



Final Technical Implementation Report



NATURAL HISTORY MUSEUM
OF THE LESVOS
PETRIFIED FOREST



Istituto Nazionale di
Geofisica e Vulcanologia
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PREFACE

According to United Nation's and World Bank's reports, disasters blame for more than 3.6 million deaths and US\$2.3 trillion in damage (in 2008 US dollars) between 1970 and 2010. The same study reveals that by increasing population and cities' size, more and more people are exposed to risks and thus to extreme damages caused by disasters. In future, the expected cost is considered to be tripled up to 185 billion \$ annually. Among the most disastrous appear the natural disasters, which in our days appear more often than in past, although the natural phenomena that cause them, without considering climate change, do not present any significant changes at their development or even their recurrence periods.

The geophysical disasters i.e. earthquakes, tsunamis and volcanic eruptions, are those natural phenomena resulting from internal earth processes, that may cause loss of life or injury, property damage, social and economic disruption or environmental degradation. These geophysical disasters, especially earthquakes result in severe human losses, destruction of structural elements and engagement of huge financial resources for recovery. These hazards are those that mainly disrupt social cohesion because they are sudden, unpredictable (quakes) and their consequences last for long. It is also concluded that although natural disasters can potentially affect everybody, it is the poorest and most disabled people (including women and children) who are more severe affected.

The Hyogo framework for action developed by UN/ISDR in 2005 identified as a great priority the need to enhance international and regional cooperation and assistance in the field of disaster risk reduction mainly through the transfer of knowledge, technology and expertise to enhance capacity building for disaster risk reduction and the sharing of research findings, lessons learned and best practices

"Disasters can be substantially reduced if people are well informed and motivated towards a culture of disaster prevention and resilience, which in turn requires the collection, compilation and dissemination of relevant knowledge and information on hazards, vulnerabilities and capacities" (UN/ISDR, 2005). Earthquake injuries and damages can thus be mitigated or prevented if appropriate measures are taken.

The case of past earthquake disasters in Italy, Greece and Asia have shown that children are among those civilians that are more psychologically depressed, due to lack of experience, knowledge and/or psychological support by the adults around them. RACCE project was thus supported by EU Civil Protection financial instrument in order to raise awareness and cope with children emotions in case of a serious earthquake or volcanic disaster. The project was implemented for two years in four countries; Greece, Italy, France and Bulgaria by seven partners and was coordinated by Natural History Museum of University of Crete.

Dr C. Fassoulas, Project Coordinator

TABLE OF CONTENTS

PREFACE.....	2
TABLE OF CONTENTS	3
1. PROJECT OVERVIEW	5
1.1 Project objectives	5
1.2 Partnership	5
1.3 Scheduled Deliverables	7
2. General summary of project implementation process	8
2.1 General overview of the process.....	8
2.2 Comparative analysis of initial and actual time schedule; planned and used resources; expected and actual results.....	10
3. Evaluation of project management/implementation process	13
3.1 Positive aspects / opportunities	13
3.2 Internal and external difficulties encountered.....	15
3.3 Partnership/core group cooperation	16
3.4 Cooperation with the Commission.....	18
3.5 Comments on European value added	19
3.6 Lessons learnt and possible improvements	21
4. Activities	23
4.1 Comparison between initially planned and actually implemented activities including monitoring, evaluation and dissemination	23
4.2 Qualitative evaluation of the activities	25
5. Presentation of the technical results and deliverables	39
5.1 Project forum.....	39
5.2 Needs Analysis	40
5.3 Guidelines to cope with children emotions	44
5.4 Mobile Educational Project	46
5.5 Travelling Exhibition	50
5.6 Informative Awareness project	53
5.7 Pilot implementation of educational projects.....	54
5.8 Training activities.....	56
5.9 National workshops.....	58

5.10 Project website	59
5.11 Project leaflets	60
5.12 Video dossier	62
5.13 Newsletters.....	63
5.14 Layman's report.....	64
6. Evaluation of the technical results and deliverables.....	65
7. Follow-up.....	67
8. Acknowledgment.....	69






1. PROJECT OVERVIEW

1.1 Project objectives

The project titled “Raising earthquake Awareness and Coping Children’s Emotions - RACCE” was aiming at palliating the emotional burden and helping children cope in case of a serious natural hazard (primarily seismic and secondary volcanic), including those with movement disabilities. It focuses on raising awareness, improving knowledge and simultaneously, educating relative groups (teachers, parents, volunteers and civil protection operators) on the best practices and state of the art responses.

Project was supported by E.C. Civil protection Financial Instrument, 2010 call for Prevention, and was conducted on the 1st of January 2011 with an initial duration of 24 months. Project’s duration was expanded for two more months, to end up on the 28th of February 2012.

The main objectives of the project were:

-  to identify, share and implement best practices and methodologies gained from previous EU projects and partners activities,
-  to study and analyse the needs in each participating country,
-  to develop and realise innovative initiatives and actions aiming to raise awareness and increase knowledge of pupils on earthquake and volcanic hazards, including those with movement disorders,
-  to train teachers, parents or other relative groups to be able to contribute to children palliation in case of a disaster,
-  to disseminate and share project’s results and outcomes to potential beneficiaries and broader audience on a constant base.

1.2 Partnership

In order to support a culture of prevention, focusing on a project in the Mediterranean area, European Research and Educational Institutions and Museums proposed a new approach of intervention in case of an earthquake or volcanic eruption to inform, protect and prevent, when possible, any psychological effect on children. Three Partners from Greece, the Natural History Museum of Crete which is the coordinator, Lesvos Petrified Forest and the Greek National Earthquake Planning and Protection Organisation, as well as, four partners from Europe, the Villa Montesca and the Vesuvius Observatory/INGV from Italy, CEI from Bulgaria and Reserve Geologique de Haute Provence from France, met together to implement RACCE project.

The **Natural History Museum of Crete** (NHMC) has been functioning and operates under the framework of the University of Crete since 1980, being a pioneer institute at national and European level in the following activities:

- Study and Management of the Natural Environment of eastern Mediterranean,

- Raising Public awareness, education and sensitization of local people as well as visitors of Museum
- Link University activities with society
- Set up a network of Ecological Museums in Greece and throughout the Eastern Mediterranean.

NHMC hosts a permanent exhibition of about 4000 m² at the center of Heraklion and has developed a great number of formal, informal and Life Long Learning educational projects. Together with the Special Research Account of University of Crete acted as the **Coordinator** of RACCE project. (www.nhmc.uoc.gr)

The **Natural History Museum of the Lesvos Petrified Forest (LPF)** was established in 1994 aiming to the study, research, promotion, preservation and protection of the Lesvos Petrified Forest, a Unique Natural Monument. It has established a permanent exhibition at Sigri, Lesvos Island, implementing various awareness raising and educational projects focused on earthquakes and volcanoes. (**AB1** - www.petrifiedforest.gr)

The **Centro Studi e Formazione Villa Montesca (Montesca)** is a non-profit organization founded in February 2001 that develops innovative educational initiatives and offers a broad spectrum of multi-disciplinary research expertise and training activities, closely linked to the dynamics of a European space for professional training, education, cultural and local development. Centro Studi has its headquarters in Villa Montesca at Città di Castello. (**AB2** - www.montesca.it)

The **Earthquake Planning and Protection Organization - OASP (E.P.P.O.)** is a Legal Entity of Public Law under the supervision of the Ministry of Infrastructure, Transport and Networks. From its foundation in 1983 and up to now, the E.P.P.O. has contributed substantially towards the formulation of the national earthquake policy and consequently the reduction of seismic risk. E.P.P.O. is the competent body to plan and implement effectively the national policy for earthquake protection. (**AB3** - www.oasp.gr)

The **Center for Educational Initiatives (CEI)** is located in Sofia, Bulgaria and is a non-governmental, non-profit association which aims to improve innovative educational initiatives and facilitating educational reform through collaboration between institutions at regional and European level. The CEI was established as a program of the Balkan Colleges Foundation in January 1999 and in October 2000 was registered as an independent union. (**AB4** - www.cei-bg.org)

The **Osservatorio Vesuviano - Istituto Nazionale di Geofisica e Vulcanologia (INGV)**, is a section of currently one of the largest European Institutes of Research in Geophysics and Volcanology, seismic and volcanoes monitoring, having its headquarters in Rome. The Vesuvius Observatory is located in Naples, and was founded in 1841 as the first volcanological observatory in the world, conducting researches in several fields of Volcanology, Geophysics and Geochemistry. INGV was funded by the Ministry of Education, University and Scientific Research (MIUR) and the Civil Protection Dept., paying also special attention to Education and Outreach project and activities. (**AB5** - www.ov.ingv.it)

The **Association pour la gestion de la Reserve Naturelle Geologique** de Haute Provence, France (RGHP) was created in 1984 as a protected area situated in south-eastern France, between Mediterranean Sea and alpine mountains. It is one of the biggest geological open air museums with numerous fossil-rich sites and fascinating rocks formations. The RGHP works on conservation and valorisation of geological heritage for sustainable territorial development through the development of geotourism, educational and cultural tourism. (AB6 - www.resgeol04.org)

1.3 Scheduled Deliverables

The main expected deliverables of RACCE project according to the various Tasks were:

1. Four **Management meetings**;
2. A **Needs Analysis** study describing the risks, the current situation, good and bad practices and the necessities in each participating country. It will come out through desk analysis data, questionnaires implementation and video interviews;
3. **Guidelines** for the identification of unexpected children emotions or behaviours and for palliation responses to children's depression;
4. Innovative and mobile **Educational packages** (suitcases), addressed to children in order to increase knowledge on natural phenomena and protection measures;
5. **Travelling Exhibition** that can be used by partners, stakeholders, schools and other interested organizations;
6. **Training activities** in Museums and info-centers addressed to children, parents, teachers, civil protection operators and volunteers; and
7. Various **dissemination** and publicity activities, like web-site, newsletter, multi-media and web-based products.

2. General summary of project implementation process

2.1 General overview of the process

Project activities were organized under various Tasks:

TASK A: Management and Reporting

This task was dedicated to the management of the project as a coherent program, by Planning, monitoring and controlling all tasks of the project and motivating all those involved in it in order to achieve the project's objectives on time and at the specified cost, quality and performance.

Actions resulted in the development of a Shared Protocol among the partners for the Project Management; the preparation of Spreadsheet files for the Financial Analysis and Cost Management, the development of Responsibility Allocation Matrixes, the design of Spreadsheet files for documenting the projected activities in relation with costs, the development of Templates and Checklists for scheduling and monitoring the partners tasks and the organization of project meetings. The Kick-off meeting took place in Lesvos on 10-11 March 2011, the second project meeting was hosted in Naples on 30/6-1/7/2013, the third meeting was organized in Sofia on the 23-25 January 2012 and the Fourth meeting on the 25-26 June 2012 in Heraklion Crete.

The Final project meeting was scheduled to be organized in Brussels, however it was finally decided to be hosted in Athens and was coorganised by the Hellenic Commission for UNESCO and the Hellenic Geoparks Forum on the 21st of January 2013.

Task B: Needs Analysis

The main action under this task was the development of a **Needs Analysis** under which best practices and results of similar initiatives mainly for seismic, but also for volcanic hazard prevention and raise awareness in younger ages were studied, evaluated and adapted to the needs of participating countries. This resulted in: Creation of project's and local expert groups; Desk analyses by all partners on the best practices in raising children awareness on natural disasters and palliation of their emotions, studies on the special needs for every country; Realisation, use and analysis of questionnaires in all countries; and development of video-interviews with experts.

Task C. Elaboration Phase

The Elaboration phase was indenting to design the main educational products of RACCE, namely the innovative and mobile **experiential Educational Project** and a the **Travelling exhibition**. NHMC was responsible for the design of both products that were contacted by

the museum's staff, external educational experts, collaborating schools and external evaluators. During the various stages all partners were engaged in delivering data and information, revising products and evaluating their effectiveness.

Both products were developed in a mobile form, the educational project as a museum kit, packed in a suitcase and the travelling exhibition in the form of roll-up posters, to be lent and transported in remote areas and during various activities. The Educational Project was designed under the supervision of the Department of Preschool Education of Univ. of Crete adapting the modern pedagogical approach of Educational pathways that are developed as a continuous, research based activity in schools, research institutions, libraries, web and laboratories. The project consists of theoretical and instruction's textbooks, activities sheets and material, proposal for awareness project addressed to disabled children, educational games, video presentations for educational constructions and models and complementary material.

Also, under this task a textbook for **Guidelines on Coping with Children's emotions** was produced with the contribution of external experts and specialists in coping with children emotions in case of a disaster.

A new deliverable, an **Informative Awareness** project, was added after the first Partnership Agreement amendment, focused on the museum seismic simulators.

Task D: Implementation

Task D was focused on the realization of a Pilot **Implementation Plan** in which school units, groups of children with movements disorders, parents and experts would be involved through training seminars that were addressed to teachers and parents, pilot implementations of the educational project by school classrooms at museums or other educational centers with suitable infrastructures (like seismic tables or interactive displays/exhibits), as well as through internet.

Task E: Evaluation

Task E was dedicated to the development and implementation of an **Evaluation Strategy** to monitor and evaluate during all phases of project implementation the produced educational projects and the various activities by participating schools and teachers, as well as other engaged experts or groups.

Task F: Dissemination

Task F includes all **dissemination actions** for project outcomes and activities. It resulted in the development of a Dissemination Strategy which incorporated several actions like publications, announcements, press releases, meetings and a web-page to host the results and outcomes of the project and to ensure the constant training and sharing of information.

2.2 Comparative analysis of initial and actual time schedule; planned and used resources; expected and actual results

RACCE was built to be implemented within a period of 24 months, however by the second Grand Agreement Amendment it was expanded up to 26 months. In general, project implementation was in accordance with **project time table** and most actions and tasks were finalised on time.

The need to request two additional months for implementation followed the longer than scheduled duration of Elaboration phase. This task was dedicated to the development of the Traveling Exhibition, the Mobile Educational Project and the Guidelines to Cope with Children emotions. Although it was planned to last for 8 months, finally it took up to 12 months for its finalization, shifting thus the following Task for implementation further to the end of 2012. Considering the summer period which is not active for school, there were only two actual months left for testing and implementing with schools and thus led partnership to ask for two more months' expansion of project duration.

Both Travelling exhibition and Mobile Educational project were evaluated, tested and revised repeatedly, mainly by the EPPO and INGV, but also by external evaluators, for their scientific accuracy and their adaptation to children's age and knowledge. It was a cyclic evaluation, revision and testing process that lasted more than originally considered. In addition, based on the Needs Analysis facts, we decided together with the Pedagogical department of University of Crete not to develop an ordinary educational project based on partners' existing facilities, but a project adapted to the modern educational system needs that is seeking for the scientific and research involvement of students and teachers through the experiential and inquiry-based learning process. This finally resulted into an educational pathway supported by textbooks, activities, models, presentations, constructions and case studies that can rather be implemented either throughout a school year or even partly during a visit in a museum, than a few hours activity that was initially planned. From a draft proposal by the educational expert group of 40 activities during the third Sofia meeting, we decided to develop only 14 during the 4th project meeting in Crete. Consequently, although it took much longer time to finalise this task and considerably much more human activity, we do believe that it was necessary and the results themselves attest the scientific value, the innovation and the effectiveness of the developed outcomes.

Considering the **resources** used for the implementation of RACCE project, partners believe that all initially considered and many others identified during implementation, human, financial and material resources were exploited at the very highest limits, were properly arranged by time and were used as much efficient and productive as possible.

All initially appointed partners' staff, as well as any other available at each period, contributed during the various project phases and the needs. We additionally developed collaborations with experts and specialists whenever was necessary or the project needs requested, ranging from experienced and distinguished professors and political representatives, highly skilled and active on their discipline educational or psychology experts, to very enthusiastic and tireless teachers and educators.

The results of the financial management of project are presented on the F tables that accompany this report. More or less, all partners managed their resources according to the agreed budgets. NHMC and CEI used 92% of their initial budget, whereas Reserve Geologique just 81%, mainly due to cheaper subcontracting cost and the lack of necessity to cover some initially planned costs (like external audit or paid publicity). In general, individual category costs were balanced for each partner and did not exceed the 10% rule, except for the case of staff cost of Italian partners that due to the special risk conditions requested more time for implementation phase than originally planned.

Project implementation and financial management coincided with the great financial crisis of Europe that mainly affected Greece and Italy, meaning five among seven project partners. By the initiation of project the considerable cut offs in Public sector in Greece implied significant changes in annual staff cost of NHMC and Lesvos staff that led to the first Partnership Agreement amendment and readjustment of staff cost for these two partners. In addition, public administrative changes in Greece also affected EPPO that had to change its financial department, resulting in some significant, initial, delay in budget implementation.

On the other hand the crisis created some opportunities. In Greece and France subcontracting cost was also considerably decreased leading to cheaper tender proposals that helped us to develop more products under the initial cost or led to cheaper services.

Following all previous mentioned facts we can argue that project's **results** were not only fully covered but were additionally enriched, well designed and increased in number, whereas are characterized by their scientific accuracy, innovative approach and efficacy. Needs Analysis was enriched with personal interviews, questionnaires and extensive analysis of existing literature. Guidelines to cope with children emotions was developed in English and Greek languages and was both web published and printed in leaflets. Traveling exhibition was reproduced by all partners at their language and in many case it was enriched with interactive elements. NHMC produced a second version as a temporary exhibition, also in English language, at its exhibition hall that was accompanied by an educational seismograph, a tsunami simulator and interactive displays for global earthquakes and volcanoes. Similarly, Reserve GHP also developed a talking e-book addressed to blind people.

All partners reproduced at their language the mobile educational project in the form of a suitcase, whereas NHMC prepared the initial material and suitcase in English language too. Due to the very cheap tenders that NHMC received for the subcontracting costs and the great number of requests from teachers of pre-school age to use the suitcase, it was decided to develop, without extra costs and with the support of three teachers, a second educational project that was addressed to preschool age. Resulted from the great interest expressed during implementation phase, NHMC additionally reproduced one extra copy of the two educational projects for each of the four regional education offices of Crete. All products were then uploaded in all partner's languages at the project web-page. Concluding, we finally managed to reproduce 18 educational suitcases instead of the nine initially planned.

Following the first Grand Agreement Amendment and trying to exploit at the very maximum level existing facilities and opportunities, NHMC and Lesvos PF proposed the development of an extra informative awareness project that will be implemented at the earthquake simulators the two museums own. Catching the momentum, more than 100.000 visitors, tourists and local inhabitants, experienced the project during the first year of its implementation, mainly due to the fact that NHMC hosted a dinosaur exhibition for more than 9 months.

Similarly, dissemination and training activities were extended both spatially and temporarily to cover as much territories as possible and were implemented not only till the very last day of project implementation but continued much after covering all school period of year 2013, having also scheduled many other activities for the coming school year.

3. Evaluation of project management/implementation process

3.1 Positive aspects / opportunities

RACCE is a project that was born from the facts that societies have faced during the very recent hazardous events that affected Europe (L'Aquila and Athens earthquakes), and the rest of the world (Indonesia and Japan tsunamis etc). Many international organisations like United Nations, World Bank, UNESCO and of course E.U. recognised the increased vulnerability of children, women and disabled children in case of natural Disasters and the need for education and preparedness against them.

We knew from the situation in Greece and also in Italy that the official educational system did not provide pupils with the necessary knowledge to face and overpass such disasters. From the elaboration of Needs analysis in all participating countries it became apparent that situation is similar everywhere, with the exception that in countries with higher risks more drills were undertaken without however, advancing the preparedness needs and processes.

The great disasters that our communities suffered the last decades created the best momentum to introduce to children, teachers and parents, the issues dealing with RACCE. The educational society in all countries embraced RACCE activities and outputs. In Greece the Regional Education Offices in all regions of implementation collaborated actively during implementation and elaboration phase. Teachers participated voluntary in testing and evaluation procedures, contributed in the development of certain products and participated with great enthusiasm at the training activities. It was their interest and request that forced us to develop more educational suitcases and implement more than initially scheduled training seminars and experiential activities.

During the development of the educational project we also collaborated with a Disabled children school who were interested to develop and implement an earthquake awareness project. Thus we had the opportunity to collaborate with the teachers of the school, as well as external psychiatrists, and develop and implement step by step a project addressed to disabled children. The final proposal was thus the result of an approach tested, implemented and evaluated on real conditions and by the pupils themselves.

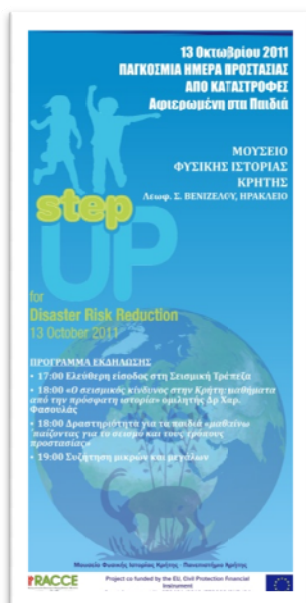
RACCE educational project was included in the official educational process in most countries and especially in Crete, 12 schools submitted applications during 2013 to implement project, and use the educational suitcase either under the so called "Flexible zone" of primary schools or during the "Project" course of elementary schools. Two primary schools, three kinder schools and two elementary (secondary schools) implemented already project.

Partners of RACCE were also invited to present educational products in many occasions and in many areas of participating countries.

It was a surprising coincidence that the first year of RACCE implementation was the year dedicated by UNISDR/U.N. on "Making Children and Young People Partners for Disaster Risk Reduction" and the International Day on 13th of October offered the opportunity to all partners to develop various activities and participate actively in the global partnership developed, promoting globally by that way the project. Similarly, in 2012 partners participated in the celebration of International Day for Risk Reduction with various activities and implementation of educational project.

Taking into account that three of the partners (NHMC, Lesvos PF and Reserve GHP) are members of the European and Global Geoparks Networks, we took the chance to promote RACCE activities during the various meetings and congresses of these networks, as it happened in other scientific meetings too. Global Geoparks Network is currently under the auspices of UNESCO and that gave us the opportunity to communicate RACCE activities with the organisation's Civil protection department.

The final project meeting was thus held in Athens instead of Brussels and was co organised with the Hellenic Geoparks Forum and the Hellenic National Committee for UNESCO, at the Ministry of International Affairs. This gave the opportunity to invite the National Civil Protection and Education authorities, the network of collaborating schools of UNESCO, many governmental officials, as well as the Head of Earth Science department of UNESCO. This collaboration resulted in the presentation of RACCE at UNESCO's headquarters in Paris on March 2013, during a special session on UNESCO and Geoparks collaboration, addressed to National delegations and officials of the organisation! Furthermore, we have been invited to present RACCE during the Japan International Academic Conference "Natural disaster and blessing" that will take place in San'in Kaigan Geopark, in Kinosaki, Toyooka, Japan, during 26-27 of October 2013.



Celebration of Disaster Day in NHMC and Lesvos PF Museums

3.2 Internal and external difficulties encountered

Project management and implementation didn't face significant internal or external problems. Collaboration of all partners was perfect and was guided by the developed Management Plan. Forms and spreadsheets that were produced both for reporting and evaluation were properly used in all cases and by all partners. The three-month internal reports provided Coordinator with necessary information on project development, action's implementation in respect to agreed time table, proper use of resources and quality of collaboration. Information was then transferred to E.C. through the three mid-term reports. In addition, the established since the very beginning of a Steering Group contributed to the immediate and effective response to overpass any difficulty.

The most serious **internal** problem we have faced was dealing with the development of the Travelling exhibition and the Mobile Educational project during Elaboration task. The highest priorities and quality standards set, namely the scientific accuracy and consistency of all information provided and the adaptation of all data in a public and not scientific language, resulted in repeatedly revisions and re-adjustments of data and graphic works that were time and human-hour consuming. Although all partners did their best, unfortunately it led to overrun of time schedule and thus in delay of finalization of these products and their implementation.

This problem was exaggerated by two other facts which were the significant delay in contracting with the external designer due to major administrative and financial changes in Greece and the weakness of the external designer to follow up on time the changes that were induced by the revision process. Although the final outcomes are of high design and layout quality, as it is generally agreed, it caused also considerable delay in their finalization. The collaborator had neither experience in similar products, nor the necessary staff to respond on the much stressed needs that appeared. However, this was a situation that we couldn't predict and consider during the announcement of Public Interest for subcontracting that took place. The national legislation in Greece puts emphasis on the lowest offer and not on the cost/benefit value, which resulted finally in the collaboration with the cheapest tenderer.

Considering the **external** difficulties, the most worth mentioning is related to the effects that the European economic crisis induced to the Greek partners. This problem was however faced just at the beginning of project implementation and was mainly focused in the considerable reductions of staff costs and secondary on administrative and financial structural changes for EPPO. The problem was solved in close collaboration with ECHO 4 and led to the First Grand Agreement Amendment, without inducing other difficulties for the future.

3.3 Partnership/core group cooperation

Based on experience gained by other educational projects implemented by Museums and Educational centres, RACCE was designed to acquire the maximum of existing knowledge and scientific information, to adapt the most suitable approaches and procedures depending to the various needs and to develop the most effective and modern educational processes to maximize the benefits of deliverables.

The partnership itself, constituted by national authorised organisations for earthquake and volcanic risk reduction, museums, and educational institutions and centers, was guaranteeing scientific relevance and accuracy, capacity and knowledge on training and education, collaboration with school society through existing school networks and agreements, maximising thus the dissemination of outputs through museum's and other activities. Their great experience and integration with school communities, local authorities and administrations, as well as with the scientific community was ensuring the effectiveness and quality of actions and deliverables. All partners were experienced in previous involvement in elaboration of European funds and several of them in implementation of civil protection projects.

None of the actions, nor the products could be so effective and efficient, and well accepted by the target groups if the partnership cohesion and collaboration was not as strong as it appeared. This offered the opportunity to collaborate with the most skilled and experienced on their topics psychiatrists, teachers, civil protection operators, educators and volunteers, and to benefit the maximum from their knowledge and enthusiasm, building a very strong team.

Collaboration as well as management was facilitated by the development of partnership's web-forum, an area to share data, information and knowledge, to discuss actions and problems, and to remind obligations and duties. The forum's contribution was very crucial during the development of the Needs Analysis studies, the Travelling Exhibition and mainly the mobile Educational project. Draft documents, layouts, and designs were uploaded and all partners could have access, comment and put their arguments and data. Forum's contribution was substituted during implementation phase by the Facebook page where all planned activities were publicised.

During the various stages of implementation several working groups were established, like the Steering and Education groups. **Steering group** was set up by the initiation of the project and was constituted by the coordinators of the partners. The group met together several times mainly during the project meetings but also in several other cases to organise meetings or take crucial decisions through web chatting or phone-meetings. The group was established in order to reinforce better organisation of projects activities and priorities; continuously monitor project's implementation and progress; facilitate direct communication among partners and; ensure participation of all partners in decision making process. All members of the group performed their role in a perfect way with a spirit of collaboration and responsibility, assisting project coordinator in various ways and cases.

The **Education group** had to perform the very difficult task to develop the educational products following directions and priorities set by the partnership during the Naples meeting, i.e. scientific validity, modern and innovative approach as well as, adaptation to school curricula and needs. Each partner appointed one or more staff members with great experience in educational activities and projects, whereas external experts and teachers were also invited. The acceptance and effectiveness of educational products, attested during the implementation phase, reflect the quality and excellence of the work that the group offered to project development.

3.4 Cooperation with the Commission

As it was clearly stated in Grand Agreement, NHMC as coordinating beneficiary, was the direct and only communication linkage of RACCE partnership with the Humanitarian Aid and Civil Protection Directorate-General of European Commission.

The cooperation with project supervisor Mrs Billiana Zuber and her substitute Mrs Ioanna Sgourdopoulou-Kara, as well as with the financial and technical department of Civil Protection Financial Instrument was excellent throughout project implementation. Their support, advice and guidance in many circumstances helped to overpass difficulties and find solutions in problems that appeared. Two Grand Agreement amendments became requisite, one at the beginning and one by the end of project implementation and the positive addressing by E.C. was vital for its finalisation.

Project foresaw three interim technical and financial reports to keep E.C. up to date on project progress, that were submitted on October 2011, February 2012 and October 2013. In various cases project supervisors were contacted via emails or ordinary post to discuss technical and financial issues and their response was immediate, direct and catalytic. They were invited in all project meetings and were kept informed about their results. Mrs Billiana Zuber dignified us with her presence and contribution at the Final meeting held in Athens in January 2013.

3.5 Comments on European value added

RACCE project implementation achieved two important goals that lay directly on several European added values, like the **Promotion of Best Practices**, the healing of **cross border threats**, and **networking**, and supports also **benchmarking for decision making**, namely to bring together organisations and institutions that develop disaster reduction strategies and policies, with bodies who daily share and publicise scientific knowledge to public and to heal the higher vulnerability of children in natural disasters on a global, European scale.

The vital knowledge, experience and best practice that has been gained after big natural disasters is normally trapped within scientific community either because accessibility is not allowed for those outside or because scientific community is not always able to communicate it to broader public. Similarly, those operators who can share knowledge and best practices to children, parents and teachers, namely museums and educational centres are not always updated on the scientific achievements and products, and most important, on European and global policies and strategies.

Implementation of RACCE project created those necessary links that enabled **direct transfer** of knowledge and best practices to children, parents, teachers and volunteers on raising awareness in natural phenomena and coping with children emotions. It managed to bring and collaborate together National institutions and organisations dedicated to risk reduction and policy development, like INGV and EPPO, with Educational centres that develop and implement new educational approaches and initiatives, and with museums and centres focused on sharing information and publicising scientific knowledge. **European and Global problems** like the high vulnerability of children, including those with disabilities, in case of natural disaster was viewed and treated in a common way and under a universal approach.

Sharing knowledge and best practices with core target groups like students, teachers, parents and civil protection volunteers during the implementation phase, improved efficacy of outcomes and helped the development of **networks** of multipliers and operators in case of an emergency. Psychological guidelines, strategies, approaches and methodologies to help children overpass a forthcoming disaster contribute to reinforce and strengthen preparedness and prevention in European scale. Furthermore, ensure the usage and follow up of project's outputs achieving the maximum exploitation of European funds.

Having developed close collaboration with regional and national education and civil protection authorities or international organisations like National Commissions for UNESCO, and having communicated project outcomes, it is possible that methodologies and approaches developed might be considered during decision making process and national or regional **governance**. Already, RACCE products like suitcase models and constructions (tsunami simulators), as well as innovative and interactive displays have been reproduced by Educational centers in Greece and Italy, whereas the Educational project has been adapted at the primary and secondary education curriculums in the Region of Crete.

In addition, project achievements and outcomes perfectly serve the great priority of the **Hyogo framework for action** developed by UN/ISDR in 2005 and adapted by EU, i.e. the

need to enhance international and regional cooperation and assistance in the field of disaster risk reduction, through:

- ✚ The transfer of knowledge, technology and expertise to enhance capacity building for disaster risk reduction,
- ✚ The sharing of research findings, lessons learned and best practices,
- ✚ The compilation of information on disaster risk and impact for all scales of disasters in a way that can inform sustainable development and disaster risk reduction,
- ✚ Appropriate support in order to enhance governance for disaster risk reduction, for awareness-raising initiatives and for capacity-development measures at all levels, in order to improve the disaster resilience of developing countries.

3.6 Lessons learnt and possible improvements

Implementation of an action is always an alive and thus educative process. Regardless initial planning and methods, there appear cases and results that could have either been planned better or could have been performed in a different way.

RACCE implementation indicated several facts and gave several **lessons** that can help improvement of similar activities in future:

- ✚ Partnership composition appeared the most crucial factor for the successful and effective achievement of goals and objectives. The experience, the scientific background, the former implementation of EU projects, the development of educational activities, the daily communication with public and the dedication to the common target were the main reasons for this productive and fantastic cooperation.
- ✚ Careful and detailed project design permitted the full identification of aims and means, the proper distribution of duties and obligations, the effective allocation of actions on time and among partners, and the wise use of all available human, technical and financial resources.
- ✚ The development, since the initiation of project, of the Management Plan made processes and procedures, clear, objective and transparent to all partners and enhanced the collaboration and team-spirit.
- ✚ The participation of all partners in the various project meetings, as well as in training activities, contributed to the strengthening of partnership, the development of a team and friendly spirit, as well as the creation of a framework of understanding and respect, all necessary for a successful collaboration.
- ✚ Integration of external experts and specialists in various stages of project implementation (i.e. Needs Analysis, Elaboration, Implementation and Evaluation phases) enriched and improved the quality of outcomes. Dr A. Koumoula with great experience in coping with children emotion after Athens EQ, teachers from Bulgaria and Greece, or operators present in L'Aquila disaster, definitely contributed a lot in project enrichment and outcomes quality.
- ✚ Although it finally induced some delay in delivering certain outcomes, the continuous evaluation and revision of products both within partners but also with the assistance of external evaluators, assures the scientific validity and effectiveness of outcomes.
- ✚ The development of project's web Forum connected with staff emails, played a catalytic role in the elaboration of various activities, minimizing distance; over passing communication problems; sharing data, information and knowledge; reducing travelling costs and; strengthening networking.
- ✚ Being continuously alerted it can widen and enrich dissemination activities. Not considered or unexpected events can be used for various dissemination and communication purposes, like it happened with the International days for Risk reduction, the existence of a Dinosaur temporary exhibition in one of participating museums, or the participation of some organizations in international network activities (like geoparks) and congresses.

- ✚ Finally, regular collaboration with project supervisors and E.C. staff helped to prevent mistakes or miss functions, and solved any problem that appeared.

On the other hand, judging from the evaluation reports, the discussions with target groups and outcome beneficiaries, it became apparent that there would have been some

improvements in project implementation and outcomes:

- ✚ It could have been foreseen that project outcomes could have been translated in more European languages, especially Spanish or German. However, the reproduction of all outcomes in English language and the hosting at project's web page, may palliate this situation.
- ✚ According to the requests we have received for lending the Mobile Educational Suitcase it appeared that the number of the initially developed was too small to cover the needs. In Crete, due to the cheap costs we received we were able to reproduce and share one suitcase with the four provisional education offices. However, this was not possible for other partners.
- ✚ Following former notice, it also became apparent during the implementation phase that training needs were exceeding the events initially scheduled. Although we received additional time for project duration this had no implication to implementation phase as it presented a considerable delay. Six additional months and maybe extra funds for educational and training activities, mainly of teachers and volunteers, may were necessary.

4. Activities

4.1 Comparison between initially planned and actually implemented activities including monitoring, evaluation and dissemination

Project's activities were governed by the working plan submitted with project proposal and were organized according to the decisions taken during Steering committee and project management meetings. All actions scheduled were fully implemented by the partners responsible for their implementation and on time. No changes appear thus between the initially planned and actually implemented activities, except of the final meeting.

Final project meeting was planned to be organized on December 2012 in Brussels, however due to the costs, and the need to strengthen collaborations with stakeholders and international organizations, it was decided during the 4th meeting held in Crete to be organized in Athens on January 2013. The proposal was accepted by E.C. and the meeting took place on the 21st of January 2013 at the Ministry of Foreign Affairs in Athens. Meeting was co-organised with the Hellenic National Committee for UNESCO and the Hellenic Geoparks Forum. Representatives from E.C., UNESCO, Ministries of Education and Foreign Affairs, as well as the Civil Protection Secretariat were present.

Project Management was realized with the development of the Shared Protocol for Project Management (Management plan) that was developed and agreed by all partners and was supervised by the Steering group. Responsibilities allocation matrixes were produced in various stages for the organisation of actions, a financial monitoring template was contacted and was included in Partnership agreements to monitor budget implementation, and three month progress reports were requested from all partners in order to monitor project's implementation and progress. Collected data were used for the preparation of the three scheduled mid-term progress reports. A project's web-forum was developed since the begging to facilitate communication, collaboration and sharing of data among partners, contributing significantly in the development of the various educational and dissemination products.

In order to maintain and improve quality of actions and results a Quality Evaluation Strategy (Evaluation Plan) was foreseen and conducted. Under this strategy we produced the Quality indicators, and various evaluation reports for the analyses of project meetings, deliverables, and training activities. After each meeting partners evaluated the organization, the aim and the degree of achieved results, improving the effectiveness of future meetings. Deliverables, like the Needs Analysis, the Educational projects, the Travelling Exhibition and the publications were evaluated both from project's staff and external evaluators or contributors. This was followed mainly in the case of Needs Analysis and Educational project where the external opinion, especially from the end users, was invaluable.

The elaboration of a Dissemination Strategy was an important task of RACCE project, which resulted in a Dissemination Plan aiming to organize the dissemination activities to be

accomplished during project lifetime. According to project proposal, this plan foresaw, during all project's phases and right from the beginning, the singling out in the different partner countries the subjects/actors for the dissemination of the results at wider levels. Dissemination plan thus acted as an instrument for the organization of project's dissemination, monitoring and control, in order to guarantee achieving its goals. This dissemination strategy was focused on four main areas of intervention:

- ✓ Recognition and promotion of project's outcomes and results
- ✓ Identification of Target groups
- ✓ Identification of actions/deliverables to disseminate, and
- ✓ Monitoring and reporting

4.2 Qualitative evaluation of the activities

As has been already stated, all scheduled activities of RACCE have been fully accomplished by all partners, following the working plan as well as the various Management, evaluation and Dissemination plans that were produced. Activities were constantly overviewed by Coordinating Beneficiary and Steering group and monitored using the various forms and reports developed. In many case following after evaluation process, actions were assessed, revised and improved where necessary.

The following presentation of actions implemented depicts the overall view and feeling we, the partners of RACCE have received through the evaluation process, the communication with end up users and stakeholders of the project and the various events developed during implementation phase. Actions are presented according to the Section T of project proposal.

Task A: Management and Reporting

One of the first actions undertaken was the establishment of the **Steering group** constituted by two representatives, in most cases the partner's coordinator, in order to support Project coordinator on decision making, organization of project activities, monitoring of project's progress and improve collaboration among partners. Steering group was met ordinary during the 4 project meetings, as well as in several other cases that was urgent to take crucial decisions on project implementation and development. Its role can be consider as very important enhancing the participation of all partners in decision making, improving transparency in project management and arrangement of duties and responsibilities. The members of Steering group are presented in the following table:

Partner	Name
NHMCrete/CO	Charalampos Fasoulas
	Katerina Voreadou
NHMLesvos/AB1	Nikolas Zouros
	Ilias Valiakos
CSF Villa Montesca/AB2	Fabrizio Boldrini
	Maria-Rita Branchini
EPPO/AB3	Assimina Kourou
CEI/AB4	Tzvetan Tzvetanski
	Petar Tsvetkov
INGV/AB5	Fabio Sansivero
	Rosela Nave
RNG de Haute Provence/AB6	Guy Martini
	Joëlle Gamet

Development and implementation of the **Project management Protocol** was the next, most important activity, necessary and substantial for actions' development and proper collaboration among partners. The protocol was developed by the Steering group and was accepted by all partners soon after the finalization of Partnership Agreements. Protocol aimed to successfully manage and implement project's activities and actions in an efficient,

well defined and productive way, ensuring that all partners will actively participate to the planning and accomplishment of duties and the organization modalities of the partnership will be shared by all the partners. Application of Protocol gave partners the basic procedures concerning:

- ❖ the sharing of decision-making process and the provisions for the common work, management and organization;
- ❖ effective collaboration;
- ❖ clearly defining responsibilities;
- ❖ agreeing on the aims, work plan, roles and specific tasks;
- ❖ sharing the resources and know-how;
- ❖ following a common strategy for achievement of project aims.

This Protocol played a key role for the project planning, monitoring and controlling, guaranteeing the partners in their tasks and in achieving the goals on time and at the specified cost, quality and performance.

Project **Monitoring** and **reporting** took place under the provisions assigned in the Grand Agreement, concerning E.C. and the shared Project management protocol concerning partnership. All partners provided three-month technical and financial reports based on the forms provided by E.C. and the Budget Monitoring forms developed under Project management protocol. Communication and reporting to E.C. took place three times according to the Grand Agreement, with the development of the mid-term reports. The first was submitted on October 2011 presenting project progress on the Needs Analysis and initiation of Elaboration phase, as well as first project meeting, the second on February 2012 dedicated to the results of Elaboration phase and the second project meeting, and the third on the October 2012 summarizing the results of elaboration phase, the development of Travelling Exhibition and Educational products and the planning of implementation activities. Process was regularly and properly followed by all partners providing continuous and almost real time overview of project progress, achievements of goals and exploitation of financial resources. Only the last five months of project implementation were summarized within the final project reports that all partners provided.

Project working plan foresaw four **project management meetings** and one Final project presentation. Agenda for each meeting was circulated well before any meeting, as well as minutes were recorded and were shared to all partners soon after its implementation. All documents were also uploaded on project's web-forum.

The first project meeting was held in Lesvos, Greece on 10-11th March 2011, just two months after the initial plan, as Partnership agreements had to be signed to officially start project activities. First day was hosted at Aegean University facilities and second day at Lesvos Petrified Forest Museum. Meeting was focused on developing and strengthening of partner's collaboration and networking, presentation of project goals and work plan, allocation of duties and organization of further activities. It also gave participants the opportunity to experience the awareness activities and educational products on earthquakes of Lesvos Petrified Forest Museum. All partners participated in the meeting

except of Montesca who due to health problems couldn't attend meeting. However, an extra trip was arranged on 6-9 of April 2011 in Crete for discussions with project coordinator. In Lesvos meeting staff and students from the Department of Geography of Aegean University attended parts of meeting, where as a press conference was organized too.

Second project meeting was organized on 30/6 and 1/7/2011 in Naples. All partners participated in the works of the meeting that was held the first day at the headquarters of Vesuvius Observatory in Naples and the second at the old buildings, now museum, of observatory on Vesuvius. Partners were informed by the Director of Observatory Dr Martini on the protocols and methodologies implemented to monitor volcanic activity in Naples, as well as the policies to reduce risks and raise public awareness. Partners presented during the meeting the results of Needs Analysis and set the guidelines and prerequisites for the development of Travelling Exhibition and Educational project.

Third project meeting took place on the 24th and 25th of January, 2012 in Sofia, Bulgaria. The event was hosted at the Centre of Educational Initiatives and at National Polytechnic Museum in Sofia. During the meeting the following issues were presented and discussed:

- ❖ Presentation of progress made so far– implementation problems
- ❖ Final Discussion (Evaluation) on Needs Analysis study
- ❖ Discussion on draft Guidelines to cope children emotions
- ❖ Presentation of draft ideas on Travelling exhibition
- ❖ Discussion on draft Educational Project
- ❖ Management and Financial Issues
- ❖ Evaluation of project activities so far
- ❖ Presentation and organisation of future activities

All partners participated in the meeting, whereas during the second day at National Polytechnic Museum participated also Mrs Tsekova Ekaterina – Director of museum, Mrs Galya Russeva – Educational expert, and Mrs Lyuba Dashovska - Educational expert.

The fourth project meeting was hosted in the facilities of Natural History Museum of Crete in Heraklion on 25th and 26th of June, 2012. Meeting was very crucial for the finalization of Travelling Exhibition and Educational project, as well as planning of implementation actions. Main issues addressed were:

- ❖ Presentation of progress made so far– implementation problems
- ❖ Discussion and agreement on Travelling Exhibition (developed Posters)
- ❖ Experience of RACCE Informative Awareness project for EQ simulators and other Educational Activities of NHMC
- ❖ Discussion and agreement on Mobile Educational Project activities
- ❖ Presentation of Project for Disabled Children
- ❖ Presentation of proposed Experimental Activities and constructions
- ❖ Preparation of training Activities
- ❖ Management and Financial Issues

- ❖ Evaluation of project activities so far
- ❖ Presentation and organisation of future activities

Again all partners participated at the meeting, together with Museum's staff, Regional Civil Protection officers, and teachers collaborating with project. Among them were Prof Moyses Mylonas – Director of Museum, Dr Marinos Kritsotakis – Head of Regional Civil Protection Office, Mrs Koula Koutentaki - Regional Civil Protection Office, Ass Prof Maria Ampartzaki - Educational expert of RACCE, Mr Vassilis Bouralexis – Educational Expert and Mr Astrinos Tsoutsoudakis – Educational Expert.

Final Project meeting was hosted in Athens on the 21st of January 2013, instead of Brussels that was initially scheduled, due to financial and dissemination reasons. The meeting was coorganised with the Hellenic National Commission for UNESCO and the Hellenic Geoparks Forum. The event was hosted at the Ministry of International Affairs and took place simultaneously with the presentation of Travelling exhibition and mobile Educational Project. All partners except Montesca participated in the meeting presenting their contribution in project implementation and developed outputs. The meeting was addressed to officers of UNESCO, the Ministry of Education and International Affairs, the personnel and officers of Greek Civil protection, the network of collaborating schools of Hellenic Commission for UNESCO, representatives of academic society and volunteers and the press. E.C. was also invited and was represented by the project supervisor Mrs Biliانا Zuber, as well as UNESCO that was represented by Dr Patrick McKeever, head of division of Earth Sciences of the organization. The meeting was validated as very successful and informative and resulted into a close collaboration of RACCE partnership with UNESCO and the Global and European Geoparks Networks. In March 21st 2013, soon after the finalization of project, RACCE outcomes were presented in UNESCO headquarters in Paris in front of National Delegations and Ambassadors, as well as officers of Civil Protection department. Furthermore, project Coordinator has been invited to present RACCE at Japan International Academic Congress that is going to take place in Japan on 26-27 October 2013.

Evaluation of all project meetings by project staff and other participants improved miss-functions and operational problems that appeared early on, whereas attested also the quality of organization, accommodation and implementation of the meetings.

Task B: Needs Analyses

The main actions scheduled for Task B were related to the development of a Needs Analysis to study existing knowledge and identify the needs of each partner in the topics of prevention and awareness raising, as well as in coping children's emotions in case of earthquake, as well as of volcanic disaster.

In each of the four participating countries **National Expert groups** were established to conduct the Needs Analyses. Each partner nominated experts active in their national context in the fields of global rescue operations, on the formal and non-formal education, as well as on the education of children with movement disorders. The experts were involved in evaluating the data collection and the results obtained after the research phase. They were also involved in the Elaboration and Implementation phase (Task C and D) in order to

improve the outcoming results. The national groups were comprised by the following experts:

Partner	Name	Organisation
NHMC/CO	Katerina Voreadou	NHMC
	Klairi Georgila	NHMC
	Maria Ampartzaki	UC
	Maria Kypriotaki	UC
	Charalampos Fassoulas	NHMC
NHML/AB1	Nickolas Zouros	NHMLPF
	Ilias Valiakos	NHMLPF
	Konstantina Mpentana	NHMLPF
	Katerina Vasileiadou	NHMLPF
CSF Villa Montesca/AB2	Rosario Salvato	Università di Perugia
	Mauro Luciani	Università di Perugia
	Valeria Poggi	Regione Umbria
	Maurizio Fattorini	Vigili del Fuoco
EPPO/AB3	Assimina Kourou	EPPO
	Chrysa Gountromichou	EPPO
	Maria Panoutsopoulou	EPPO
CEI/AB4	Yordanka Eneva	
	Alexander Radulov	
	Tzvetan Dilov	
	Maria Donkova	Paideia Foundation
INGV/AB5	Romano Camassi	INGV
	Titti Postiglione	Civil Defence Department
	Dott. Cinzia Russo	
	Flora De Martino	Città della Scienza Neapolitan
RNG de Haute Provence/AB6	Claire Arnal	DREAL PACA
	Olivier Bellier	CEREGE
	Guy Martini	RGHP
	Joëlle Gamet	RGHP

Needs Analysis was contacted under the scheduled time tabled with the participation of all partners. According to the work plan each partner was responsible for data collection and analysis within the national working groups, whereas the Lesvos Petrified Forest was responsible for whole data collection and compilation. Desk studies:

- ❖ Reported on the seismic risk of engaged countries, as well as the volcanic risk in Italy and Greece;
- ❖ Analysed the best, as well as bad practices on awareness procedures and approaches for children, including those with movement disorders;

- ❖ Recognized current situation in each partner's area by using special questionnaires that were processed by NHMC;
- ❖ Validated the school curricula and the existing knowledge and approaches in each country;
- ❖ Defined the needs in respect to raising awareness and coping children's emotions for each partner; and
- ❖ Defined the needs in respect to children with movement disorders.

Furthermore, remarkable experiences were recorded in short interviews from Scientists, Trainers, Rescue staff, or other experts and their results were considered during development of elaboration phase. All interviews are hosted at project website and YouTube channel developed for dissemination purposes.

A draft document of Needs Analysis was shared through the project forum by the end of September 2011 in order to be evaluated and finalized, whereas the final document was evaluated and revised by an external expert (Dr V. Mouslopoulou). According to the evaluation reports acquired, Needs analysis generally managed to achieve all goals that had been set. Unbalance in the quantity of data concerning France was recognized but this should be considered in respect to the extent of the country, the variety of risks that it faces and the existence of only one partner from that country. All evaluators rated as very important and helpful the video interviews contacted with various experts from all countries, as well as the use of targeted questionnaires that presented original raw data of current state of knowledge and awareness level in all countries. All agreed too, that participation of individual experts and specialists assisted to overpass constrains induced by restricted knowledge range or more locally oriented, national staff.

Task C: Elaboration

Task C was dedicated to the elaboration of the key products designed for RACCE, namely the Guidelines to cope with children emotions, the Travelling exhibition and Mobile Educational Project.

All these products are closely related to educational processes and methodologies and thus the establishment of an individual **Education Expert Group** was necessary, even though most partners are oriented to education and training, in order to coordinate, monitor and supervise the preparation, as well as the implementation and evaluation of educational projects. The group was thus formed by representatives from each partner or by external experts in certain educational issues. The group discussed and exchanged ideas by all available ways (e-talks, emails, live meetings, etc.). Core role to the development of the educational projects and activities played the Natural History Museum of Crete and the National Earthquake Planning and Protection Organization of Greece. External experts in disabled children like Ass. Prof. Maria Kypriotaki Un. Crete, psychiatrists like the Director of Child-psychiatric department of Sismanoglio hospital of Athens Dr A. Koumoula and Dr M. Luciani Prof of Social psychology of Un. Perugia, as well as teachers, contributed also in various stages. The members of the Educational Expert group were:

Partner	Name
CEI	Emil Jassim
	Galya Russeva
EPPO	Dr Kourou Assimina,
	Gountromichou Chrysa
NHMC	Eleni Chatzinikolaki
	Maria Kypriotaki
	Voreadou Katerina
Lesvos	Nickolas Zouros
	Ilias Valiakos
	Konstantina Mpentana
CSF Villa Montesca	Maurizio Fattorini
	Mauro Luciani
	Valeria Poggi
	Rosario Salvato
INGV	Rosella Nave
	Roberto Isaia
	Romano Camassi.
RNG de Haute Provence	Marc Nigita
	Nathalie Romeuf

Following the analyses of previous task B, as well the identification of needs, a textbook on principal **Guidelines** presenting the procedures and the actions that have to be followed prior and during an earthquake or volcanic hazard in order to cope children emotion (CCE) has been contacted. The Guidelines on Coping with Children's emotions was developed mainly under the coordination of Dr A. Koumoula and Dr M. Luciani and the supervision of the Educational Expert group. A small delay in implementation of action was induced initially by the disability to join project due to over duties of a professor from the University of Athens on the same topic that was initially contacted. The final version appeared however on April 2012 and was published by the Lesvos PF, as well as it is included in the Theoretical Textbook of the Educational project. A small leaflet with the main results of the guidelines was additionally published in Greek and English by the NHMC. The guidelines are addressed to teachers, parents, volunteers or other groups that can interact prior or during a disaster with the formal Civil Protection actors and were successfully tested and evaluated during Tasks D and E and also disseminated during the actions of Task F.

The main action of Task C was related with the design and development of an innovative, experiential, **Mobile Educational Project**. Using the general guidelines set by the Educational Expert group and collaborating psychiatrists, as well as considering the special needs that were identified under Task B, NHMC undertaken the duty to design and realise an experiential educational project, which could be adapted to partner's infrastructure and experiences (earthquake simulators, exhibitions etc.), as well as to children with movement disorders, and would combine education and entertainment too. In addition all products should be characterized by their scientific accuracy and consistency and by their adaptation in a public and not scientific language.

Under the guidance of NHMC, Educational expert group and mainly of Prof M. Ampartzaki, it was decided and finally agreed by all partners, not to develop an ordinary educational project based on partners' existing facilities, but a project adapted to the modern educational system needs that is seeking for the scientific and research involvement of students and teachers through the experiential and inquiry-based learning process. This was finally realized into an educational pathway supported by textbooks, activities, models, presentations, constructions and case studies that can rather be implemented either throughout a school year or even partly, during a visit in a museum, than during a few hours activity that was initially planned. From a draft proposal during the third Sofia meeting by the educational expert group of 40 activities, during the 4th project meeting in Crete it was decided to develop only 14. Duties to collect, elaborate and provide specific data were allocated to all partners, who also contributed in all phases of development.

As it was scheduled, we also tried to develop an additional project addressed to disabled children. After the suggestion of Educational Expert group we collaborated with School for disabled children of Rethimno Crete, who were interested to develop and implement an earthquake awareness project. In close collaboration with the teachers the project was implemented at school and at Natural History Museum facilities and was then illustrated as a proposal in the form of a brochure inside the educational suitcase.

Although it was decided that educational activities would be addressed to children aged between 7 and 13, the great number of requests from teachers from Crete of pre-school age to collaborate with the project, forced NHMC to develop a second educational project that was addressed to preschool age. The project was developed under the guidance of Dr Ampartzaki, without extra costs for the project and with the voluntary support of three teachers, Mrs P. Kassotaki-Psaroudaki, Mrs M. Skordili and Mrs K. Goniotaki. In reality, some of the activities developed for the older ages, as well as the language used, were adapted to the needs and knowledge level of pre-school age, and also new activities were proposed. The project was tested and implemented by two pre-schools before its finalization.

The second important action of this task was the development of a **travelling exhibition**. This exhibition was scheduled to be implemented through the form of roll up banners, based on former needs analysis studies, as well as the general guidelines that were set by the Educational Expert group, in order to cover the needs of all partners. The preparation considered also the needs for mobility and durability and for that reason certain display panels were proposed to be used for easy transfer and storage. Exhibition was undertaken by the NHMC which developed a series of topics to cover the poster themes that were discussed prior to 3^d meeting and were finalized during its implementation in Sofia. NHMC shared activities to all partners according to the decided themes and also supported all technical specifications. The travelling exhibition was finally realised through 20 posters presenting situation and needs in the different countries, best and innovative practices, the guidelines to CCE, educational material with activities addressed to children, special provisions for children with movement disorders, as well as all relative information to raise awareness on seismic and volcanic risk. The posters were developed first in English language

to support partners in translations and the development of exhibition at their native language.

Traveling exhibition in many partners was adapted to the needs and facilities existing, either through the development of additional temporary exhibitions like in NHMC, or by developing innovative exhibits and models. Travelling exhibition was designed to accompany educational and training activities, and its form enables lending and use by schools, public institutions and bodies, groups of volunteers, and NGOs and helps continuation of projects results' dissemination.

Finally, as result of the first project Grand Agreement amendment an additional action was undertaken by NHMC and Lesvos PF that was related with the design and visualisation of an **Informative Awareness project** for EQ simulators. Following the Indonesia and Japan disasters the visitors of Natural History Museums were seeking for information regarding the EQ and the tsunami initiation. This led also to a considerable increase for a certain period of visitors in the earthquake simulators existing in NHMC and Lesvos PF Museum. Thus, the NHMC developed and tested a new informative awareness project that is used simultaneously with the EQ simulators. It includes all necessary information on the EQ phenomenon and the accompanying effects (like tsunamis), the prevention and preparedness measures and the most important EQs, like the most recent of Japan and Taiwan. Information was visualised through multimedia (video projections) in Greek and English, together with the simulation of artificial and real earthquakes. The whole project is lasting about 10 minutes and is already implemented for all visitors in the NHMC simulator. The project was transferred to Lesvos PF museum and after making the necessary adaptations for their needs it is offered continuously to visitors at their facilities.

Mobile Educational project, the Travelling exhibition, as well as the other important outcome of this task, and were evaluated, tested and revised repeatedly, mainly by all partners, but also by external evaluators, for their scientific accuracy and their adaptation to children's age and knowledge. It was a cyclic evaluation, revision and testing process that lasted more than originally considered. Consequently, although it took much longer time to finalise this task and considerably much more human activity, we do believe that it was necessary and the results themselves attest the scientific value, the innovation and the effectiveness of the developed outcomes.

Task D: Implementation

Implementation and testing of products developed during former periods was the main goal of Task D. It was thus indenting to recognize and improve miss-functions, omissions or adaptation problems through training, testing and implementation of educational products. This was necessary for the non-formal and formal educational activities prepared for children that should be continuously implemented in preferably, an experiential manner. Implementation was also considered as necessary for groups not skilled in the relative topics, such the emotional burden of children due to natural hazards.

All these prerequisites have been considered seriously and checked during the pilot implementation phase which resulted in various actions, under an implementation plan that was decided by all partners during the 4th meeting in Crete.

As a start up, all partners (except EPPO) had to identify and establish collaborations with organisations, institutions, schools or experts on environmental or long life learning education creating thus **local networks of stakeholders and collaborators** of RACCE to support project implementation and evaluation, as well as dissemination of its results. Partners thus developed these Local Networks by contacting meetings, talks and agreements with local schools, teacher's organisations and associations, civil protection and regional education offices, and other possible stakeholders.

- 🚧 NHMC developed a network with 6 schools, (1st School for Disabled Children of Rethimno, 11th and 26th Kinder school of Chania, 20th and 39th Primary school of Heraklion, and 1st High School of Heraklion), the Regional Educational Offices of Crete as well as the Regional Civil Protection Office.
- 🚧 Lesvos PF developed a network with local schools as well as the Lesvos Dep. of the Hellenic Rescue Team and had four meetings during project implementation.
- 🚧 Villa Montesca established a network of 10 schools (I° Circolo San Pio X, II° Circolo La Tina, Istituto Comprensivo Trestina, Scuola Secondaria 1° grado Alighieri-Pascolo, Liceo Classico Plinio il Giovane, I.I.S. Franchetti Salviani, Istituto Comprensivo Leonardo da Vinci San Giustino Citerna, Circolo didattico Bufalini San Giustino, Istituto Comprensivo Trestina, Istituto Istruzione superiore and Patrizi-Baldelli-Cavallotti, of five local authorities and of four civil protection voluntary associations.
- 🚧 CEI collaborated with experts in the field of geology and earthquakes, psychologists experienced in working with children and parents, experts in the field of national education policy disaster, and experts from NGOs.
- 🚧 INGV developed built a network with 3 Primary schools, 1 Junior High school, and experts of Science Centre (Città della Scienza), who participated also in pilot implementation actions and evaluation of outcomes.
- 🚧 Reserve GHP developed a network in collaboration with the regional council, the local civil protection, the Regional educational council, local associations and Regional network of seismic survey "RENASS".

Implementation of educational project was a necessary action for the finalization of deliverables, offering the opportunity to test products and methods proposed according to their applicability, relevance to the knowledge status of pupils, accuracy and admission of scientific information, functionality of proposed activities and materials, and identification of miss-functions and inconsistencies. It can thus be considered that this action was a real time and at natural conditions evaluation of products by external contributors and the end users. Each partner implemented thus the project either at its facilities or/and at school classrooms.

NHMC implemented products in all major towns of Crete: in close collaboration with the Regional Education Advisors for school Activities of Heraklion Mrs. E. Stefanatou and Mrs A. Zacharatou-Tziriti tested the educational project with two schools, the 20th and 39th Primary

school of Heraklion; developed and tested a project for disabled children with the 1st primary school for disabled children of Rethimno; and also developed and tested the educational project for preschool age in collaboration with the Regional Education Advisors for school Activities of Chania Mrs K. Kassotaki-Psaroudaki at the 11th and 26th Kinder School of Chania. EPPO also implemented the educational project for Primary School directors at Thessaloniki, Northern Greece. CEI implemented project in collaboration with the National Polytechnic Museum of Sofia, the 6 Primary School in Sofia, the primary and secondary school "Hristo Smirnenski and the primary school "Peyo Yavorov", in the town Burgas. INGV implemented educational project with the developed Local Network of Stakeholders, whereas Reserve GHP with the collaboration of the regional PACA office implemented project for students, parents and volunteers at Digne les Bains. More information on the Implementation phase can be found at the Training Activities list provided.

Training activities were developed by all partners in various forms of informative presentations, experiential workshops and drills at museums, national or local workshops, implementation of educational project at school classrooms, demonstration of Travelling exhibition, laboratories for construction of models proposed at the Mobile Educational suitcase, public talks, and participation in events and activities organized by Project stakeholders and external collaborators. Activities were addressed to various target groups like children, teachers, parents associations, civil protection staff, volunteers and broader public (it was even implemented at a music school and a parish association in Crete).

Even though this phase was time reduced due to the delay of elaboration phase, scheduled training activities were fully undertaken and continued with the same intensity even after project finalization. Many partners have already organized training activities for teachers and schools for next year. A detailed list of contacted activities is presented at the provided Training Activities List.

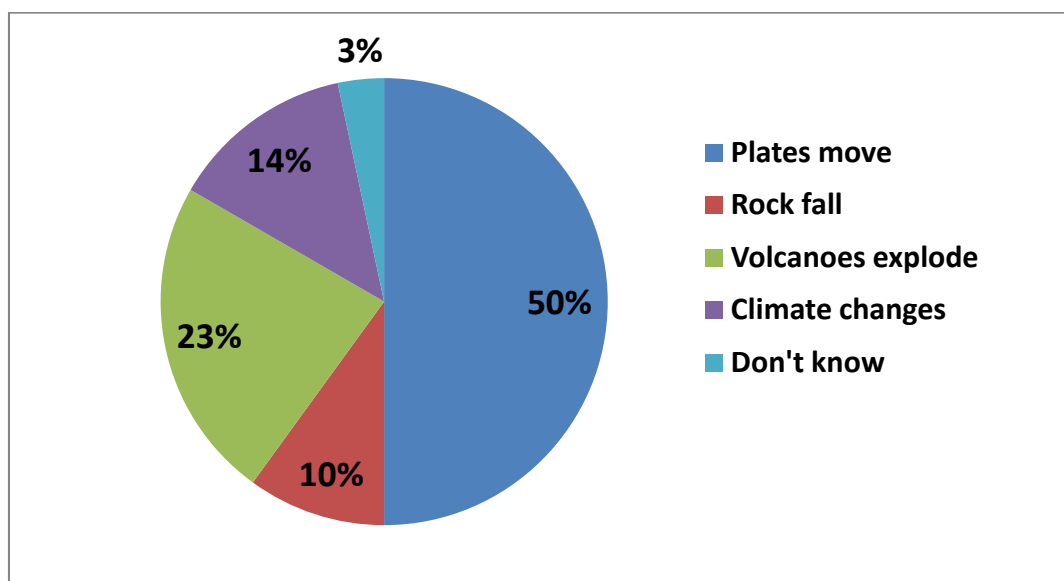
The final action of this task was related with the establishment of **local voluntary groups**. This was achieved in most cases during the implementation and training activities, where various voluntary groups related with civil protection like Red Cross in Bulgaria, the Hellenic Rescue Team and the Heraklion Municipality Volunteer group "Protecta" in Crete. Lesvos PF established also collaborations with the local Department of Hellenic Rescue Team; Villa Montesca collaborated with four local voluntary associations and Reserve GHP with local civil protection volunteers during the SEISMOTOUR event. These groups were informed on the RACCE products, were educated on how to cope with children emotions and have implemented educational project and other experiential activities.

Task E: Evaluation

Task E was focused on the evaluation activities and was implemented during the whole project duration. A **Quality Evaluation Strategy** was developed and was agreed by all partners in order to set up the quality indicators, prepare evaluation report sheets and set the procedures for its implementation. NHMC developed the strategy taking into account accumulated experience from the implementation of various educational and other activities, as well as the international literature. The plan was analysed in:

- ❖ Definition of the tools for quality monitoring in-itinere and ex-post,
- ❖ Definition of the indicators of the monitoring process of the quality in itinere and ex-post, taking into consideration the following key elements useful for the monitoring: observance of the planned activities, observance of the various deadlines of the activities; compliance of the outcomes; effectiveness of the communication system among the partners; degree of school involvement; dissemination strategy effectiveness; typology and reasons for possible changes in the planned activities,
- ❖ Drawing up of the timetable of the Quality Evaluation Plan.

Evaluation of outcomes and actions was thus implemented during all project activities, both in-itinere and ex-post, by the project's staff, the end users, as well as by external collaborators and experts that were contacted. NHMC provided all partners with the necessary forms for each case, collected and analysed data related to the elaboration of educational products and meetings, shared results with the various working groups and potential beneficiaries, whereas partners performed similar analyses for the implementation and training activities they organized.

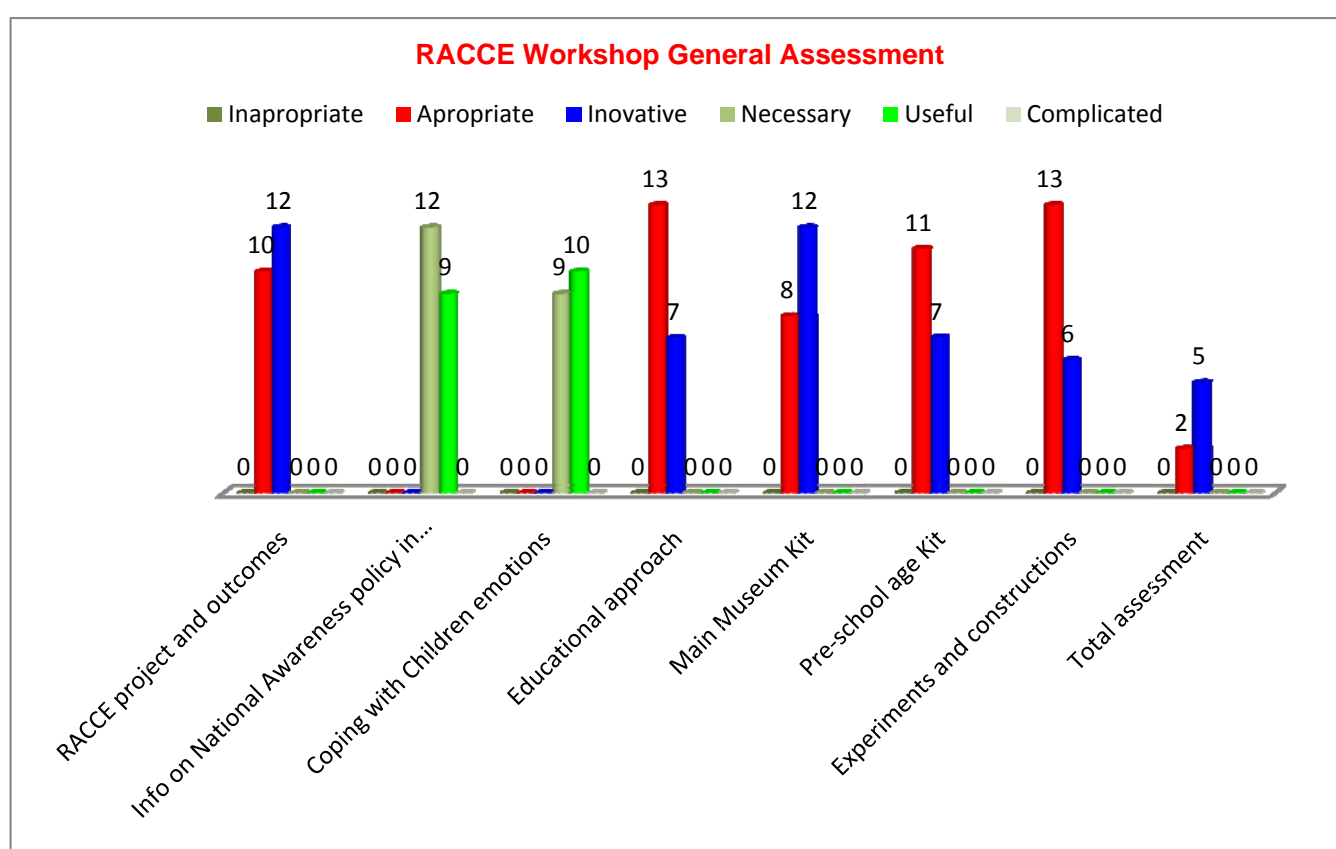


Example of a pre-test evaluation of a classroom's knowledge on the reasons that earthquakes happen, from Crete.

Evaluation was implemented mainly during the following activities:

- 📊 For each of the four project meetings, special questionnaires were prepared by NHMC and were used by the participants, whereas their results and comments were used to improve effectiveness and organization of future meetings.
- 📊 Four self-evaluation sheets were prepared and used to monitor and evaluate activities and products by partner's staff and collaborating experts, by the end of certain phases.

- Individual sheets were also prepared by each partner to evaluate the various training and implementation activities,
- the mobile educational program contains its own evaluation forms that are requested to be sent back to partners after use. These are addressed to students and are arranged in two forms, one pre-test and a second post-test, to evaluate the effectiveness of educational product. Another form is also provided for the teachers.
- A long evaluation process also took place during the development of Needs Analysis and the elaboration of Travelling exhibition and Educational project, where the members of National and Educational Expert groups were engaged, as well as external experts, teachers and collaborators. Draft products were considered, tested and assessed, and the feedbacks resulted in revisions and adaptations where it was necessary.



Example of a training seminar evaluation addressed to teachers of primary education hosted at NHMC on 26/11/2011.










Task F: Dissemination

Dissemination of results and outcomes of RACCE project was a continuous activity implemented by all partners throughout its duration. It was based on the development by NHMC and Steering group of a **Dissemination Strategy**, which resulted in the elaboration of a plan referring to the dissemination and communication of the project's results, during all the project's phases. This strategy foresaw, right from the beginning, the singling out in the different partner countries of the subjects/actors for the dissemination of the results at wider levels, as well as the tools and means for its achievement. Plan was discussed and

agreed during Lesvos meeting, and was implemented thereafter. In addition, a Dissemination Form to report to CO has been produced to be used by partners after each dissemination activity. Furthermore, each partner nominated at National level dissemination groups to receive project's outcomes.

According to Grand Agreement, various actions were scheduled and were fully undertaken according to work plan, whereas, various opportunities that appeared (like International days for Disaster Risk reduction, the Dinosaur exhibition at NHMC ,the SEISMOTOUR exhibition that took place at Digne Les Bains or the Global Geoparks meetings) were additionally used to share project activities and outcomes. A long list for the various dissemination activities of all partners have been prepared and is also attached.

The main actions undertaken and deliverables produced are summarized bellow and are listed at the attached Dissemination List, as well as in project's website or at Facebook page:

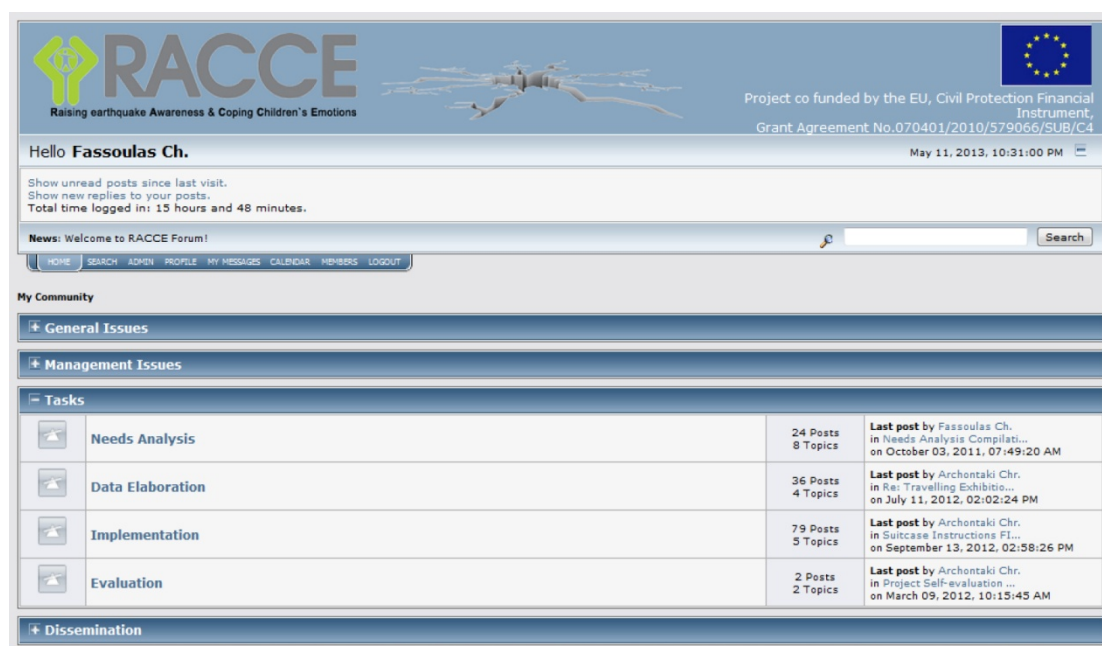
-  Project Web site (<http://racce.nhmc.uoc.gr/>) was developed by NHMC whereas all partners contributed by translating texts to native language or feeding pages with activities and results. The site operates thus in five languages (Greek, Italian, French, Bulgarian and English) hosting all project outcomes in formats and resolutions that permit reproduction and implementation by all visitors,
-  Development of a Facebook page (www.facebook.com/RACCEforkids) to host and post the various activities and events organized by all partners,
-  Regular contacts with press, civil protection operators and educational community,
-  Production of a 25 minutes video-dossier on project's activities and outputs with the necessary subtitling that was shared in seminars, meetings and other occasions and was also posted at Facebook and project website,
-  Participation in scientific meetings and publication in academic journals and newspapers of scientific and technical results. RACCE was presented in five scientific congresses, at the 5th International conference on Geoparks in Nagasaki Japan by Lesvos PF, and at UNESCO's Headquarters by NHMC and Reserve GHP.
-  Hosting of Travelling exhibition during various activities and events (like open air festivals, tv programs, civil protection activities etc.),
-  Realization of Project Brochures,
-  Preparation and sharing of a Layman's Report in electronic format,
-  Production of 4 project Newsletters.

5. Presentation of the technical results and deliverables

Various deliverables had been foreseen for the implementation of RACCE project and all of them, as well as some additional, have been realised. The majority of the deliverables, especially those related to educational and dissemination activities are also published at project's webpage, whereas others have been developed and recorded by the Coordinating Beneficiary. The most important and worth mentioning of them are presented below:

5.1 Project forum

Project forum was a deliverable not scheduled initially but developed under Task A to support project management, collaboration of partners, transfer of data and project monitoring.



The screenshot shows the front page of the RACCE web-forum. At the top, there is a header with the RACCE logo, the project name, and a European Union flag. Below the header, a user greeting 'Hello Fassoulas Ch.' is displayed along with a timestamp 'May 11, 2013, 10:31:00 PM'. A navigation bar includes links for HOME, SEARCH, ADMIN, PROFILE, MY MESSAGES, CALENDAR, MEMBERS, and LOGOUT. The main content area is titled 'My Community' and lists several categories: General Issues, Management Issues, Tasks, and Dissemination. The 'Tasks' category is expanded, showing a table with four rows: Needs Analysis, Data Elaboration, Implementation, and Evaluation. Each row lists the number of posts and topics, and the last post by a user.

Task	Posts	Topics	Last post by
Needs Analysis	24 Posts	8 Topics	Last post by Fassoulas Ch. in Needs Analysis Compilati... on October 03, 2011, 07:49:20 AM
Data Elaboration	36 Posts	4 Topics	Last post by Archontaki Chr. in Re: Travelling Exhibitio... on July 11, 2012, 02:02:24 PM
Implementation	79 Posts	5 Topics	Last post by Archontaki Chr. in Suitcase Instructions FI... on September 13, 2012, 02:58:26 PM
Evaluation	2 Posts	2 Topics	Last post by Archontaki Chr. in Project Self-evaluation ... on March 09, 2012, 10:15:45 AM

Front page of RACCE web-forum

Forum was developed by NHMC team sharing passwords to all partner's staff, collaborating experts and E.C. supervisors. It was connected with members' emails and each time a new post was placed, members were alerted by a message.

During most implementation period it acted as an internal communication tool, as a place for discussion and exchange ideas and data, as an agenda of activities and responsibilities and as project's progress monitoring. Each member could add topic for discussion, comment on existing discussion, upload and download data, send messages and receive notations, refer to running agenda and project deliverables, as well as evaluate and comment on developed deliverables.

5.2 Needs Analysis

Needs analysis was undertaken in Task B in order to prepare educational and dissemination products that fit to the needs and risks of each participating country, to ensure compliance with the state of knowledge of children, and to transfer and adapt best practices and methodologies. Hence, expected results were the recognition and concentration of the best practices and procedures applied worldwide on prevention and coping of children's emotions in case of earthquake and volcanic disasters; the identification of current status in participating countries; the definition of needs in respect to school curricula; and the production of data and guidelines for the next tasks C and D.

Needs analysis resulted in three main deliverables, the Desktop analysis, the Video Interviews and the Questionnaires analyses.

Desktop Analysis

It is a technical report summarizing information, assessment and conclusions delivered during this study. All partners have collected, analyzed and synthesized data related to their countries, their scientific topic of interest and specialty, as well as their experiences.

A draft report was posted on project forum on July 2011, was internally evaluated and was finally delivered by the Lesvos PF on September 2011. Analysis was further evaluated by an external expert, Dr Vassiliki Moulisopoulou and further revisions and corrections were made, prior to its finalization and publication at project web page.

Study can be downloaded from:

http://racce.nhmc.uoc.gr/files/items/8/887/compiled_needs_analysis.pdf

The report has a length of 133 pages accompanied by 44 pages with the analysis of the questionnaires, and its main chapters are the following:

Introduction

General terms

- 1. Identification of Earthquake and Volcanic Risk and Experiences in Each Partner's Country**
- 2. National Policies and Actions**
- 3. Recognition of Earthquake and Volcanic Disasters' impact on children**
- 4. Identification of needs of children with movement disorders**
- 5. Investigation of needs related to children's emotions during earthquake and volcanic disaster**
- 6. Summary & Conclusions**

Video interviews

Project had foreseen the recording of certain interviews with professors, experts in civil protection, specialists and educators in order to have a personal opinion and knowledge

from people well experienced in the topics of civil protection, awareness raising, prevention of risks and education on natural disasters.

Each partner had to conduct at least one video interview and present the main conclusions at the Desktop Analysis.



Mrs Machi Kaspiri



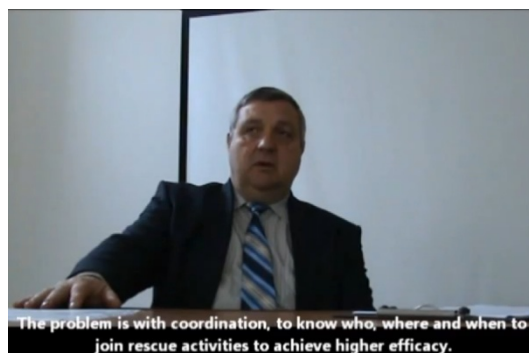
Prof E. Lekkas



Dr R. Camassi



Dr. Titti Postiglione



Dr. Alexander Dimitrov



Mrs Claire Arnal

Samples from the video interviews

Three interviews were recorded in Greece, by **Mrs Machi Kaspiri**: Director of the First Public School for disabled children in Rethimno city, Crete; **Dr Efthimios Lekkas**: Professor of Geology at the University of Athens, specialist in Natural Disasters, member of Greek emergency response team, and Vice Chairman of the Board of the Earthquake Planning & Protection Organization of Greece (EPPO), and **Mrs Zoi Livaditou**, Head of the Hellenic Rescue Team, department of Lesbos.

From Italy, four video interviews were delivered from **Dr. Cinzia Russo**: Psychologist of emergency which have experienced earthquake emergencies and participated to projects related on how to face with the emotional aspects of an emergency; **Dr. Romano Camassi**: researcher of INGV, strongly involved in education projects on seismic and natural risk, in training courses for technicians and volunteers and coordinator of the EDURISK Project; **Dr. Titti Postiglione**: Officer of Italian Civil Protection Department, responsible for Communication and Formation activities and for Volunteers Office, component of the commissions appointed to prepare and update emergency plan for volcanic crises; and **Mrs Bicchieri Loredana**: Expert on education of preschool age children in Italy.

Two interviews were conducted in Bulgaria from **Dr. Alexander Dimitrov**: MD, PhD - member of the military medical flying squad at the Military Medical Academy since 1992, who has attended many rescue operations following disastrous earthquakes in many countries; and **Mrs Delyana Zarkova**: Chief Expert at the Formal Training Center at Ministry of Emergency Situations.

Two more interviews were also recorded in France from **Dr Olivier Bellier**: Earthquakes and Seismic hazard expert-Research Professor, Head of the Environmental Department at the Paul Cézanne University, tectonic geologist, earthquakes and seismic risk expert; and **Mrs Claire Arnal**: Seismic hazard 's national expert, working in the department of major hazard prevention for the French government. She is also the regional leader of "Plan sismes".

All interviews are hosted at You Tube, project web page and can be viewed at:
<http://racce.nhmc.uoc.gr/en/downloads/M>

Questionnaires analyses

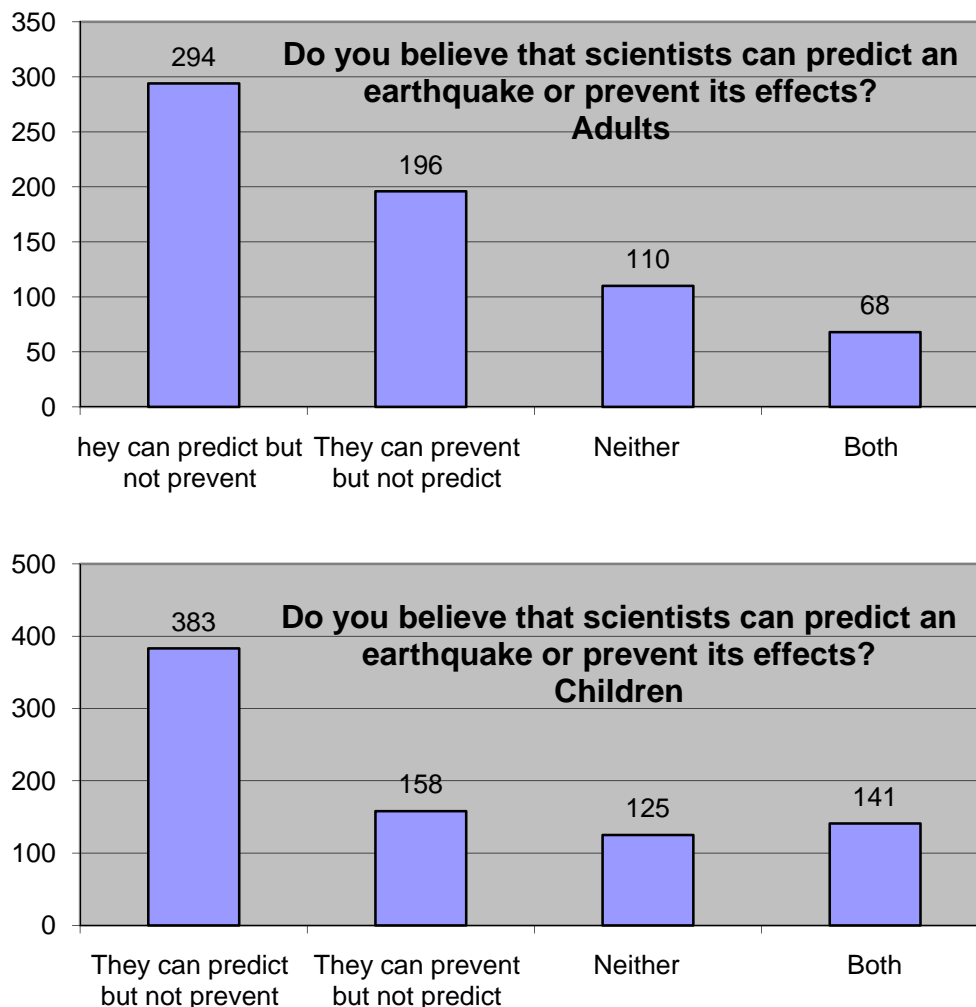
The most interesting results of Needs Analysis came out from questionnaires that indicated in a direct way situation in each participating country. Questionnaires were addressed by all partners, in various occasions, to children aged between 6 and 13, including disabled children and adults (parents, educators and civil protection operators). Questions referred to earthquakes for all countries and volcanoes for Greece and Italy and were settled in three groups: the technical and academic knowledge, the behaviors and the psychology.

In total we gathered 1449 responses, 567 from adults and 882 from children including two from disabled children. Analysis of results indicated that knowledge on these natural disasters is aged and country dependent, with children proved to be more educated on earthquakes and volcanoes than adults and the state of knowledge to be higher in Greece and Italy in respect to France and Bulgaria. It was also revealed that the higher state of knowledge in Greece and Italy was achieved mainly through complementary education and not through formal school curriculums. For comparison, knowledge on earthquakes at the fifth grade curriculum in Greece is restricted in four pages under geography lessons, describing generally volcanoes and earthquakes, while at the State of Californian similar aged children learn about earth's internal and plate tectonics theory, even discussing mantle convection! An interesting result appeared from the question about prediction of earthquakes and prevention of their effects, where both children and adults seem to believe that they can be predicted by scientists but can't face their effects!

The same conclusions came for preparedness that is more advanced in Greece and Italy than in two other countries, but even in these countries, families do not have or discuss on an emergency plan. Additionally, at these countries the often exposure of people in minor events force them to ignore or at the better situation, to underestimate the earthquake and volcanic threat. Furthermore, volcanic preparedness is not at the same level as with earthquakes.

Finally, most people seem to be aware that experiencing a natural disaster can cause great psychological impact on children, but they lack both the knowledge and the experience of coping with seismic or volcanic emergencies. At this stage the responses of adults and children proved that their opinion on which are the children's fears regarding an earthquake or volcanic hazard, do not coincide.

The analysis of questionnaires is presented as Annex under the Needs Analysis report that can be found at project web-site.



Adults and children response on the question about prediction and prevention of earthquakes and their effects, depicts the great lack in knowledge

5.3 Guidelines to cope with children emotions

Palliation of children's emotions, especially in the case of a serious earthquake or volcanic disaster is a very complex problem and international studies have shown that normally can take many years or even decades for its achievement. Moreover, undesirable emotions or/and behaviors can take long time to appear on the surface, making the effort much more difficult for the operators. It was thus a necessary task to produce a textbook with basic Guidelines to cope with children emotions in case of an Earthquake or Volcanic disaster.



The booklet *Guidelines to CCE in Greek*

The aim of this deliverable was the development of a tool to be used by various target groups to help palliate and cope undesirable emotions and behaviors of children and to cover the needs on that issue in each partner area. The Guidelines thus, can contribute in the early recognition of symptoms and behaviors, can offer a first aid psychological support, and can equip certain actors (parents, teachers, volunteers, others) with skills and methodologies to help coping undesired results, the crucial period immediately after the disaster.

The Guidelines to CCE was prepared by Dr A. Koumoula expert in child psychiatry, head of Child Psychiatric dep. of Sismanoglio Hospital and with experience from Athens earthquake, as well as by Mr Mauro Luciani, Psychologist, Prof of social psychology of University of Perugia, Italy.

Villa Montesca was responsible for its development, while the design was made by NHMC. It was translated in Greek and Italian language (except the initial English version). Each partner printed a smaller version in the form of a leaflet, containing the summary and main results in its own language whereas, NHMC printed 5000 copies in Greek and 1500 copies extra in English language. The leaflet is also part of the Mobile educational product whereas all can be also found at:

<http://racce.nhmc.uoc.gr/downloads/odhg/brochure.html>

5.4 Mobile Educational Project

The mobile educational project is the main deliverable of RACCE as it synthesizes the basic information, the good practices and experiences, as well as the activities to train and educate children. As it was mentioned, it was developed in the form of an educational pathway based on the scientific and research involvement of students and teachers through the experiential and inquiry-based learning processes. The whole project was included in the form of a museum kit, a suitcase that can be shared and lent to schools and other educational centers for their needs.

The Project was addressed to ages of 7 to 13 and it contains: a receiving-delivery form; two evaluation sheets; one instructions booklet; one theoretical handbook; one suitcase instructions booklet; two cd-roms; one earth model; one volcano model; one tsunami simulator; one folder with case studies; an fourteen Educational activities. These activities are:

Activities' Content	
1	One (1) Board "Natural Phenomena" , Five (5) Cards Natural Phenomena ,Ten (10) Cards Natural Disasters, Two (2) Label Cads of Natural Phenomena
2	Two (2) Earthquake drawings, Two (2) Volcano drawings
3	One (1) Earthquake drawing, One (1) Volcano drawing
4	One (1) Triptych "The structure of the earth"
5	One (1) Instruction Sheet, One (1) World Map, One (1) Tectonic Plates Map, One (1) Earthquakes and Volcanoes Map, One (1) Seismic Zones Map
6	One (1) Triptych "Myths for earthquakes and volcanoes", Five (5) Myth Cards
7	One (1) Sheet "Scaling effects", Five (5) Cards
8	One (1) Sheet "Truths and Lies", Fourteen (14) Cards Useful items
9	One (1) Board "What to do" , Eighteen (18) Instruction Cards
10	One (1) Board Table "The cracks of the quake" , One (1) Instructions mini Book, Two (2) Notebooks "Earthquake's three main principles" , Thirty-nine (39) Letter Cards, Six (6) Pawns, One (1) Dice, Six (6) Pencils
11	One (1) Sheet "Emergency Escape Plan"

12	Two (2) Boards “How do you feel about earthquakes?”
13	Experiential activity (see Instructions Textbook)
14	Experiential activity (see Instructions Textbook)

The suitcase was prepared in English language and then it was translated and realized in all partners languages. Each partner had to realize at least one suitcase and use under the implementation phase. According to the Grand Agreement, NHMC realized the suitcases for the Greek partners, as well as the one English language, in total five, including a spare one for the NHMC exhibition.

As an outcome of the implementation of the Educational Project all over Greece, a need to have realized more than the initial planned kits, became apparent. Due the cheap tenders the project received in Greece, it was possible to develop four additional Kits (without the 3-d models however) for the four provincial Regional Education Offices of Crete, which were officially delivered to the Director of Regional Educational Office Mr Klinakis.

In addition, based on voluntary work, an additional museum kit was delivered by NHMC addressed to children of preschool age and early school age (5-7 years old). This kit was based on the main Educational project, but analyzed deeper and in a more simple language some basic scientific concepts. This kit was produced only in Greek and includes:

Pre-school age Museum kit (in Greek)
One (1) Receiving-Delivery form
One (1) Suitcase Instructions book
One (1) Theoretical Handbook
Two (2) CD Rom
One (1) 3D Earth model
One (1) 3D Volcano model
One (1) Earthquake simulator
One (1) box with game cards (4 set)
One (1) floor-board game
One (1) Guidelines to Cope Children Emotions.

NHMC made possible to realise five such kits and provide the Regional Educational Office of Crete with one for each of the four Provincial Educational offices.

The complete material of the Educational project, in all developed language is hosted at project's website (<http://racce.nhmc.uoc.gr/en/downloads/mou/msk.html>) and is being used by many schools already.



Presentation of Educational Activities at project's web page

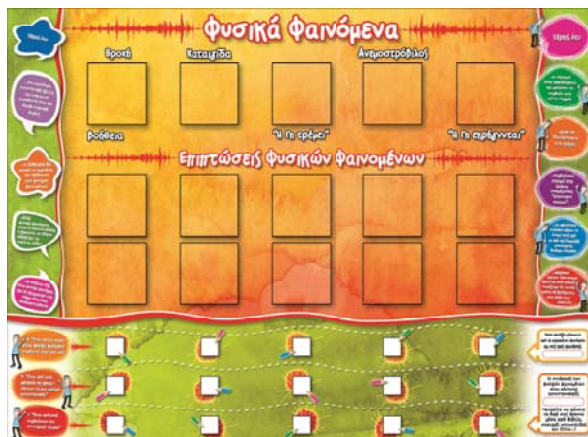


Table to mobilize children interest on Natural Phenomena and Disasters at Activity 1



Part of the board game of Activity 10



Greek RACCE Museum Kit



The Pre-school age kit



The Italian kit



The French Kit



The Bulgarian Kit



The kit's EQ simulators

5.5 Travelling Exhibition

Travelling exhibition was developed in the form of twenty roll-up poster of 200cms high and 80cms in width. The posters were first developed in English language and then were translated and realized in all partners languages. Each poster covers a special scientific and conceptual topic like:

- 🚩 Poster 1 "RACCE project"
- 🚩 Poster 2 "Natural Phenomena - Disasters"
- 🚩 Poster 3 "Earthquakes in past civilizations"
- 🚩 Poster 4 "Plate tectonics, earthquakes and volcanoes"
- 🚩 Poster 5 "Earthquakes, Waves and effects"
- 🚩 Poster 6 "Seismicity in Mediterranean"
- 🚩 Poster 7 "National Policy for Earthquake Risk Reduction in Greece (Italy, France)"
- 🚩 Poster 8 "Volcanoes and eruptions"
- 🚩 Poster 9 "Volcanoes of Mediterranean"
- 🚩 Poster 10 "Volcanic hazards"
- 🚩 Poster 11 "Recent volcanism in Greece (Italy)"
- 🚩 Poster 12 "Monitoring of Earthquake and Volcanic Hazards"
- 🚩 Poster 13 "Known Earthquakes and Volcanic eruptions in Europe"
- 🚩 Poster 14 "Tsunamis"
- 🚩 Poster 15 "Preparing our family in case of an earthquake"
- 🚩 Poster 16 "Preparing our class in case of earthquake"
- 🚩 Poster 17 "Preparing ourselves in case of volcanic eruption"
- 🚩 Poster 18 "Social - economic effects of Earthquake and Volcanic disasters "
- 🚩 Poster 19 "Psychological burden in Children"
- 🚩 Poster 20 "Supporting Children in case of a disaster"



Some of the posters are referring to the situation of each participating country and thus have additionally modified to cover these needs. Each partner, even EPPO that was not originally scheduled, realized the exhibition. All designed posters are also hosted in very good resolution for printing at the webpage:

(<http://racce.nhmc.uoc.gr/en/downloads/posters/posters.html>)



Travelling Exhibition at Rethimno, Crete



Travelling Exhibition at Athens Final Meeting



The temporary exhibition at NHMC



Presentation of travelling exhibition at school in Naples



Exhibition at the streets of Sofia



The exhibition during training at the EXPO at Digne Les Bains

Some partners managed to save money and to enrich further to the scheduled this exhibition with interactive elements or activities. NHMC realized a second temporary exhibition at its halls that it is enriched by an educational seismometer, a big tsunami simulator tank, a sensor to produce visitors quakes and an interactive presentation of previous earthquake and volcanic eruption display, whereas Reserve GHP developed a livrophone, a talking e-book for blind people.

The NHMC seismograph is one – component, digital recorder connected with a screen displacing in real time global earthquakes. It is also inscribed in the international networks of “Seismographs at schools – IRIS” and at the “UK school seismology Network” uploading continuously seismological data to the school and seismological community. The station can be accessed at: <http://www.iris.edu/hq/ssn/schools/view/nhmc>. The exhibition is also accompanied by leaflets that have been produced by most partners.

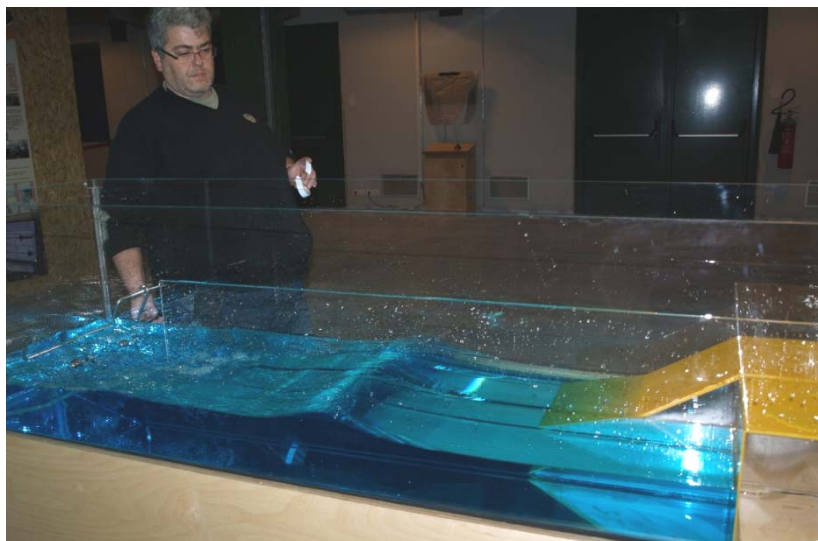
The travelling exhibition has been used by all partners during project duration, and further after, for various needs and occasions like the implementation and training activities, civil protection meetings, school activities and public events. A detailed list can be found at the Training and Dissemination lists.



Livrophone – the talking e-book for blind people developed by Reserve GHP



Educational Seismograph of NHMC



The tsunami simulator at NHMC

5.6 Informative Awareness project

The informative awareness project was induced in project's timetable after the first Grand Agreement amendment. This project was based on the earthquake simulators that NHMC and Lesvos PF museum host.

The project is composed of powerpoint presentations, in Greek and English languages, that accompany real earthquakes at the simulators. It offers all necessary information on earthquakes and related phenomena, as well as on the suggested behavior and preparedness measures before, during and after the earthquake. Implementation of project initiated on December 2011 and is ongoing on both museums. Due to a Dinosaur exhibition that was also hosted for seven months at NHMC the project was attended by more than 80.000 visitors. In Lesvos 6734 pupils from 353 schools participated in the awareness project implementation, whereas 13.138 adults also participated. The project's presentations were uploaded to RACCE webpage and are to be found at: (<http://racce.nhmc.uoc.gr/en/downloads/ekpai/videos.html>).



Implementation of Informative Awareness project at NHMC earthquake simulator

5.7 Pilot implementation of educational projects

Implementation phase was scheduled to take place during the whole second year of project duration, in order to test and evaluate educational products and train the various target groups on these results. This phase however delayed several months due to the long preparation and realization of educational project. Pilot implementation of educational products was actually delivered from autumn 2012 till the February 2013. Partners designed and implemented activities in collaboration with schools and other educational centers or organisations to test and evaluate the educational project and the various deliverables.

A detailed list of these activities occurs at the Training List provided. The educational project was initially tested at NHMC with collaboration of the 1st School for disabled Children of Rethimno, the 11th and 25th kinder schools of Chania, the 20th and 39th Primary schools of Heraklion. The final products, after translated in all partners' languages were also tested in collaboration with schools. This activity was the most crucial to test, evaluate and improve the educational products, before their final presentation to target groups.



Presentation at 20th Primary school of Heraklion



Collaboration with 39th Primary School of Heraklion



Pilot implementation at Reserve GHP



Implementation at national Polytechnic museum of Sofia



Results from pilot implementation at 11th and 26th Kinder Schools of Chania, Crete



Pilot implementation during an open air youth festival at Agios Nickolaos, Crete



Pilot implementation in Lesvos PF



Pilot implementation at Rethimno school for disabled children, Crete

5.8 Training activities

Various training activities have been undertaken from all partners of RACEE project. These were addressed to various target groups such as schools, teachers, parents, civil protection operators and much more. More than **8500 children and adults** have been trained during this activity, without considering those who have attended the Informative Awareness project (~100.000) that is being implemented at earthquake simulators of NHMC and Lesvos PF museums. A full list of training activities can be found at the attached list.

It was a very important activity and through it the various outcomes of RACCE were communicated and used by the most concerned and engaged people, educators and volunteers were trained on how to use project's products, while contacts and collaborations were established.



Training for teachers at Chania, Crete



Training for Hellenic Rescue Team at NHMC



The training seminar for teachers at NHMC



The training seminar for teachers at NHMC



The training seminar for teachers at NHMC



Training for High school at NHMC



EPPO training for school directors at Heraklion, Crete



Training of preschool age teachers by EPPO in Athens



Training at Lesvos PF



Training at Bresovo school, Bulgaria



Training at INGV



Pupil's training activity by Reserve GHP

5.9 National workshops

In each participating country national workshops were organized to communicate RACCE deliverables and activities to National Authorities, Organizations and Civil Protection operators. These meetings were organized:

- In Greece, at NHMC on the 24/11/2012 with the participation of EPPO representatives and in collaboration with the Regional Education Office, Regional Civil Protection Dep.,
- In Italy, at the facilities of Villa Montesca on the 18/2/2013 with the collaboration of INGV and NHMC,
- In Bulgaria, at Sofia on 12/9/2012 with collaboration of National Polytechnic Museum and Education Inspectorates of Sofia and Pernic, and
- In France, in Digne Les Bains on the 12/2/2013 in collaboration with the Ministry of Education.



National workshop at NHMC, Heraklion, Greece



Bulgarian National Workshop



Invitation for the Italian National Workshop



French National workshop



RACCE final meeting in Athens



Athens Final Meeting Invitation

5.10 Project website

Project's web page is the main tool for the dissemination of RACCE outcomes. It is being hosted at the University of Crete for free, enabling its long-lasting life, its protection against any outer threat and better dissemination.

The site has been developed in five languages, namely English, Greek, Italian, France and Bulgarian hosting all information, outcomes and developed activities of RACCE, in all languages realized.

It can be approached at: <http://racce.nhmc.uoc.gr/>



Webpage is also supported by a Facebook page that hosts news, activities, as well as any topic related to RACCE: <http://www.facebook.com/RACCEforkids>



5.11 Project leaflets

During project implementation several leaflets have been produced. The main leaflet is the Project's leaflet that has been developed by NHMC and was produced by all partners in thousands of copies and in all project languages.



In addition NHMC has developed a leaflet to disseminate the travelling exhibition that is hosted at its exhibition halls, as well as an extra leaflet summarize the Guidelines to cope with Children emotions.

All project leaflets can be downloaded from:

<http://racce.nhmc.uoc.gr/en/xrh/usefullfiles.html>



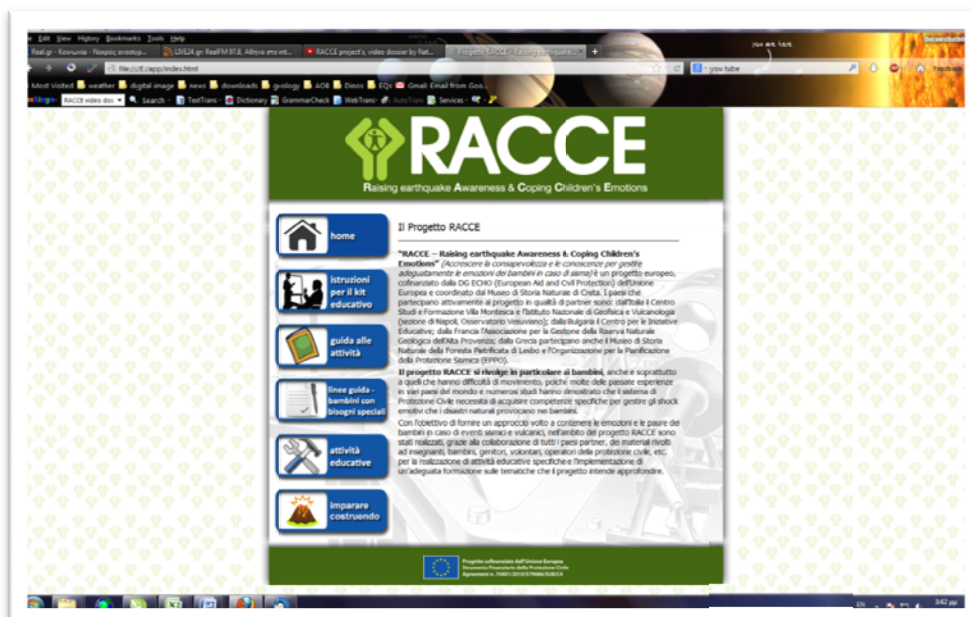
5.12 Video dossier

Video dossier is a professional documentary of RACCE training activities and deliverables. NHMC and Villa Montesca have developed according projects' deliverables two such videos.

The main, produced by NHMC lasts 25 minutes and presents project's philosophy and goals, all participants' involvement and main activities and deliverables undertaken. The video has been reproduced in 200 copies for dissemination purposes and is being uploaded, through YouTube, at project's webpage: <http://www.youtube.com/watch?v=ODW2FtIXLOA>



The Italian video dossier works as a browser application that provides information on project's activities, and deliverables in pdf and in Italian language. It has been shared during Italian National workshop and other training activities.

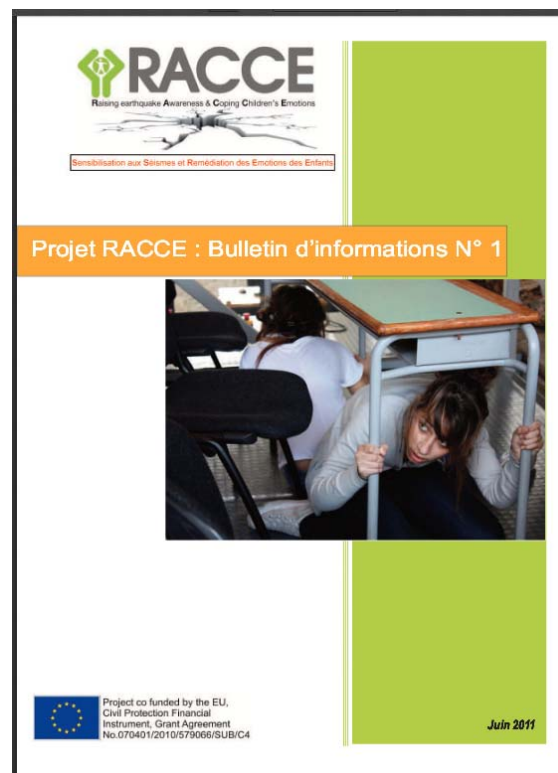


5.13 Newsletters

Four Newsletters have been produced under RACCE project presenting the various activities of RACCE as well as the progress recorded at any given time. The first was realized on June 2011, the second on October 2011, the third on February 2012 and the fourth on January 2013. All newsletters were produced in English, while the first one in French and Italian too.

All partners had developed a dissemination list that was receiving all news about project as well as the Newsletters. The newsletters are also stored at project's website at:

<http://racce.nhmc.uoc.gr/en/downloads/new/httpbo-raccedeveduocgrfilesitems8843tabcmsmodulesections.html>



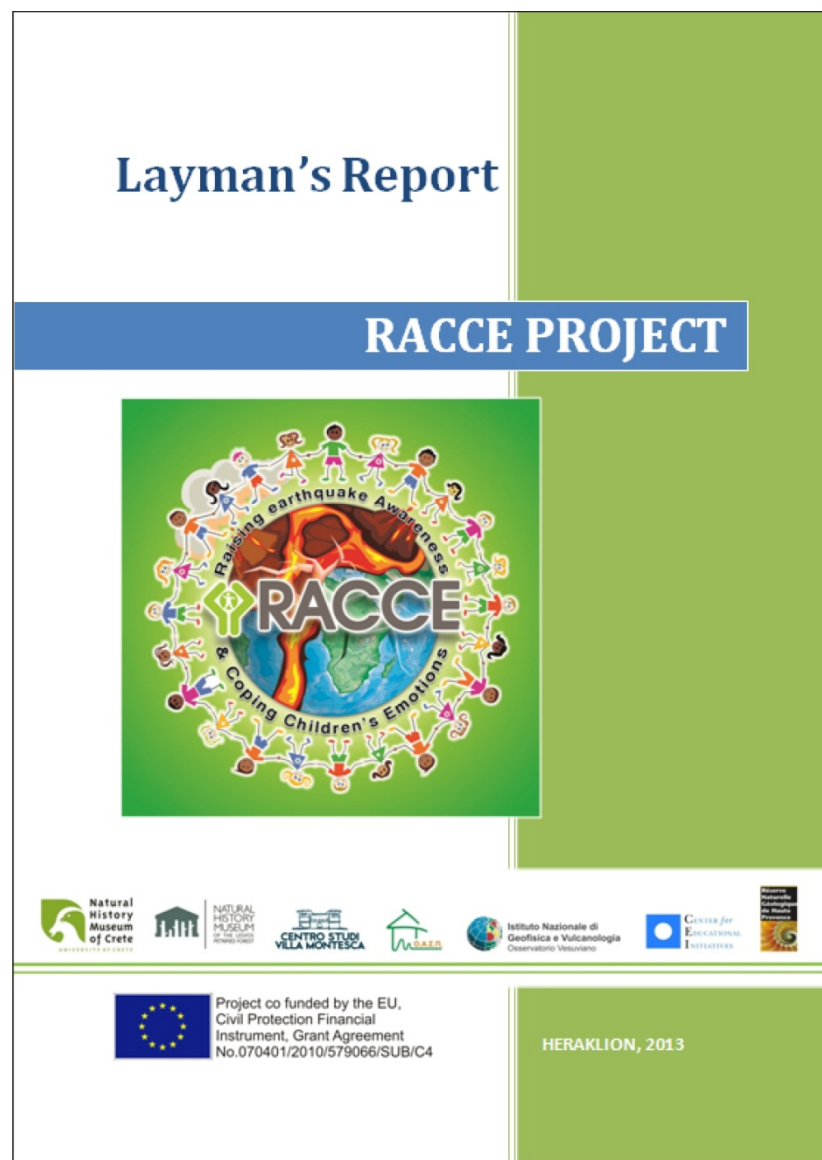
The fifth newsletter is actually the Layman's Report that has been produced and also disseminated on the same way.

5.14 Layman's report

Layman's report has been prepared comprising information on project partners, goals and targets of the project, actions implemented and main deliverables. It was prepared in English language and has been published in project's webpage

(<http://racce.nhmc.uoc.gr/en/downloads/new/httpbo-raccedeveduocgrfilesitems8843tabcmsmodulesections.html>).

The report is being used as a summary of project implementation and results and has been sent electronically to the mailing lists that all partners have recorded.



6. Evaluation of the technical results and deliverables

During the large number of training and implementation activities, project staff came in close collaboration with many educators, teachers, civil protection professionals, children, civil protection volunteers and other citizens, who expressed their enthusiasm and appreciation on the delivered actions and products. Projects' activities were also presented under various occasions, like the International days for Disaster Reduction, International Congresses (see Dissemination List), as well as activities under International organizations like UNESCO.



Presentation of RACCE traveling exhibition at UNESCO by Reserve GHP



Presentation of RACCE at UNESCO headquarters



Dr N. Zouros presenting RACCE at 5th International Congress of Geoparks in Japan



RACCE at the 4th Civil Protection Forum

RACCE was also invited to participate at the 4th Civil Protection Forum organized by E.C. in Brussels on the 15th and 16th of May 2013, as well as has been invited to the Japan International Academic Congress that will take place in October 2013.

The Regional Education Office of Crete, various educational offices in Athens, as well as many schools across Greece and Italy, have expressed their interest to use the educational projects and the Travelling exhibition, with some of them already been benefited from their

use. Evaluation sheets we have received, as well other comments, appeared very positive especially for the high quality of graphics, contents, innovation and tools, putting the necessity to reproduce educational project in more kits that originally planned. Similarly, internal evaluation process attested the quality and achievement of all goals and standards set up initially.

For all these reasons NHMC has managed to save money and reproduce four more Educational kits for the regional education offices of Crete, and develop an extra kit in five pieces, for the needs of the pre-school and early primary school ages, that have been offered to the Regional Education office of Crete too.

A long list of activities for the forthcoming school year (2013-2014) have already been prepared to disseminate and present RACCE deliverables and train teachers, schools and individuals.

All these testify that RACCE deliverables not only have fully covered initial goals and standards, but in many cases extended their effectiveness and application, as well as their implementation to as many beneficiaries as possible. Pilot implementation actions, internal evaluation process and collaboration with educational experts offered the opportunity to make necessary improvements and modifications of deliverables where it was necessary.

The general comments we have received so far lead to a very important ascertainment that applies to the whole extent of Civil Protection operation: ***Although we have improved and developed high technology products to serve civil protection, still necessary and basic issues like simple knowledge transfer and training are missing in many countries and procedures throughout Europe.*** The example of the kid who managed to save his family life at Sumatra tsunami because was able to realize danger from the retreated sea, is very characteristic!

7. Follow-up

The project had foreseen as a core action the creation of a platform to establish local networks of volunteers, teachers and actors of civil protection that can use the tools and the outcomes and to contribute, at local or broader level, in case of a seismic or volcanic emergency. This was supposed to be achieved through the various implementation and training activities.

Furthermore, the continuation of website existence was supposed to promote the dialogue between risk management and educational actors at local, national and European level and to support the activities of nationally established networks of stakeholders and voluntary groups.

The full exploitation of RACCE deliverables was also considered to be achieved through the various museums, info- and educational centers that the partners of project host, which would continuously use the educational products.

Project implementation and the various activities undertaken indicate that all these provisions have been fully achieved. Training activities, workshops and dissemination events that all partners have organized during project implementation, singled out the educational and exhibition materials revealing their importance and necessity for the educational process. Most workshops and national events were co-organised in collaboration with National or Regional Education offices.

Implementation and training activities have engaged civil protection volunteers that constitute in local level the core groups to act as multipliers and to establish local networks of experienced operators on coping with children emotions.

Continuous dissemination of project deliverables will be assured through the operation of the project's website that is hosted for free at the servers of the University of Crete. Furthermore, this also secures a large data capacity that enabled the uploading of all RACCE products, in high resolution and normal sizes, as well as in all project languages, so that remote visitors can download and use for free.

All partners have contributed to the maximum sharing of information and deliverables of project, through the participation in National and International meetings and congresses. Several scientific articles and abstracts have been produced already that promote project to the scientific community as well. The participation of partners in open and public meetings and events assisted further dissemination needs. As has already been discussed, after its finalization, RACCE was presented at a special event organized during Global Geoparks Meeting at UNESCO headquarters that was addressed to Ambassadors, National delegations and organization's staff. In addition, RACCE will be presented during the European Geoparks International Congress that will be held in Italy in next September, and has been also invited at the International Academic Congress of Japan in next October.

The travelling exhibition has been proved a very useful tool to share information during various educational and public events. As every partner has realized the exhibition, and some, like the NHMC and the Reserve GHP, have also developed temporary exhibitions and complementary tools, visitors of the museums and info centers will take benefit from the developed products for much long.

The training activities have not been ceased after project finalization but have continued till now, with the organization at NHMC of training seminars to teachers on the proposed in the educational project, constructions, with implementation of the educational project in various schools and with the use of the travelling exhibition for various events. In collaboration with regional education authorities in several areas (like in Crete, Lesvos, and Bulgaria) training seminars for teachers for the presentation of Educational project and implementation of activities have already been organized for next autumn to support implementation of educational project in schools. The realization of four additional museum kits for pre-school age and four for older ages to be used by the Regional Education offices of Crete, will offer the opportunity to much more schools, at least in Crete, to take benefit from the produced material.

Finally, strategic collaborations have been established with the European Network of Geoparks consisting of 54 up to now members all over Europe, the UNESCO's Civil Protection office, as well as organizations and institutions that have been informed for RACCE during the various international activities, in order to develop synergistic activities, identify possibilities for further collaboration and use of project's deliverables, and to develop further training and dissemination activities.

8. Acknowledgment

During project implementation a great number of scientists, experts, partners' staff and external contributors have worked with great enthusiasm and willing to develop and realize on the highest quality the various RACCE outcomes and deliverables. Taking the risk to possibly forget somebody, these were:

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RACCE partnership at the Kick off meeting in Lesvos Petrified Forest Museum, Greece