

Comprehensive Risk Assessment of Basic Services and Transport Infrastructure

101004830 - CRISIS - UCPM-2020-PP-AG

Exploitation, dissemination and communication
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Tailor-made outputs

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WP-6 | D 6.3

Contributing Authors: Roberta Apostolska (IZIIS)
Vlatko Sheshov (IZIIS)
Radmila Salic Makreska (IZIIS)
Kemal Edip (IZIIS)
Marija Vitanova (IZIIS)
Stevko Stefanoski (CMC)
Dimitris Pitilakis (AUTH)
Neritan Shkdorani (UPT)
Barbara Borzi (EUCENTRE)

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1. Background

The deliverable D6.3 -Taylor made outputs collects all reports, protocols, training and education materials, leaflets available to different beneficiaries, starting from emergency and disaster management authorities, first responders, academia & research communities, general public etc. Their main objective is to foster the exploitation of project results once the project is concluded and to increase community awareness. This report has been prepared according to the Annex I *Description of the Action* of the Grant Agreement.

2. Taylor-made outputs

The total collection generally could be divided in three groups: scientific based outputs, dissemination outputs and exploitation outputs. Each group of outputs is further addressed below.

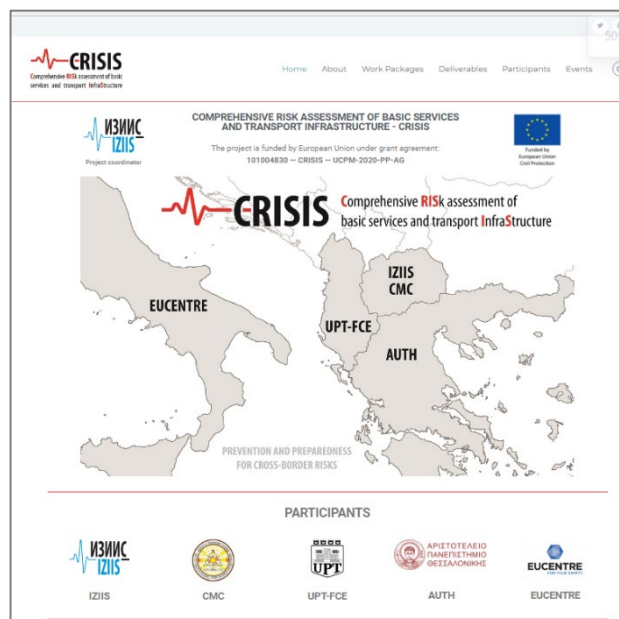
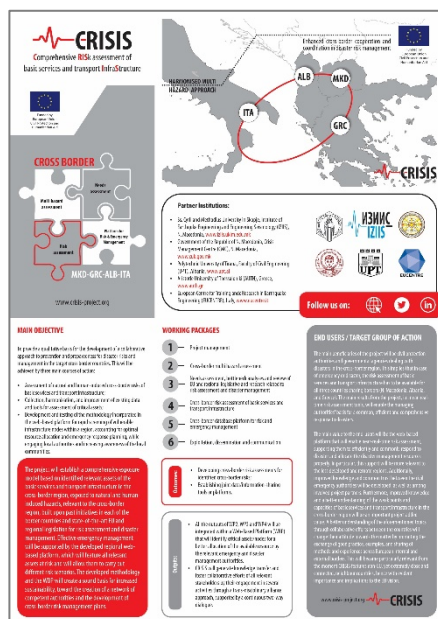
2.1 Scientific based outputs

The main scientific based output is CBR risk assessment framework which based on: (1) seismic and landslide hazard cross-border harmonisation and mapping (Figs. 1 and 2); (2) development of harmonized regional risk exposure model (Fig. 3) and (3) definition of reliable risk scenarios of most probable and worst-case risk scenarios due to the seismic and landslide hazards, as well as estimation of consequences, such as functional disruption and economic losses caused by disruption of basic services and transport infrastructure (Figs. 4 and 5).

Additionally, more than ten scientific publications especially from WP2 and WP4, are and will be published in open access journals and conferences, whose topics are relevant with the project objectives (see Annex 1).

2.2 Dissemination outputs

Several communication tools are used to disseminate information on CRISIS activities and research outputs. These tools include: visual identity (logo, document templates); project web site ([CRISIS\(crisis-project.org\)](http://CRISIS(crisis-project.org))); project leaflet; PR Final Workshop, press releases (Annex 2), interviews etc.



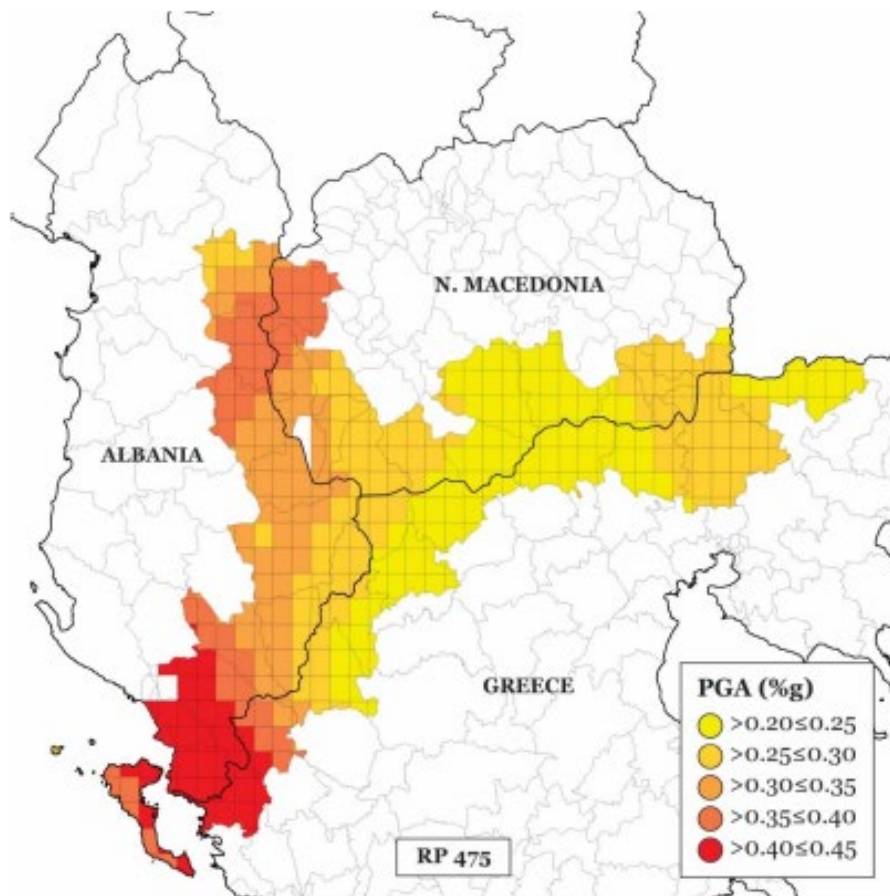


Fig. 2.6. ESHM13 475 RP Map (Mean Hazard Model)

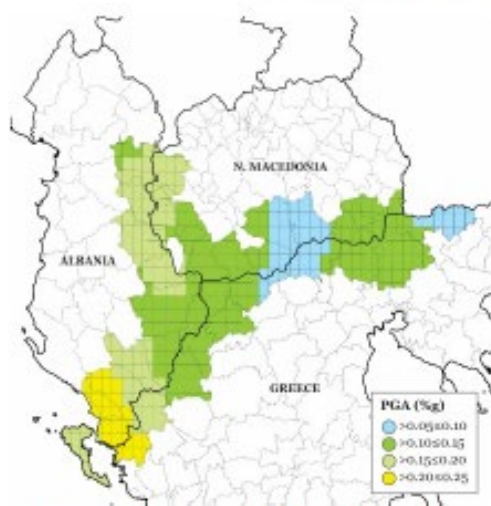


Fig. 2.7. ESHM13 102 RP Map (Mean Hazard Model)

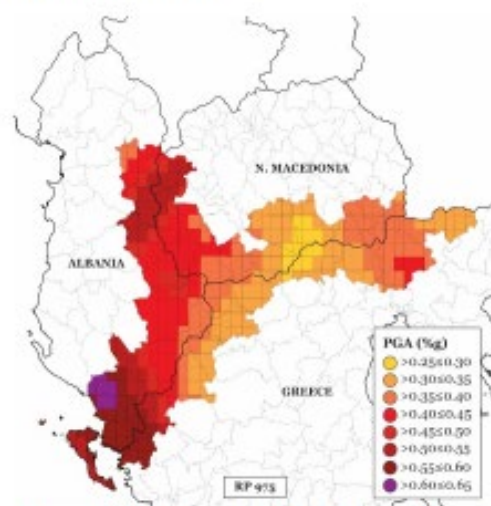


Fig. 2.8. ESHM13 975 RP Map (Mean Hazard Model)

Figure 1. ESHM 13 (Mean Hazard Model) for different return periods (D2.2)

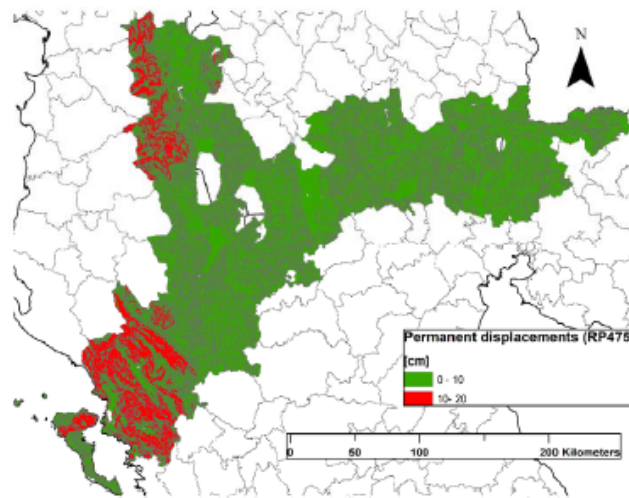


Figure 3. 5 Spatial distribution of permanent ground displacement due to landslide (PGD) at the free surface for the CBR region for the seismic scenario of 475 years

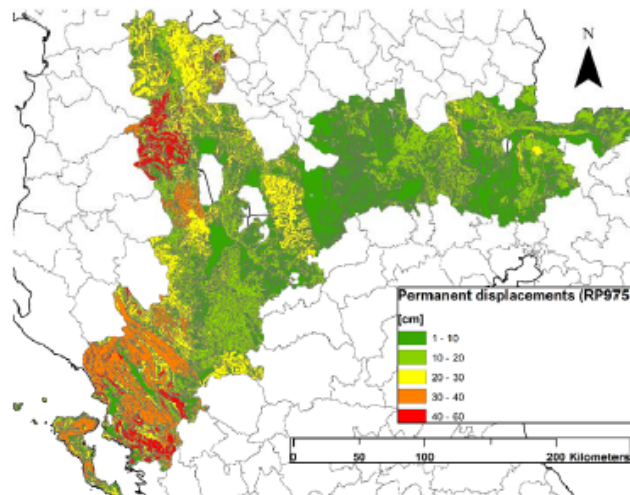


Figure 3. 6 Spatial distribution of permanent ground displacement due to landslide (PGD) at the free surface for the CBR region for the seismic scenario of 975 years

Figure 2. Spatial distribution of permanent ground displacement due to the landslides at free surfaces for different return periods (D2.3)

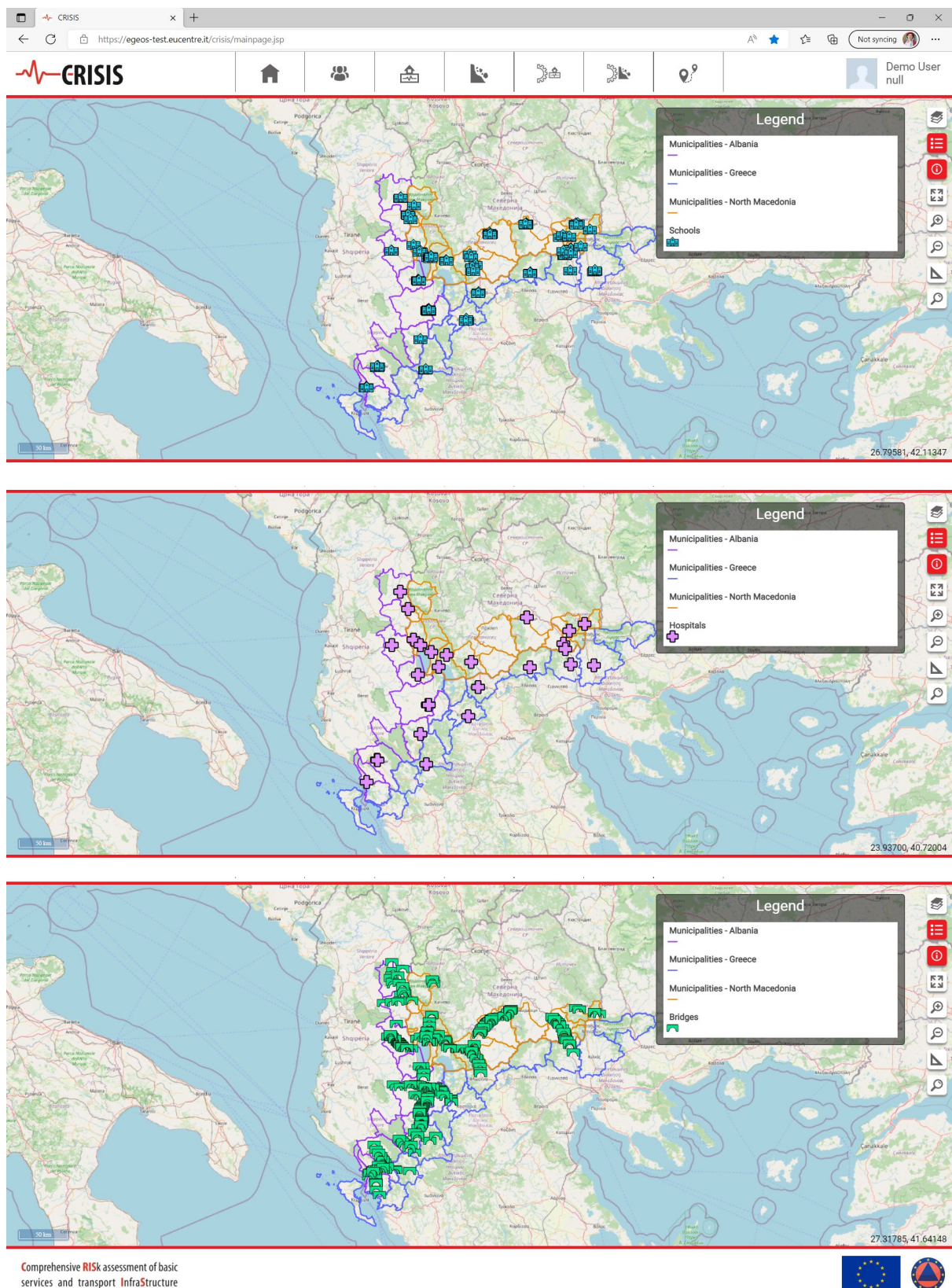


Figure 3. Harmonized regional risk exposure model (D4.1)

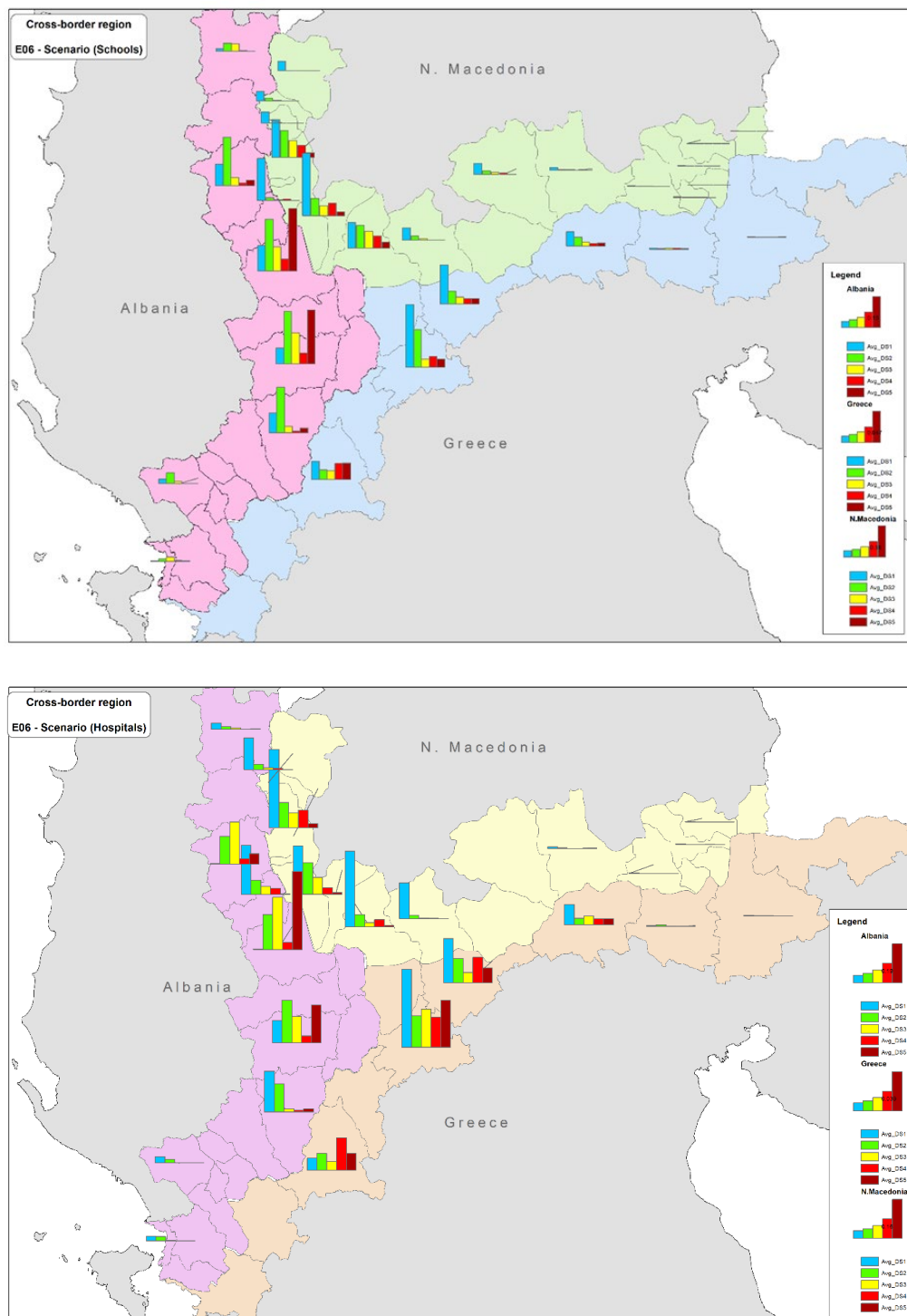


Figure 4. The worst seismic scenario (E06) for CBR harmonized exposure model

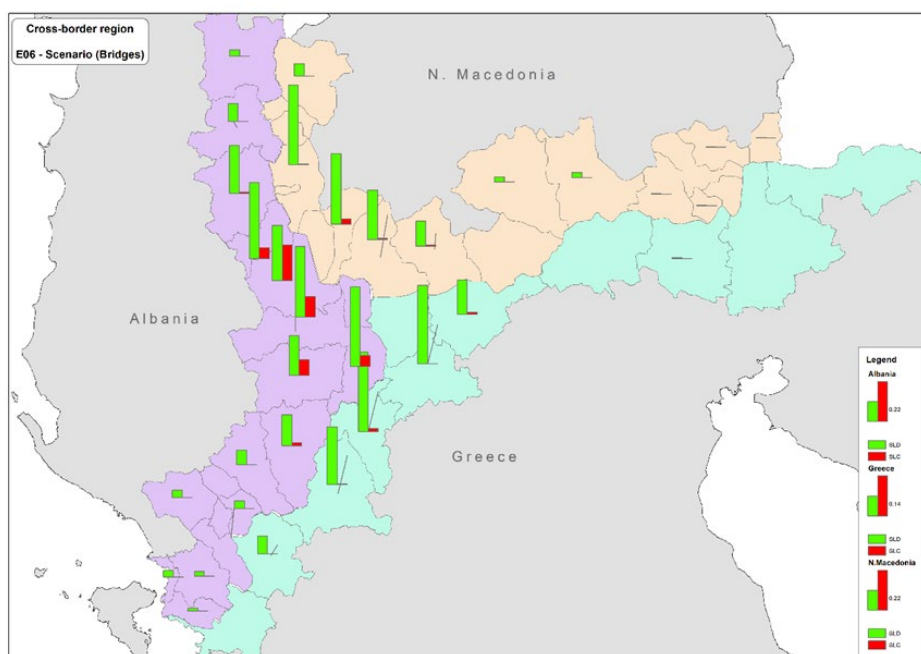


Figure 4. The worst seismic scenario (E06) for CBR harmonized exposure model (cont.)

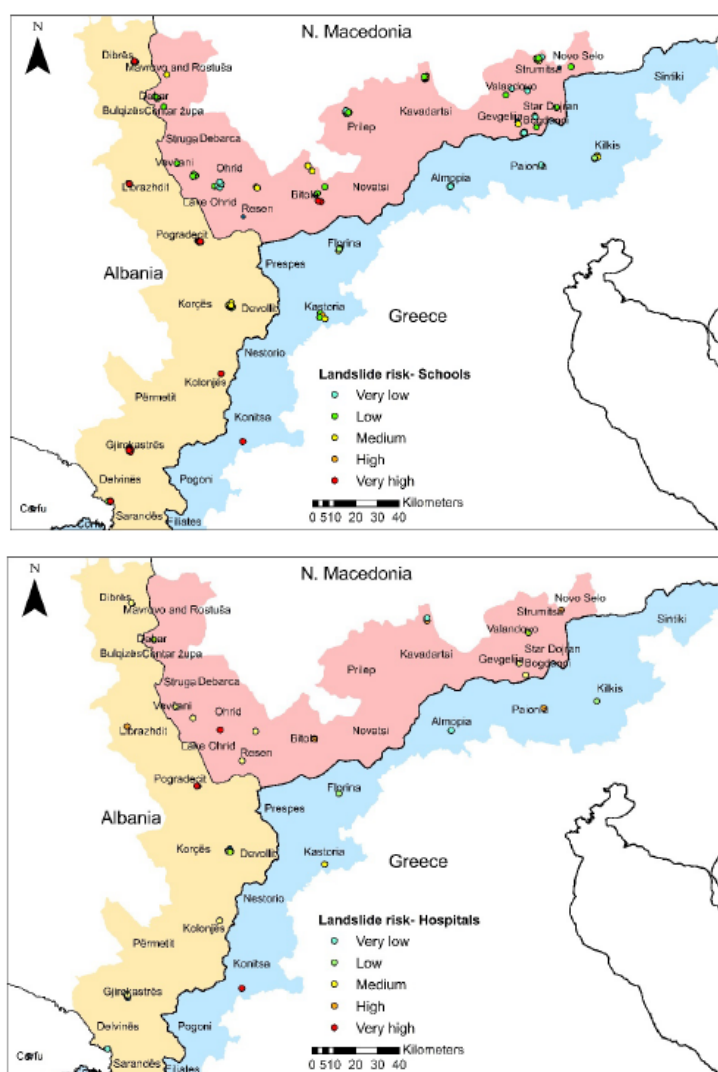


Figure 5. Landslide risk of basic services in CBR

2.3 Exploitation outputs

The CRISIS Web Based Platform (WBP) is a user-friendly tool intended to support disaster and emergency management authorities in case of earthquakes and/or seismo-induced landslides in the CBR. It has been designed to collect, organise, and visualise: 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 (Figs. 6 and 7), for the project target area. 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. This feature can be particularly useful for rescuers and first responders who must intervene promptly after damaging earthquakes. In addition to supporting emergency management, the CRISIS platform can also be used to identify the most vulnerable assets and prioritise actions to increase the resilience of the project target area. All above listed features enable wide exploitation of the created platform.

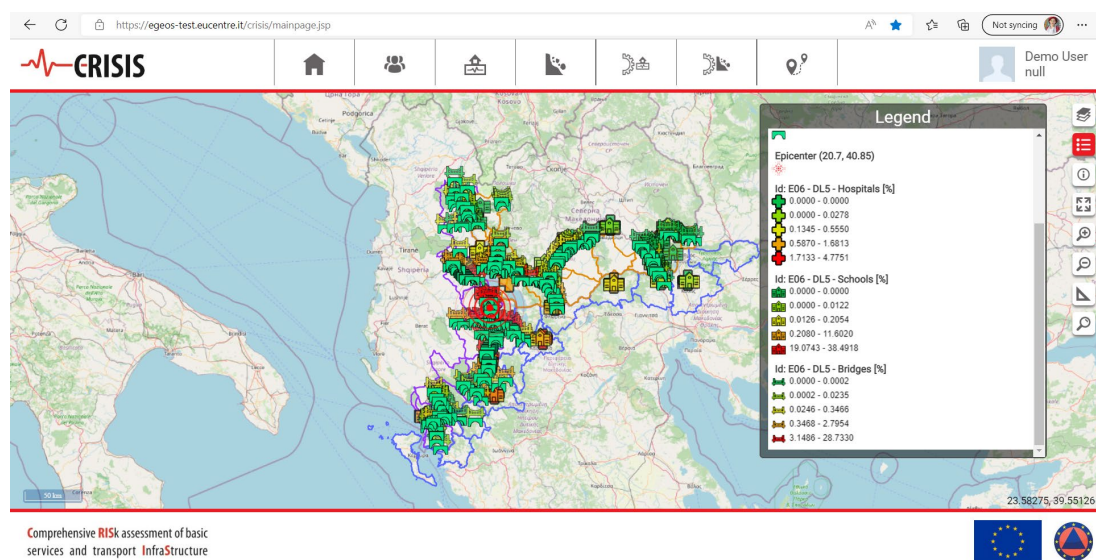


Figure 6. Worst – case seismic risk scenario (E06), DL5 [%]

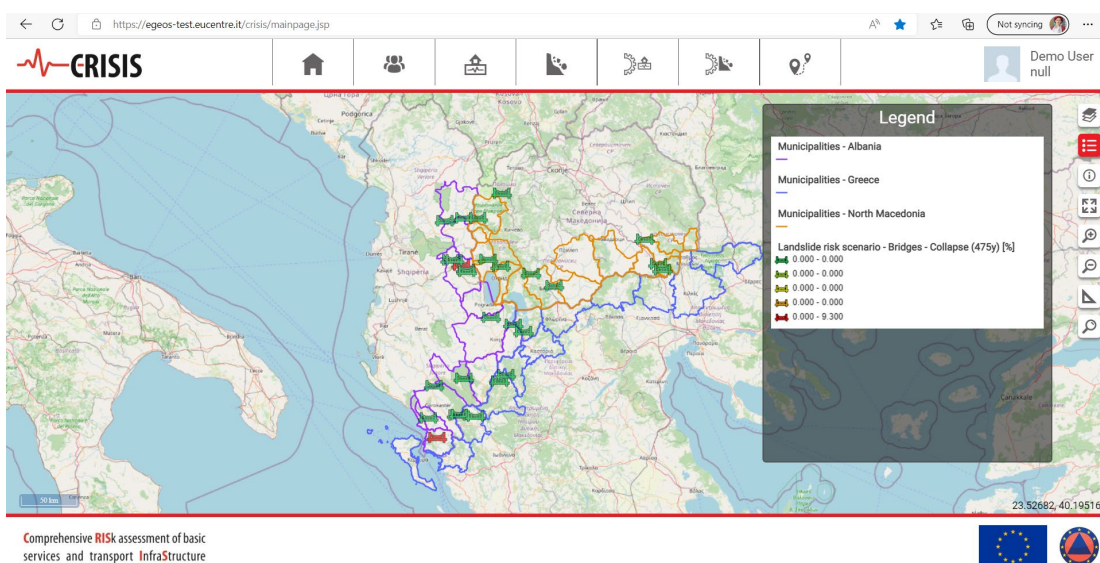


Figure 7. Landslide risk scenario – bridges collapse (475 y) [%]

A demo of the WBP ([CRISIS WBP Demo.mp4 - Google Drive](#)) and user manual are prepared to guide and support implementation of this software tool, (Fig. 8).

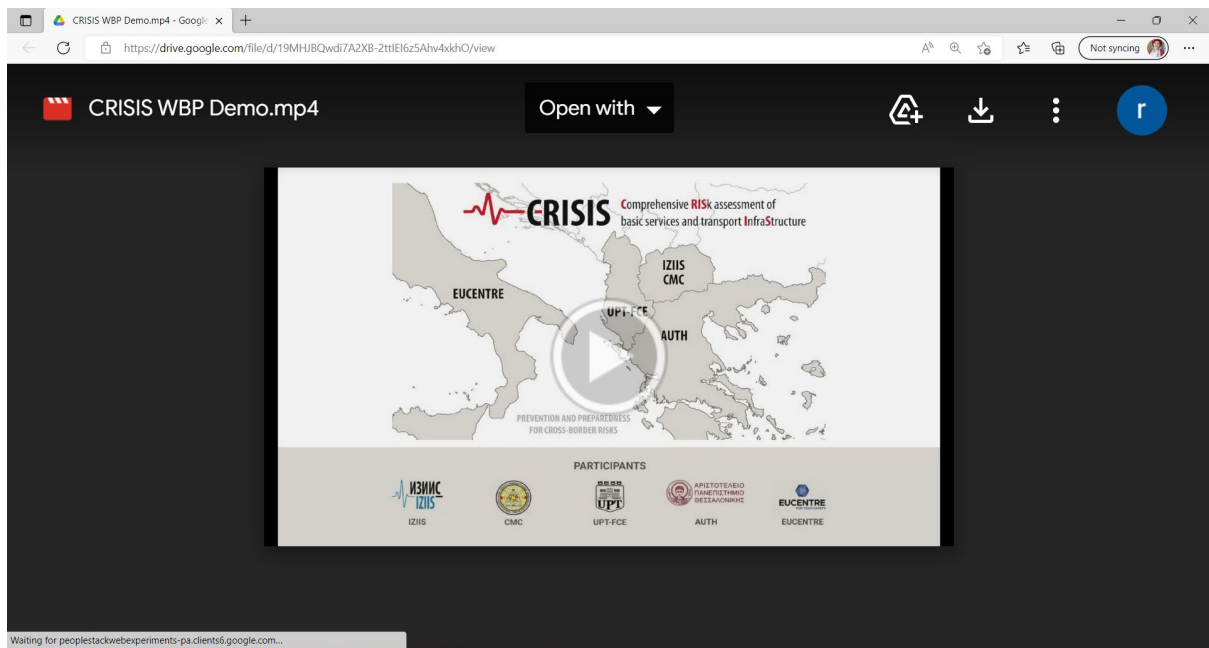


Figure 8. CRISIS WBP demo

During the Final workshop (D6.6) training event 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 (Fig. 9).



Figure 9. Exploitation of WBP - training session

Additional, very important mode of exploitation is implementation of CRISIS module in the Risk assessment platform within the Crisis Management Center of the RN Macedonia (Fig. 10) for refinement of the national register of building stock for basic services (hospitals and schools).

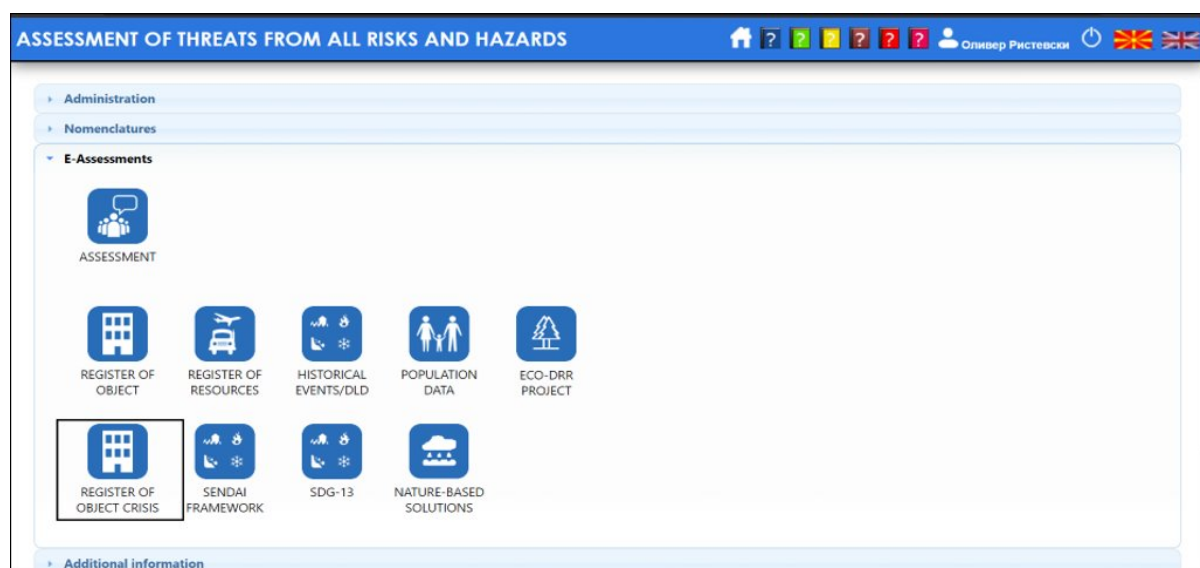


Figure 10. CMC Risk assessment platform

The project consortium put maximal effort to produce project outcomes that are available and user-friendly for implementation, and which will support disaster and emergency management authorities in case of earthquakes and/or seismo-induced landslides in the CBR. Part of the outcomes, related to the exposure model are already implemented in the CMC Risk assessment platform. In the near future focus should be set on the increasing of public risk awareness since clearly and accurately informed citizen is the first and primary prerequisite for developing an efficient system for protection and mitigation of the consequences of future strong earthquakes.

Annexes

Annex 1. List of publication

Annex 2. Press releases

References

- [1] [Documents download module \(europa.eu\)](#) Grant Agreement-101004830-CRISIS.pdf

Annex 1. List of publications

1. **ReSyLAB, 2022, Rijeka**
Harmonized approach for earthquake-induced landslide hazard assessment at the cross-border region between N. Macedonia, Greece and Albania
2. **ПОПТА 3, бр. 313, 02/2022**
Интегрален систем за процена на ризикот – проект CRISIS
3. **MASE, 2022, Ohrid**
CRISIS project: comprehensive risk assessment of basic services and transport infrastructure
4. **SUZI & EFEHR, 2022, Belgrade**
CRISIS project: comprehensive risk assessment of basic services and transport infrastructure
5. **GEOSENCE Webinar 05/2022**
Overview of the CRISIS project
6. **SMiRT 26, 2022, Berlin/Potsdam, Special Session: Challenges and recent advances from European Research Projects**
Building resilience societies through cross-border cooperation and European research networking - CRISIS project
7. **3 ECEES, 2022, Bucharest**
Seismic resilience through cross-border cooperation and European research networking - CRISIS project
8. **CroCEE 03/2023, Zagreb**
The CRISIS Platform: a cross-border web-based platform for risk assessment and management
9. **fib, 2023, Istanbul**
Multi hazard risk assessment of basic services and transport infrastructure in RN Macedonia, Greece and Albania cross-border region – CRISIS project

Annex 2. Press releases

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