

Comprehensive Risk Assessment of Basic Services and Transport Infrastructure

101004830 - CRISIS - UCPM-2020-PP-AG

Exploitation, dissemination and communication
Final workshop and training session as side event

Work package: WP-6

Deliverable Number: D6.6

Lead Beneficiary: IZIIS

Coordinator: CMC

Contributing Beneficiaries: CMC, UPT-FCE, AUTH, EUCENTRE

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October 31, 2022

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1. Background

The CRISIS Final workshop and training event (D6.6) was held on 20-21 October 2022 at IZIIS premises in Skopje and in Bitola the largest city on N. Macedonian territory in the Cross-border region (see Annex 1).

This two-day event brought together 84 participants. All project partners have representatives but also there was significant presence of invited representatives from national and local authorities for disaster preparedness and management, as well as researchers from the Balkan region (Croatia, Montenegro) who are working on the topic of risk assessment (see Annexes 2 and 3). The participants were welcomed by project coordinator prof. D-r Vlatko Sesov, Director of Crisis Management Centre (CMC) Mr. Stojance Angelov, Director of Protection and Rescue Directorate, D-r Bekim Maksuti and Head of the Secretariat for Disaster Preparedness and Prevention Initiative for South-Eastern Europe (DPPI SEE), Mr. Vlatko Jovanovski.

This report has been prepared according to the Annex I *Description of the Action* of the Grant Agreement.

2. Objective

The main objective of the Final workshop was to share CRISIS project outcomes related to improvement of management of natural disaster consequences through establishment of a harmonized and efficient system for assessment of the risk pertaining to vital structures and transportation infrastructure in the cross-border region of North Macedonia, Greece, and Albania (Fig 1.).



Figure 1. CRISIS in nutshell

3. Programme

According to agenda, the first day of the Workshop has two (morning and afternoon) sessions. The morning session targeted CRISIS project working packages and deliverables whereas the afternoon session was dedicated to CRISIS Web Based Platform (WBP) following round up discussion.

The second day of the programme encompassed visit to Bitola one of the largest cities in the targeted Cross-border region, meeting with the regional stakeholders and visit to the characteristic CBR exposure portfolio. The workshop finished with sightseeing and visit of the historical site Heraclea, destroyed by the earthquake in 6th century AD.

3.1 CRISIS project working packages and deliverables

Within this session, six different presentations were delivered by the project beneficiaries:

- *CRISIS project in a nutshell – challenges and outcomes* gave brief and summarized information about the project itself, main objective, working packages and challenges to realize the project activities within the specific Covid-19 pandemic environment. Presentation was delivered by project coordinator Prof. Dr Vlatko Sheshov (IZIIS).
- *Cross-border multi hazard assessment* tackled identification of natural hazards in the cross-border region that affect the functioning of basic services (health care institutions, institutions dealing with emergency situations, educational institutions, etc.) and the transportation infrastructure. Presentation was delivered by the representative from lead beneficiary, Assoc. Prof. Dr Markel Baballëku (UPT).
- *Needs assessment, bottleneck analyses and review of EU and regional legislative and research related to risk assessment and disaster management* addressed realized qualitative research approach to gain more knowledge about the current situation of disaster management structures, as well as the underlying obstacles that impede cooperation and the well-functioning of these structures. Presentation was delivered by the representative from lead beneficiary, Dr Christos Petridis (AUTH).
- *Cross-border risk assessment of basic services and transport infrastructure* presented reliable risk assessment of basic services and transport infrastructure, due to the most probable and worst- case risk scenarios, as a basis of identification of weak points of the overall emergency and disaster management system within the cross-border countries involved. Harmonization of all relevant assets in the three neighbouring countries led to the development of a comprehensive exposure model. Special focus was put on collecting data regarding direct physical vulnerability and losses caused by functionality damage and disruption. Presentation was delivered by the representatives from lead beneficiary, Assoc. Prof. Dr Marija Vitanova and Assoc. Prof. Dr Julijana Bojadzieva (IZIIS).
- *Cross-border database platform for risk and emergency management* explained the unique feature of the project, user-friendly WBP intended to support disaster and emergency management authorities in case of earthquakes and/or seismo-induced landslides in the cross-border region of Albania, North Macedonia, and Greece. It has been designed to collect, organise, and visualise for the project target area: i) the exposure data of educational facilities, health facilities, and bridges; ii) the seismic and landslide hazard data; iii) the earthquake damage scenarios (calculated both for selected historical events and in real-time) and the landslide risk scenarios related to the considered exposure dataset. The tool also allows the identification of alternative routes to the nearest available safe facilities, if the main one cannot be used due to damage to the transport infrastructure following a seismic event. Presentation was

delivered by the representative from lead beneficiary who developed WBP, Dr. Barbara Borzi (EUCENTRE).

- *Exploitation, dissemination, and communication* shared activities carried out to increase awareness of the project outputs within civil protection authorities and local/regional/national administrations. Flashes from elaborated dissemination strategy which ensure that the national emergency and disaster management authorities in the cross-border region have maximum benefit from project results and achievements was presented also. Presentation was delivered by the representative from the project coordinator, Prof. Dr Roberta Apostolska (IZIIS).

3.2 CRISIS WBP

Within the afternoon session, four different presentations were delivered by the project beneficiaries and representatives of the regional institutions:

- *Training session – implementation of CRISIS WBP at the cross-border region* was organized as a handout session during which participants followed explanation of the developer of the platform and simultaneously learnt how to implement the platform (see Fig. 2, demo user login). Presentation and training were delivered by EUCENTRE representatives Dr Barbara Borzi and Davide Quaroni. Each participants have opportunity to work on WBP (laptops were provided), starting from how to login, followed by building and running ‘own seismic scenarios’ and analysing obtained results. General opinion was that WBP is really easy to use, short training can provide necessary information even for advance application.

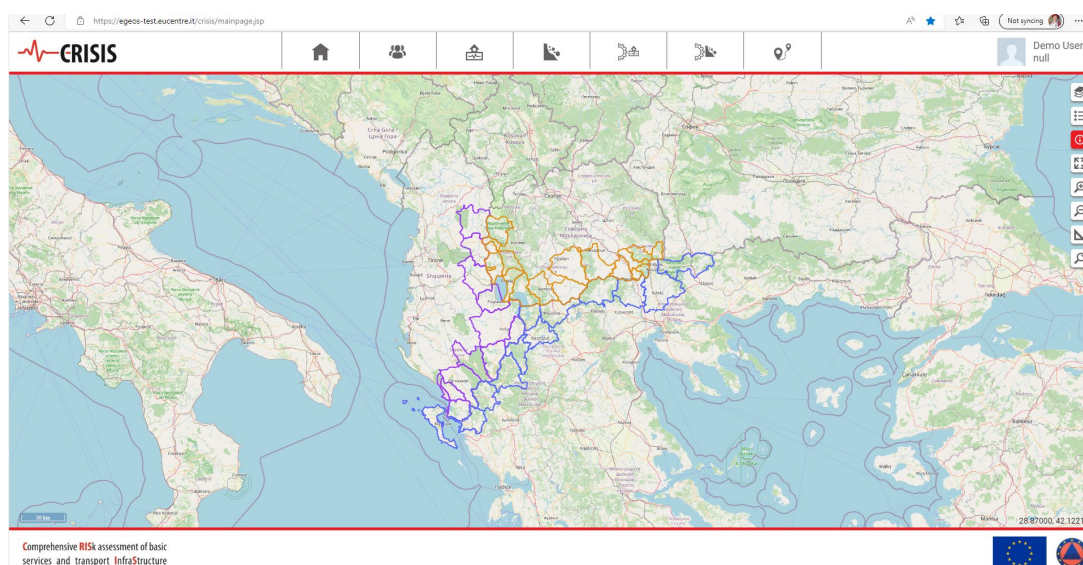


Figure 2. WBP snapshot

- *CRISIS WBP module in national database* - present real implementation of the created harmonized exposure model of basic service in the Macedonian National database - Assessment of threats from all risks and hazards (<http://procena.cuk.gov.mk/Login.aspx?ReturnUrl=%2f>) developed and hosted by CMC with substantial support from IZIIS. Presentation was delivered by Dr Stevko Stefanoski (CMC).
- *Regional experience in disaster and emergency management* gave insight into post-earthquake disaster activities carried out by the Croatian stakeholders during M_L 5.5.

Zagreb on 22 March 2020 and M=6.2 Petrinja on December 29, 2020. These earthquakes discovered weak points in Croatian disaster management system but also emphasis necessity for establishment of specialized seismic research center. Most of were activities were carried out by colleagues from Civil Engineering Faculty , University of Zagreb including pilot project entitled Seismic risk assessment of the City of Zagreb. Presentation was delivered by Prof. Dr Josip Atalic (University of Zagreb).

- *Conclusions and follow -up* explored possibilities for re-implementation of the project on national or wider regional level. The modular architecture of the WBP could be easily adaptable for a wider or for other region and could have a possibility to feature multi-hazard options. Refinement of the exposure model and extension to additional types of assets, besides basic services and transport infrastructures was proposed also. Sustainability of the project outcomes and a transnational dimension in the frame of South-Eastern Europe and the wider DRR community could be enabled by direct support from DPPI-SEE (<http://www.dppi.info/>).

The working sessions of the first day was finished by visit to the IZIIS lab facilities (Fig. 3) which represent sound technical bases for mitigation of seismic risk based on experimental and field testing.

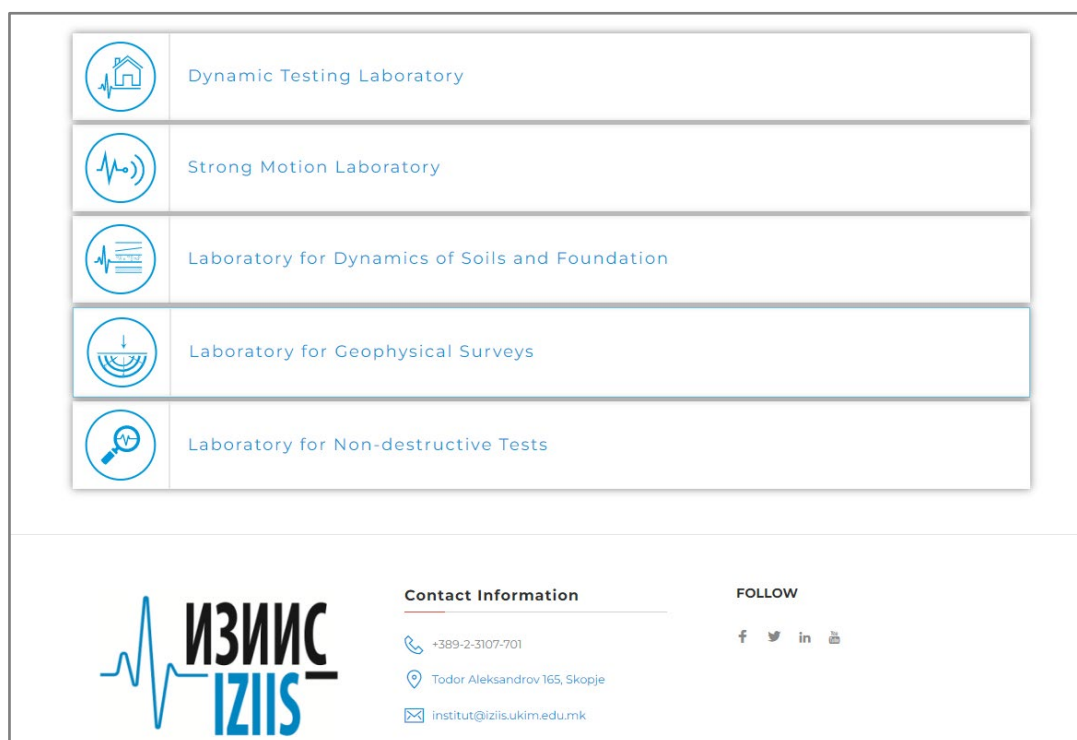


Figure 3. IZIIS lab facilities
<http://www.iziis.ukim.edu.mk/en/laboratories/>

3.3 Visit to CBR – field trip Bitola (second day)

Second day - the following activities were carried out:

- *Post - earthquakes response in CBR (Bitola Case Study)* was delivered related to the series of recent earthquakes in Bitola (09.01.2022 and 10.01.2022, M=4.0) and joint reaction of the Municipality of Bitola and IZIIS in the post-earthquake response, rapid assessment of several public buildings and damage assessment training gave by IZIIS to local engineers. Presentation was delivered by Ass. Prof. Dr Goran Jekik (IZIIS).

- *Meeting with the representatives of Municipality of Bitola, Local Government and CBR disaster management offices* was organized to disseminate and facilitate the project outcomes to the beneficial stakeholders. Representatives of the Bitola municipality shared their experience related to response to the damage claims after Bitola earthquake and administrative and logistical obstacles that they should overcome.
- *Experiences in CBR crisis management cooperation & challenges and opportunities for improvement* were shared by CMC regional office representatives. Representatives of Ohrid and Bitola regional offices explained their activities as first responders after Ohrid earthquake (21.05.2016, M =4.7) and Bitola earthquakes and close cooperation that they had with the local government. From their side it was stress out that they need more technical and scientific support from the institutions as IZIIS.

Possibilities for efficient implementation of developed WBP as well as challenges for CBR harmonized disaster management approach were discussed among participants.

The programme concluded with visit of characteristic CBR exposure portfolio (Fig. 4), sightseeing and visit of historical site Heraclea.



Figure 4. Characteristic CBR exposure portfolio

4. Conclusions and follow-up

From the delivered presentations and the discussions is clear that the CRISIS contributes to:

- enhanced cross-border cooperation and coordination in disaster risk management based on developed harmonized models and tools
- contribution toward technical improvement of national platforms for disasters preparedness

The civil protection and disaster management national authorities in the cross-border region where more than 500.000 inhabitants live are the key beneficiaries of the project outcomes. The WBP feature for identification of alternative routes to the nearest available safe facilities, if the main one cannot be used due to damage to the transport infrastructure following a seismic event, enable rescuers to intervene promptly after damaging earthquakes. Identification of the most vulnerable assets and prioritisation of the actions to increase the resilience is added value to the disaster management system.

On the other hand, the project outcomes enable academia and research institutions also to upgrade their study programmes and to educate professionals aware of disasters and capable to managed them.

Possibilities for transfer of knowledge and replicability of the project exist in the Balkan region and also in Southern European region. Enlargement the developed WBP with other types of natural and men-made hazard is also feasible due to the commitment of the project consortium to further joint projects.

Annexes

Annex 1. CRISIS final workshop agenda

Annex 2. List of participants

Annex 3. Selected photos of the workshop

References

- [1] [Documents download module \(europa.eu\)](#) Grant Agreement-101004830-CRISIS.pdf
- [2] <https://ec.europa.eu/research/participants/grants/101004830?ticket=ST-16331112-50GaRwV9zSoWyIUDBT21ErJZNciTtqJ1ZbKiFkZNzXnToFwIeEtaDiQ2i1MjzpBiHxSgxeJwbiNafCktSDQxyVG-yntOf97TTHqIEkVAzPfBrj-K7BMwbkPHBPXwNTUb8xoOIDYzzcIZeyewqouJuDVLzK2daDjscpPxEzk9jytanzvsh0oJJMx4zxzlg2LGGSVhtKa#!/processes>

Annex 1. CRISIS final workshop agenda

CRISIS FINAL WORKSHOP

20– 21 October 2022

Venue: Skopje & Bitola, North Macedonia

AGENDA

20/10/2022	Thursday	Skopje
09:00 – 10:00	Registration	IZIIS
10:00 – 10:30	Welcome addresses and introduction	Speakers: Prof. D-r Vlatko Sheshov Institute of Earthquake Engineering and Engineering Seismology <i>CRISIS Coordinator</i> NCDRR Coordinator National platform for decrease of risks of accidents and natural disasters in the Republic of North Macedonia Crisis Management Centre (CMC), Director Protection and Rescue Directorate, Director DPPI Representative Disaster Preparedness and Prevention Initiative for South- eastern Europe
10:30 – 10:45	Coffee break	
Morning session	CRISIS project and deliverables	Speakers:
10:45 – 11:00	CRISIS project in a nutshell - challenges and outcomes	Prof. Dr Vlatko Sheshov <i>CRISIS Coordinator, IZIIS</i>
11:00 – 11:15	Cross-border multi hazard assessment	Lead beneficiary <i>UPT-FCE</i>
11:15 – 11:30	Needs assessment, bottleneck analyses and review of EU and regional legislative and research related to risk assessment and disaster management	Lead beneficiary <i>AUTH</i>
11:30 – 11:45	Cross-border risk assessment of basic services and transport infrastructure	Lead beneficiary <i>IZIIS</i>
11:45 – 12:00	Cross-border database platform for risk and emergency management	Lead beneficiary <i>EUCENTRE</i>

12:00 – 12:15	Exploitation, dissemination, and communication	Prof. Roberta Apostolska <i>IZIIS</i>
12:15 – 14:00	Lunch Break (IZIIS Restaurant)	
Afternoon session	CRISIS WBP	Speakers:
14:00 – 15:00	Training session – implementation of CRISIS WBP at the cross-border region	EUCENTRE representative
15:00 – 15:20	Implementation of CRISIS WBP in national database	Dr Stevko Stefanoski CMC <i>Head of Department for Analysis, Assessment and Strategic Planning</i>
15:20 – 15:40	Coffee break	
15:40 – 16:00	Regional experience in disaster and emergency management	R&E management representative from the Balkan region (tbc)
16:00 – 16:15	Closure of the workshop, conclusions and follow -up	Prof. Dr Roberta Apostolska All
16:15 – 17:00	Visit to the IZIIS Lab facilities	IZIIS representative
19:30	Official Dinner (Venue tbd)	

21/10/2022	Friday	Bitola
09:00	Departure to Bitola	
Session	12:00-13:30	Speakers:
	Welcome address	Prof. Dr Vlatko Sheshov Institute of Earthquake Engineering and Engineering Seismology <i>CRISIS Coordinator</i>
	Meeting with the representatives of Local Government and CBR disaster management offices (Venue tbd)	
	Experiences in CBR crisis management cooperation & challenges and opportunities for improvement	CMC Regional Office Representative All partners
	Post - earthquakes response in CBR (Bitola Case Study)	IZIIS representative
	Discussion	All
13:30 – 14:30	Lunch (Venue tbd)	
14:30 – 16:00	Visit of characteristic CBR exposure portfolio, sightseeing and visit of historical site Heraclea	
16:00	Departure to Skopje	

Annex 2. List of participants



FINAL WORKSHOP – Attendance List
October 20, Skopje, North Macedonia

#	Name and surname	Institution	Signature
1	Vlatko Sheshov	UKIM-IZIIS	
2	Roberta Apostolska	UKIM-IZIIS	
3	Zoran Rakicevic	UKIM-IZIIS	
4	Radmila Salic Makreska	UKIM-IZIIS	
5	Aleksandra Bogdanovic	UKIM-IZIIS	
6	Julijana Bojadzieva	UKIM-IZIIS	
7	Kemal Edip	UKIM-IZIIS	
8	Igor Gjorgjiev	UKIM-IZIIS	
9	Marija Vitanova	UKIM-IZIIS	
10	Goran Jekic	UKIM-IZIIS	
11	Dejan Filipovski	UKIM-IZIIS	
12	Marta Stojmanovska	UKIM-IZIIS	
13	Barbara Borzi	EUCENTRE	
14	Davide Quaroni	EUCENTRE	
15	Christos Petridis	AUTH	
16	Neritan Shkodrani	UPT-FCE	
17	Markel Baballeku	UPT-FCE	
18	Arian Lako	UPT-FCE	
19	Stevko Stefanoski	CMC	
20	Stojance Angelov	CMC	
21	Trajce Jovanovski	CMC	
22	Mihajlo Ivanov	City of Skopje	

23	Valentina Atanasovska	PRD	<i>Atanasovska</i>
24	Bekim Maksuti	PRD	<i>Maksuti</i>
25	Ivica Naumovski	PRD	<i>Ivica</i>
26	Armen Grigoryan	UNDP	
27	Zaneta Trajkoska	ICS	
28	Marina Rakocevic	University of Podgorica	<i>Rakocevic</i>
29	Ivan Mrdak	University of Podgorica	<i>Mrdak</i>
30	Josip Atalic	University of Zagreb	<i>Atalic</i>
31	Zoran Petrov	Government of N. Macedonia	
32	Zabedin Neziri	UKIM-IZIIS	<i>Neziri</i>
33	Elena Delova	UKIM-IZIIS	<i>Delova</i>
34	Veronika Sendova	UKIM-IZIIS	
35	Dragi Dojcinovski	UKIM-IZIIS	
36	Violeta Mircevska	UKIM-IZIIS	
37	Viktor Hristovski	UKIM-IZIIS	
38	Vlado Micov	UKIM-IZIIS	
39	KEFAJET Edir	IBU	<i>KEFAJET</i>
40	ANDEZA GOINI	UPT	<i>GOINI</i>
41	Genti Qirjazi	UPT-FCE	<i>Qirjazi</i>
42	Tom Vitorovski	UKIM-IZIIS	<i>Vitorovski</i>
43	PANIEL TOMIC	UKIM-IZIIS	<i>PANIEL</i>
44	Dejan Ivanovski	UKIM-IZIIS	<i>Dejan</i>
45	Elena Angelova	UKIM-IZIIS	<i>Angelova</i>
46	TRAISHE ZAFIROV	UKIM-IZIIS	<i>ZAFIROV</i>
47	Borjan Petresni	UKIM-IZIIS	<i>Petresni</i>
48	Antonio Shoklazovski	UKIM-IZIIS	<i>Shoklazovski</i>
49	Vaslio Popovski	UASP	<i>Popovski</i>
50	JOHAN TRAJKOSKA	IZIIS	<i>TRAJKOSKA</i>
51	Mirko Dimitrovski	IZIIS	<i>Dimitrovski</i>
52	UPENA TOPCEVA	IZIIS	<i>UPENA</i>



FINAL WORKSHOP – Attendance List
October 21, Bitola, North Macedonia

#	Name and surname	Institution	Signature
1	ТРАЈЕ ЈОВАНОВСКИ	CMC	[Signature]
2	СТЕВКО СТЕФАНОВСКИ	CMC	[Signature]
3	Емануел Аночиновски	ИЗГ ДО Битол	[Signature]
4	ЛЕНУС КРИВЕВСКА	ИЗК	[Signature]
5	Димко Христовацки	ПЦУК Битол	[Signature]
6	Мирко Темениковски	ПЦУК - Општина	[Signature]
7	Јован Рајчевски	ПЦУК - Ресан	[Signature]
8	МАРИЈАНА СПАСЕВСКА	Општина Битол	[Signature]
9	ТОМАС ГОРЕЛОВ	Општина Битол	[Signature]
10	Радмила С. Марев	ИЗНИС	[Signature]
11	МАРИЈА ВИТАНОВА	ИЗНИС	[Signature]
12	МАРИЈА ГИЈАНОВСКА	ИЗНИС	[Signature]
13	Александар Боден	ИЗНИС	[Signature]
14	Јулијана Кojадирева	ИЗНИС	[Signature]
15	ДЕЈАН ОРИМОВСКИ	ИЗНИС	[Signature]
16	РОБЕРТА КЛОДОВА	ИЗНИС	[Signature]
17	БОРАН ЈЕКИЌ	ИЗНИС	[Signature]
18	Андреа Шкодрич	UPT - FEC	[Signature]
19	Ариан ЛАКО	UPT - FEC	[Signature]
20	Кенал Едип	ИЗНИС	[Signature]
21	Урош Триван	ИЗНИС	[Signature]
22	БАРБАРА БОЛЗИ	EUCENTRE	[Signature]

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Annex 3. Selected photos of the workshop



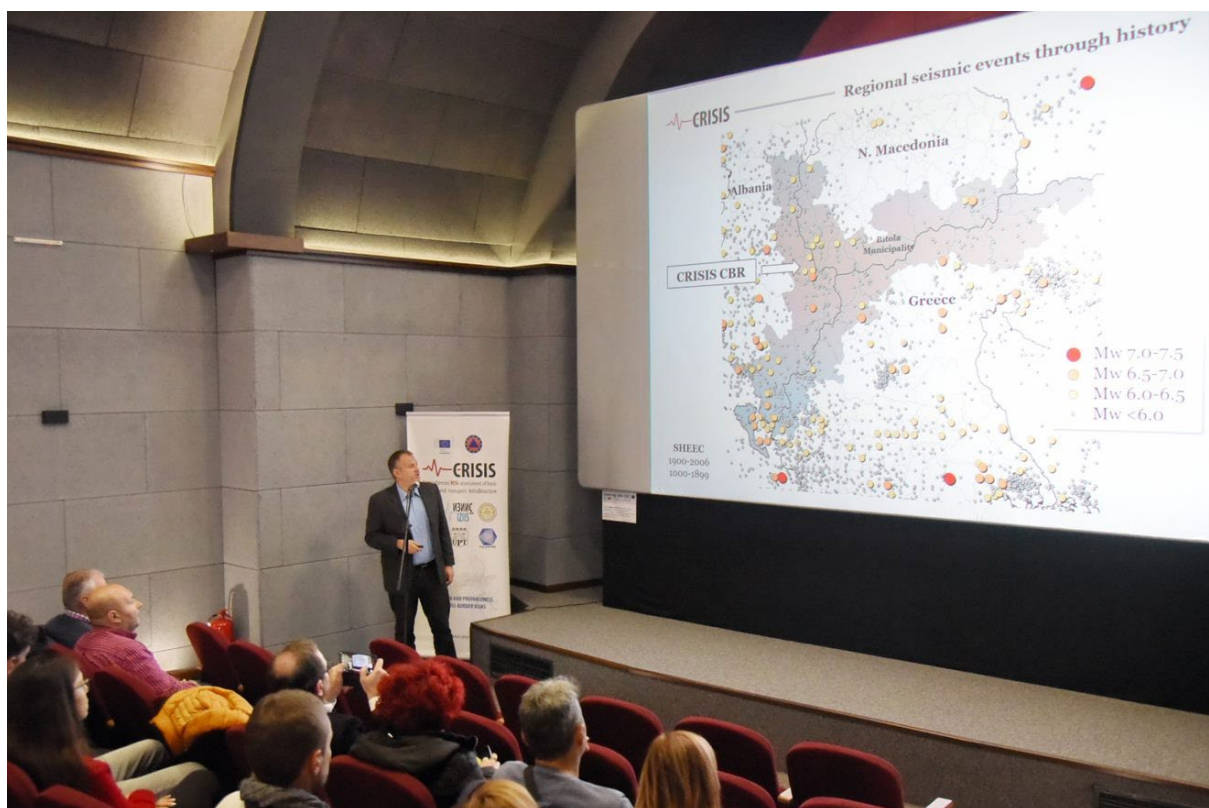
During workshop sessions – first day of the workshop



First day of the workshop



First day of the workshop



Second day of the workshop



Second day of the workshop



Second day of the workshop