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Strengthening Integrated Disaster Risk Management System in Serbia - DISARIMES

Vladimir M. Cvetković[1*]

[1] Faculty of Security Studies, University of Belgrade, Gospodara Vučića 50, 11040 Belgrade, Serbia

Abstract: In the Republic of Serbia, no comprehensive scientific multimethod research has been conducted to identify weaknesses and opportunities for improving the disaster risk management system. Regarding that, in the paper, author presents project description „Strengthening Integrated Disaster Risk Management System in Serbia - DISARIMES" which shall enable strengthening the disaster risk management system through research, development and innovative solutions implementation in the preparation, mitigation, response, remediation and post-disaster phases. The scientific importance of the projected research is reflected in the creation of assumptions for the advancement of theoretical and empirical knowledge in the scientific field of disaster risk management, bearing in mind that it is a relatively young scientific discipline in Serbia. The results of the project research will make it easier for decision makers in Serbia to understand the shortcomings of the system, but also provide innovative opportunities to improve their functioning in conditions of increasingly frequent and serious disasters. Establishing a scientific and professional society in the field of disaster risk management will create sustainable and necessary conditions for the transfer and improvement of knowledge and experience of importance for raising the level of operability of the system of protection and rescue of the Republic of Serbia in the event of disasters. A key contribution of the research findings will be to create a sustainable knowledge base that will be supported by the relevant amount of information regarding innovative capabilities and solutions identified as necessary to raise social resilience to a much higher level. In order to achieve the set goals, DISARIMES makes it possible, through a large number of SWOT analyses and other multimethod studies, to clearly identify and systematize the objective deficiencies and barriers encountered by the disaster risk management system in Serbia in all its stages before, during and after disasters, to identify and implement the appropriate solutions based on this. The objectives of the project are: to assess and identify strengths (advantages), weaknesses (disadvantages), opportunities (innovation potential) and threats for the disaster risk management system in Serbia; to develop and update RDI (research, development, innovation) Roadmap – knowledge databases with innovative solutions and other relevant information for improvement of the disaster risk management system; to fully deploy the DISARIMES scientific-professional network involving a broad range of the disaster risk management scientists and civil protection professions and organisations; to prepare the ground for the disaster risk management policy innovations.

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Keywords: disaster, risk management, system, Serbia.

1. Introduction

The disaster risk increase (Cvetković, 2014; Cvetković & Dragicević, 2014; Cvetković et al., 2018; Dragićević et al., 2013; Ivanov & Cvetković, 2016) (more frequent manifestations of natural hazards, as well as recorded high losses in all spheres of economy and society), accompanied by increasing vulnerability of people and their property, directly imposes the necessity and need of a responsible society in Serbia to improve the degree of its resilience (Cvetković & Miladinović, 2018; Cvetković, 2017; Cvetković et al., 2019; Cvetković et al., 2018; Cvetković, Roder, Öcal, Tarolli, & Dragićević, 2018; Kostadinov, Dragićević, Stefanović, Novković, & Petrović, 2017). In doing so, a serious rethinking of the needs and opportunities for improving the existing disaster risk management system is needed. Disadvantages and limitations of formal legal regulation in the field of disaster risk management (Cvetković & Filipović, 2017), as well as inefficient and untimely implementation and realization of legal solutions alarmingly suggest the necessity of realization of more serious scientific research projects in order to devise concrete and applied proposals for changing the current legal regulations. In addition, there is a growing need to transform the functioning of the system from a reactive to a proactive approach that more emphasizes and implements disaster risk reduction measures and activities. In addition, there is an evident lack of preventive measures (Cvetković et al., 2017; Cvetković, Öcal, & Ivanov, 2019; Цветковић, 2017) to mitigate the effects of disasters, but also insufficiently developed citizens' awareness of their importance. Practice shows there is an inability to overcome existing obstacles (Cvetković, Bošković, Janković, & Andrić, 2019) that prevent subjects and forces of the disaster risk management system from devising, developing and implementing disaster risk reduction measures.

Although comprehensive efforts to reduce the risks of disaster seem to be serious, but not systematic, the consequences of disaster continue to threaten the security of people and their property on the territory of the Republic of Serbia. For example, the floods of 2014 alone caused the death of 51 people, 23 of whom drowned, while 31,879 were temporarily evacuated from their flooded and destroyed homes, 24,000 of them from Obrenovac (UNDAC Report, Floods in Serbia, May 2014). For this reason, strengthening the disaster risk management system through research, development and implementation of innovative solutions in this field can have the effect of reducing disaster risk, which will directly increase the level of safety of citizens and their resilience to the consequences of a disaster.

In the past, catastrophes that have struck certain areas of Serbia have caused enormous material, economic and human losses. After the 2014 floods, in addition to the direct threat to life and human health, total damage exceeded €1.7 billion, accounting for more than 4% of gross domestic product. The innovative solutions that DISARIMES will offer can reduce the direct damage to the public and private sectors. They can also have the effect of reducing the level of losses in major manufacturing sectors such as agriculture, industry, trade and mining, but also damage to critical infrastructure, which is costly to repair. Its impact on reducing the level of vulnerability of critical infrastructure will mitigate

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the disabling or limitation of the realization of vital state functions (exercise of power, health, education, energy, economic, social and security functions in general).

2. Concept and methodology

The subject of the scientific research envisaged within the DISARIMES project[1] is a multimethod research and SWOT analysis in order to scientifically explicate factors that disable the strengthening of the disaster risk management system. Within the quantitative research tradition, a large number of surveys will be conducted in which the use of a questionnaire will examine the views of citizens employed in different institutions and organizations, with regard to strengthening the disaster risk management system. A number of semi-standardized interviews and scientific interviews will also be conducted with the executives and top managers of many relevant organizations in the field of disaster risk management.

In addition, an analysis of the contents of existing documentation, regulations and archival material of the RS in the field of disaster risk reduction will be carried out in order to compare them with the documents and regulations of other developed countries. In addition, the implementation of SWOT analysis will create the preconditions for the improvement of the mentioned system based on the use of existing or developed innovative solutions. This will identify all the advantages and disadvantages, that is, the favourable and unfavourable factors of the risk management system, as well as the possibilities for implementing certain innovations in the catastrophe risk reduction system in Serbia. The created analytical framework will enable to obtain all relevant information about the system itself and the external factors within which it exists and about the possibilities for its development. All the strategic opportunities and threats to the disaster risk management system in relation to its strategic strengths and weaknesses will be reviewed. Based on the results of the SWOT analysis, a matrix will be developed to improve the existing system by identifying innovative solutions in the field of the disaster risk management. The obtained results of multimethod research and SWOT analysis will serve as a starting point in the analysis, identification and prioritization of innovative capabilities and solutions for strengthening the system.

In parallel with the implementation of the research activities, the Scientific-Practitioners community will be established as a dynamic scientific and professional network of scientists and practitioners in the field of disaster risk reduction, which will enable the exchange of knowledge and experience, more professional identification of shortcomings and obstacles, as well as innovative opportunities for improvement of the disaster risk management system itself. In addition, in its sustainable development, and after the end of the project, it will provide a solid basis for its institutionalization to provide expert advisory support to decision makers in an increasingly complex decision-making environment. By announcing public calls in the media and established websites, sending emails, direct contacts

[1] Project will support it by the Scientific-Professional Society for Disaster Risk Management and other relevant organizations.

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and other means, all theorists and practitioners who directly or indirectly deal with the mentioned area will be gathered. Strategies and programs will be developed to bring them together and work together to support the implementation of the aforementioned research and SWOT analysis, as well as to analyse, identify and prioritize innovative solutions and opportunities at various stages of the disaster risk management process. In this way, a national consensus of scientists and experts will be created in expressing clearer needs to improve the system itself.

One of the most important parts of the research activities is a regularly updated Research, Development and Innovation Roadmap (= RDI Roadmap), i.e. the creation of a knowledge base that will enable all subjects and forces of disaster risk reduction (from citizens to government bodies) to identify appropriate innovative solutions necessary to raise the efficiency level of the disaster risk management more easily. The structure and functioning of the database will be in line with three innovation groups: innovations in the field of preventive measures, preparedness and mitigation measures (before a disaster); innovations in the field of protection and rescue i.e. response phase and innovation in the field of recovery, reconstruction and rehabilitation (post disaster). The platform itself will be developed in accordance with the latest standards that will make it easy to use. Using all available and accessible online databases, the most up-to-date innovative disaster risk management solutions will be identified that can be implemented to strengthen the protection system in Serbia.

The acquisition of knowledge will be organized in accordance with the latest research findings in the field, new technologies and existing solutions, best practice in reducing disaster risk. The collection, analysis and input of innovative solutions will be followed by appropriate scientific and research work. The results of the research conducted with prioritized innovative solutions will be available in the online knowledge base. The logical structure of the base itself will be developed at the very beginning of the project activities realization. Upon completion of the introduction of most existing innovative solutions, preparation for the ground for disaster risk management policy innovations will begin, which will enable decision makers in Serbia to unequivocally identify the needs and opportunities for improving disaster protection and rescue systems. Preparation will be realized through the development of specific strategies, programs and action plans. In addition, based on the results of the research, models will be developed to improve and strengthen the disaster risk management system in the RS. In the Republic of Serbia, no comprehensive scientific multimethod research has been conducted to identify weaknesses and opportunities for improving the disaster risk management system.

The scientific importance of the projected research is reflected in the creation of assumptions for the advancement of theoretical and empirical knowledge in the scientific field of disaster risk management, bearing in mind that it is a relatively young scientific discipline in Serbia. The results obtained from the research will represent a real treasury of data that will be of strategic and operational importance for the advancement of the scientific and practical sphere of disaster risk management. The research will allow the development of new models and concepts to strengthen the disaster risk reduction system. The social importance of the scientific research is reflected in creation of conditions for improving the

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security of citizens and their property in the process of improving the disaster risk management system. Comprehensively, the research will generate a wealth of meaningful data on all aspects of the functioning of the disaster risk reduction system and thus enable its sustainable improvement. In addition, the data generated will enable a large number of future researchers to find clear guidelines and recommendations for conducting future research from the field of disaster.

Table 1. Project related to DISARIMES. Source: author.

Other projects related to DISARIMES	**Outputs to be used in DISARIMES**
DAREnet – Danube River Region Resilience Exchange Network (DAREnet)	Contributors: PI. Output: Concrete perspectives for further development, industrialisation and uptake of innovations of highest relevance for practitioners, and lays the basis for concrete innovation initiatives, practitioner-driven and "bottom-up" related to floods.
NatRisk	Contributors: Participants. Output: Information about methodology for identification of natural disasters to be managed in WB region and all aspects of prevention and consequences in order to define specific competencies for professional practice. Information about trainings for the public sector and citizens for reaction in case of various natural disasters

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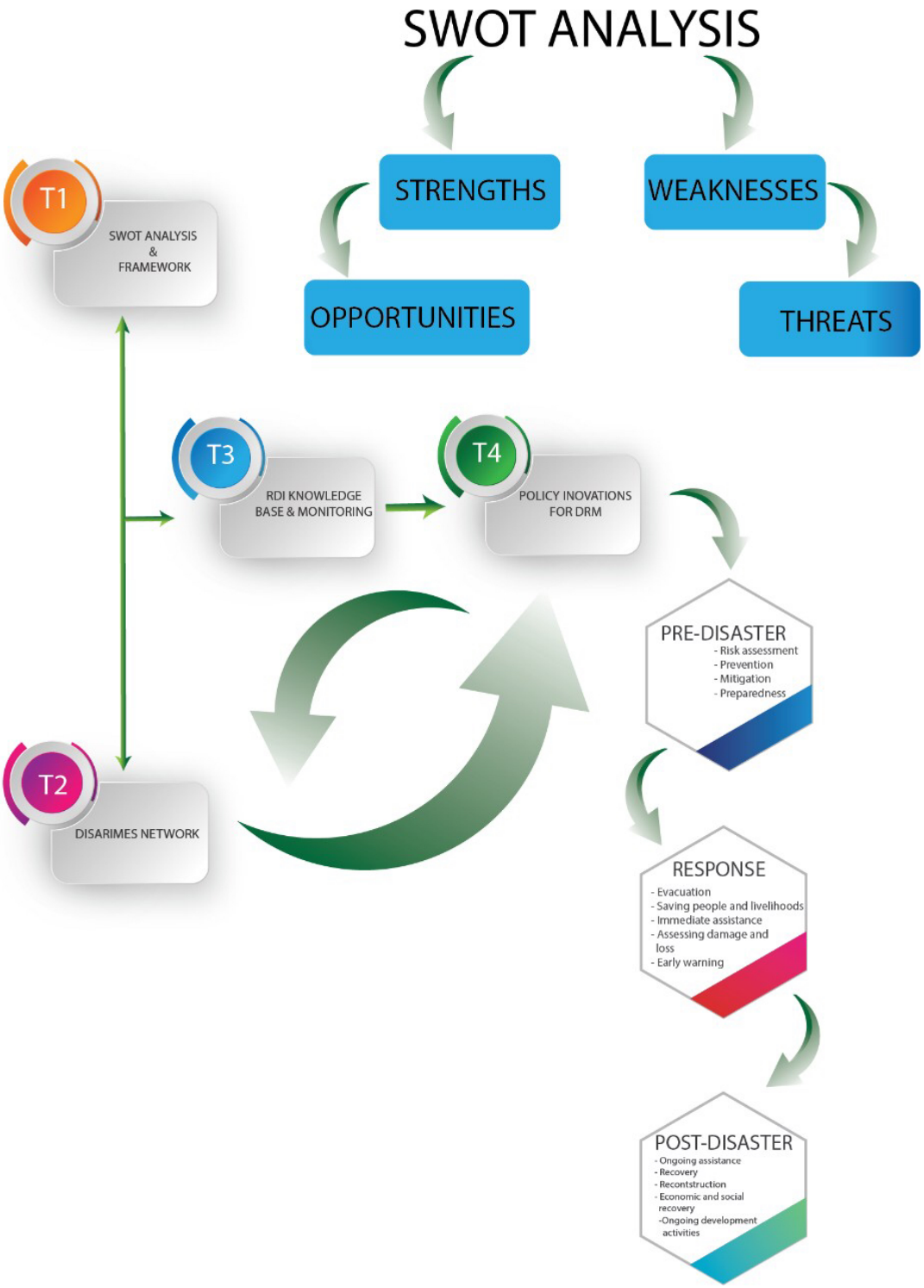

Figure 1. The conceptual model of the research project. Source: author.

3. Impact of project

DISARIMES will increase the innovation capacity in the area of disaster risk management regarding prevention, mitigation and preparedness phase (pre-disaster stage), and response, rehabilitation and reconstruction phases (post-disaster stage) in Serbia.

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- DISARIMES will enable the building of a sustainable and open RDI (research, development, innovation) knowledge database that will enable all social actors (from citizens to government bodies) to more easily identify the appropriate innovative solution and implement it at one of the stages (preparedness, mitigation, response and recovery) enhancing your disaster risk management system;
- DISARIMES will enable innovation to build an effective, improved and sustainable system of protection and rescue systems, as well as to improve the readiness of citizens, local communities and institutions to respond effectively to disaster conditions, as well as to create comprehensive assumptions underlying the design, development and implementation of measures to achieve them;
- DISARIMES will enable the development of a scientific and practitioner network to strengthen disaster risk management in the Republic of Serbia, and which will facilitate the enhanced collaboration of scientists and practitioners with respect to future research, further development and innovation.
- DISARIMES will prepare the ground for disaster risk management policy innovation by clearly indicating what research and innovation is needed to further strengthen the disaster risk management system;
- DISARIMES will enable transfer of innovative practices and solutions between the disaster risk management system in the developed countries and the existing system of the Republic of Serbia.

In the Republic of Serbia, the disaster risk management is a relatively young scientific discipline that is in its development phase. Starting from the multidisciplinary nature of the project, the research will contribute to the gathering of all interested scientists in the field of disaster studies and will enable joint work, transfer of knowledge and experience as well as affirmation in that scientific field. The project will contribute to the exchange of opinions, knowledge, innovations and experiences in the field of disaster risk management between domestic as well as foreign scientists. In this synergy, sustainable preconditions will be created for their further continuous work and cooperation in the design and implementation of scientific research the scientific and social implications of which can greatly raise the level of security and resilience of citizens and communities to disasters.

4. Dissemination of results

The DISARIMES project implies the use of a wide range of communication and dissemination of information on research results and innovative solutions at all stages of disaster risk management:

- The DISARIMERS public website (RDI Roadmap and Knowledge Base & Scientific-Professional Society) and social media (Instagram, Facebook, Twitter, LinkedIn, Research gate, academia.edu etc.);
- organized media conferences that will present information on the project, research results and innovative solutions to be implemented in the disaster risk management system;

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- International scientific conference – International Conference for Disaster Risk Management, which will be held every year and after the end of the project. Within it, all information on project activities and research results will be continuously presented;
- In the International Journal of Disaster Risk Management, more volumes will be devoted to the publication of research papers on the results of the project in open access;
- scientific papers (national journals – 20 papers, international journals – 8 papers) in open access will be published in national and international journals;
- Publications in the form of monographs, reports and reviews of innovative solutions in open access;
- DISARIMES events such as workshops, seminars, trainings, etc.
- A DISARIMES newsletter will be established to be sent to representatives of all entities and the strength of the disaster risk reduction system in the RS.
- SharePoint will be established to allow the sharing of documents, files, contact lists, deliverables and all other relevant project documents to all researchers and external experts involved;
- Regular telephone conferences between all researchers, as well as among other scientists and experts involved in designing innovative solutions.

Research data will be generated by conducting multimethod surveys involving the use of questionnaires and conducting interviews. In addition, all the existing data contained in existing documentation (laws, strategies, reports, notes, etc.) will be used. The survey will generate data relating to all phases of disaster risk management such as identified strengths, weaknesses, opportunities and threats within the system, with respect to preventive measures, preparedness and mitigation measures, response and recovery.

Plan for Communication and Dissemination

During the *initial stage* (first 2-4 project months), communication and dissemination activities will relate to the presentation of project activities, ongoing research activities, as well as the results achieved in establishing a knowledge base and Scientific-Professional Community. During the *launch phase* (4-12 project months), communication and dissemination activities will relate to the presentation of RDI knowledge base, Scientific-Professional Community, results of SWOT analysis, etc. In addition, at this stage, through promotional activities, a scientific and professional public will be brought together to participate in the development of a knowledge base.

During the *expansion phase* (12-24 project month), all major results will be presented regarding innovative solutions and opportunities as broadly as possible through all communication channels of the project. At this stage, communication will be established with key political representatives as well as other decision makers in Serbia relevant to strategic disaster risk management.

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Exploitation of results

The DISARIMES project is expected to generate Intellectual Property through the obtained results of field research.

Table 2. Exploitation of results. Source: author.

Expected results	Intended exploitation
SWOT results	Share results with scientific-practitioner community, political and other institutional partners, where relevant, with academia and industry.
Knowledge base	Promoting knowledge base to all relevant entities and forces of the disaster risk reduction system in order to create preconditions for solving their specific problems.
Identified innovative solutions and opportunities for preventive measures, preparedness and mitigation	Disseminate these innovative solutions and opportunities as broadly as possible through all communication channels of the project: the *DISARIMES Online Knowledge base, Community Platform*, social media accounts (Facebook, Instagram, Twitter), public web site, press releases, presentations / tutorials at DISARIMES workshops or events and etc.
Identified innovative solutions and opportunities for response measures	
Identified grounds for implementation concreted pre-disaster, response and post-disaster innovation.	
Identified innovative solutions and opportunities for recovery measures	

Management of knowledge and data

The data that will be generated during the survey will remain anonymous until the completion of their preparation for publication. On all occasions, relevant and accurate information will be published in national and international publications. All arranged data would be available in the form of certain databases within the knowledge base, which will be open access.

5. Implementation plan

In addition to the personal investigator, a lot of team members will be involved in the implementation of the project activities. The DISARIMES project structure is geared to implementing the major objectives of the project (Table 3.2.).

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Table 3. Management of tasks. Source: author.

Task/subtask number	Task/subtask title	Start month	End month	Description
T1.	**SWOT analysis & Framework**	M1	M9	To assess and identify *strengths* (advantages), *weaknesses* (disadvantages), *opportunities* (innovation potential) and *threats* for the disaster risk management system in Serbia with a particular focus on preparedness, mitigation, response and disaster recovery.
ST1.1.	Analysis, identification and selection of a matrix of factors or indicators for assessment of strengths, weaknesses, opportunities and threats	M1	M1	This task will potentiate the development of a scientific tool or instrument (matrix of factors) that will be used to assess strengths, weaknesses, opportunities and threats of the disaster risk management system in Serbia.
ST1.2.	Analysis and identification of the most relevant entities and strengths of the disaster risk reduction system in whose organizations the research will be conducted	M2	M2	This task will potentiate the generation of a list of all relevant entities (state administration bodies, local self-governments, companies, educational institutions, public organizations, etc.) and forces (emergency headquarters, police, civil protection units, fire and rescue units, Red Cross, etc.) a disaster risk management system within which the aforementioned research tool or instrument will be implemented.
ST1.3.	Implementation of SWOT analysis and anticipated multimethod research in previously selected organizations, according to a clearly determined and defined methodology	M3	M6	This task will potentiate the realization of the research itself and the collection of all relevant data using SWOT analysis and other research of the quantitative and qualitative research tradition.

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	for conducting the research			
ST1.4.	Analysis and interpretation of results, creation of SWOT profiles and their use as a basis for goal setting, strategy formulation and implementation of innovative possibilities	M7	M9	The collected data will be analysed using various software tools such as SPSS, Atlas ti etc. Upon completion of the analysis, SWOT profiles will be created.
T2.	**Scientific-practitioner network & Community Building**	M1	M4	It is related to activities directed towards full deployment of the DISARIMES scientific-professional network involving a broad range of disaster risk management scientists and civil protection professions and organisations. It will contain several sections: innovation versus pre-disaster, innovation versus response; and innovation relative to the post-disaster.
ST2.1.	Building an open DISARIMES scientific-professional network to facilitate transfer of knowledge, experience and thoughts regarding all stages of disaster risk management	M1	M2	In order to create a network, the structure, modalities of network operation and the platform itself will be developed that will enable the transfer of knowledge, experience and thoughts regarding all stages of disaster risk management. In addition, it will be networked with the RDI Knowledge Base. Programs and campaigns will be developed to engage scientists and practitioners within the network. There will be certain ways of registration of DISARIMER network members, access and managing the *online Network Platform.*
ST2.2.	Connecting DISARIMES network to other relevant networks as DAREnet etc.	M3	M4	All networks that are directly or indirectly related to the goals of establishing the DISARIMER

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				network will be identified. Modalities for member coordination and collaboration between these networks will be developed.
ST2.3.	Connecting DISARIMES network to other external experts from other scientific-professional disciplines significant for disaster risk management	M3	M8	In order to facilitate the most optimal innovative solutions, ways, standards and procedures will be developed to establish cooperation with external experts and organizations.
ST2.4.	Support DISARIMES first international scientific disaster risk management conference in Serbia with the aim of implementing innovation solutions.	M12	M16	A program and the first conference in the field of disaster risk management will be organized in Serbia that will bring together all scientists and experts in the mentioned field. Further strengthening and support programs will be developed for the first international journal – the International Journal of Disaster Risk Management in Serbia, in which innovative solutions will be promoted.
T3.	**RDI knowledge base & Monitoring**	M3	24	To develop and update RDI (research, development, innovation) Roadmap – knowledge databases with innovative solutions and other relevant information to advance the disaster risk management system.
ST3.1.	Develop and update knowledge base on web platform with open access	M3	M6	At the beginning, the logical structure of the database will be developed in relation to the structure and types of information it will contain, how it works and how it is displayed. An online platform (web site) will be created to support the adopted idea of the knowledge base itself.
ST3.2.	Reviewing and analysing,	M3	M11	Based on the results of the SWOT

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	selecting and prioritising innovative solutions and opportunities for improving preventative, preparedness and disaster risk mitigation measures			analysis, using all existing and generated data sources, a large number of publications (scientific articles, standards, books, etc.) and documents will be analysed with the aim of selecting and prioritizing the best innovative solutions in the field of preventive measures, preparedness and mitigation measures for risk disaster.
ST3.3.	Reviewing and analysing, selecting and prioritising, innovative solutions and opportunities for improving response to manifest disaster risks	M12	M18	Based on the results of the SWOT analysis, using all existing and generated data sources, a large number of publications (scientific articles, standards, books, etc.) and documents will be analysed in order to select and prioritize the best innovative solutions in the field of responding to manifested disaster risks.
ST3.4.	Reviewing and analysing, selecting and prioritising, innovative solutions and opportunities for improving disaster recovery measures	M19	M24	Based on the results of the SWOT analysis, using all existing and generated data sources, a large number of publications (scientific articles, standards, books, etc.) and documents will be analysed in order to select and prioritize the best innovative solutions in the field of disaster recovery measures.
T4.	**Policy innovations for disaster risk management**	M16	M24	To prepare the ground for disaster risk management policy innovations
ST4.1.	1) Making the grounds for concreted pre-disaster, response and post-disaster innovation strategies for the future development of identified capabilities	M16	M18	Assumptions tested for easier implementation of innovative solutions in pre-disaster, response and post-disaster stages. Conducting research to develop models for implementing innovative solutions in the area of disaster risk reduction.
ST4.2.	2) Developing strategies, programs and campaigns to strengthen the readiness of the disaster risk management system	M19	M20	Designing and writing strategies, programs and campaigns to strengthen the readiness of the disaster risk management system in the RS.

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	in the RS			
ST4.3.	3) Designing a civic education and training program for timely and appropriate disaster response	M21	M24	Writing a civic education and training program for timely and appropriate disaster response.

Table 3.3. Milestones.

Milestone ID[2]	Milestone name	Task/subtask number	Due month	Means of verification
MS1	DISARIMES scientific-professional network created	T2, ST2.1., ST2.2., ST2.3.	M4	D2.1.
MS2	DISARIMES Knowledge base created	ST3.1.	M6	D3.1.
MS3	The results of SWOT analysis and multimethod research are presented and interpreted	ST1.3.	M6	D1.3.
MS4	Identified innovative solutions and opportunities for preventive measures, preparedness and mitigation	ST3.2.	M11	D3.2.
MS5	Organized first international scientific disaster risk management conference	ST2.4.	M16	D2.4.
MS6	Identified innovative solutions and opportunities for response	ST3.3.	M18	D3.3.

[2] The ID should be composed as M01, M02, etc., and used in the Gantt Chart.

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	measures			
MS7	Identified grounds for implementation concreted pre-disaster, response and post-disaster innovation	ST4.1.	M18	D4.1.
MS8	Identified innovative solutions and opportunities for recovery measures	ST3.4.	M24	D3.4.
MS9	Developed strategies, programs and campaigns to strengthen the system readiness	ST4.2	M20	D4.2.
MS10	Developed education and training programs	ST4.3.	M24	D4.3.

Project have 15 deliverables and in table 4 are presented deliverable name, description, task/subtask number and mont of delivery.

Table 4. Major Deliverables. Source: author.

Deliverable ID[3]	Deliverable name	Deliverable description	Task/subtask number	Month of delivery
D1.1.	Indicator (factor) matrices for assessing the strengths, weaknesses, opportunities and threats of the DRM system	Report of the developed matrix of indicators for the SWOT analysis	ST1.1.	M1
D1.2.	List of selected relevant entities and strengths of the disaster risk management system	Report of lists of selected relevant entities and strengths of the disaster risk management system	ST1.2.	M2
D2.1.	DISARIMES scientific-	Report of the network and	ST2.1.	M2

[3] The ID should be composed as D01, D02, etc., and used in the Gantt Chart.

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	professional network	public website on which it was launched and the 1st Progress Report on community / network building		
D2.2.	Connections of DISARIMES to other relevant networks	Presentations of connections of DISARIMES to other relevant networks and the 2nd Progress Report on community/network building	ST2.2.	M4
D1.3.	SWOT analysis and multimethod survey conducted	Report of conducted SWOT analysis and multimethod research	ST1.3.	M6
D3.1.	Knowledge base on web platform	Report of an established knowledge base in relation to its content, characteristics and logical structure of functioning	ST3.1.	M6
D2.3.	Connections of DISARIMES to other relevant external experts	Report of connections of DISARIMES to other external experts and the 3rd Progress Report on community/network building	ST2.3.	M8
D1.4.	Results of SWOT analysis and multimethod research	Report of results of SWOT analysis and multimethod research	ST1.4.	M9
D3.2.	Innovative solutions and opportunities for enhancing disaster risk prevention, preparedness and mitigation measures	Report of Innovative solutions and opportunities for enhancing disaster risk prevention, preparedness and mitigation measures	ST3.2.	M11
D2.4.	The First international scientific disaster risk management conference	Report of organization of first international scientific disaster risk management conference	ST2.4.	M16
D3.3.	Innovative solutions and opportunities for improving response to manifested disaster	Report of innovative solutions and opportunities for improving response to manifested disaster risks	ST3.3.	M18

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	risks			
D4.1.	Grounds for implementation of concreted pre-disaster, response and post-disaster innovation	Report of prepared ground for disaster risk management policy innovations	ST4.1.	M18
D4.2.	Strategies, programs and campaigns to increase preparedness	Report of the developed strategies, programs and campaigns to increase preparedness for the disaster risk management system	ST4.2	M20
D3.4.	Innovative solutions and opportunities for improving disaster recovery measures	Report of innovative solutions and opportunities for improving disaster recovery measures	ST3.4.	M24
D4.3.	Education and training programs	Report of the designed education and training programs	ST4.3.	M24

In the project are identified a lot of risks which are required some specific actions must undertaken by team members.

Table 5. Risk management. Source: author.

Risk assessment	Description of the risk	Risk management actions to be undertaken by team members or Scientific institutions	Summary rating of risk (place a cross in the appropriate box)		
			HIGH	MEDIUM	LOW
Methodology risk	Description of the risk	Difficulties in conducting interviews and interviewing top management of different entities and the forces of reducing disaster risk.		+	
	Actions to be undertaken	Directing researchers to specific courses and training for more effective field research.			
Timing, milestones and deliverables	Description of the risk	Implementation and interpretation of the results of the SWOT analysis, which will cover all significant entities and strengths of the disaster risk			+

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		reduction system.			
	Actions to be undertaken	Involvement of more researchers and additional engaged staff to complete all activities in a shorter period.			
Participants and Scientific institutions	Description of the risk	Inability of a number of top managers in selected organizations to participate.		+	
	Actions to be undertaken	Selection of their closest associates who by function and the job they perform most closely match the chosen participant.			
Procurement	Description of the risk	Delay with the acquisition of appropriate equipment to conduct research due to complicated procedures.		+	
	Actions to be undertaken	Starting the procurement process from the very beginning of the project implementation.			
Budgetary issues	Description of the risk	Unpredictable means for hiring specific experts.			
	Actions to be undertaken	Established fund or sponsorship for the additional activities realization			+
Other risks	Description of the risk	Insufficiently efficient communication and coordination among the research team members.			+
	Actions to be undertaken	Team members' weekly meetings established for working together and coordination.			

5. Conclusions

DISARIMES will clearly indicate the possibilities and needs for designing and implementing innovation, which can directly influence the business sector to move towards finding and producing innovative technical solutions for disaster risk management in all its stages (readiness, mitigation, response, recovery, renewal and remediation). It will influence the connection of manufacturers of innovative technical solutions and users themselves through a clear platform of partnership cooperation and support. Innovative solutions in the area of disaster risk reduction can directly contribute to reducing the primary, secondary and tertiary

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effects of disaster on people and their health if properly implemented. In addition, strengthening the disaster risk management system is also directly related to improving the institutional capacities of the Republic of Serbia health institutions to prevent or mitigate the resulting health consequences in the conditions of a disaster.

In the educational system of the RS, from 1975 until 1993, there was a subject called Defence and Protection, in which students, among other things, acquired knowledge in the field of protection and rescue systems from various types of a disaster. Today, the initiative to introduce a course with similar curriculum content is emerging again. Decision makers can use the research findings when designing strategies and programs to introduce the Security Culture curriculum into primary and secondary school curricula to reduce the disaster risk. In addition, for such a well-designed subject to survive in curricula, it is necessary to define the content and approaches to such issues very clearly. In addition, a knowledgeably selected teaching staff who would provide teaching in the aforementioned subject must, in addition to the educational one, fulfil high pedagogical criteria. In order to gain a deeper understanding of the issue of introducing such a subject, additional research is needed to test the level of acceptability of certain content topics in the field of security, i.e. disaster. The syllabus of the subject should be specified in detail in order to expose serious safety topics to students in a simple, acceptable and engaging way (Cvetković & Filipović, 2018). Through identifying the needs and limitations of education about disasters, DISARIMES will offer innovative solutions in respect of the most appropriate and acceptable way of educating the RS citizens of different age categories. Namely, citizens informed about the risks of disaster in local communities, trained to respond to such situations in a timely and effective manner, adequately equipped to survive such events, are more likely to prevent or eliminate the effects. For these reasons, various educational materials will be developed that will be used to raise the level of citizens' awareness of the natural and technical and technological hazards themselves, as well as of the ways of citizens' adequate response.

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