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Best Practices and Lessons Learned from the Project 15.3.1.017 „Risk Management for Large Scale Infrastructures in the Romanian-Bulgarian Cross-Border Area“

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Abstract. The paper presents the main results from the implementation of the project 15.3.1.017 „Risk Management for Large Scale Infrastructures in the Romanian-Bulgarian Cross-Border Area“, financed by the European Regional Development Fund (ERDF) and the Programme Interreg V-A Romania – Bulgaria. The project includes a study of the main infrastructure objects from the chemical industry, energy and transport infrastructures. Documents have been developed in order to raise the awareness of the population in the cross-border region. The knowledge of the trainees has been assessed in respect to risk management and the information related to it. The paper presents a statistical analysis of the questionnaires completed during the project.

1. Introduction

Globally, the nuclear energy is a significant contributor to economic progress. At the same time the potential dangers of radioactive accidents, similar to the ones at the Chernobyl and the Fukushima nuclear power plants (NPP), evoke fear in society [1, 2, 3]. In addition to the actual technological risk, the fear generated in large segments of society is increased by the lack of transparency and the poor communication with various stakeholders [4, 5, 6, 7].

A case in point is the recent (25 March 2018) controlled shutdown of Unit 1 at Cerna Voda NPP due to a defect of one of the processing systems [8]. The press communications endorsed by the General Director of the NPP were meant to assure the population that ‘the remedial works will not have an adverse effect on the population and on the environment’ and that ‘these actions will follow the specific procedures of Cerna Voda NPP’.

The main objective of the project ‘Risk Management of Large-Scale Infrastructures in the Romanian-Bulgarian cross-border area’ is to raise the awareness of the representatives of the target groups on the benefits and the technological risks with the existing and the future large scale infrastructure (LSI) sites along the cross-border area, in order to create conditions for increasing the level of socio-economic acceptance and for development of the sites and the region.

The abovementioned objective has united the competences and capacities of the following project partners [9]:

- ‘Horia Hulubei’ National Institute for Research and Development for Physics and Nuclear Engineering (IFIN-HH), Romania;
- The University of Ruse ‘Angel Kanchev’, Bulgaria;
- The Romanian Association for Technology Transfer and Innovation, Romania, and
- The Business Innovation Centre INNOBRIDGE, Bulgaria.

This Project aims help raise local public awareness of LSIs through training and communication. These actions targeted the following groups:

- Practitioners in risk management and analysis;
- NGOs;
- Local and national authorities, etc.

To achieve the project objectives, the consortium of project partners has implemented various specialized trainings, active communications with representatives of the target groups, elaborated effective educational materials for the future specialists in risk management, and other activities with multiplication effect.

The specific project objectives are as follows:

- Improving the communication capacity of LSIs, public administration and NGOs;
- Training LSI managers;
- Creating a training system for professional managers of LSIs.

The aim of this paper is to present an analysis of the completed questionnaires and to summarize the best practices and lessons learned during the course of the project.

2. Performed activities

The information related to raising the awareness of the interested parties and other stakeholders has been customized based on a series of surveys.

The initial survey has been carried out during the kick-off conference which has been held on 30 June 2016 in Ruse, Bulgaria. Its main goal has been to establish the principle target groups and their respective starting level of awareness in relation to risk management of LSIs.

During the course of the project several other surveys have been carried out. The timeline of these events is shown on Figure 1.

The concluding event of the project has been held on 30 January 2018 in Craiova, Romania. It has been framed by an overview of the project results and a final questionnaire. In addition to the project partners, the final conference has involved decision-makers and professionals in risk management from both sides of the Danube River. Among them were:

- Miron Albă from Electrical Distribution Oltenia who presented the advantages of LSI in the Romania-Bulgaria cross-border region, risks and threats, ways to minimize threats; actions and decisions taken;
- Emil Kichev – an expert in Risk Management at Kozlodui NPP, Bulgaria who summarized the lessons learnt from the Bulgarian partners, and
- Valentina Dinu from Nuclearelectrica who outlined the lessons learnt from the Romanian side.

The purpose of the end line survey (performed in the period from 1 December 2017 to 31 January 2018) was to demonstrate the difference in the levels of awareness before and after the implementation of the project. An additional benefit was the gathering of ideas for continuation of the project partnership and widening the scope of the current activities.

Fig. 1. Timeline of project events, dates and number of participants.

3. Obtained results

The end line survey has been used to establish the awareness of the various groups of stakeholders. The general questionnaire has been completed by 90 respondents which represented the following stakeholder groups:

- Local and government administrations- 23 respondents (25.6 % of the statistical population);
- NGOs – 18 completed questionnaires (20 %);
- 16 LSI managers (17.8 %);
- Population – 14 people surveyed (15.6%), and
- Others who do not consider themselves as belonging to any of the above categories – 19 (21.1 %).

The intent of the specific questionnaire was to establish the respondents' degree of awareness in respect to:

- The available LSIs in the Romanian-Bulgarian cross-border area;
- The benefits from LSIs in the Romanian-Bulgarian cross-border area;
- The risks from LSIs in the Romanian-Bulgarian cross-border area;
- The level of improvement of the security in the Romanian-Bulgarian cross-border area as perceived by the respondents; and
- The change of the respondents' attitude towards the operation of LSIs in the Romanian-Bulgarian cross-border area and towards the creation of new LSIs.

80 people have answered these key questions, and their answers are demonstrated graphically on Fig. 2 to Fig. 7.

The answers to the first three questions are based on a 5-level scale from 'Very low', through 'Low', 'Average', and 'High' to 'Very High'. Based on the analysis of the data from Fig.2 it can be said that 55 % of the respondents perceive themselves as very knowledgeable about the LSIs which exist in the Romanian-Bulgarian cross-border region. Only 6 % of the people who answered the first question think that they do not know enough about the LSIs in this region.

The proportion of the answers in the same five categories is quite similar on Fig. 3. It is possible that the advertisements, campaigns such as 'Open doors' days, and events to promote the social responsibility of large industrial facilities, improve their overall image and the perceived benefits from

their operation. In comparison to the results presented in Fig.2, the share of 'High" and 'Very high' level of understanding is increased to 71 %, and the 'Average' / undecided category has shrunk to just 23 %.

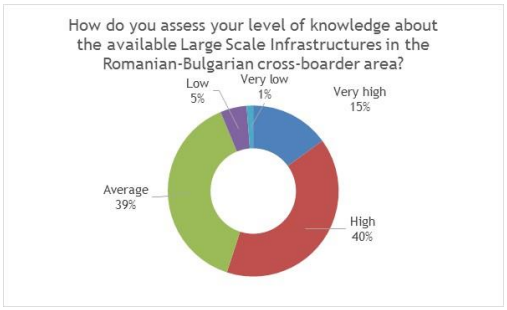

Fig. 2. Level of knowledge about LSIs.

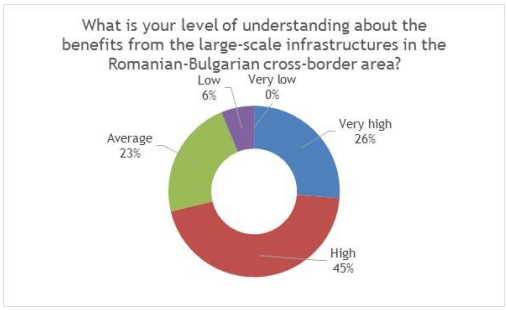

Fig.3. Benefits from LSIs.

The responses to the questions about risks that are presented on Figures 4 and 5 should be considered and discussed in parallel. While initially only 4 % had little understanding of the risks coming from LSIs, after the implementation of the project 71.3 % declared that their additional awareness has helped improve the security of the cross-border region. This finding demonstrates the high quality of the trainings and the expertise of the lecturers and the presenters.

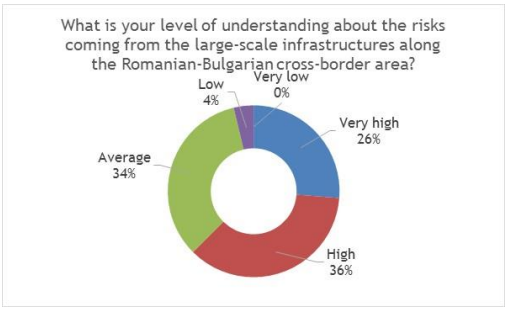

Fig. 4. Level of understanding about the risks from LSIs.

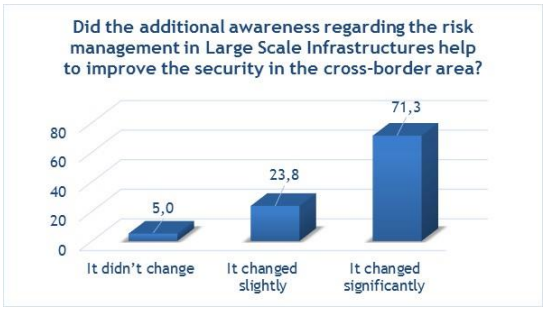

Fig. 5. Additional awareness about risk management in LSIs.

Figures 6 and 7 also offer 'food for thought' when it comes to awareness and its influence on attitudes, behaviours and culture (A-B-C Model) [10]. 81 % of the 80 respondents claim that their 'awareness about risk management in LSIs' has changed significantly as a result of the project activities. At the same time, nearly 60 % declare that their attitude 'has changed slightly'. These is a reason to be optimistic about the results of the project because more than a third (i.e. 33.8 %) of the people who have completed the end line survey say to have changed significantly their attitude towards the operation of LSIs.

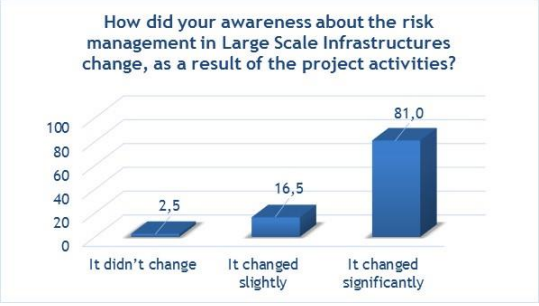

Fig. 6. Change of awareness about risk in LSIs.

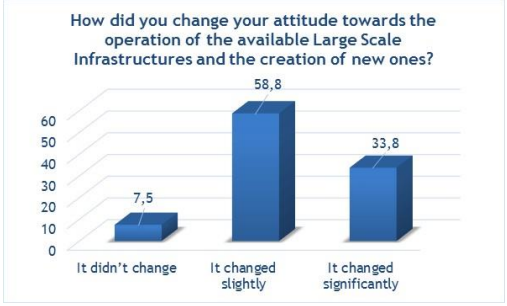

Fig. 7. Change of attitude towards LSIs.

The project results and the activities associated with them have been shared with the various stakeholders at the project events (see Fig. 1), by distributing project information materials, by using media channels such as TV and radio interviews and broadcasts, newspaper reports and notices, and the limitless capabilities of the internet.

4. Conclusion

The project 'Risk Management for Large Scale Infrastructures in the Romanian-Bulgarian Cross-Border Area' has contributed to improving the communication capacity of LSIs, public administration and NGOs. This can be evidenced from the results of the questionnaires which have been completed at key stages of the project by relevant interested parties.

Ultimately, they have become more aware of the benefits and the risks that accompany the operation of LSIs. These results are made possible by developing specific syllabi and course materials, training LSI managers and other stakeholders, creating a training system for professionals in risk management.

The improved communication process in times of normal operation, and in emergencies and when accidents happen, will increase the reputation of LSIs and will enhance the preparedness of the population on both sides of the Danube River.

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