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KnowRISK

Know your city, Reduce seISmic risK through non-structural elements

Prevention and preparedness projects in civil protection and marine pollution. Prevention Priorities

Deliverable Report

Deliverable E2 – Participatory risk communication action "KnowRISK, be safe"

Task E – Tools and strategies of risk communication and learning

Deliverable/Task Leader: IST & LNEC/ INGV

March 2018

Project co-funded by the European Commission – Civil Protection Financial Instrument		
Dissemination Level		
PU	Public	x
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Preface

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1. DESCRIPTION OF THE DELIVERABLE

1.1 INTRODUCTION

The purpose of this task is to reach and inform the communities and relevant stakeholders about non-structural vulnerability as well to improve individual's capacity to adopt protective behaviours.

All materials developed under this project such as RiskMAP's (Action B.3), the Practical Guide (Action E.1), the Portfolio of Actions (Action C.4), and the "Move, Protect and Secure" video aware campaign, which are available on the KnowRISK website portal, were used in actions and initiatives with communities.

This task comprises actions in the three countries participating in the project.

1.2 ACTIONS IN PORTUGAL

1.2.1. Community engagement

Films captured during the shake table tests are being used in these workshops, classes, seminars, talks and other educational opportunities before the KnowRISK official film (Action C.4).

These actions started with classes planned for students in Action E.3 which will go beyond students and will include their parents and a final exhibition, in April 27, 2017, that can be shared with the whole school community, being an important input to this Action E.2.

Talks involving experts and local community were organized in several places. In the Olivais parish talks as well as street actions took place in order to show RiskMAP's contents, the Practical Guide, raise risk knowledge and to help communities reduce that risk.

The following actions took place.

Talks: The talks cover several audiences and are organized by the City Council or by Lisbon parishes. The first talk occurred on January 2016 to celebrate the 260th anniversary of the 1755 earthquake and took place at Palácio Pimenta - Museu da Cidade in Lisbon. Nearly three dozen people attended this thematic debate (Figure 1).

The second took place at the 2 November 2016 at "Forum Fazer a Política", a regular forum for political debate organized by members of the Social Democratic Party (part of the coalition government between 2011 and 2015). The third Talk "Lisboa Sísmica. Estamos seguros?" took place in 15 November 2016 and was organized by Concelhia de Lisboa do CDS (Partido do Centro Democrático Social, which was part of the coalition government between 2011 and 2015). Nearly four dozen people attended this session. These 3 talks focussed primarily on the italian seismic crisis of August and October 2016, as well as in preventive policies to reduce seismic risks, including measures by means of non-structural elements.

On 24 March 2017 a Talk dedicated to the topic "seismic risk and civil protection plans" was organized by Olivais parish (Figure 2). Nearly two dozen people attended this session.

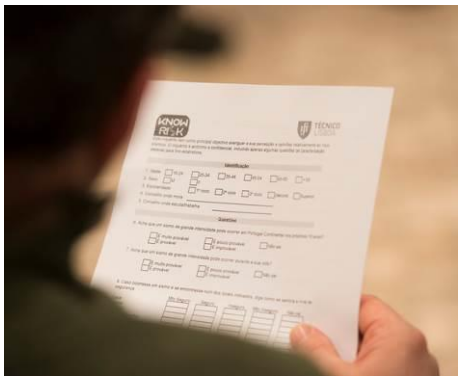
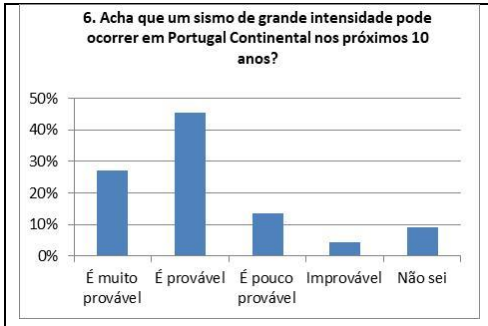


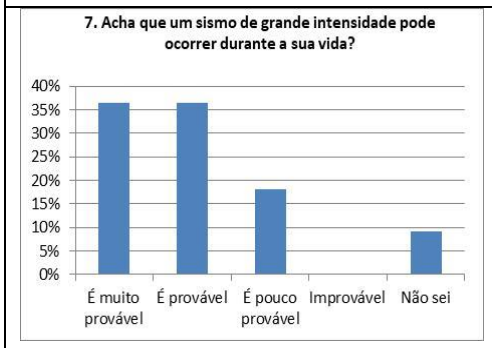
Figure 1: Talks | Comunicação de Risco. Quando Lisboa Treme – de 1755 à Cidade Resiliente. Organization: Lisbon City Council

Figure 2: Talks | Conversas de café: a proteção civil nos Olivais e o risco sísmico. Organization: Olivais parish

For the public, a simple enquire with 25 questions was tested in three different occasions: 1 - Museu da Cidade, Lisbon in 11 February 2016; 22 responses. 2 - Congresso Sísmica 2016, organized in 20 to 22 April 2016, in Ponta Delgada, Azores; 51 responses. 3 – Workshop in the City Council of Ferreira do Zêzere in 10 March 2018; 26 responses. The people that answered this enquire in the first two occasions were from the Group of experts in Seismology/Earthquake Engineering. The group in the third occasion were essencially from Civil Protection people belonging to a region of low seismicity. Results from these enquires are presented below for the most interesting questions.

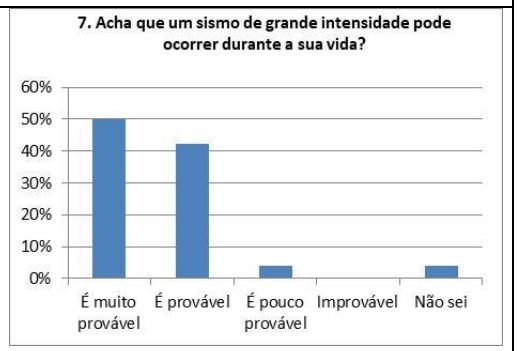
Results: Museu da Cidade (22 enquires)





Results: Sísmica2016 (51 enquiries)

Results: Ferreira Zêzere2018 (26 enquiries)




9. Sabe se a sua casa se encontra localizada numa zona de risco sísmico?
80%
70%
60%
50%
40%
30%
20%
10%
0%
Sim
Não
Não sei


9. Sabe se a sua casa se encontra localizada numa zona de risco sísmico?
100%
80%
60%
40%
20%
0%
Sim
Não
Não sei

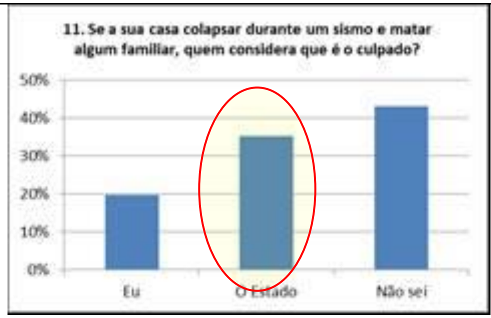

9. Sabe se a sua casa se encontra localizada numa zona de risco sísmico?
50%
40%
30%
20%
10%
0%
Sim
Não
Não sei

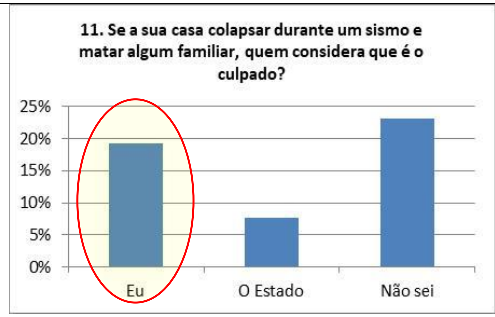

10. Receia que a sua casa fique danificada com um sismo?
100%
80%
60%
40%
20%
0%
Sim
Não
Não sei


10. Receia que a sua casa fique danificada com um sismo?
100%
80%
60%
40%
20%
0%
Sim
Não
Não sei

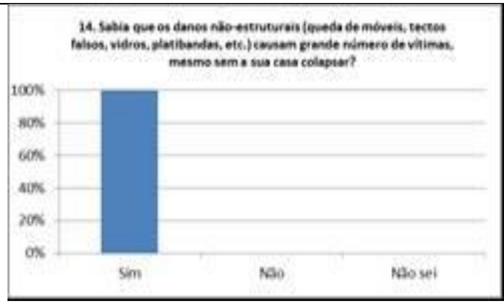

10. Receia que a sua casa fique danificada com um sismo?
100%
80%
60%
40%
20%
0%
Sim
Não
Não sei


11. Se a sua casa colapsar durante um sismo e matar algum familiar, quem considera que é o culpado?
100%
80%
60%
40%
20%
0%
Eu
O Estado
Não sei


11. Se a sua casa colapsar durante um sismo e matar algum familiar, quem considera que é o culpado?
50%
40%
30%
20%
10%
0%
Eu
O Estado
Não sei

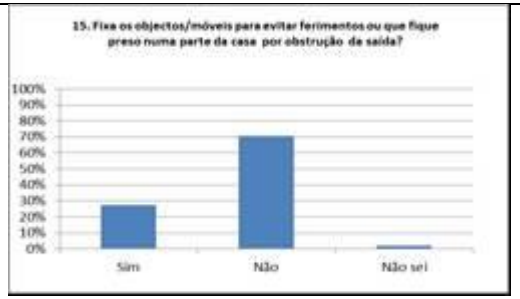

11. Se a sua casa colapsar durante um sismo e matar algum familiar, quem considera que é o culpado?
25%
20%
15%
10%
5%
0%
Eu
O Estado
Não sei

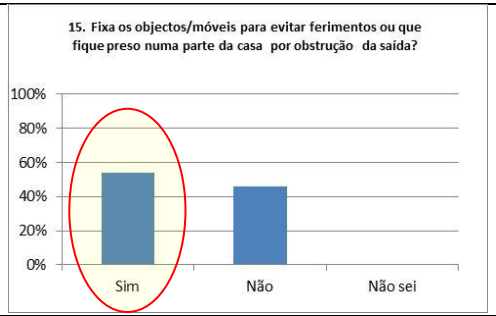

14. Sabia que os danos não-estruturais (queda de móveis, tectos falsos, vidros, platibandas, etc.) causam grande número de vítimas, mesmo sem a sua casa colapsar?
100%
80%
60%
40%
20%
0%
Sim
Não
Não sei


14. Sabia que os danos não-estruturais (queda de móveis, tectos falsos, vidros, platibandas, etc.) causam grande número de vítimas, mesmo sem a sua casa colapsar?
100%
80%
60%
40%
20%
0%
Sim
Não
Não sei

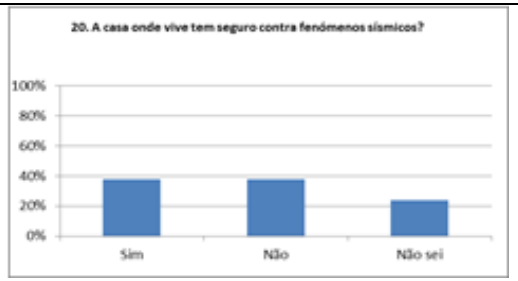

14. Sabia que os danos não-estruturais (queda de móveis, tectos falsos, vidros, platibandas, etc.) causam grande número de vítimas, mesmo sem a sua casa colapsar?
100%
80%
60%
40%
20%
0%
Sim
Não
Não sei

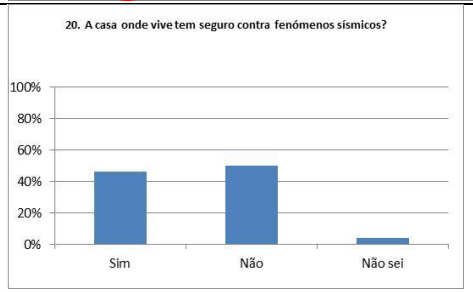

15. Fixa os objectos/móveis para evitar ferimentos ou que fique preso numa parte da casa por obstrução
100%
80%
60%
40%
20%
0%
Sim
Não
Não sei

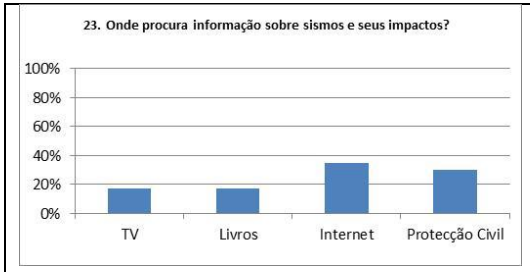

15. Fixa os objectos/móveis para evitar ferimentos ou que fique preso numa parte da casa por obstrução da saída?
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Sim
Não
Não sei


15. Fixa os objectos/móveis para evitar ferimentos ou que fique preso numa parte da casa por obstrução da saída?
100%
80%
60%
40%
20%
0%
Sim
Não
Não sei

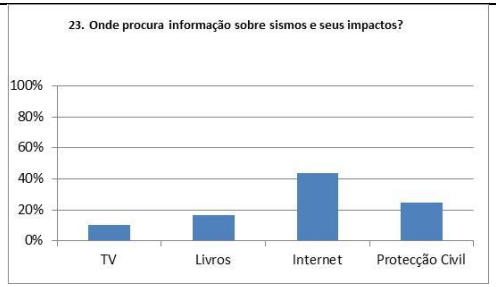

20. A casa onde vive tem seguro contra fenómenos sísmicos?
100%
80%
60%
40%
20%
0%
Sim
Não
Não sei

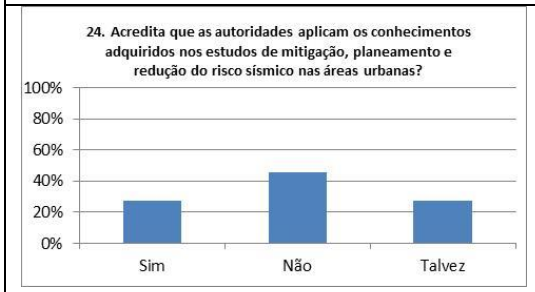

20. A casa onde vive tem seguro contra fenómenos sísmicos?
100%
80%
60%
40%
20%
0%
Sim
Não
Não sei


20. A casa onde vive tem seguro contra fenómenos sísmicos?
100%
80%
60%
40%
20%
0%
Sim
Não
Não sei

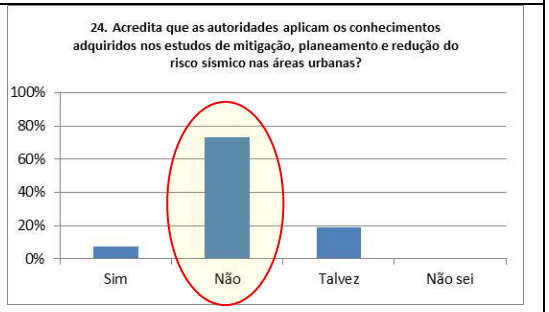

23. Onde procura informação sobre sismos e seus impactos?
100%
80%
60%
40%
20%
0%
TV
Livros
Internet
Protecção Civil


23. Onde procura informação sobre sismos e seus impactos?
100%
80%
60%
40%
20%
0%
TV
Livros
Internet
Protecção Civil


23. Onde procura informação sobre sismos e seus impactos?
100%
80%
60%
40%
20%
0%
TV
Livros
Internet
Protecção Civil


24. Acredita que as autoridades aplicam os conhecimentos adquiridos nos estudos de mitigação, planeamento e redução do risco sísmico nas áreas urbanas?
100%
80%
60%
40%
20%
0%
Sim
Não
Talvez


24. Acredita que as autoridades aplicam os conhecimentos adquiridos nos estudos de mitigação, planeamento e redução do risco sísmico nas áreas urbanas?
100%
80%
60%
40%
20%
0%
Sim
Não
Talvez
Não sei


24. Acredita que as autoridades aplicam os conhecimentos adquiridos nos estudos de mitigação, planeamento e redução do risco sísmico nas áreas urbanas?
100%
80%
60%
40%
20%
0%
Sim
Não
Talvez
Não sei

An analysis of these results will be done in the future, by comparing with outcomes of student enquires. Here, only the different answers were highlighted.

In the sequence of the first two interventions, other enquires were tested until the development of the Common Questionaire (Deliverable D3) which was finalized with about 50 questions. The following Table summarises all sets of enquires and the target population.

Name Organization	**Target population**	**# Questions**	**Date**	**#enquires**	**Observations**
Museu da Cidade	Seism/Eng +Civil Protection	25	Fev2016	22	Zone of moderate seismicity
Sísmica 2016	Seism/Eng	25	April2016	51	High seismicity
Faial Azores	Interested Friends	25	May2016	15	High seismicity
8thGrade School	Students	25	May2016	27	Moderate seismicity
11thGrade School	Students	47	Feb2017	51	Moderate seismicity
Professors University	Engineering	52	Feb2017	4	Moderate seismicity
2ndYear Civil Protection	Students	52	March2017	5	Moderate seismicity
Engineering	Professionals	52	March2017	23	Moderate seismicity
Personel Civil Protection	Professionals	25	March2018	26	Zone of low seismicity
TOTAL				**224**	

Workshops: Shopkeepers need basic knowledge in earthquake risk reduction to protect their lives and prevent loss and interruption of their activities. The KnowRISK team interacted with shopkeepers from Olivais markets, identified the main problems that can occur during an earthquake and presented protective measures to avoid or reduce earthquake damage in their shops (Figure 3).

Figure 3: Workshop: Loja + sustentável.Organization: Olivais parish

Public events: The KnowRISK project was invited to participate in the Festival Sons do Vale Sustentabilis (8-11 September 2016) organized by Olivais parish and in the European Researchers' Night 2017. Public events aim to bring researchers closer to the general public and to increase awareness of research and innovation activities.

Local communities / parish councils:

Several contacts were established during these two years project with the local communities as the parish councils have an important role in the dissemination of information and we encourage the involvement of residents and risk communication. The development of partnerships and networks through local government directly with the community, is a good way to transfer risk communication to the public, to prevent them from experiencing harms and impacts of natural disasters, facilitating networking, mutual learning and cooperation within the community.

Actions such as distributing leaflets through letterbox, publishing related information in local newspapers or using parishes' social media platforms can reach thousands of citizens who are actively searching for information, and in this way, we do not only educate children, but also the community.

Junta de Freguesia de Alvalade

In February 2018, 30,000 Practical Guide were distributed through resident's letterbox and parish citizen services. Information about the KnowRISK project and the Move, Protect and Secure video campaign were on the parish's website and facebook (Figure 4).

Figure 4: Alvalade website and facebook (http://www.jf-alvalade.pt/junta-de-alvalade-parceira-de-projeto-pela-reducao-dos-riscos-sismicos/)

The following Table summarizes the impact of the Practical Guide distribution in Lisbon.

Parish councils	Practical Guide distribution to population	Observations
Junta de Freguesia de Alvalade	30,000	Meeting with the President. Presentation of the Practical Guide and "Move, Protect and Secure" vídeo campaign

Junta de Freguesia do Areeiro	20,000 (http://www.jf-areeiro.pt/files/files/AF_Areeiro%20Primeiro%20%2306bx.pdf)	Meeting with the President. Presentation of the Practical Guide and "Move, Protect and Secure" vídeo campaign
Junta de Freguesia do Lumiar	20,000	Meeting with the President. Presentation of the Practical Guide and "Move, Protect and Secure" vídeo campaign
Junta de Freguesia do Beato	12,000	Meeting with the President. Presentation of the Practical Guide and "Move, Protect and Secure" vídeo campaign
Junta de Freguesia Avenidas Novas	21,000	Meeting with the President. Presentation of the Practical Guide and "Move, Protect and Secure" vídeo campaign
Junta de Frguesia de São Domingos de Benfica	30.00	Meeting with the President. Presentation of the Practical Guide and "Move, Protect and Secure" vídeo campaign

Junta de Freguesia dos Olivais

Two initiatives (coffee talk) with the population took place. A public event in Vale do Silêncio was held (Sept 2016).

Courses: A two-day specialized course was designed to meet the needs of engineers, architects and other professionals in the field of Earthquake Engineering. One hour was dedicated to damage due to non-structural elements and earthquake impacts. This course took place in FUNDEC's facilities in DECivil of Instituto Superior Técnico (March 9-10, 2017).

Conferences: Preventive measures to reduce seismic risk was the topic by KnowRISK team in the Seminar "Jornadas pela Segurança", organized by Santa Casa da Misericórdia de Lisboa. Topics related with the importance of non-structural risk mitigation, how to protect cultural heritage, and the Post-Earthquake field mission to Amatrice and Norcia were presented and discussed to an audience of 50 people.

1.2.2. Final Remarks

The campaign for the population at large made in Portugal is still going on and the KnowRISK actions are being adopted by a significant number of associations, municipalities and parishes which essentially have spread the Practical Guide to letterboxes in their administrative territory. They support costs of printing and of door-to-door distribution. It means that awareness is passing to society. It is very encouraging that at the final part of KnowRISK Project, a large number of citizens are becoming aware of the problems we face in relation to the topic of earthquake risk. This important response by the population was prompted by the occurrence of a small magnitude earthquake which was slightly felt in populated areas and by the attention given by the media. This behavioural change is also a consequence of the large forest fire season that killed, for the first time in Portugal, more than 100 people in 2017.

Unfortunately, it was not possible to get a measure of the increase of awareness of the population at large. Only marginaly we can make indirect estimations based on the amount of the emails and contact calls received by the KnowRISK Team, and the growing attention given by the Counties and Parishes in the Metropolitan Area of Lisbon.

1.2.3. Integrated Marketing Campaign

"The purpose of (risk) communication is to assist people to obtain the information they need to make informed choices about the possible risk they face" (Wade, C R, Molony, S T, Durbin, M E, Klein S H, and Wahl L E, (1992)).

Earthquakes are an example of a risk that most non-experts would see as unlikely to have an impact on their lives. However earthquakes are one of most costly natural disasters in the world.

People usually underestimate risks because they would rather believe they are safe, free to live their lives without the responsibility of feeling vulnerable and obliged to make difficult or unpopular decisions that would affect their lifestyle (O'Neill, P, 1994).

Research suggests that when people feel threatened when confronted with health and safety messages, they become defensive and believe that it won't affect them.

What approach should we take in encouraging safety preparation for disasters?

In Lisbon contacts have been established with one school of Arts, Technology and Creativity ("Restart") to develop a risk communication action an integrated marketing communication campaign.

The goal of proposals for the campaign were to raise awareness in earthquake protection of non-structural elements to the public, decision makers, stakeholders, typically whom have much less experience with earthquakes compared to other disasters, as large earthquakes in Portugal are relatively rare.

During two months, two groups of students developed two campaigns (Figure 4 and 5): "Know Risk" and "It's time to fix", both structured to be employed in outdoor, print, digital and social. In these campaigns, the community is seen as an active participant in its own safety, rather than a passive recipient of services, altering the traditional top-down, 'command and control' relationship with the community.

By integrating tools such as advertising or social media, you provide clarity, consistency and maximum communications impact. By repeating the headlines, key phrases and images in each communication, you ensure that people receive consistent messages each time they see one of the elements of the campaign. Figures 4 and 5 show the two campaigns creative ideas and the challenge of how to built an awareness campaign.

"Know Risk" Campaign:

Video: Would you like to play?

Outdoor: Hang by thread

Does not fall because is hanged by a thread

Press: This detachable kit has the form of a shelf but is a pack with the necessary parts to fix furniture.

Public transports: What is the relationship between an earthquake and a Bus? Both shake! Do not take risks, secure your furniture.

Figure 5: Know Risk campaign

"It's time to fix" Campaign:

Launch the rumor, in social networks, that the painting "Adoração dos Magos" by Domingos Sequeira fell and was damaged.

Issue an official communiqué from the Museu Nacional de Arte Antiga in Lisbon confirming the fall of the painting as a result of an earthquake. In the same statement, call a press conference to detail and clarify the situation.

The fall of Sequeira's painting will generate news in the main national media. Social networks will comment on the news. A natural effect is expected of viral contagion that this type of news causes.

Figure 6: It's time to fix campaign

It's time to fix campaign created Kits with tape fasteners (Fig. 6) to be distributed in seismic risk cities, also proposed a campaign in the public buildings to be properly protected (with non-structural protective solutions) to serve as example to the citizen.

Figure 7: Fix today to avoid damage and victims tomorrow is the challenge we launched.

Take home this fixing kit and learn more at knowriskproject.com

1.3 ACTIONS IN ITALY

In Italy actions undertaken to inform and involve the public into risk communication run from interventions in the mode of Public Understanding of Science to a truely engagement of citizens. Some of the actions are planned to be undertaken once the Practical Guide will be ready for assessment and dissemination.

1.3.1. Community engagement: Public Understanding of Science

Community engagement passes also through Public Understanding of Science that is attempting to trigger awareness the public through the raise in Knowledge. KnowRISK team members were invided lecturers at courses for teachers, academia members and speakers at conferences for general public and high schools students.

Courses: experts from the KnowRISK team have been invited lecturer at courses on seismic risk communication for schools. Two courses were organized: one for teachers "how to teach earthquakes at school" (http://www.provincia.bz.it/intendenza-scolastica/sistema-scuola/elenco-iniziative-2016-2017.asp?kurs_id=22871) at the Natural History Museum in Bolzano (February 24th, 2017) and another for academics (PhD students or young researchers) "Geoscience for schools: how to communicate" in Castiglion del Lago at the School of Science Communication (March 31st, 2017). (http://www.sciencecommunicationschool.org/) (27 March 2017 – 1 April 2017).

Conferences: in the Northern Italy pilot area experts from the KnowRISK team were invited to give talks on Knoweledge of Earthquakes and the need to prevent non-structural damage at the European Researchers Night (September 30th, 2016, http://www.museoscienza.org/attivita/meetmetonight/meetmetonight2016.asp) and at Bergamo Science Festival (October 8th, 2016, https://www.bergamoscienza.it/ENG/Homepage.aspx). They have been invited to give talks in high schools: at the Licemu Colossali and at the Liceum Sacro Monte (Varese).

Festivals: In La Spezia KnowRISK participated to TutelaSpezia, on October 1-2 2016, a festival of civil protection and best practice that engaged public, scientists, policy makers and schools, with a conference (http://www.speziafiere.it/index.php?option=com_content&view=article&id=386:tutela spezia&catid=22:calendario-completo-2016&Itemid=72)

Open doors: In Catania ScienzAperta, the INGV open doors event, is devoted to students, families, and general public. In the May 16-21 2016 edition we presented the first prototype of the KnowRISK exhibit with Augmented Reality. The total number of persons who visited the exhibit was about 600. The exhibit made them aware of the potential danger of heavy furnishings above their bed or close to doors, causing injure or hindering escape in case of fall.

1.3.2. Community engagement: The Ferrara case study

In the Northwrn Italy pilot area the Ferrara city was chosen to implement Public Engagement actions with citizens that had suffered damage from a recent earthquake. The Emilia earthquake hit the town in 2012, when the memory of past events had been lost over the decades and centuries, and the need to make the citizens active in preventing the damages of possible further earthquakes suddenly became pressing.

We took three levels of actions:

- The organization of Playdecide events in order to **engage the general public** and the school goers on the topic of earthquake communication and risk prevention

- Focus group with citizens to implement participated strategies for risk communication (described in D2 and being on-going analysed)

- Round table with citizens to assess the effectivenes of the KnowRISK Practical Guide (to be done)

1.3.2.1 *Playdecide*

A session of the Playdecide was played in Ferrara the last October 2106 within the Settimana del Pianeta Terra (the week of Planet Earth, http://www.settimanaterra.org/), a geoscience outreach event that every year incudes activities (lectures, round tables, hands-on activities, field trips) spread all over the county.

Playdecide (http://www.playdecide.eu/) is a serious game, 1:15 hours long, where players act as citizens and stakeholders taking different points of view. Carachters are: a young man living in the historic centre, a disabled woman, a teacher, a social worker, a mayor, a civil protection officer, a geologist and a communicator. Participants are engaged to discuss issues revolving around the complexity of the communication in seismic emergency; along the game, they have to exchange their characters' opinions, needs and conclusions. After a discussion phase, supported by "info-cards" and "issuecards", players are requested to vote among four different solutions, offered in the game's kit.

Although meant for undertanding how difficult is communication in emergency, this role game is an engamement tool to trigger discussions about several issues related to earthquakes. Experts from the KnowRISK team members lead the discussion towards non-structural elements: definition, relevance and action towards damage reduction (Figure 8).

Figure 8: Playdecide session in Ferrara the last October 2106

1.3.2.2 *Focus group with citizens*

In 2013, one year after the Emilia earthquake, among the other initiatives, the Municipality of Ferrara, with the support of Master Scientific Journalism and institutional communication of science and the participation of the Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), the Ferrarese Naturalists Society, and the Waseda University of Tokyo, organized a series of participative events to involve the citizens of the city centre: Laboratories on the prevention of the seismic damage (The Laboratories now on), financed by the Emilia Romagna Region. Major outputs achieved through this initiative were: a series of shared practices to mitigate the non-structural risk, summarized in a leaftlet of "10 good practices to make our home safer"; a serious game to involve schools goers and citizens, namely the Playdecide "Earthquakes, when and how to communicate an emergency"; a participative proposal, a formal document by the City Council to officially declare the need to develop strong communication and social cohesion actions by the public administration.

For the KnowRISK project we run two focus groups (Figure 8) to engage citizens in non-structural risk reduction and understand barriers to prevention. Group 1 had a previous involvement in

discussions on seismic risk after the 2012 Emilia earthquake and took part to The Laboratories, with a focus on the medieval part of the town. Group 2 had no previous involvement in discussions on seismic risk; however, living in the historical downtown, group 2 experienced damage from the 2012 Emilia earthquake in a specific setting.

Figure 9: Focus Group participants discussing the leaftlet of "10 good practices to make our home safer"

During the Focus Groups main discussion revolved around the following issues:

- the seismic damage (Figure 8)
- the prevention of the non-structural damage
- how to communicate the prevention: good practices
- how to make these good practices more popular?

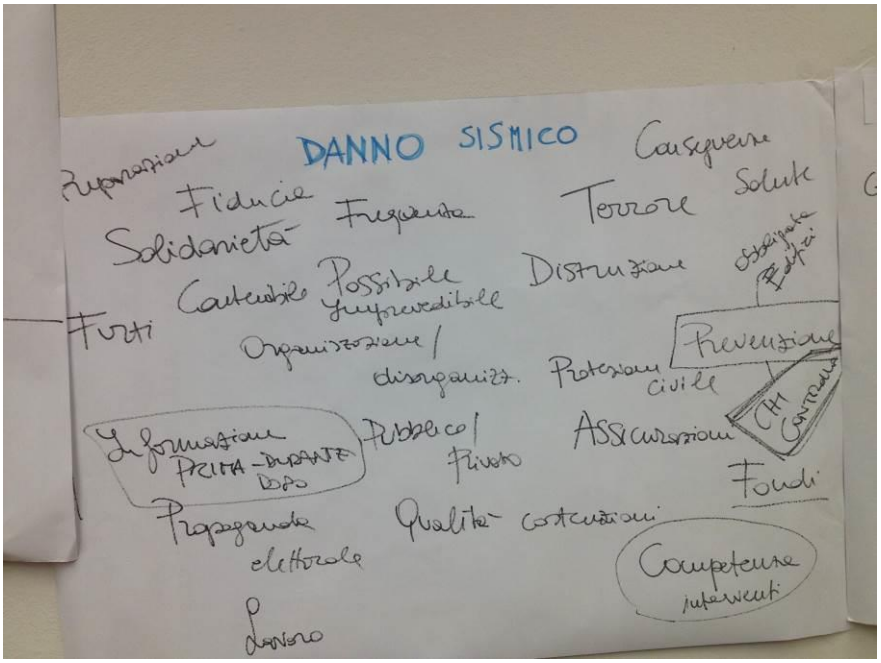


Figure 10: The moderator writes "seismic damage" on the flipchart and asks participants to write. Here is a translation of some of the text written by the participants: disordanization, robbery, information (before and after), quality of construction

Table 1 shows the most representative quotations stated during the two focus groups. Results show that prevention measures and their effective communication are dependent on two main factors: one, wider, based on the societal dimension and one, more specific, based on communication techniques. On the first, prevention can be successful only if citizens participate and, therefore, if social cohesion measures are put in place. On the second, an effective communication has to be based on a mix of traditional and innovative techniques, such as leaflets and new technological tools (Reitano et al., 2017). Participants of the focus groups ask for periodical events and trainings, specifically tailoring information delivered by leaflets, apps and websites to local communities.

Category	Most representative quotations

Memories from the earthquake	My daughter didn't wake up… I went downstairs. All the neighbours were on the street… objects, cornices fell. Once back [from the Laboratories], I told myself: what if an earthquake happens now? I know I have to wait for the end of the shake and then try to go downstairs and reach the street. However, being so close to the building, a cornice can fall on me. What to do? There are squares a bit bigger and I thought I could try to reach them… I discovered that the urban setting is very important.
Non-structural damage	When I think about an earthquake, I do not think about the damage from non-structural elements. I think that if the house doesn't crash, then I will be safe. I know that if a shelf falls down I can be in danger. Still, talking with many people after the, we were all relieved not to see cracks on the walls. The prevention stops there.
The role of the experts	Moderator - Let's start from this claim from our leaflet: "first of all, it is necessary to know our own house; the land where it has been built; the architrave under which to find a shelter; if the electrical, gas, and water systems are safe". Let's also be realistic: is that feasible? Participant - experts have to do it, not us.
Prevention, motivating factors: the better motivation is the social cohesion	They said that that neighbours have to find an agreement and help each other [in spreading information and in practice exercises] After the Laboratories, I involved also the other people leaving in the building. We live in an ancient building, from the fifteenth century. We all met and checked the roof. I think it is something good to do: to keep a relationship with the neighbours. This is not a joke.
Communicating the best practices – mix and repeat	Undeniable: to repeat what we have to do to protect ourselves is helpful. Newspapers and websites published guidelines for the damage prevention. However, if something as the 29th May [earthquake] happens, I do not honestly know where I have to protect myself… to find the external stairs… under the table… right… we need to have adequate information. And periodical! Administrators of buildings, technicians in charge of the buildings' maintenance: they should also be involved in the communication of the seismic prevention. They should be mediators of preventive measures. We, as citizens, should involve the people we know, and then somebody has to monitor what happens. Regular training at the building and neighbourhood level. Today they are obligatory in schools, public offices, big companies, but not in built up areas and blocks; this kind of events are worth "thousands of folders".

1.3.2.3 *Roundtables with citizens*

In October 5th 2017 KnowRISK organized together with the Master in Journalism and Instuttional Communication of Science a roundtable with citizens and selectade stakeholders that had participated to the Focus Groups. Local civil protection officiers, the communcation officer of the Municipality and other citizen's linving in the downtown discussed related on How to prevent and communicate seismic risk. The KnowRISK Practical Guide and the Short Students Guide were presented and very well accepted by participants who offered toprint and distribute their own copies.

Figure 11: The Ferrara roundtable with selected stakeholders and citiziens living in the downtown.

1.4 ACTIONS IN ICELAND

1.4.1. Risk communication during Open University Day "Háskoladaguriin"

University of Iceland organizes an open house every year. This year, it was held on 4 March 2017. Potential students, their parents, and general public visit the university on this to look at the teaching and research activities within the university. We used the opportunity to engage the visitors in discussion about non-structural risk reduction. A special exhibition room in one of the university buildings was assigned for this purpose. The schedule of activities were planned weeks ahead of the event and advertised in local media and websites of the university. The program of the day consisted of

- Showing video of shaking table tests of full-scale room model performed in Lisbon.

- Discussion with visitors about the observations of the video, and what could be done to reduce undesirable movement of objects in the room.

- Showing video of shaking table tests with anchored furniture, and subsequent discussion with visitors about the protection measures for anchoring the furniture, the time and tentative cost required and their effectiveness.

- A short lecture on different protection measures to prevent non-structural damage, and how to act during earthquakes.

- Demonstration of other scenarios of movement of objects inside houses using scaled model (see Figure 10).

Figure 12: Visitors observing the shaking of different household contents on a scaled model mounted on a shaking table (middle), and a view of toppled scaled furniture in one of the rooms (bottom)

The program was repeated 12 times for a group of 20 visitors each time. A sample of the visitors were selected and asked to complete the KnowRISK common questionnaire which was being finalized around that time.

Students of second and third year in civil and environmental engineering program were mobilized to interact with visitors and conduct various awareness raising activities. A special computer screen was set up outside the exbition hall (see Figure 11). The videos of shaking table tests carried out at LNEC, Lisbon were played on the screen, with different videos looping continuously. Civil engineering students which were trained beforehand about non-structural damage and risk attended the screen, and interacted with visitors (see Figure 11).

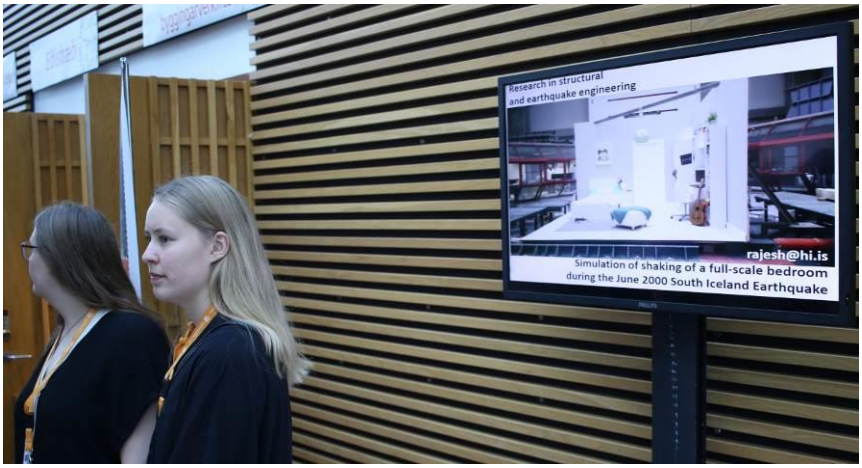


Figure 13: Civil engineering students attending the visitors on the exhibition of videos raising awareness about non-structural damage and risk and preventative actions

The students also distributed educational materials about seismic hazard, vulnerability and risk, and non-structural damage and protection measures to the visitors (see Figure 12). They also distributed the KnowRISK common questionnaire to the visitors and collected the answers. Although the survey was designed for school children, it was very encouraging to see visitors of all age willing and keen to answer the questionnaire. About 50 samples of questionnaires were collected during the day.

Figure 14: Civil engineering students welcoming the visitors to the exhibition, and distributing informative materials prepared during the KnowRISK project

To make the event even more interesting and participatory to the participating students and the visitors, a competition was organized on the later half of the day. The competition consisted of four groups of second year students of civil engineering. Each group designed a built a structural model with balsa wood (see Figure 12). The models were exhibited in the main hall of the university building, and attracted a lot of visitors. They were informed about the competition scheduled for later in the day. This resulted into a lot of visitors coming to the exhibition hall. Some examples of the models tested in the competition are shown in Figures 13-16. The models were subjected to increasing intensities of ground motion. The visitrs were informed of different structural configuration and their effectiveness against earthquakes, and that structural damage is much harder to control than non-structural damage. The exhibition room was full and there were a lot of people who could not get in. The administrators of the university were very impressed with the exhibition, and have proposed a larger and open hall for similar activities during the university day next year.

Figure 15: Balsa wood models made by students which were tested on a shaking table during a design competition

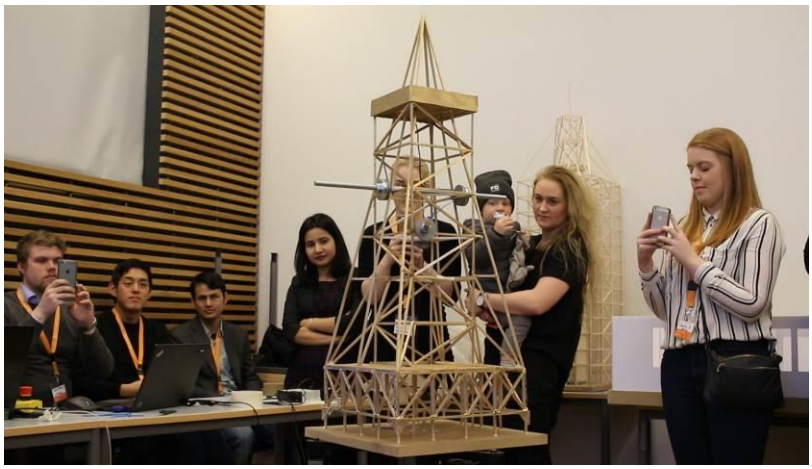


Figure 16: One of the balsa wood model being tested on the shake table

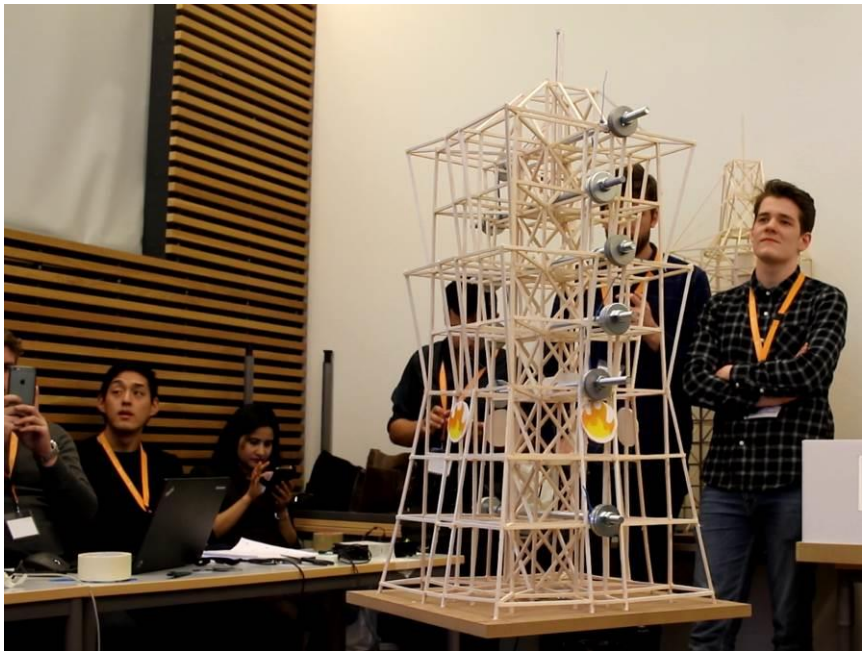


Figure 17: The second balsa wood model being tested on the shake

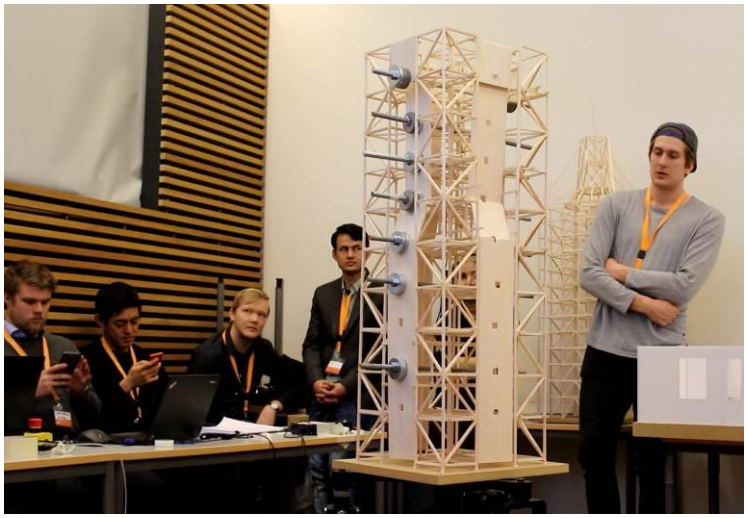


Figure 18: The third balsa wood model being tested on the shake table

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