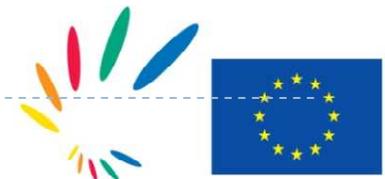




Monitoring and Evaluation in Greece

Mirandela seminar March 2012





Evaluation of mitigation measures taken by the Coordinating Bodies of the Regional Units

- The authorities which are involved in the mitigation process in a Regional Unit have meetings at least twice a year under the presidency of the Vice President of the Regional Unit. Representatives from the Civil Protection, the Fire Brigade, the Police, the Army, the Forestry, the Municipalities, Volunteer Organizations and authorities of ports or motorways participate in these meetings of the “Coordinating Body of the Regional Unit”.

-The two meetings take place in spring and autumn and the main topics of discussion are:

- i) specifying the details of the mitigation and action plans of the next period
- ii) report and evaluate the results achieved by the policies followed during the previous period.

-One of the main risks during the summer period is forest fires. The fire brigade and the forestry keep statistics about the number of the fires, the area burnt etc. These data are used as an instrument for evaluation, not only by the fire brigade for evaluating their own operational effectiveness but also by the Coordinating Body of the Regional Unit in order to take new mitigation measures or improve the existing ones.



Forest fires in Thesprotia 2000-2010

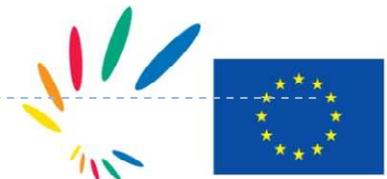
YEAR	NUMBER OF FIRES	BURNT AREA (in thousands square meters)		
		FOREST	GRASSLAND AGRICULTURE	TOTAL
2000	116	415.4	961.4	1376.8
2001	139	253.6	541	794.6
2002	89	95.1	113.9	209
2003	114	1476.4	195.2	1671.6
2004	84	117.4	689.9	807.3
2005	102	91.1	213.6	304.7
2006	61	91	162.9	253.9
2007	20	15.8	10.5	26.3
2008	109	1699.4	1134.1	2833.5
2009	139	274.4	298.3	572.7
2010	113	1489.8	245.1	1734.9





Mitigation measures based on statistics

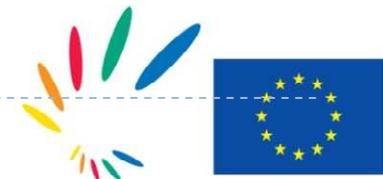
- The main cause of fires is human negligence, that is why emphasis is given on the awareness of people. Moreover, prohibitions have been put about burning agricultural residues or barbeque near forests during summer.
- Places where forest fires often occur are those which the fire brigade in cooperation with volunteer organizations is trying to have under observation.
- When it comes to evaluate the effectiveness of the mitigation measures taken during one summer we should never **just** compare the numbers of fires and burnt area to those of the previous summer.
- The evaluation which is based on statistics should take into consideration not only quantitative but also qualitative data like how dry the summer was, what was the strength of the winds, if there were casualties or people put in danger, if properties were burnt etc.





Example of a mitigation measure against forest fires (1)

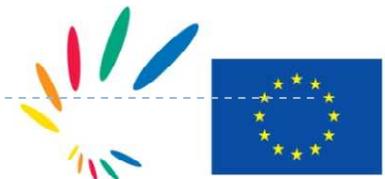
- Statistics do not refer just to the number of fires or to the burnt area but also to the place of an incident and to the time of the day it occurred. Some years ago in Thesprotia there were many fires in forests during the night.
- The reason was that some people were camping in the forest or sometimes organizing mini parties. The fires they set or even their cigarettes were causing the fires.
- The Prefecture (now R. Unit) decided to put prohibitions on the free passing or staying of people/ vehicles from specific areas of high risk during the night.
- The measure was evaluated as positive, since it decreased the danger of fire due to negligence during the night to the places it was applied. That kind of prohibitions are put every year.





Example of a mitigation measure against forest fires (2)

- In that example we have the cooperation of different public bodies. The Civil Protection and the Fire Brigade can propose the measure due to their experience and the data they have but finally the V. President of the R. Unit takes the decision because he has that right according to the law. His decision is obligatory for the citizens
- It is a responsibility of the Municipalities to make people aware of the decision.
- Those who actually implement the decision is the police and the fire brigade because they make sure that no citizen brakes the decision.
- The fire brigade and the forestry are those who monitor the data about forest fires and can use it as input for future decisions.





Evaluation process-general important points

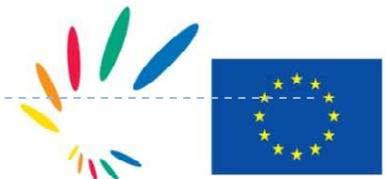
- Proposed methods for evaluating cooperation with mitigation partners:

- i) when the partners are public/private organizations through meetings
- ii) when the partners are citizens through questionnaires

- In the ideal case all the involved partners should agree from the beginning on the methodology which will be followed for the evaluation of the mitigation plan.

- Evaluation is a continuous process. For example the fire brigade evaluates each case of fire separately and not all of them at the end of summer. A problem when many partners are involved is that they can't have meetings very often. A possible solution: define stages of evaluation where each partner should do specific things.

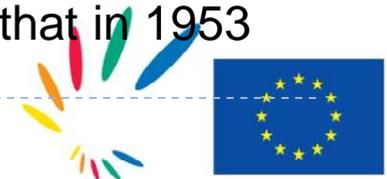
- Cases in which independent evaluators could be very useful are those where a mitigation policy is originally applied in small extend and will be scaled up in the future.





Earthquakes in Greece: the situation

- Seismic activity in Greece: the highest in Europe and the sixth highest globally.
- Earthquakes are frequent and there are many incidents yearly. However, most of them do not cause damages.
- Many of the earthquakes take place under the bottom of the sea in a distance from inhabited areas.
- The frequency of earthquakes makes it inevitable that some of them happen near inhabited places and are strong enough to potentially cause great damage and casualties.
- The earthquakes of 1978 in Thessaloniki, 1981 in Alkionides, 1986 in Kalamata, 1995 in Aigio and 1999 in Athens are examples of earthquakes that caused extensive damages and casualties.
- The greatest earthquake in Greece during the last decades was that in 1953 in Kefalonia: 7,2 degrees in Richter scale.



The earthquake in Kefalonia 1953



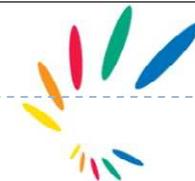
Photo: Zakynthos after the earthquake of 1953

-On the islands of Kefalonia, Zakynthos and Ithaki: 456 dead people, 2.412 injured people, 27.659 buildings collapsed when the total number of buildings on the three islands was about 33.000



The greatest earthquakes in Greece 1978-1999

Place	Date	Size	Casualties/Damages
Thessaloniki	20/6/1978	6,5R	45 casualties, 220 injured people, eight-floor building collapsed, 9.480 buildings that had to be demolished
Volos-Almiros	09/07/1980	6,5R	24 injured people, 5.222 buildings destroyed
Alkionides	24/2/1981	6,7R	20 casualties, 500 injured people, 22.554 buildings that couldn't be repaired
Kalamata	13/9/1986	6,0R	20 casualties, 80 people injured, 4 buildings collapsed, total destruction of the village Eleochori, 20% of the buildings in Kalamata had to be demolished
Kozani-Grevena	13/5/1995	6,6R	Extensive damages to buildings, while many buildings collapsed
Aigio	15/6/1995	6,1R	26 casualties, 2 buildings collapsed, extensive damages
Parnitha Athens	07/09/1999	5,9R	143 casualties, 400 injured people, 37 buildings collapsed, extensive damages



Aigio 1995



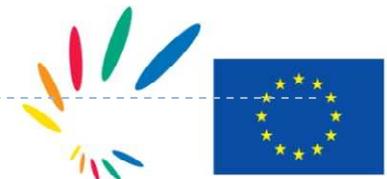




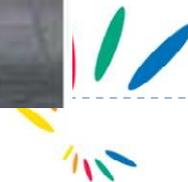


Mitigating earthquake risk

- The first antiseismic regulation was introduced in Greece in 1959 and was reformed in a large scale in 1985. That regulation defines how buildings should be built in order to provide safety from earthquakes.
- The civil engineer who is responsible for the construction of a building is legally responsible for the implementation of the regulation.
- In 1983 the Organization of Anti-Seismic Protection, under the Ministry of Infrastructure, was created. Goals of the organization are: i) setting the antiseismic policy of the country ii) coordinating public and private sector for the implementation of that policy.
- One of the basic aspects of the antiseismic policy followed in Greece is inspecting the condition of buildings. Originally this was made after an earthquake by engineers of the Regions, the Municipalities and OASP. The buildings were characterized as green (having no problem), yellow (need repair), red (can't be inhabited).



A building characterized as red after the earthquake of Athens in 1999





A methodology for monitoring the condition of buildings (1)

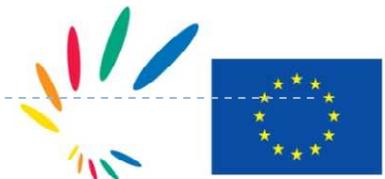
-The antiseismic regulation sets the frame for the antiseismic protection of the buildings, and the civil engineer is responsible for the implementation of that policy. However, collapse of buildings due to earthquakes after 1990 showed that this is not enough.

-Questions that should be answered:

i) What happens with buildings built before 1959 or even 1985?

ii) Can we wait for an earthquake to happen in order to inspect the buildings in an area? Is it possible an inspection before an earthquake to prevent human casualties?

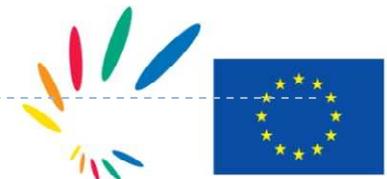
-The earthquakes in the 90's which had many casualties put pressure on the political decision makers and made OASP to set a plan for the constant monitoring of the condition of buildings of public interest. The main idea was the creation of a database with the condition of all the buildings of public interest in the country.





A methodology for monitoring the condition of buildings (2)

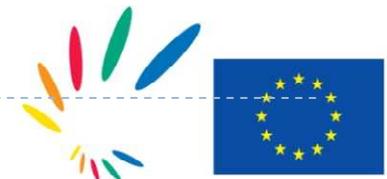
- The Regional Units and the Municipalities should create two member committees with engineers that perform inspections at all the buildings of public interest.
- The list of the buildings is strictly defined and the inspection must be made every year. The engineers should fill in a form for every building they inspect. The forms are sent to OASP that has an overall view of the condition of buildings of public interest across the county. The forms provide data that can be used in order to give an “indicator of seismic ability” for each building.
- OASP based on the data provided by engineers and to the maximum predicted size of earthquakes for each area (according to probability models), decides which buildings might not be safe and informs the services in charge. Then a second more detailed inspection takes place.
- The results of the second inspection will indicate the buildings to which improvements should be made in order to be safe in case of earthquakes or those that should not be used any more.





A methodology for monitoring the condition of buildings - comments

- The idea of collecting regularly data for the object of a mitigation policy and the creation of a system that gives a mark to the object, describing its condition, can be effective and can be applied to many cases like dikes, bottoms of rivers etc.
- Cooperation of different organizations is vital during the procedure described above, since OASP has not the ability to perform so many inspections using their own staff. From the other hand, it would be difficult for Municipalities or even Regions to develop a methodology like the one used by OASP.
- Communication between involved partners and extraction of conclusions are made easier due to the specific forms used in every inspection.
- The methodology creates a circle of inspection, risk assessment and mitigation measures proposed for every building.
- OASP has the overall view of the condition of buildings of public interest in Greece. In that way they can see if the situation is improving per year and use those data as input for the national mitigation planning against earthquakes





THANK YOU FOR YOUR ATTENTION

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