

## THE C A B A R E T ERASMUS+ PROJECT WP7 - PROGRESS AND ACHIVEMENTS

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**Abstract:** The **CABARET (Capacity Building in Asia for Resilience EducaTion)** Project is funded by the European Union under the Erasmus+ program, to foster regional cooperation for more effective multi-hazard early warnings and increased disaster resilience among coastal communities. The goal of the Project is to strengthen the evidence-base in support of the implementation of the new framework. The participants constructed of a consortium of 14 European and Asian higher education institutions from nine countries - four from Europe and five from Asia. The Intergovernmental Oceanographic Commission of UNESCO (IOC-UNESCO), the Asian Disaster Preparedness Center and the Federation of Sri Lankan Local Government Authorities are Associate Partners of the project, and will help to promote the benefits across Asia and beyond. The Project covers three years period and intend many meetings among participants for data and knowledge exchange. The MGU and MNU participation are active as co-chairs of the WP7 - Learning and teaching tools methodologies and approaches to the MHEW and sustainable development of the resilience education as well as most other working packages of the CABARET Project. The progress and achievements of the WP7 co-chaired by MGU and MNU are presented and under discussion.

## ПРОЕКТ С А В А R E T – РАБОТЕН ПАКЕТ 7, ИЗПЪЛНЕНИЕ И ПОСТИЖЕНИЯ

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**Ключови думи:** Проект CABARET, работен пакет 7, изпълнение, достижения

**Резюме:** Разгледани са резултатите от изпълнението на Работен пакет 7. Най-широко са отразени публикациите, докладите и презентациите по тематиката на проекта. Основната задача на РП 7 е създаването на образователна платформа за обучение на крайбрежните общности при използването на комплексни системи за ранно предупреждение от различни природни опасности. Предложени са програми за обучение с теми и разпис на лекциите и упражненията. Предвижда се проучването на партньорските нужди от включването на специфични за всеки район тематични направления.

### Introduction

One of the most important packages due to the deliverables listed in the Project targeted to all participants is the WP7 entitled “Learning and teaching tools methodologies and approaches” for the mulihazards early warning systems and their applications. The intended educational platform, MOOCs (Major Online Open Courses), technical manuals and brochures, together with the use of the Internet abilities for distant education are the modern tools for HEIs and their high effective performance of the knowledge for real practical purposes could be the most useful outputs. During the last months many

activities have been performed and executed following the research program and the practical applications

### Research and publications

Due to the research activities, investigations and use of the former materials related to the topics of CABARET Project, several publications, reports and a book have been published:

**Book:** B. Ranguelov., A. Frantsova., 2017. Multihazards early warnings. Research, models and Bulgarian expertise., LAMBERT Academic Publishing., Saarbrucken, 224 p. ISBN: 978-620-2-07727-9

#### **Papers and publications in full text of reports and presentations:**

- B. Ranguelov, F. Shadiya, Y. Ivanov., 2018. FRACTAL NATURE OF THE MALDIVES ARCHIPELAGO. PROC. DAYS OF PHYSICS, TU, SOFIA, 18–21 APRIL. PP. 81–86.
- F. Shadiya, B. Ranguelov., 2018. THE MALDIVES NATURAL HAZARDS AND EARLY WARNING SYSTEM. PROC. DAYS OF PHYSICS, TU, SOFIA, 18-21 APRIL. PP. 87–94.
- Ranguelov B., F. Shadiya., 2018., Fractals, natural disasters and ecological problems of Maldives., Ecological Eng. and Envir. Protection, pp. 18–25. ISSN 1311-8668.
- Ranguelov B., 2017. THE EU ERASMUS+ CABARET PROJECT AND THE PARTICIPATION OF THE UNIVERSITY OF MINING AND GEOLOGY., JOURNAL OF MINING AND GEOLOGICAL SCIENCES, VOL. 60, PART I, Geology and Geophysics, 2017, pp. 90–93.
- E. Spassov and B. Ranguelov, 2017. New Seismotectonic Model of the Pernik M5.8 earthquake of May 22, 2012 & Proposed Early Warning System for the Region. Poster In: Proceedings of Multi-Hazard Early Warning (MHEW) Conference, Cancun, Mexico, 22–23 May, 2017.

### Dissemination activity – lectures, presentations, reports

- Ranguelov, B., 2017, THE C A B A R E T PROJECT - MULTIHAZARDS EARLY WARING SYSTEMS EDUCATION., In: Proc. V International Scientific and Technical Conference “GEOLOGY AND HYDROCARBON POTENTIAL OF THE BALKAN-BLACK SEA REGION” 18-22 Sept. 2017, Varna, BULGARIA – pp. 392–306.
- Ranguelov B., 2017, THE EU ERASMUS+ PROJECT C A B A R E T AND MGU PARTICIPATION., Journal of Mining and Geology University, v.60, part I, Geology and Geophysics, 2017, pp.90-93.
- Ranguelov B., 2017. PROJECT C A B A R E T - E U TOOL FOR SUSTAINABLE M H E W EDUCATION FOR COASTAL COMMUNITIES., НАЦИОНАЛНА НАУЧНА КОНФЕРЕНЦИЯ „ОБРАЗОВАНИЕ И НАУКА – ЗА ЛИЧНОСТНО И ОБЩЕСТВЕНО РАЗВИТИЕ“., 27–28 октомври 2017 г., гр. Смолян. pp. 396–404. <https://uni-plovdiv.bg/pages/index/1318/>

The invited lecture called “Multihazards early warning systems – can they save human lives?” was presented during the second day of the International Festival entitled “Hello-Health” which took place at Plovdiv on 21 and 22 April, 2018. The presentation was in Bulgarian and the public attended was of a very broad professional profile – ecologists, physicians, people with interests of healthy behavior, etc. The number of attendees was about 100. Then acknowledge letter and a Certificate were issued by the Organizers.

### WP7 tasks execution

Curriculum of the MOOC's is adopted on the basis of the Philippine's expertise, especially of the De La Sale University (Manila).

The educational platform is decided to use Moodle abilities for distant and on-line education and the experience of MNU.

Course skeleton and several MOOC's are proposed with thematic topics and schedule for students in MNU (for example).

#### **A) Course Name - Disaster Preparedness**

##### **Course Name - Introduction to Coastal Disasters.**

Duration - 3 Weeks (4 hours / week - 12 hours)

1. Earthquakes
2. Tsunami
3. Floods
4. Cyclones

#### **B) Course Name - Science and Technology for Disaster Risk Reduction**

Duration - 4 Weeks (4 hours / week - 16 hours)

1. Introduction and Concepts

2. Risk Assessment
3. Prevention
4. Early Warning and Preparedness
5. Disaster Response and Emergency Relief
6. Post-Disaster Recovery and Reconstruction
7. Resilience at multiple governance levels
8. Resilience and Sustainable Development for DRR

**C) Course Name - Community Based Disaster Risk Management.**

Duration - 4 Weeks (4 hours / week - 16 hours)

1. Introduction to Community Based Disaster Risk Management.
2. Community Based Disaster Risk Assessment.
3. Participatory Disaster Risk Management Planning.
4. Mainstreaming DRR at Community Level.
5. Community Based Emergency Response Management.
6. CBDRM Planning.

Some others were proposed to the MGU educational courses - Magisterial level (for example).

**Topic 1 - Natural disasters and people preparedness**

**Course 1 Natural hazards and negative consequences**

Typology of the natural disasters:

- Hour 1 Hazards in the Solid Earth and Oceans,
- Hour 2 Meteorological hazards,
- Hour 3 Pandemics, Space impacts
- Hour 4 summary, exercise

**Physical Properties of the disasters and the negative consequences:**

- Hour 1 Scales for the power of the hazards. Magnitude and intensity
- Hour 2 Destructive potential in space and time domain
- Hour 3 Comparison of the destructive potential
- Hour 4 summary, exercise

**Early warning systems:**

- Hour 1 Effectiveness of the early warning systems
- Hour 2 Advance time, speed of the alerts distribution
- Hour 3 False alarms
- Hour 4 summary, exercise

**Long and short term protective measures**

- Hour 1-2. Long term protection
- Hour 3-4. Short term and personal protection

Total time – 16 hours

**Course 2 Natural hazards and advanced technologies**

**Space technologies applications**

- Hour 1 Space technologies applications in natural disasters management
- Hour 2-3 Monitoring, space communications, distant assessment of the consequences
- Hour 4 Personal safety and societal resilience

**Topic 2 - Mulihazards**

- Hour 1 Conditions, complexity, negative effects
- Hour 2 Economical losses
- Hour 3 From single events to multiple consequences
- Hour 4 Nonlinearities of the damages and negative consequences

**Topic 3 - Societal resilience**

- Hour 1 Primary and secondary damages
- Hour 2 Methodology of assessment

Hour 3 Social behavior of the groups of people in emergency situations  
Hour 4 Emergency planning

Total 12 hours

#### **Topic 4 - Short Courses**

##### **Course 3 Multihazards, protection and resilience**

###### **Multihazards**

Hour 1-2 Kinematic models about multihazards' influence  
Hour 3-4 Economic assessment of the protection and safety measures

###### **Early warnings systems**

Hour 1-2 Coastal societies and coastal hazards  
Hour 3-4 Warning messages and society reaction

###### **Protection, safety and resilience**

Hour 1-2 General protective measures – evacuation, zoning,  
Hour 3-4 Specific protective measures – mangrove forests, barriers, microzonation

Total 12 hours

Such a composition provides large spectrum of knowledge and experience. Similar MOOC 's intend to be developed for broad number of topics.

Intended activity includes as well as a proposal to all participants and especially to these from the Asia region to propose specific MOOC's to be included to the educational platform

#### **Conclusions**

- A progress of the work performed in the frame of the WP7 of CABARET Project is displayed including research, dissemination activity, educational platform development and MOOC's skeleton and schedule.

- The co-chaired WP7 by MGU and MNU is under development according to the time schedule of the Project.

- Intended international cooperation among participants of the Project is an essential topic for the coastal resilience educational platform development.

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4. <http://ec.europa.eu/programmes/erasmus-plus/projects/eplu-project-details-page/?nodeRef=workspace://SpacesStore/5315e537-5ff2-42ed-888d-d8f3fb6ce86c>
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