

Δράση του ΕΚΠΠΣ
Preseismic assessment of the traditional dwellings, vulnerability assessment and evacuation of the old town of Rhodes



**Απόδοση στα Αγγλικά του τεύχους
«Εγχειρίδιο Οδηγιών για
τον Σχεδιασμό και τη Διοργάνωση
Επιχειρησιακών Ασκήσεων
για Σεισμό»**



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Γεωλόγος

MSc Πρόληψης και Διαχείρισης Φυσικών Καταστροφών

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**MINISTRY OF INFRASTRUCTURE AND TRANSPORT
EARTHQUAKE PLANNING AND PROTECTION ORGANIZATION**

**Instruction Manual
for Planning and Implementing
Emergency Exercises
for Earthquake**

Exercise.....

ATHENS 2020

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Department of Emergency Plans – Prevention (OASP)
Department of Readiness – Assistance (OASP)
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CONTENTS

1. Introduction

2. Needs and Requirements Analysis

2.1. Seismicity of the area

2.2. Social Vulnerability

2.2.1. Prevention – Preparedness

a. Meeting of Coordination Bodies

b. Educational Actions

c. Volunteer Teams

2.2.2. Immediate Response - Short term Recovery

a. Meeting of Coordination Bodies in the aftershock period

b. Volunteer Teams

2.3. Vulnerability of the built Environment

2.4. Evaluation of previous Exercises

3. Basic Planning Steps for an Earthquake Exercise

3.1. Establishment of the Exercise Planning Team

3.2. Purpose - Objectives - Expected Results of the Exercise

3.3. Type of Exercise - Schedule

3.4. Participants - Involved

3.5. Roles and Responsibilities of the Exercise Participants

a. Trainees or players

b. Auditors

c. Evaluators

d. Observers

e. Official Guests

f. Actors

3.6. Communications

a. Communication between bodies

b. Communication coding

c. Communication between members of the same team

3.7. Implementation of the Exercise

3.8. Interruption - Postponement - Cancellation

3.9. Evaluation

4. Other Support Actions

4.1. Logistics

- 4.1.1. Secretarial support
- 4.1.2. Informing bodies, media and locals
- 4.1.3. Distribution of exercise material for information
- 4.1.4. Traffic modifications
- 4.1.5. Technical Support - Audiovisual – Video
- 4.1.6. Health Support
- 4.1.7. Accommodation – Food – Transportation

4.2. Informing the Public and Institutions

4.3. Staff Safety

5. Scenario

5.1. Phase 1 of the Scenario

- 5.1.1. Earthquake History / Announcement
- 5.1.2. Initial Condition Assessment
 - a. Impact
 - b. Information and actions recording

5.2. Phase 2 of the Scenario: Response and Short Rehabilitation Actions

- 5.2.1. Meeting of the Civil Protection Coordination Body and the Local Coordination Body
- 5.2.2. Damage Recording / Post-Earthquake Building Inspections
- 5.2.3. Damage Recording / Post-Earthquake Infrastructure Inspections
- 5.2.4. Troubleshooting / Seismic Network Tests
- 5.2.5. Detection of earthquake environmental effects
- 5.2.6. Search and Rescue Operations
- 5.2.7. Implementation of immediate protection measures in case of earthquake and pandemic
- 5.2.8. Need for immediate housing

5.2.9. Emergency supplies

5.2.10. Communications management

5.2.11. Citizens information

5.2.12. Educational actions

5.3. Writing Messages

5.4. Compilation of a List of Exercise Episodes

REFERENCES

ANNEXES

Annex A - Operational Exercise Program

ANNEX B - Exercise Scenario

ANNEX C - Exercise notification message

Note:

The "Manual of Guidelines for the Planning and Implementation of Operational Exercises for Earthquake" of the Earthquake Planning and Protection Organization has taken into account the instructions of the Organization for Seismic Hazard Assessment and Seismic Risk Management, as well as the "Guidelines for Planning and Implementation of Civil Protection Exercises" of the General Secretariat for Civil Protection (Prot. No. 532 / 23-01-2020).

The definitions contained in the Glossary and concerning Civil Protection issues are from the Law 4662/2020 (Government Gazette A '27/07.02.2020) "National Mechanism of Crises and Hazards Management, restructuring of the General Secretariat for Civil Protection, upgrade of the Civil Protection Volunteerism System, reorganization of the Fire Service and other provisions ".

GLOSSARY

Response: it includes actions, during or immediately after the disaster, to protect people's lives and health, to address their immediate living needs, and to provide relief and support for mitigating the effects of the disaster.

Short-term Relief: It includes actions after a disaster aimed at restoring or improving living conditions in the first hours and days after its occurrence.

Risk: Potential human, material or environmental losses in a specified period of time, which are the result of a combination of risks, vulnerabilities and inadequacy or appropriate measures to reduce the potential negative effects.

Emergency: It is the sudden and unpredictable threatening situation that requires immediate action to minimize its adverse effects.

Intensity: It is the measure of the macroseismic effects of an earthquake comprising its effects on human and structures.

Epicenter: It is the trace of the vertical projection of the focus on the earth surface.

Focus – Hypocenter: It is the place inside Earth where the rupture initiates.

Preparedness: It is the set of actions and measures taken in advance to ensure an effective response to disasters.

Disaster: It is defined as a major disruption to the functioning of a community or society associated with widespread human, material, economic, or environmental losses and implications that exceed the ability of the community or society to cope with its own resources.

Hazard: a potentially destructive event, phenomenon or human activity that can cause loss of life or injury, property damage, social and economic disruption or environmental degradation.

Magnitude: It is defined as the measure of energy released from the hypocenter of an earthquake during the seismic shock and is denoted by the letter M.

Prevention: It is the set of actions and measures that aim at the absolute avoidance of the potential effects of hazards and at the minimization of the impact of disasters induced by natural, technological and other hazards

Vulnerability: A term that refers to the characteristics and conditions of a community, a system or an infrastructure determined by physical, social, economic and environmental factors or processes that make them vulnerable to the impact of a dangerous phenomenon.

1. Introduction

Earthquake is a natural phenomenon that often affects our country. Effective seismic risk management is a matter of first priority for the State and therefore for all bodies.

It is now generally accepted that the basic aim of modern societies is, through prevention actions (regulations, recording networks, information, etc.) and preparedness (education, emergency planning, preparedness exercises, etc.), to mitigate the effects of earthquakes and to have an effective immediate response to the affected area and rapid recovery (Fig. 1). In this context, the necessity of planning, implementation and evaluation of earthquake exercises is obvious, in order to improve the operational readiness of the involved bodies.

This handbook is intended to support Civil Protection staff in organizing earthquake exercises by providing practical and concise guidelines on the subject.

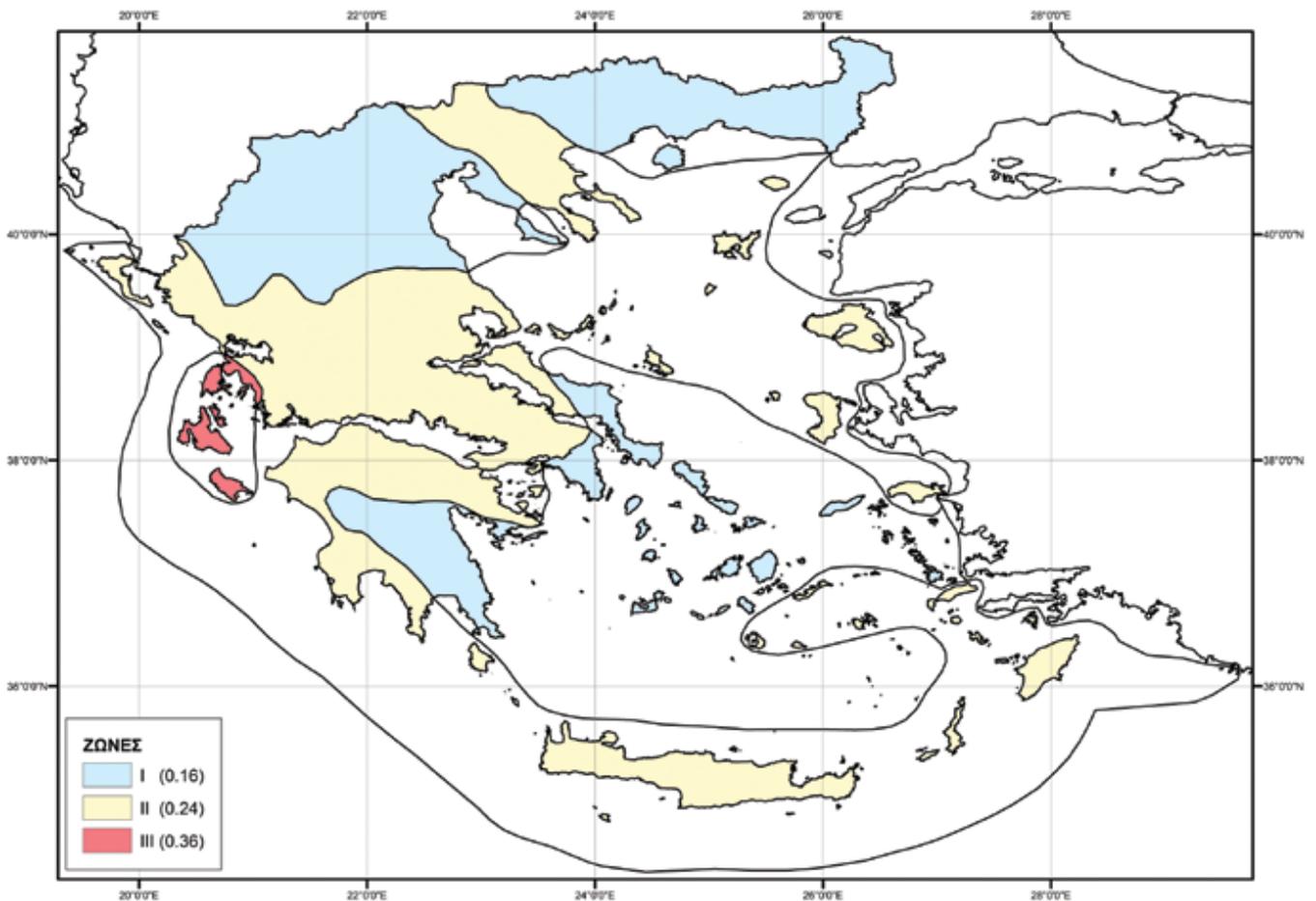


Fig. 1. Seismic Risk Map of Greece (OASP, 2003)

2. Needs and Requirements Analysis

A focused and detailed analysis can help to investigate, analyze, delimit and document the requirements of the stakeholders, the local community and those related to their preparation, in order to effectively manage each case of earthquake emergency and induced hazards.

Based on the above, the design and implementation of each earthquake exercise should take into account the identification and analysis of needs, through the study of the parameters described in the following sections.

2.1. Seismicity of the area

Greece ranks first in terms of seismicity in Europe and sixth in the world. The intense seismicity of Greece is mainly due to the convergence of the African plate with the Eurasian plate (Fig. 2), as well as the influence of the North Anatolian fault that terminates in the North Aegean through (OASP, 2010).



Fig. 2. The Hellenic Arc (Papanikolaou, 1998).



Fig. 3. The stations of the Hellenic Unified Seismological Network.

In Greece, the Strong Motion Network and the Hellenic Unified Seismic Network operate on a 24-hour basis (<http://www.gein.noa.gr/en/>). 120 of the 185 digital accelerometers of the Strong Motion Network belong to the Earthquake Planning and Protection Organization (http://www.itsak.gr/page/infrastructures/networks/acc_network). Figures 3 and 4 show all the stations of both networks.

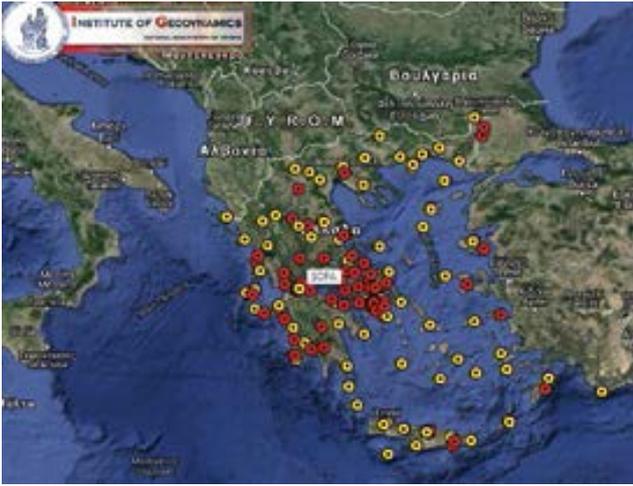


Fig. 4. Greek Strong Motion Network: a. Geodynamic Institute, b. OASP (ITSAK research team)

Regarding the seismicity of the area, the following can be mentioned:

a. The most powerful and / or destructive earthquakes can be found in the “Greece and Earthquakes” section of the OASP website https://www.oasp.gr/greece_earthquakes (Fig. 5). The following can be mentioned in the seismicity of the specific area:

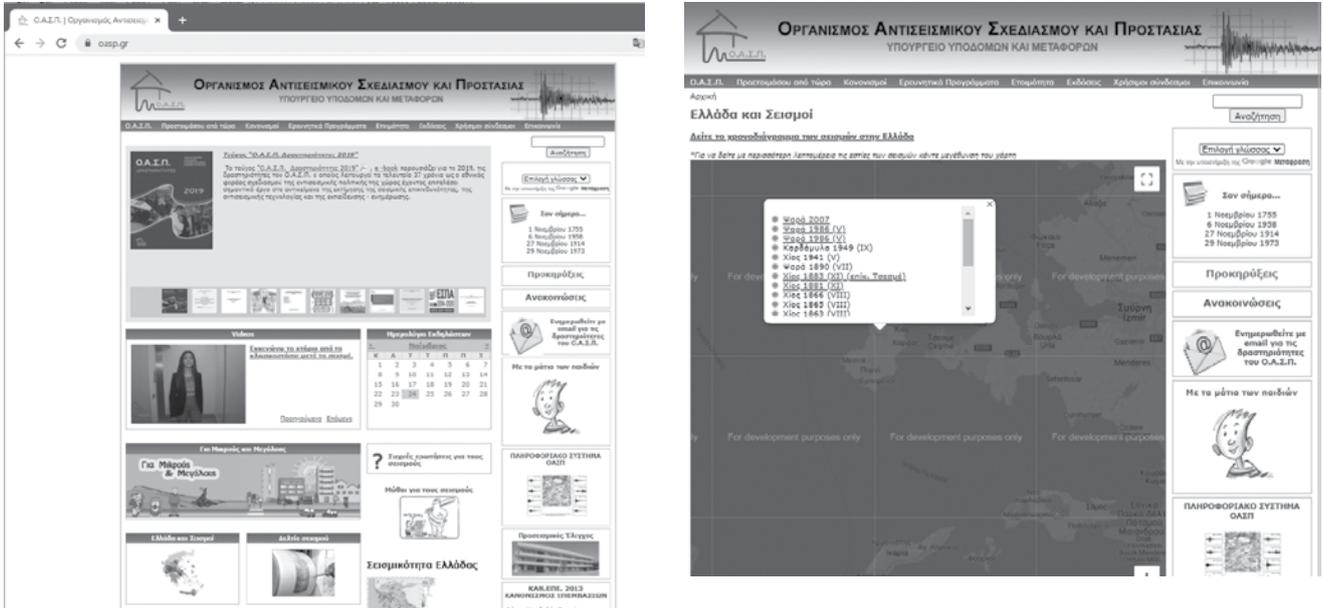


Fig. 5. Section «Greece and Earthquakes»

b. Earthquakes with a magnitude greater than 4.0 that have hit this area in the last 20 years, can be found in the "Earthquake Bulletin" section of the OASP website https://www.oasp.gr/earthquakes_map (Fig. 6).

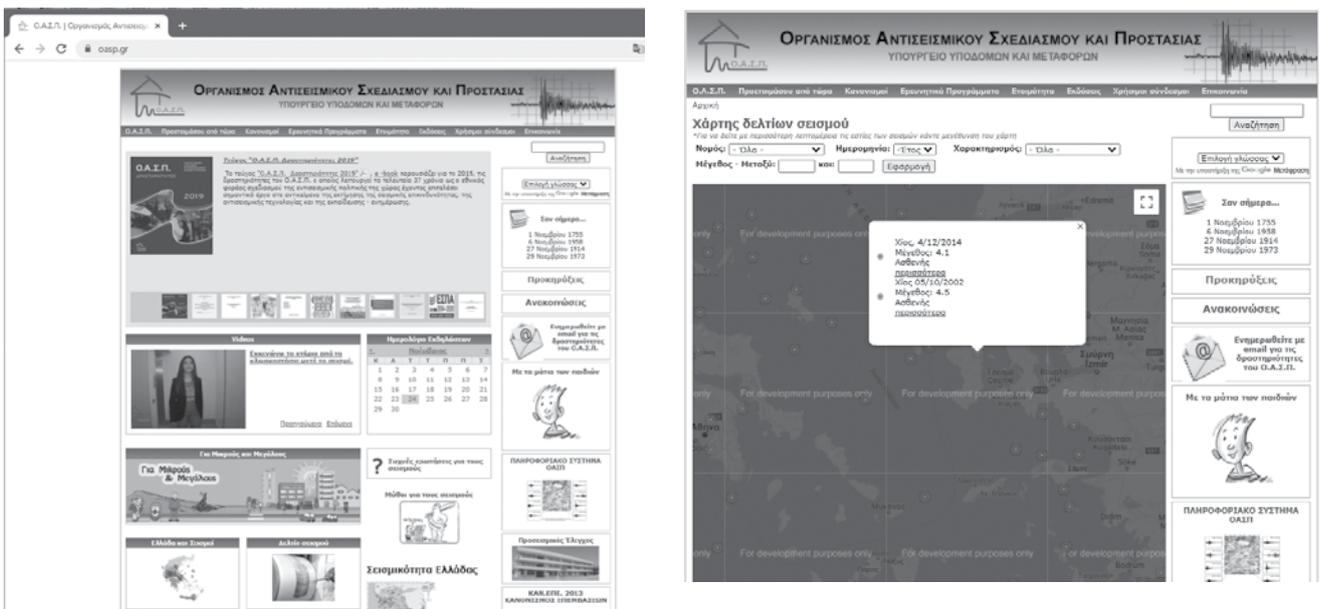


Fig. 6. Section «Greece and Earthquakes»

2.2. Social Vulnerability

2.2.1. Prevention – Preparedness

a. Meeting of Coordination Bodies

In the frame of planning of rational and effective actions and measures of prevention and preparedness in case of an earthquake in the study area, the following have been implemented:

Meeting of Coordination Bodies for planning of actions dealing with seismic risk	Occurrence date	Site
Meeting of the Civil Protection Coordination Body for earthquake in current year		
Meeting of the Civil Protection Coordination Body for earthquake in current year		
Meeting of the Local Coordination Body for earthquake in current year		
Meeting of the Local Coordination Body for earthquake in current year		

b. Educational Actions

In order to acquire a culture of prevention and preparedness, actions are implemented concerning the training of teachers, executives, volunteers, students, those involved in tourism, the disabled, etc. on issues related to earthquake and protection in order to improve their skills in relevant issues and change their attitudes and behaviors.

Recent Educational Actions	Occurrence date	Organizers	Implementing Agency
Seminars for Civil Protection Officers			
Seminars for Agencies' Officers			
Seminars for Teachers			
Seminars for Kindergarten Employees			
Seminars for Employees in Private and Public Sector			
Seminars for Volunteers			
Seminars for those involved in tourism			

Campaigns for the population			
...			
...			
...			

c. Volunteer Teams

..... volunteer Teams operate in the study area (which have been registered in the Record of the General Secretariat for Civil Protection).

Volunteer Team	Number of Members	Specialization	Mobilization event in the last 2 years	Mobilization Date	Participation in Actions

2.2.2. Immediate Response - Short term Relief

a. Meeting of Coordination Bodies in the aftershock period

Regarding the meeting of the Coordination Bodies in the aftershock period, it should be mentioned that after the seismic activity of .. / .. / .., the following Coordinating Bodies were convened:

Meeting of Coordination Bodies during the aftershock period	Total Number of Meetings	Frequency of meetings per week	Number of Weeks with Meetings	Start and End Dates of Meetings
Meeting of the Civil Protection Coordination Body				
Meeting of the Local Coordination Body				
Meeting ...				

b. Volunteer Teams

The following Volunteer Teams of Civil Protection contributed to post-earthquake response and recovery actions of the earthquake on .. / .. / ..

2.3. Vulnerability of the Built Environment

In Greece, a large part of the structures was constructed before the implementation of the Anti-Seismic Regulation of 1959. For this reason, the project titled "Primary Pre-Earthquake Inspection of Public and Utility Buildings" is implemented since 2001 under the supervision of EPPO. The purpose of the project is the recording of public buildings, regardless of their ownership status and the first assessment of their seismic capacity, in order to determine the priorities at national level for further control and protection measures.

The inspection is carried out at all administration levels by bodies responsible for the operation and safety of the buildings and facilities with the completion of the Primary Earthquake Building Inspection Bulletin. The Bulletins are sent to EPPO, entered in a database and calibrated. The results of the calibration, which determine the priority for the Secondary Earthquake Building Inspection, are sent by the EPPO to the respective Regions and Decentralized Administrations (Chart 1).

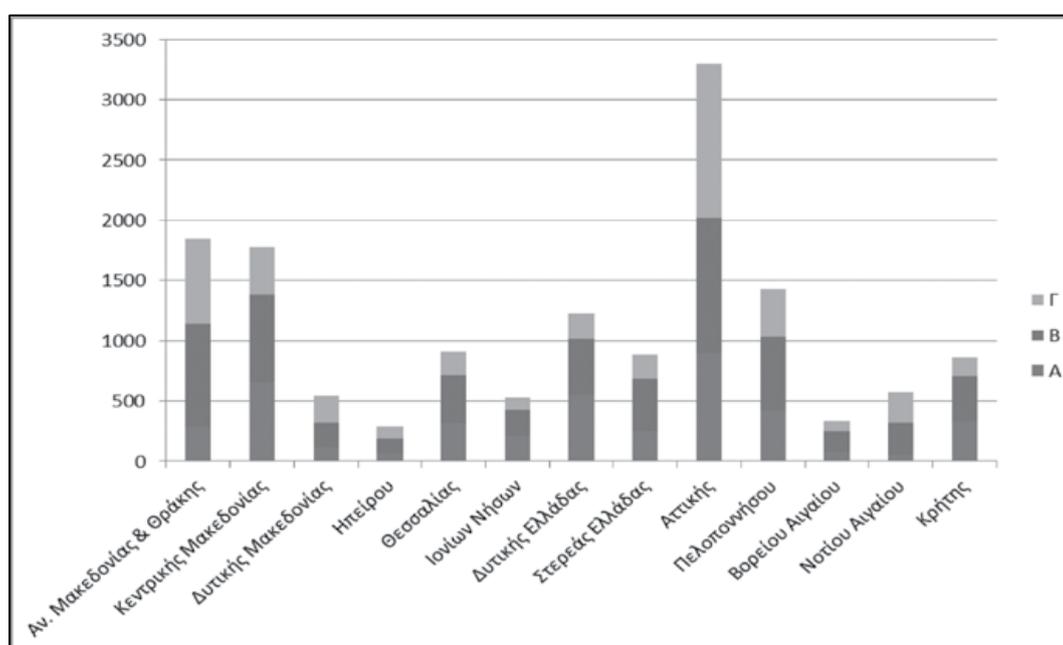


Chart 1. Number of buildings per Region, in which a Primary Pre-Earthquake Inspection has been carried out and distribution of buildings by priority (OASP, 2019).

In this frame, in the specific area regarding the Pre-Earthquake Building Inspection, the following have been done:

Public Buildings	Number of Buildings	Operation Body

In addition, the following actions have been implemented in this area in the context of reducing structural vulnerability:

- a.
- b.
- c.
- d.
- e.

2.4. Evaluation of previous Exercises

In the specific area, the following have been done regarding the Planning and Implementation of Earthquake Exercises:

Type of Exercise	Name	Organization Body	Date

The main results of the evaluation of the exercise organized on .. / .. / were:

Evaluation Results of Earthquake Exercise	Excellent	Very good	Average	Insufficient
Exercise Organization Level				
Exercise Scenario				
Interoperability of Participants				
Strengthening the Readiness of the Bodies in Management				

Achieving goals of the Exercise				
...				
...				
...				

Based on the aforementioned results, the repetition of the earthquake exercises at regular intervals has been proposed:

Yes

No

3. Basic Planning Steps for an Earthquake Exercise

Taking into account the analysis of needs and requirements, the planning and organization of an earthquake exercise is decided by the organization body.

3.1. Establishment of the Exercise Planning Team

In the frame of the drill organization, the Exercise Planning Team (EPT), which comprises representatives of the bodies with large contribution in the exercise. The head of the EPT usually takes up the post of the Exercise Coordinator.

The EPT determines the purpose, the objectives, the type of the exercise, the name, the logo, the scenario and the events, the actors involved and their role, the place and time of the exercise, the logistics issues of all contributors, the conduction of the exercise, as well as its evaluation.

The EPT in this exercise comprises the following:

Contributing Bodies	Name of responsible individual	Position	E-Mail	Telephone

The members of the EPT decide the number and duration of the meetings that are necessary for the planning and implementation of the exercise. Annex A lists two program plans, one for the tabletop exercise and one for field operational exercise.

3.2. Purpose - Objectives - Expected Results of the Exercise

The organization of the exercise aims at the trial implementation of part of the operational planning for an earthquake in the specific area.

The main goals of the exercise are the following:

- Testing the phase of the initial assessment of the situation, as well as the immediate response - mobilization of the involved bodies - services.
- Implementing the process of meeting and operation of the emergency Coordinating Bodies for earthquake (Civil Protection Coordination Body or Local Coordination Body).
- Determining the feasibility of communication between the operatively involved bodies and the effectiveness of the different ways of communication.
- Assessing the availability of the necessary resources.
- Identifying weaknesses or problems in the memoranda of action / cooperation of the competent bodies.
- Testing the mobilization readiness of the Civil Protection Volunteer Groups in an earthquake.
- Implementing the Emergency Plans of institutions, schools, kindergartens, businesses, etc., in order to identify weaknesses.
- Testing the process of providing immediate housing to earthquake affected residents, as well as the immediacy of setting up emergency shelters with tents.
- Training all those involved and to improve their relevant skills.
- Raising awareness and informing the general population on issues of self-protection.
- Utilizing and evaluating new methodologies and techniques.

3.3. Type of Exercise - Schedule

The Exercise, as decided by the EPT, will include:

Type of the Exercise	Starting Date and Hour	Ending Date and Hour	Area
Tabletop exercise			
Field exercise			
...			

The EPT also decided that:

- the name of the Exercise will be:
- the logo of the Exercise is the following:

As part of the exercise, local agencies (schools, kindergartens, public and private sector services, tourist accommodation, etc.) can implement their own Earthquake Emergency Plans (self-protection, evacuation of the building, gathering at the emergency assembly area).

Services - Bodies that carry out individual exercises	Date	Number of participating agencies - services	Assessment of Participating Individuals
Schools			
Kindergartens			
Public services			
Public Enterprises and Organizations			
Private sector			
Tourism related companies			
Structures for Disabled			
...			
...			

3.4. Participants - Involved

The following local and central administration bodies are involved in the organization and implementation of the exercise:

Local Bodies	Notification Date	Body Representative
Region		
Regional Unit		
Municipality		
Municipality		
Municipality		

Hellenic Police		
Fire Service		
National Center for Emergency Assistance		
Hellenic Coastguard		
Hellenic Army		
Hospital - Health Center		
Water Supply and Sewerage Company		
Hellenic Electricity Distribution Network Operator		
Hellenic Telecommunications Organisation		
Regional Directorate of Education		
Volunteer Team 1		
Volunteer Team 2		
Volunteer Team 3		
...		
...		

Central Administration Bodies	Notification Date	Body Representative
Ministry of Interior		
Civil protection Ministry		
Ministry of Infrastructure and Transport		
Ministry of Defense		
Ministry of Labor & Social Affairs		
Ministry of Health		

Ministry of Education and Religious Affairs		
General Secretariat for Civil Protection		
Earthquake Planning and Protection Organization		
General Directorate of Disaster Recovery and Transportation		
School Buildings Organization S.A.		
...		
...		

3.5. Roles and Responsibilities of the Exercise Participants

The following groups participate in the exercise:

a. Trainees or players

The trainees are the employees of the involved services - bodies, the members of the Civil Protection Volunteer Teams, etc., who participate in the exercise and implement the actions described in the scenario, as they would do in a real emergency.

Name	Body	Position / Expertise	Telephone number	E-mail

b. Auditors

The auditors are the people who supply the trainees with the messages / episodes of the script and ensure that the exercise develops according to the script and fulfilling its objectives. In this exercise, the following are defined as auditors:

Name	Body	Position / Expertise	Telephone number	E-mail

c. Evaluators

The evaluators are experienced executives whose role is to observe the actions and collect any information that will help them in compiling the Exercise Evaluation Report. In this context, they are present in every "site" where the exercise is conducted, recording deviations from the guidelines or the limitations set by the available equipment on the success of the trainees' efforts, etc. They can also assist the auditors, but they must not interfere or influence trainees in decision making or execution of actions.

Name	Body	Position / Expertise	Telephone number	E-mail

d. Observers

Observers are the people who are invited by the body that organizes the exercise to observe it and have no other role.

Name	Body	Position / Expertise	Telephone number	E-mail

e. Official Guests

Name	Body	Position / Expertise	Telephone number	E-mail

f. Actors

If required, specific individuals are identified as "victims" of a disaster or media personnel.

Name	Body	Position / Expertise	Telephone number	E-mail

3.6. Communications

a. Communication between bodies

During the planning of the exercise, the communication way(s) between the participating bodies during the exercise should be decided.

Communication way	Body – Source	Recipients
Written messages		
Wireless Transceivers		
Mobile phones		
E-mail		
...		

b. Communication coding

All communications (by telephone, wireless, etc.) between the parties involved during the exercise, will begin and end with the phrase "EXERCISE - EXERCISE - EXERCISE", to avoid any misunderstanding that this is a true incident.

Usually in the exercises the basic communication way comprise messages.

Body – Message Source	Way of Message Sending	Hour of message sending	Content	Recipients

c. Communication between members of the same team

The communication between the members of each involved group with its leader should be done by the same means, according to their own planning.

3.7. Implementation of the Exercise

Basic Exercise Elements	
Starting date	
Starting time	
Ending date	
Ending time	
Venue	
Regards	
Broadcasting	
...	

In addition to the site where the Coordinating Body meets, the exercise will be conducted at predetermined sites, according to the scenario. Broadcasting of scenes from the field to the Coordinating Body could be integrated in order to make the decision-making process more realistic.

3.8. Interruption - Postponement - Cancellation

The Exercise Coordinator has the right to suspend, postpone or cancel the exercise at any time, if he deems that there is a serious reason that justifies his decision.

Interruption - Postponement - Cancellation	
Date	
Time	
Justification	
Notification Source of Bodies	

Notification Officer	
...	

3.9. Evaluation

Exercise evaluation is a key step in the overall process, during which conclusions are drawn about the planning and implementation of the exercise, in order to identify the "strengths" and highlight the "weaknesses" in emergency management. Then, the experiences and lessons should lead to specific corrective interventions.

Earthquake Exercise Evaluation Results	Excellent	Very Good	Average	Insufficient
Exercise Organization Level				
Scenario				
Interoperability of Participants				
Enhancing the Readiness of the Bodies in Management				
Achieving exercise goals				
...				
...				
...				

Exercise evaluation can be done in several ways, the main ones of which are listed in the following table.

Ways of Evaluation	Number of Participants	Evaluation Time	Evaluation Recipients
Questionnaire for each participant			
Meeting of participants "in heat", immediately after the end of the exercise			
Evaluator Report			
...			
...			

The Exercise Evaluation Form is contained in the Protocol number 532/23 -01-2020 document of the General Secretariat of Civil Protection titled "Guidelines for Planning and Implementing Civil Protection Exercises" (https://www.civilprotection.gr/sites/default/gscp_uploads/odigies_sxediasmou_askiseon_2020.pdf).

After the evaluation of the exercise, the problems should be recorded and suggestions for corrective actions should be made to update the Operational Planning. More specifically, the problems identified and the proposals for their removal are recorded in the following table.

Recording of Problems	Suggestions for Correction

4. Other Support Actions

4.1. Logistics

The logistics of the exercise concerns a set of actions described in the following paragraphs. The representatives of the bodies that are responsible for the Logistics of the Exercise are defined in the table below.

Administrative Support Actions	Implementing Body	Responsible individual	Contact Phone	E-mail

4.1.1. Secretarial support

Secretarial support mainly includes the actions listed in the table below.

Administrative Support Actions	Implementing Body	Responsible individual	Contact Phone / E-mail	Assignment Date	Budget	Implementation
Invitations						
Printed Exercise Material						
Consumables						
Exercise File						
Cards - Certificates of participation						
Maps and Layouts						

Clothing						
Souvenirs						
letters of appreciation						
Press Releases						
...						

4.1.2. Informing bodies, media and locals

The information of bodies - services, media and locals is implemented through press releases, announcements on official websites of the involved bodies, etc.

Body for information	Responsible individual	Contact phone/ E-mail	Implementing Body	Way of information	Assignment Date	Implementation
Fire Service						
Hellenic Police						
National Center For Emergency Assistance						
Volunteers						
Media						
...						

4.1.3. Distribution of exercise material for information

As part of the exercise, the necessary information material is required to be distributed. Indicative data for suggested information material are presented in the table below.

Type of information material	Implementing Body	Responsible Individual	Contact Phone / Email	Body for information	Assignment Date	Means / Method of Distribution	Implementation
Exercise guidelines							

Exercise episodes							
Evaluation Form							
Printed material of EPPO							
...							

4.1.4. Traffic modifications

Indicative data for the necessary traffic modifications are given in the table below.

Required Traffic Modifications	Implementing Body	Assignment Date	Duration of modification	Means of Implementation	Implementation
Roads					
Squares					
Ports					
Airports					
...					

4.1.5. Technical Support - Audiovisual – Video

Arrangements for technical support, audiovisual media use and video recording is part of exercise planning.

Technical Support - Audiovisual Media - Video recording	Implementing Body	Responsible Individual	Contact Phone / Email	Assignment Date	Type / Provider	Budget	Implementation
Technical Support							
Audiovisual							
Video recording							
...							
...							

4.1.6. Health Support

All participants must follow the rules of hygiene and safety. In case of a pandemic, arrangements should be made for the implementation of the exercise in accordance with the restrictions of Hellenic National Public Health Organization (e.g. hygiene of the premises, personal hygiene, physical distancing).

Indicative data for health support are in the table below.

Health Support	Implementing Body	Responsible Individual	Contact Phone / Email	Assignment Date	Type / Provider	Budget	Implementation
Distribution of Health Guidelines							
Provision of Sanitary Material							
Supply of Masks, Gloves, Antiseptics, Thermometers							
Defining and maintaining safety distances							
Body Temperature Monitoring							
Designation of isolation areas for suspected cases							
...							
...							
...							

4.1.7. Accommodation – Food – Transportation

It is necessary to take care of the accommodation, food and transportation of the participants in the exercise. Indicative data are in the following table.

Accommodation - Food - Transportation	Implementing Body	Responsible Individual	Contact Phone / Email	Assignment Date	Type / Provider	Budget	Implementation
Accommodation							
Food							
Transportation							
Parking							
Fuel							
...							
...							

4.2. Informing the Public and Institutions

In the context of raising public awareness and training specific groups of the population (teachers, service executives, employees involved in tourism, the disabled, etc.) parallel educational actions can be implemented. The Earthquake Planning and Protection Organization also contributes to these actions, providing instructions for managing the seismic risk and the accompanying earthquake phenomena at individual, family, work and local level through seminars and relevant printed material (<https://www.oasp.gr/>).

Public Notification / Media	Implementing Body	Responsible Individual	Contact Phone / Email	Assignment Date	Type / Provider	Budget	Implementation
Civil Protection Officers							
General population							
Teachers							
Employees							
Involved in tourism							
Disabled							
Local Press							
TV Stations							

Radio stations							
...							
...							

5. Scenario

The scenario is a description of the seismic event and the evolution of the emergency in chronological order. It is divided into phases which consist of episodes (see Annex B).

5.1. Phase 1 of the Scenario

In the first phase of the Scenario, the earthquake is announced, data are given on the date, time, area and characteristics of the earthquake (magnitude, epicenter, duration, intensity, etc.).

In addition, data that can lead to an, as accurate as possible, initial assessment of the situation in the earthquake affected area are also announced.

5.1.1. Earthquake History / Announcement

Earthquake Bulletin (Recording of information related to seismic event)	
Date	
Hour	
Epicenter	
Focal Depth	
Area	
Magnitude	
Characterization	
Information source	
...	

5.1.2. Initial Condition Assessment

a. Impact

Recording of information of the first 24 hours	Information source	Date / Hour	Information	Responsible body for action
Fatalities				
Injuries requiring hospitalization				
Trapped				

Homeless				
Tsunami				
Shoreline Displacement				
Uplift				
Subsidence				
Ground cracks/ Surface ruptures				
Liquefaction				
Landslides Rockfalls				
Damage to Structures (public and private				
Damage to infrastructures (road and rail networks, ports, airports, etc)				
Damage to water supply and sewerage networks				
Damage to the electricity distribution network				
Damage to the gas distribution network				
Damage to communication networks				
Chemical leak				
...				
...				

b. Information and actions recording

Ways / Means	Date / Time	Data of body / individual	Information	Body responsible for action	Actions	Comments
Field recording						
Recording with UAV						
Citizen report by phone						
...						
...						

5.2. Phase 2 of the Scenario: Response and Short Rehabilitation Actions

The Phase 2 of the Scenario refers to the required response and short recovery actions.

5.2.1. Meeting of the Civil Protection Coordination Body and the Local Coordination Body

The Meeting of the Coordinating Body (bodies) takes place shortly after the event with the participation of the designated representatives of the involved bodies.

Coordination body	Date / Time	Participating agencies	Information	Actions for impementation	Actions completed	Comments

5.2.2. Damage Recording / Post-Earthquake Building Inspections

After a strong earthquake, teams of engineers (General Directorate of Disaster Recovery and Transportation, School Buildings Organization S.A., Technical Services of Municipalities, Technical Services of Regions, private engineers, etc.) carry out rapid visual inspections of the suitability of buildings for use in the affected area.

Log of information and actions for Primary Post-Earthquake Building Inspection					
Date	Body responsible for conducting inspection	Composition and Number of teams	Area coverage	Number of inspections	Total Number of Buildings marked as: "Uninhabitable"

5.2.3. Damage Recording / Post-Earthquake Infrastructure Inspections

Suitability tests are carried out immediately for use in infrastructures whose operation is critical after a destructive event (transport infrastructure, hydraulic and port infrastructure, facilities / airport infrastructure, etc.).

Date	Body responsible for conducting inspection	Composition and Number of teams	Area coverage	Number of inspections	Requirement for Immediate Interventions

5.2.4. Troubleshooting / Seismic Network Tests

Post-seismic inspections are also required in electricity, water / sewerage and gas networks.

Date	Body responsible for conducting inspection	Composition of teams	Area coverage	Number of inspections	Requirement for Immediate Interventions

5.2.5. Detection of earthquake environmental effects

Apart from the immediate effects, the earthquake often triggers other phenomena including soil liquefaction, rockfalls, landslides and sea waves of gravity (tsunami) with equally serious effects.

Date	Information	Involved bodies	Actions for implementation	Actions completed	Comments

5.2.6. Search and Rescue Operations

After a destructive earthquake, there may be trapped in buildings that have suffered partial or total collapse due to the earthquake or the accompanying earthquake-induced effects.

Date	Information	Involved bodies	Search and rescue teams	Actions for implementation	Comments

5.2.7. Implementation of immediate protection measures in case of earthquake and pandemic

The Implementation of protection measures, according to the current legislation, for the people who operate in the field is the concern of their bodies (equipment, safety clothing, sanitary material, etc.).

5.2.8. Need for immediate housing

The need for immediate housing after an earthquake arises from the results of post-earthquake building inspections carried out by the technical teams in the affected area.

Immediate housing involves the provision of accommodation to the population for a few days to a few weeks, depending on weather and other conditions and is of an emergency nature. A set of means of accommodation is provided depending on the conditions, such as tents, ships, transportable lodges, hotels, etc.

Immediate Housing	Date	Number of Affected in need of housing	Responsible body	Area for Immediate Housing	Estimated Time of Housing	Actions	Budget	Comments
Tents								
Tourist accommodation								
Ships								
Houses								
Public buildings								
...								
...								

5.2.9. Emergency supplies

The provision of emergency supplies is necessary especially in cases where there are homeless due to the earthquake, but also when there isolated areas occur due to the earthquake.

Type of Supply	Responsible Body	Area	Number of Victims	Date of Implementation	Budget	Comments
Potable water						
Dry Feed						

Tents						
Bedding						
Medical supplies						
...						
...						

5.2.10. Communications management

Participating bodies should be aware of how to communicate with each other. Communication takes place through documents, telephone devices (fixed - mobile - satellite), e-mail, etc.

Date	Participating bodies	Means of communication	Actions	Comments

5.2.11. Citizens' information

After a seismic event, prompt and reliable information concerning the event evolution is required for the development of the effect.

Mean of notification	Date	Body	Information	Comment
TV stations				
Radio stations				
Daily Press				
Social Media				
SMS				
...				
...				

5.2.12. Educational actions

After a seismic event, the training of citizens and specific groups of the population is required for the proper response to the emergency, through educational actions of the bodies responsible for this purpose.

Educational actions	Date of implementation	Organizers	Participants	Comments

5.3. Writing Messages

The messages should comprise specific actions taken by the participants in the exercise during its episodes. Indicatively, a draft message follows in Annex C.

5.4. Compilation of a List of Exercise Episodes

The scenario, as it is written per phase, consists of separate parts, the episodes. It is necessary in the exercise to create a list of exercise episodes (LEE) in order to be better monitored and controlled.

The episodes are introduced in various ways (phone call, e-mail, bulletin, announcement, etc.).

Number / Code of Episode	Date / Local time	Description of the Episode	Sender	Recipient	Episode Inserting	Implementation Actions	Implementation Body

REFERENCES

- General Secretariat for Civil Protection (2020): "Guidelines for the Planning and Implementation of Civil Protection Exercises", Prot. No. 532/23-01-2020, https://www.civilprotection.gr/sites/default/gscp_uploads/odigies_sxedias
- Earthquake Planning and Protection Organization (2020): "Activities 2019", <https://www.oasp.gr/userfiles/DRASTIRIOTITES%202019.pdf>
- Earthquake Planning and Protection Organization (2018): "Implementation of Earthquake Operational Exercise at Local Level", p. 29 <https://www.oasp.gr/entypa>
- Earthquake Planning and Protection Organization (2010): Book: "Earthquake - Knowledge is Protection", EPPO, Access, Athens, 103 pages, <https://www.oasp.gr/sites/default/files/Earthquake%20-%20Knowledge%20is%20protection.pdf>
- Papanikolaou D.J., (1998). "The geotectonic position of Nisyros within the Hellenic Arc", Newsletter of the ECPFE, Athens, 12p

Links:

- Geodynamic Institute of the National Observatory of Athens: <http://www.gein.noa.gr>
- General Secretariat for Civil Protection: <http://www.civilprotection.gr>
- Institute of Engineering Seismology and Earthquake Engineering: <http://www.itsak.gr>
- Earthquake Planning and Protection Organization: <https://www.oasp.gr>

ANNEXES

Annex A

Operational Exercise Program

Two plans exercise programs follow, one for the tabletop exercise and one for the field exercise.

A) TABLE TOP EXERCISE for earthquake

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TIME	ACTIVITIES
08:30 - 09:00	Arrival - Reception - Accreditation
09:00 - 09:20	Greetings
09:20 - 09:50	Presentation of the structure of the Exercise
09:50 - 10:00	Break time
SCENARIO IMPLEMENTATION	
Beginning of the Exercise Phase 1: Notification of the Earthquake – Initial Assessment	
10:00 - 10:05	Description of the Phase 1
10:05 - 10:45	Working groups
10:45 - 11:15	Discussion
Phase 2: Immediate Response – Emergency management	
11:15 - 11:20	Summary of the Phase 1 and description of the Phase 2
11:20 - 12:00	Working groups
12:00 - 12:30	Discussion
Phase 3: Short recovery	
12:30 – 12:35	Summary of the Phase 2 and description of the Phase 3

12:35 -12:55	Working groups
12:55 - 13:15	Discussion
13:15 - 13:30	Break time
'HOTWASH' AND DEBRIEFING	
13:30 - 14:15	Hotwash – Discussion Completion of exercise evaluation forms
14:15	Exercise ending

B) FIELD EXERCISE for earthquake

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TIME	ACTIVITIES
09:00 – 09:30	Arrival
09:30 – 09:50	Greetings – Official opening Regional Governor Deputy Governor Mayor
09:50 – 10:00	Break time
Beginning of field exercise - STARTEX with strong earthquake shaking	
10:15 – 12:00	PHASE 1 Episodes: <ul style="list-style-type: none"> • Meeting of the Civil Protection Coordination Body • Communication between the involved local bodies and the Region • Search and Rescue operations in building • Setting up tents • Notification of media and population
12:00 – 12:30	Break time
12:30 – 13:30	PHASE 2 Episode: <ul style="list-style-type: none"> • Setting up an emergency shelter in the Municipality
Exercise Ending– ENDEX	
13:45 – 14:45	Information from competent bodies / Services
14:45 – 15:00	Hotwash – Discussion, Certificates

ANNEX B

Exercise Scenario

An exercise scenario is presented, which is divided into phases consisting of episodes.

EXERCISE FOR EARTHQUAKE

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Phase 1 of Scenario: Earthquake Announcement and Initial Assessment of the Situation

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Time 06:00

It is in the morning in the area. There are
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.....

Time 06:45

A strong earthquake occurs in the area The earthquake is strongly felt by everyone.

The Hellenic Unified Seismological Network, through the Geodynamic Institute (GI), issues an announcement that a strong shallow earthquake of magnitude 6.2 in the Richter scale with epicenter located offshore north at a distance of ...km of Athens and with focal depth of... ..km.

The seismic activity is evolving rapidly, with several smaller aftershocks.

[Shortly after the earthquake, the earthquake sensitivity map (shakemap) is issued by the Earthquake Planning and Protection Organization (<http://portal.ingeoclouds.eu/sitools/client-user/Shakemaps/project-index.html>), while the recorded peak ground accelerations are of the order of g.]

The Regional Governor, the Deputy Regional Governor of the Regional Unit, and the Mayors, communicate with the Earthquake Planning and Protection Organization and the Seismological Institutes, as well as with the Unified Coordination Operations Center / Civil Protection Operations Center of the General Secretariat for Civil Protection exchanging information on the evolution of the seismic activity and the assessment of the situation.

Various views are expressed by experts in the media on the evolution of the phenomenon.

Time 07:40

First reports from teams of the Police Department, from the Fire Service, and the Civil Protection Units of the Region, and the Municipality Many people have gathered in open spaces, squares and in the port. Injuries, casualties and trapped are reported.

Damage is reported to buildings in the area Rock falls are reported in the area and access problems to the mountainous settlements and attributed to rock falls, failures in retaining walls in the area of There are also power outages in various areas.

Phase 2 of the Scenario: Immediate Response

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The President of the Earthquake Planning and Protection Organization convenes the Permanent Special Scientific Committee of Seismic Hazard and Risk Assessment of the Organization in order to share information about the evolving seismic activity.

Time 08:20

Fixed and mobile telephone networks are shut down.

Time 08:30

The Mayor, at the emergency meeting of the Local Coordinating Body gathers data for the assessment of the situation.

Time 09:30

In the Local Coordinating Body, the following confirmed information is collected:

- Visible cracks in plasters in the building of, on the street and in the building of on the street
- Glass breakage, as well as cracks in the infill walls of the hotel "....." .
- Subsidence on the bridge on the street
- Fire at the gas station on the street after a vehicle smashed into pumps.
- Surface ruptures on the road
- Serious external damage to the following school buildings:
- Collapse of an old house on street. People are trapped.
- Severe road subsidence on at the intersection with
-

Time 11:14

National and international press agencies have already reported the earthquake. Foreigners who gathered in the emergency shelters ask for information and want to contact their Embassies.

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Time 11:17

There is information reporting a partial collapse of a 2-storey building, in the area of with 2 casualties.

Time 12:07

The Port Authority informs the Coordination Body that the main corridor of ships in the port presents serious damage due to the earthquake.

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Time 12:50

The Health Center is receiving an increasing number of injured. As a result, the existing medical staff and medical supplies cannot cope with this increase.

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Time 14:15

The Directorate of Technical Works of the Regional Unit and the Directorate of Technical Services of the Municipality of report many small rock falls in the mountainous settlement

Time 15:45

The Coordinating Body highlights the need for finding emergency shelters for immediate housing of the affected residents. The population that has gathered in squares and open spaces is estimated to be about individuals. Many residents remain outside due to strong seismic activity.

The affected people comprise not only the permanent residents of the Municipality of, but also visitors including guests, professionals, tourists - foreigners and Greeks, and vulnerable groups of the population.

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Phase 3 of the Scenario: Short Recovery

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Time 10:00

The area of responsibility of the Regional Unit has been declared in a state of emergency, at the request of the Region to the General Secretariat for Civil Protection. An emergency camp has been installed and is operating in the area.

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ANNEX C

Exercise notification message

An example of the initial message for the beginning of the exercise is presented

EXERCISE – EXERCISE – EXERCISE			
FIELD EXERCISE «.....»			
EXERCISE MESSAGE			
Event:	BEGINNING – EARTHQUAKE ANNOUNCEMENT		
Date:	.../.../.....	Time::.....
From: (Sender)	EXERCISE PLANNING TEAM		
To: (Recipient)	ALL		
Mean of message sending			
Message: A STRONG EARTHQUAKE OCCURRED IN THE AREA IT WAS INTENSIVELY FELT BY ALL THE RESIDENTS OF THE AREA IT HAD A LONG DURATION AND A LOUD SOUND WAS HEARD.			
Receipt Confirmation:			

