in the city. The only information can be obtained from the Analysis of the Kosice district according to the potential emergencies. But there are only described the impacts of previous floods, not the potential flood scenarios that could occur in the future, also in accordance to the climate

change impacts, extreme weather occurrence, respectively.

Without having the information on risk of flood, knowing the possible flooding area, people are not aware of flood danger, too. This situation is troubling because this increases the vulnerability of these communities to flood.

In the evaluation we have taken into consideration also the dependencies of answer of some questions on each other, taking into consideration the age categories, too. Among those belongs a study of correlation (dependency) between positive and negative answers related to the issue of knowing that respondents live in the flooding area and knowing the principles of self-defense during the flood. The results showed close dependency of the negative answers (correlation coefficient was 0.94 at significance level $\alpha = 0.95$), Figure 4. It means that if the citizens do not know whether they live in flooding area or not, they also have not missed the information on how to cope with it to protect themselves against it. The majority of positive answers occurred in to age categories of respondents (20–40 years old and 40–60 years old). Next, we have also studied the correlation between the positive and negative answers to questions focusing the issue of knowing that respondents live in the flooding area and the need to realize the flood trainings for citizens. The results showed very weak dependency, the positive answers reached the correlation coefficient value of $r = 0.40$ and the negative answers the correlation coefficient value of $r = 0.16$. Both at the significance level $\alpha = 0.95$. The majority of positive answers occurred in the second and third age category, similarly like in the previous case.

The last studied dependency was focusing the relationship between the positive and negative answers on the opinion of importance of a flood insurance and real situation of respondents asked on having this kind of insurance. The correlation coefficient was closely dependent in both cases – positive ($r = 0.84$) as well as negative ($r = 0.98$, Figure 5) answers.

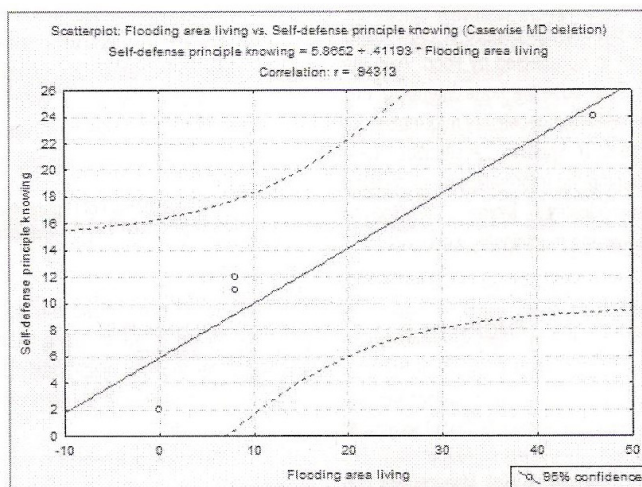


Figure 4 Results of the correlation analysis of negative answers focusing the dependency of questions related to knowing that respondents live in the flooding area and knowing the principles of self-defense during the flood

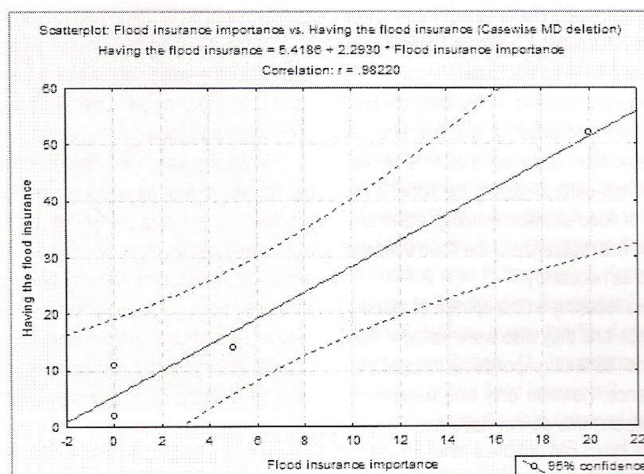


Figure 5 Results of the correlation analysis of negative answers focusing the dependency of questions related to importance to have the flood insurance and the real situation of respondents related to having it

CONCLUSIONS

In the paper we introduced an approach to the assessment of public preparedness to cope with an emergency, with a flood in this case. For the assessment the questionnaire and inquiry surveys were applied. From evaluation of those questionnaires come out that the citizens of Moldava nad Bodvou town are not satisfactorily prepared to cope with flood situation caused by flash floods. They do not have the information on flood risk and situation of flooding areas in the town. Many of them do not know the principles of self-defense, but demonstrate the need and interest to absolve the flood trainings organized by the civil protection bodies. They demonstrate the necessity to have flood insurance, although only one respondent has it really.

All mentioned above points out the high degree of vulnerability of communities living in this town to be affected by flood. Also the awareness of flood is too low. It is because the nonexistence of any information (web) portal dissemination the necessary information for civil protection on municipality level. To improve the situation, there will be prepared a material containing the information on all missing issues and will be sent to the municipality of Moldava nad Bodvou town to be disseminated via the existing municipality webpage.

Acknowledgement

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Addresses of authors:

Andrea Majlingova, PhD.,

Department of Fire Protection,

Faculty of Wood Sciences and Technology, Technical University in Zvolen, Slovakia, e-mail: majlingova@tuzvo.sk

Zuzana Lubinszka, PhD.,

District Directory of the Fire and Rescue Corps of the Slovak Republic in Dunajská Streda, Slovakia,

e-mail: Zuzana.lubinszka@minv.sk

Dr. László Komjáthy,

National University of Public Administration,

Budapest, Hungary,

e-mail: Komjathy.Laszlo@nke-uni.hu

Eng. Danka Boguska,

Department of Urgent Health Care, Faculty of Health Care,

University of Presov in Presov, Slovakia,

e-mail: Danka.Boguska@unipo.sk

Recenzent:

prof. Ing. Milan Oravec, PhD.

KBaKP Strojnícka fakulta

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