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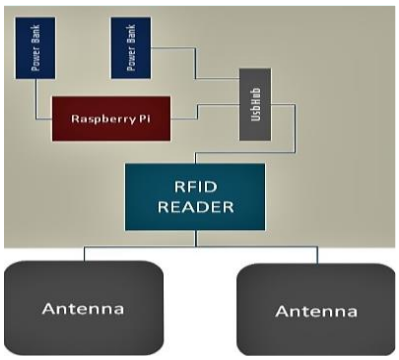

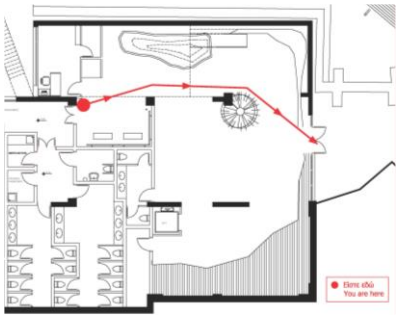

“Monitoring and Evaluation of Natural Hazard Preparedness at School Environment”

Newsletter #1

Project co-funded under the Union Civil Protection Mechanism, Grant Agreement No. ECHO/SUB/2014/698447

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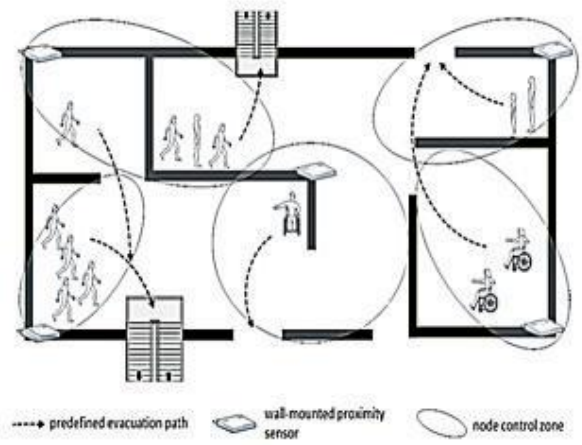
1. PRESENTATION OF THE E-PRES PROJECT



E-PreS project (Monitoring and Evaluation of Natural Hazard Preparedness at School Environment) is addressed to the prevention phase against natural hazards. The main goal of E-PreS is the design and evaluation of drills and exercises that are an extremely important part of emergencies mitigation. It will help school staff and students to understand any hazard effect and be prepared to react appropriately. Moreover, it aims to become a valuable tool to experts in the field for monitoring the evacuation process and identify weaknesses in the evacuation plan. Modifications of the evacuation plan will be tested on site and results will be saved for later review and/or compared in almost real time, helping making decisions and finding the best solution in every case.

Objectives

1. to identify, share and implement best practices and methodologies gained from previous EU projects and partners activities
2. to involve the collaboration of interested parties
3. to create smart tools which define, simulate and evaluate all hazards emergency steps and be customized to the unique district, school, and campus
4. to include pupils with disabilities and special needs

2. PARTNERSHIP

The partnership is formed by European partners that have wide experience in the civil protection and lifelong learning sectors.

Coordinator:

National and Kapodistrian University of Athens, GREECE

Partners:

Hellenic National Earthquake Planning and Protection Organization (EPPO), GREECE

Centre for Educational Initiatives (CEI), BULGARIA

National Institute for Research and Development in Construction, Urban Planning and Sustainable Spatial Development (URBAN-INCERC), ROMANIA

Istituto Nazionale di Geofisica e Vulcanologia (INGV), ITALY

Natural History Museum of Crete-University of Crete (NHMC-UOC), GREECE

3. PROJECT CONTEXT AND ACTIONS

Nowadays societies are facing a great risk related to the extreme hazards that are induced either by the climate change and the natural processes of the Earth system or the human intervention (e.g. earthquakes, wild fires, floods).

Recent earthquakes in Greece and Turkey, floods in central-eastern Europe and volcano eruptions in Iceland and Italy have proven how vulnerable, in such disasters, the modern cities, infrastructures and assets are and how they have affected many human lives and resources.

Disasters like earthquakes, volcanic eruptions and floods occur with no warning and life-protecting actions must be taken immediately. Nevertheless, gained experience from former civil protection operations and drills have indicated that, although many studies, projects and actions have been undertaken, still lack of knowledge, command chain missfunctions and weak preparedness can be identified in various phases of evacuation plans in public buildings, such as schools and museums.

In EU, a huge amount of resources, efforts and actions have been dedicated to the prevention and raising of awareness in the field of civil protection.

E-PreS project is addressed to the prevention phase against natural hazards. Its main goal is the design and evaluation of drills and exercises that are an extremely important part of emergencies mitigation.

It will help school staff and students to understand any hazard effect and be prepared to react appropriately. Moreover, it aims to become a valuable tool to experts in the field for monitoring the evacuation process and identify weaknesses in the evacuation plan.

Outcomes per Action

Action A1	will ensure the overall quality of the project, solve possible conflicts that may rise and take decisions with regard to the Grant Agreement and to the Consortium Agreement by a simple majority of all votes
Action A2	In this action all the necessary reporting activities from the partners will be collected and summarized for reporting to the EC. The auditing effort will be placed, if needed and QCB will do the peer-review. The final decision on approval of a deliverable will be made by the QCB.
Action A3	Governmental agencies and non-governmental organizations interested to the project from Greece, Italy, Cyprus, Bulgaria, etc. will be invited. Furthermore, relevant experts coming both from the civil protection sector and other application domains will be invited to participate in the dissemination activities of the E-PreS and two workshops will be organized by E-PreS for dissemination purposes.
Action B1	will provide a technological wrap-up, directions to the partners for the identification of the refinements needed in current solutions adopted in emergency cases and provide input to action B3 for the specification of the E-preS system that will go beyond the current technological state.
Action B2	This action targets at: identifying E-PreS system requirements (e.g., taking into account of the legislation of the evacuation procedures in different countries) with the direct involvement of end-users operating the trial scenarios, and providing detailed description of the trials that will be demonstrated in task D. This task mainly serves as input for Action B.3 which refers to the overall design of the EPreS platform, but also for the implementation and the demonstration tasks (Task C and D, respectively). Furthermore, in this task E-PreS actors (i.e., users, application providers, etc.) will be defined and their roles and needs will be identified. The produced results will set the ground for the identification of the functional requirements for E-PreS. Seamless integration with existing systems, support for open technologies; user friendliness and intelligent service provision are some of the core elements that will be considered during this analysis. An assessment will be carried out concerning the reference applications that can be delivered by the system producing an overview of the domains of usage for E-PreS tools.
Action B3	will define the three trials of flood, earthquake and volcanic eruptions. Each trial will be specified according to the location, the participants and the scenario that will be tested. In each trial the user needs will be defined respectively.
Action C1	will provide a detailed definition of the E-PreS modules and their functionalities, the interfaces between components and will define the information flow.
Action C2	will create a web portal for the evaluation of the preparedness level, will provide online forms for the assessment of the current status of the buildings and will provide an integrated methodology for the qualitative and quantitative assessment of the level of preparedness that combines static and dynamic information.
Action C3	will deal with the design of the E-PreS architecture as well as the implementation of E-PreS backend services.
Action C4	will provide a fully operational web platform along with a fully operational in-field assessment module.

Actions D1, D2 and D3	will achieve a high level of prevention in case of a seismic/flood/volcanic hazard near school facilities, will deploy and configure E-PreS system in a real school facility. Train school staff and students in order to use E-PreS system and familiarize them with best practice during the evacuation process. It will also provide a pilot testing of the E-PreS effectiveness and operation in case of an earthquake, flood and volcanic eruption respectively.
Action D4	will deal with training courses. The main functionalities of the E-PreS will be presented and train the involved parties in order to efficiently use the E-PreS system and successfully accomplish the evacuation process during earthquake, flood, and volcanic disasters.
Action D5	is an assessment of the E-PreS system. A Quality Evaluation plan will be developed along with forms and sheets and a validation report will be filled, including the trials, in order to finalize the E-PreS services.

Action E1	refers to the dissemination plan which will be an instrument for managing and controlling the dissemination activities. This way the project will guarantee the achievement of the project goals and objectives. Furthermore, this dissemination plan will enable the optimal use of the project results beyond the lifetime of the project.
Action E2	is the creation of the project website with the overall project description, the sharing of the main project's outcomes, partnership sharing, availability of project documentation and project continuation.
Action E3	refers to the promotion and dissemination of E-PreS outputs among specific stakeholders and scientific community, improvement of the E-PreS services based on new solutions that will be discussed during the meetings and presentations and the creation of a wider network among European cities.
Action E4	is the diffusion of the project's output as well as the demonstration of the project approaches and methodologies into the scientific community.

Field Trials

Three earthquake field trials will take place in local schools and relevant structured building environments in Greece (EPPO, UoC-NHMC) and Romania (INCD). These field trials involve the monitoring and evaluation of the E-PreS system during the evacuation process in building facilities. In order to perform the respective trials, the deployment and configuration of E-PreS infrastructure/system in schools is necessary. More specifically, wall-mounted sensors (RFID readers) will be placed in the indoor facilities allowing the localization of the staff and students who will participate in the experiment.

Moreover, the participants will carry lightweight wearable sensors (RFID tags) that will allow for constant, almost non perceivable interaction between the user and the system. Additionally, during the preparation phase the respective partner (EPPO, UoC-NHMC, INCD) will prepare all printed and accompanied material (e.g., guidelines and tutorials) as well as evaluation sheet to be used during the experiment.

The trials will be performed in three phases:

1. Theoretical: The respective partners (EPPO, UoC-NHMC, INCD) will present and explain to staff and students involved in the trials the use of E-PreS system.
2. Experimental: This phase will allow the realization of the drill in a school environment. It will include also the practical experimentation and use of the existing infrastructure, tools and helpful material (equipment).
3. Evaluation: After the completion of each drill, a drill analysis will follow. The outcomes of both dynamic assessment module and web portal will be discussed with the school staff and the students.

4. PRESENTATION OF THE PARTNER ORGANIZATIONS

4.1. NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS, GREECE

(http://en.uoa.gr/)

The University of Athens started operations on May 1837 on the north East Side of the Acropolis. It was the first University not only in the newly established Greek State but also in all the Balkans and the Eastern Mediterranean in general. The "Othonian University", as it was called before taking its present name, "National and Kapodistrian University of Athens", consisted of four Faculties, Theology, Law, Medicine and Arts (which included applied sciences and mathematics). A major change in the structure of the University came about in 1904, when the Faculty of Arts was split into two separate Faculties: Arts and Sciences, the latter consisting of the departments of Physics and Mathematics and the School of Pharmacy.

Presently, the University has five Schools and a total of twenty-nine Departments located in four campuses near the center of Athens. Full-time undergraduate enrollment exceeds 35,000 students.

The University's graduate programs enroll about 4,000 graduate students. Full-time faculty is 2282 and the total teaching, research and administrative staff is about 4,000 members.

The National and Kapodistrian University of Athens (UoA) will participate in the project through a collaboration of the Pervasive Computing Research Group (http://p-comp.di.uoa.gr) in the Department of Informatics and Telecommunications and the Seismological Laboratory in the Department of Geophysics and Geothermics.

The Department of Informatics and Telecommunications was founded in 1989 and is part of the School of Applied Sciences. It consists of three divisions: Computer Science; Computer Systems and Applications; Telecommunications and Signal Processing. The Department has about 38 faculty members and over 200 M.Sc. and Ph.D. students.

The M.Sc. programme offers four areas of specialization: High Performance Algorithms, Advanced Information Systems, Communication Systems and Networks, and, Signal Processing and Computer Systems.

The Pervasive Computing Research Group (http://p-comp.di.uoa.gr) is part of the Communication Networks Laboratory (CNL). CNL was founded in 1994 as a research unit in the Department of Informatics and Telecommunications.

The CNL staff comprises a number of acknowledged researchers and engineers specialising in the fields of telecommunications, data networks, and multimedia applications. During the past years CNL has been actively involved in a number of international projects, funded mainly by the European Commission (e.g., ACTS, IST), as well as national projects, funded by Greek Ministries or other organisations in the area of Mobile/Wireless Communications and Specification/Testing of Telecommunication Protocols.

The P-COMP research group of NKUA deals with various aspects of pervasive computing:

- WSN middleware. The group has developed the "Sensation" platform that promotes WSN application independence from the underlying hardware.
- Information management for WSN (data compression, transmission suppression, fusion, data discovery, scheduling, etc.)
- Middleware technologies for situation-, context- and location-aware services
- Management and processing of context information
- Context-sensitive user interfaces
- Modern knowledge-based technologies. Ontological engineering and Semantic Web technologies are adopted to support "smart" services (adaptation, inference of new knowledge, machine learning, re-configurability, etc.), particularly in embedded devices (Cognitive Services and Networks)
- Pervasive application engineering (e.g., pervasive telemedicine)
- Trust and security in autonomic and pervasive computing
- Machine-vision based sensors and sensor networks

P-COMP leads EU-funded projects related to environmental protection, IT support for crisis management and middleware for embedded devices in autonomic computing.

4.2. EARTHQUAKE PLANNING AND PROTECTION ORGANIZATION, GREECE (www.oasp.gr)

Earthquake Planning and Protection Organization (E.P.P.O.) is a Legal Entity of Public Law under the supervision of the Infrastructure, Transport and Networks. From its foundation in 1983 and up to now, E.P.P.O. has contributed substantially towards the formulation of the national earthquake policy and consequently the reduction of seismic risk (www.oasp.gr).

Activities of E.P.P.O.

Public awareness – education

E.P.P.O. contributes to the development of seismic safety culture and resilience through public awareness projects addressed to teachers, civil protection staff, volunteers etc. E.P.P.O.'s educational project is focused on the increase of preparedness of children and adults and the improvement of skills of specific target groups responsible for emergency management.

Therefore, E.P.P.O. organizes training seminars for teachers, officials and public servants, implements informative lectures for students and general public, business staff, people with special needs, etc. Also, EPPO participates in training seminars for volunteers, composes and publishes informative material (booklets, posters, books, CD-ROM, website) and participates in preparedness drills in schools and working places.

Seismic capacity of structures

E.P.P.O. assigns special scientific committees to monitor, adapt and support modern construction codes and regulations, as well as to process special issues of seismic technology.

State earthquake preparedness measures

E.P.P.O. participates in the planning of State earthquake preparedness measures. The aim is to ensure prompt mobilization, sufficiency of forces and means, coordination of involved bodies, effectiveness and success of actions taken in case of earthquake emergency.

Data of seismic risk

The E.P.P.O. provides valid and timely notification to the State Authorities regarding seismic risk, thus enabling planning and confrontation (support of development and modernization of the National Networks of Seismographs and Accelerographs, production – update of the Greek Seismic Hazard Map etc.). The research unit of E.P.P.O. operates more than 200 accelerographs all over the country.

Support of applied research

E.P.P.O. announces projects or studies in the sectors of seismic technology and social seismic defence and participates in research programs that are completely or partly funded by the European Union etc.

Confrontation in case of earthquake

E.P.P.O. is activated immediately after a seismic event and collaborates with other involved parties and local authorities for the emergency management. Also E.P.P.O. implements training courses to specific target groups and develops leaflets with guidelines for the safety of affected population. A lot of times organization staff participates in missions to other earthquake-affected countries. EPPO staff has been trained to EU Civil Protection Mechanism Courses and belongs to EU Civil Protection Technical Experts Data Base (CECIS).

The role of E.P.P.O. in the E-PreS Project

- leadership of the collection, filtering and elaboration of information concerning the legal framework and the guidelines related to disaster management at school environment,
- - indentification of the best practices applied in school communities in order to improve the school preparedness.
- definition of the evaluation procedure of E-PreS platform and E-PreS System.
- collaboration with schools or other educational bodies in order to hold the earthquake training courses and field trials.
- - implementation of several dissemination activities.

4.3. CENTER FOR EDUCATIONAL INITIATIVES, BULGARIA (http://cei-bg.org)

Center for Educational Initiatives is a non-governmental, non-profit association aimed at enhancing innovative educational initiatives and facilitating educational reforms in the Bulgarian educational system.

The main objectives of the organization are to encourage co-operation in the field of education on local, regional and European level, to implement new teaching methods, mainly based on ICT, and to enhance co-operation between public institutions, educational and scientific organizations and NGOs at all levels via professional networks and platforms.

CEI has experience of doing research and analysis and preparation of comparative reports (national and international); building teams with sociologists and psychologists for project tasks; working with young people; dissemination and lobbying for introduction of innovations; work with media; training of teachers, etc.

In 2010, Center for Educational Initiatives established a Training center, whose main objective is to train teachers, school principals, university professors and education experts in e-learning skills and digital competencies. The Training center provides variety of methodological courses for ICT-based teaching, ICT-based assessment practices, etc. based on open educational resources as MOODLE. Over 2000 secondary school teachers from 143 schools were trained in the Center until now.

Significant part of CEI portfolio are several international projects aiming to create, develop and promote new pedagogical and teaching approach, based on ICT tools and focused on training students, staff, civil protection volunteers and professionals about procedures and rules to be respected in case of natural or anthropic disaster and offering a complete set of educational resources to all the categories involved in the prevention, preparedness, self-protection and cultural comprehension of the risks.

All these projects are focused on web based tools, open source platforms for identification and exchange of good practices, development of e-learning courses and training, as well as local based dissemination and training actions.

Projects with focus on civil protection:

1. **RACCE** - "Raising earthquake Awareness and Coping Children's Emotions (RACCE)", Civil Protection call by EU, 2010 – 2012, №070401/2010/9066/SUB/A4, 2011, etc.
2. **SEE** – Safeguarding Educational Environment" – Funded by ECHO/SUB/2012/638511, 2013-2014
3. **EVANDE** - Enhancing volunteer awareness and education against natural disasters through e-learning (ECHO/SUB/2014/693261) (1/1/2015-31/12/2016)

4.4. NATIONAL INSTITUTE FOR RESEARCH AND DEVELOPMENT IN CONSTRUCTION, URBAN PLANNING AND SUSTAINABLE SPATIAL DEVELOPMENT, ROMANIA (http://incd.ro/)

The **National Institute for Research and Development in Construction, Urban Planning and Sustainable Spatial Development** "**URBAN-INCERC"** performs studies and fundamental research of national and international public relevance, for the development of building sciences.

The **RD&I activities** of the institute are focused on two **key directions:**

- **safety** (fire, earthquake, extreme climate conditions, strategic territorial planning)
- **efficiency** (energy, acoustic, urban planning)

Activities

- Fundamental and applied research to substantiate specific regulations, policies, programs and strategies
- In situ and laboratory testing on building elements and structures;
- Development of databases with R&D and urban planning information
- Development of technical and economic regulations for quality assurance in constructions and appliances, including energy efficiency
- Documentation, tests, audit, prototypes, analyses, syntheses, models, experiments
- Consultancy and services in urban and territorial planning and construction

Key facts

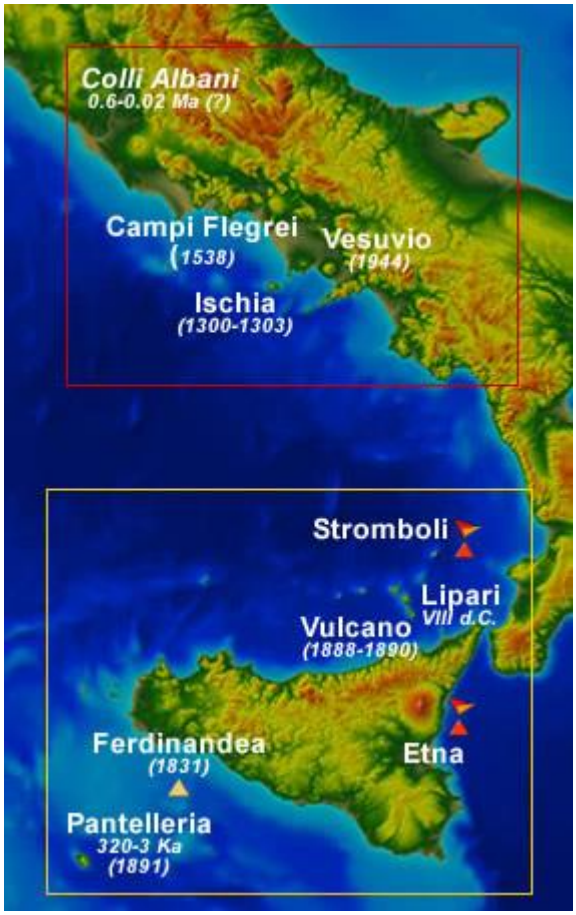
- the only Romanian national institute in the field
- various experimental facilities
- vast portfolio of national and international research projects
- habilitation to carry out life-long learning activities
- provides the secretariats of specialized technical committees and professional attestation commissions for civil engineering specialists
- organism for certification of construction products & management systems

Key figures

- 65 years of tradition
- five branches in four important cities of Romania: Bucharest, Cluj-Napoca, Timisoara and Iasi
- over 100 researchers, design engineers, architects & sociologists
- 18 research & testing laboratories
- editing of four journals
- two scientific & technical libraries with 55,000 books and over 200,000 periodicals

URBAN-INCERC participates, together with the Romanian Ministry of Regional Development and Public Administration, MDRAP, in the „*EUR-OPA Major Hazards*" Agreement of the Council of Europe, by the *European Center for Building Rehabilitation*, ECBR, which is part of URBAN-INCERC. ECBR collaborates with several similar European centers in the field of seismic hazard mitigation, which are also part of the *EUR-OPA Major Hazards network*.

4.5. ISTITUTO NAZIONALE DI GEOFISICA E VULCANOLOGIA, ITALY (http://www.ingv.it/en/)



The Osservatorio Vesuviano (OV), founded in 1841 as the first volcanological observatory in the World, is today a Section of the Istituto Nazionale di Geofisica e Vulcanologia (INGV), currently one of the largest research European Institute.

The OV conducts researches in several fields of Volcanology, Geophysics and Geochemistry and is in charge for the seismic and volcanic monitoring of active Neapolitan volcanoes (Vesuvius, Campi Flegrei and Ischia Island) as delegate of National Civil Protection Department.

Vesuvius Observatory also carries out education and outreach projects and activities in order to promote natural hazard awareness and scientific culture, even in collaboration with National Civil Protection Department.

The Museum of Osservatorio Vesuviano, located in the historical building on Vesuvius slope, is daily visited by students from primary school to University.

4.6. NATURAL HISTORY MUSEUM OF CRETE UNIVERSITY OF CRETE, GREECE (www.nhmc.uoc.gr)

The Natural History Museum of Crete (N.H.M.C.) was established as a department of the Faculty of Science of the University of Crete. A big group of specialists in the fields of biological and geological diversity is part of NHMC staff (12 out of 32 Employees). It has fully equipped laboratories and complementary infrastructures covering an area of 2,000 m^2.

The museum is a pioneering institution at national and European levels, in the fields of:

- Basic and applied research for the protection and conservation of the natural environment, of its bio- and geo-diversity and of its endemic or rare forms of life.
- Scientific consultancy to several public bodies and the UNESCO concerning the European and Global Geoparks Network.
- Development of complete geological, botanical and zoological collections.
- Management and conservation of the natural environment, geological heritage and ecosystems.
- Education, public environmental awareness and lifelong learning. In its permanent Exhibition Halls that cover about 4000 m2 located at the old harbor of Heraklion, several educational activities for school groups, young adults and families are carried out.

The N.H.M.C. has developed collaborations with many national and international organizations acting on environmental and lifelong learning education, as well as with many civil protection institutions. It has developed more than 110 research and applied projects funded by National and European sources.

Despite its scientific and academic activities the Museum, through its new exhibition hall, is very active in raising public awareness on various natural aspects, training of schools, teachers and many other target groups, development of educational activities and products and in contributing to the sensitization of inhabitants and visitors of the island.

It has developed collaborations with many national and international organizations acting on environmental and long-life learning education, as well as with many institutions related to civil protection, having developed many national and European projects.

More specific projects related to raising awareness, education and civil protection are listed below:

- DEVELOPMENT OF MODERN AND HIGH TECHNOLOGY EDUCATIONAL AND SUPERVISORY INFRASTRUCTURE IN THE NEW NATURAL HISTORY MUSEUM OF CRETE (Installation of an Educational Seismic table), funded by Regional Operation Program of Crete/EU, from 1/4/2007 – 31/5/2008, (coordinator). More than 150000 visitors have experienced the simulator up to now.
- Teaching Methods and Pedagogical Strategies for the Promotion to Schools of CONservation and Sustainable Development of FRESH water Ecosystems. (CONFRESH), funded by EU/SOCRATES: 2005-2008, from 10/1/2005 – 30/9/2008, (partner).
- Voluntarism and the Protection of the Environment: Invigoration of the Voluntary Centre of NHMC of the University of Crete for the monitoring of environmental issues at NATURA regions on Crete, funded by the Ministry of Environment, from 7/7/2003 – 30/6/2004, (coordinator).
- PATCH-Prevention, Analysis and Tools for Cultural Heritage, funded by DG Environment, 070401/2009/540426/SUB/A4, 2011-2012 (Partner)
- RACCE, Raising Earthquake awareness and coping with children emotions. Funded by DG Environment of EC, GA070401/2010/579066/SUB/C4, 2011-2012 (Coordinator)
- SEE – Safeguarding Educational Environment" – Funded by ECHO/SUB/2012/638511, 2013-2014 (partner)
- RISK Risk Management via an innovative System Based on Knowledge, funded by ECHO/SUB/2012/638448, 2013-2014, (partner)
- **EVANDE** - Enhancing volunteer awareness and education against natural disasters through e-learning (ECHO/SUB/2014/693261) (1/1/2015-31/12/2016) (coordinator)
- **CP MODEL** - Civil Protection MODEL (ECHO/SUB/2014/693249) (1/1/2015-31/12/2016) (coordinator)
- EFES - E-Tools for E-Schools- (ERASMUS+ 2015-1-BG01-KA201-014219) (1/10/2015-30/9/2017)

At the present, NHMC is also coordinating the EVANDE and participating in CPMODEL civil protection projects.

Furthermore, as the island of Crete is located in one of the most seismic areas of Europe and faces serious desertification problems, the museum has undertaken many research studies related to seismic risk assessment and protection. Since summer 2009, it operates an Educational Seismic simulator, resembling a school classroom, on which special educational projects to raise seismic awareness are implemented for schools and visitors.

5. PROJECT UPDATES

The kick-off project meeting at the University of Athens, Greece, that took place on 11th March 2015, concluded with the concrete working plan to be followed by the partners.

At the moment, the partners are working on the collection and the validation of knowledge and best practices on the nature, consequences and response to natural disasters, (floods, volcanic eruptions, and earthquakes), as well as the analysis of the intra-governmental and E.U. policies and strategies to mitigate risks. Following the conclusion of this process, the partners will engage to the development of the technical equipment for the trials-drills, and updating the webpage of the project.

The next project meeting is planned to take place from 19th to 21th of September 2016. It will be hosted in Bucharest, Romania by the partner organization "**URBAN-INCERC**".