

**DISASTER
RESILIENT
COMMUNITIES
BEST
PRACTICES**

AFAD 



This booklet has been prepared within the scope of the “**Workshop on the Role of Local Authorities in the Building of Disaster-Resilient Communities**”, organized by the Republic of Turkey, Ministry of Interior Disaster and Emergency Management Authority (AFAD), European Natural Disasters Training Center (AFEM).

Ankara, 2018

TABLE OF CONTENTS

1. Preface	5
2. İstanbul Metropolitan Municipality	7
2.1. Megacity Indicator System for Disaster Risk Management – MegalST	8
2.2. Analysis of the Social Vulnerability against Disasters in İstanbul ...	11
2.3. Updating Estimations of the Probable Earthquake Losses in İstanbul....	15
2.4. Updating of Tsunami Hazard and Risk Analysis Studies	18
2.5. Microzonation Studies	20
2.6. İstanbul Geo Information System YERBIS)	23
2.7. Safe Life with Small Steps (MAGYA) Training Project	25
2.8. Flood Early Warning System (FLEWS)	27
2.9. Ice Early Warning System (IEWS).....	29
2.10. Web-Based Earthquake Loss Estimation Routine (ELER) Project	31
2.11. Urban Renewal Project for Bayrampaşa District	34
3. Kocaeli Metropolitan Municipality	37
3.1. Project on Disaster Preparedness Training for Kocaeli Residents.	38
4. Gaziantep Metropolitan Municipality	45
4.1. Gaziantep Risk Map	46
5. Antalya Metropolitan Municipality	49
5.1. Urban Renewal Project for Kepez and Santral Neighborhoods.....	50
5.2. Urban Renewal Project for Güneş Neighborhood	54
5.3. Arrangement Works for Flood Protection and Sedimentation Control on the Boğaçay, Çandır River and Göksu (Karaman) River	57
5.4. Rainwater Drainage Line Construction in Demre Neighborhood of Demre District	59
5.5. Rainwater Drainage Line Construction at Göksu Street in Gündoğdu Neighborhood	60
5.6. Rainwater Drainage Line Construction in Manavgat District (Eskihisar and Aşağıhisar Neighborhoods).....	61
5.7. Rainwater Drainage Line Construction in Turgut Reis, Tonguç and Yıldız Streets in Muratpaşa District of Antalya Province.....	62
5.8. Varsak Stage 1 (Süleyman Demirel Boulevard) Rainwater Drainage Line Construction	64
6. Amadora Region, Portugal	65
7. Potenza Region, Italy	71

Appendix

General Report of Workshop on the Role of Local Authorities in the Building of Disaster Resilient Communities77

ACRONYMS AND ABBREVIATIONS

AFAD	Disaster and Emergency Management Authority
AKOM	İstanbul Metropolitan Municipality Disaster Coordination Center
ASAT	Antalya Water and Wastewater Administration General Directorate
CBRN	Chemical, Biological, Radiological and Nuclear
DASK	Turkish Natural Catastrophe Insurance Pool
ELER	Earthquake Loss Estimation Routine
EUR-OPA	European and Mediterranean Major Hazards Agreement
FLEWS	Flood Early Warning System
FMS	Flow Monitoring Stations
GIS	Geographic Information System
IDDR	International Day for Disaster Reduction
IETT	İstanbul Electricity, Tramway and Tunnel General Management
IEWS	Ice Early Warning System
IMM	İstanbul Metropolitan Municipality
ISKI	İstanbul Water and Sewerage Administration
İSTKA	İstanbul Development Agency
KİPTAŞ	İstanbul Residence Development Plan Industry and Trade Inc.
MAGYA	Safe Life with Small Steps Training Project
MGM	Turkish State Meteorological Service
ONHA	Observational Neighborhood Hazard Analysis
NGO	Non-governmental Organizations
TAYS	Turkey Disaster Management Strategy Document and Action Plan
TCP	Provincial Territorial Coordination Master Plan
UNISDR	UN Office for Disaster Risk Reduction
YERBİS	İstanbul Geo Information System

PREFACE

This booklet has been prepared within the scope of the “**Workshop on the Role of Local Authorities in the Building of Disaster-Resilient Communities**”, organized by the Republic of Turkey Ministry of Interior Disaster and Emergency Management Authority European Natural Disasters Training Center (AFEM).

As it is well known, the measures taken before disasters are the most important steps in a disaster management process in terms of preventing loss of life and property. Local authorities, therefore, have significant responsibilities in preparatory works and risk reduction efforts aimed at ensuring our cities are more resilient and prepared for disasters. To this end, adopting a risk-focused and integrated disaster management approach, and dealing with all phases of disaster management separately, are of great importance.

Duties and responsibilities are determined based on the Turkey Disaster Management Strategy and Action Plan (TAYS), which is a policy-making document covering all areas of effective disaster management in Turkey. In line with these duties and responsibilities, the definition of a new vision and new principles has become important for the effective application of disaster management.

This booklet is a result of studies into the responsibilities of local authorities in disaster risk reduction in Turkey, how these responsibilities should be fulfilled and by whom, and the role of local governments in the roadmap for risk identification.

In this globalizing world, it is of utmost importance that countries, institutions and administrators cooperate with each other while fulfilling their duties in the fight against disasters and their effects. We believe that this study will serve as an example for activities to be carried out in the field of disaster risk reduction through which examples of good practices will become widespread. Taking this opportunity, we would like to thank all those who have contributed to this study, especially the EUR-OPA Major Hazards Agreement Executive Secretariat, UNISDR, Governorship of Kocaeli, Kocaeli Metropolitan Municipality and the Kocaeli, İstanbul, Antalya, Yalova, Gaziantep Provincial AFAD Directorates.



İSTANBUL
BÜYÜKŞEHİR
BELEDİYESİ

**İSTANBUL METROPOLITAN
MUNICIPALITY**

PROJECT TITLE

2.1. MEGACITY INDICATOR SYSTEM FOR DISASTER RISK MANAGEMENT – MegalST

Project Start and End Date:

2008–2012 (Updating works started in 2018)

Purpose of the Project:

The main purpose of the Megacity Indicator System for Disaster Risk Management – the MegalST Project – is to establish an “indicator system” that can be used as a basis in all stages in the process and in other planning processes related to the implementation of Integrated Disaster Risk Management.

This project aims to make it possible for decision makers and managers to set priorities when determining the most appropriate strategies, in the use of resources and in investment decisions, to monitor progress at certain time intervals, and to verify the decisions taken.

In this context, an integrated physical risk analysis was carried out across İstanbul, social vulnerability analyses were completed and the capacity of the İstanbul Metropolitan Municipality (IMM) to respond to disasters was estimated.

Summary of the Project:

In disaster risk-reduction efforts, particularly in disaster prone metropolitan areas, the diversity of priorities and the inability to define them clearly emerge as significant factors that make it difficult for managers to make appropriate decisions. Accordingly, decision-makers and managers require appropriate tools and decision support mechanisms if they are to clear up uncertainties and correctly identify priorities.

The “Megacity Indicator System for the Disaster Risk Management System” allows all information and risk factors to be communicated to all stakeholders included in the disaster prevention and risk management process, while also helping decision-makers and managers to develop appropriate strategies and to make appropriate decisions on risk reduction within the disaster prevention and risk management process. In this way,

decisions and investments aimed at disaster prevention and risk reduction can be verified. The MegalST system comprises three main components:

1. The “Urban Seismic Risk Index” (USRi), which evaluates physical risks and social vulnerability,
2. “The Coping Capacity Index” (CCi), which evaluates the operational capacity of İstanbul Metropolitan Municipality (IMM) to cope with cases of emergency after an earthquake, and
3. The “Disaster Risk Management Index (DRMi)”, which analyzes the performance of the IMM within the scope of the relevant works, based on certain criteria.

Contribution of the Project to the Relevant Area:

This project allows us to evaluate systematically and analytically the situation after a possible earthquake, to determine areas requiring improvement, and to decide at what levels improvements should be made. It thus is possible to determine the priority areas for the reduction of disaster risk in İstanbul, and to identify the types of works that should be carried out in these areas.

Unique Value of the Project:

The most distinctive characteristic of the project is that all the components of disaster risk can be handled in an integrated way, and this integration allows the analysis of all risk parameters.

Applicability of the Project:

The project can be easily adapted to other provinces or locations, as long as the required data is provided.

Problems Encountered During the Implementation of the Work and Suggested Solutions:

Many different stakeholders and institutions are involved in such works, bringing about a need for different forms of data. The integration of such data into the same system has emerged as a significant problem, while obtaining and compiling relevant data has emerged as another challenging aspect of the project. Statistical methods are needed for the interpretation of the data, for which appropriate software packages should be used.

Target Beneficiaries of the Project:

All public institutions and organizations engaged in the field of disaster risk management, non-governmental organizations, the private sector and the local communities across İstanbul province.

Type of Disaster Covered by the Project:

Earthquake

Project Budget/Resource and Costs:

The IMM's internal resources were used. No additional budget was required.

Persons/Institutions Responsible for the Project:

Under the auspices of the Directorate of Earthquake and Ground Research

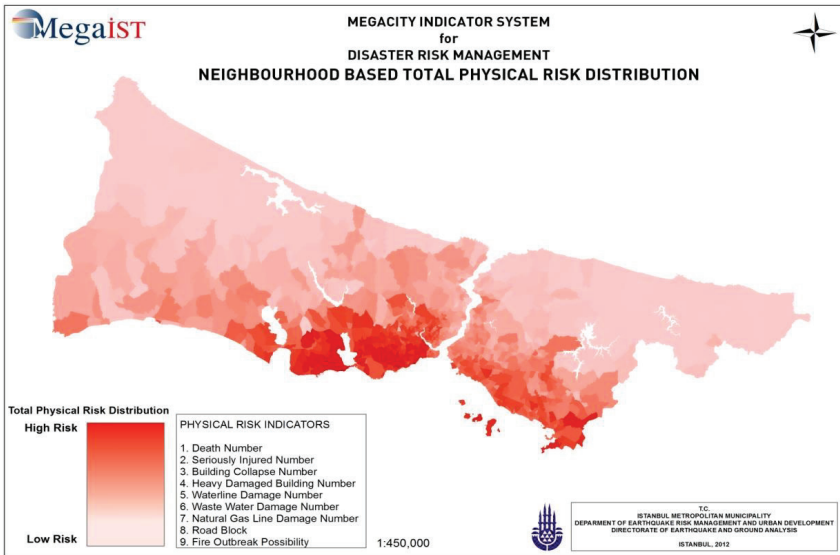
Mahmut BAŞ (Director)

Osman KILIÇ (Deputy Director)

Emin Yahya MENTEŞE (R&D Coordinator)

Özge UZUNKOL (Geophysics Engineer)

Sema KARA (Geological Engineer)



PROJECT TITLE

2.2. ANALYSIS OF THE SOCIAL VULNERABILITY AGAINST DISASTERS IN İSTANBUL

Project Start and End Date:

2017–2018

Purpose of the Project:

This research aims to contribute to the reduction of disaster risk in İstanbul in the most general context. It aims to determine the strengths and weaknesses of the community against a possible earthquake and to understand the level of social vulnerability.

As a further goal, it seeks to determine the demographic structure of the community, as well as its economic situation and its disability, unemployment, property ownership, mobility and educational status; and its level of social capacity, risk perception, access to health coverage and health services, social solidarity, and social preparedness against disaster. The Project will then go on to interpret and evaluate this knowledge for use in earthquake-focused risk reduction works in İstanbul.

The outputs of this study will provide information for the shaping and implementation of activities such as urban renewal, infrastructure-superstructure investments, spatial planning and training activities on disaster awareness, while also providing the most basic information about the segment of the community covered by these activities.

Summary of the Project:

Disaster risks can be categorized under four different dimensions, being physical, social, economic and administrative. In this study, the “İstanbul Earthquake”, the impact of which is estimated to reach disaster level across the whole of İstanbul, is used as the basis, and the “social” dimension of this disaster risk is taken into consideration. This social dimension refers to the effects of an earthquake on the individual and the community (i.e. health problems, economic distress, recovery process, education, etc.). This social dimension is considered a sub-component in the “Megacity

Indicator System for Disaster Risk Management (MegaIST)”, and accordingly, the aim is to determine the level of social vulnerability in the event of an earthquake disaster in İstanbul. The main tasks in this research are as follows: (i) determining the indicators that will represent the earthquake-oriented social vulnerability concept, (ii) determining the data sets to be provided, (iii) designing and conducting surveys for the gathering of such data, and (iv) analyzing and interpreting the results of these surveys. Statistical analyses were carried out based on the results obtained from the survey, sample weights were calculated, and the level of social vulnerability was determined for each administrative unit (neighborhood). The results of these analyses were also transferred to density maps at a district and neighborhood level, and the results were visualized.

Contribution of the Project to the Relevant Area:

It has been proven by scientific studies that an İstanbul earthquake is very likely to occur in the near future, and such an earthquake is predicted to cause great physical, social and economic loss. In this project, the concept of social vulnerability is investigated taking such an İstanbul earthquake as a basis. Thus, the whole background and infrastructure of the project are examined and built through the concept of earthquake. Statistical analyses were carried out based on the results obtained from the survey, sample weights were calculated, and the level of social vulnerability was determined for each administrative unit (neighborhood). The results of these analyses were also transformed into density maps at a district and neighborhood level, and the results were visualized.

Unique Value of the Project:

The questions included in the survey were designed to garner data on both the individual and the household, so that the level of social vulnerability of household could be analyzed. In this way, the social vulnerability analysis produced results on a household basis that could be generalized to the neighborhood and district levels. The social vulnerability levels of the neighborhoods, as the smallest administrative units, and districts, which are intermediate administrative units, in İstanbul could be investigated for the first time in Turkey following the design of this study.

Applicability of the Project:

The project can be adapted to different provinces or locations, with the details and scope updated according to the nature of the project area.

Problems Encountered During the Implementation of the Work and Suggested Solutions:

The framework of the survey carried out within the scope of the project needs to be produced in a very clear and descriptive manner, and the sample to which the questionnaire is to be applied needs to be carefully calculated.

Target Beneficiaries of the Project:

Covering all public institutions and organizations that operate in the field of disaster risk management throughout the İstanbul province, as well as non-governmental organizations and local communities.

Type of Disaster Covered by the Project:

In this study, the “İstanbul Earthquake”, which is expected to have disaster-related impacts across the whole of İstanbul, is taken as the basis, and the “social” dimension of this disaster risk is taken into consideration.

Project Budget/Resource and Costs:

The IMM's internal resources were used. Project budget: TRY 1,148,000.00

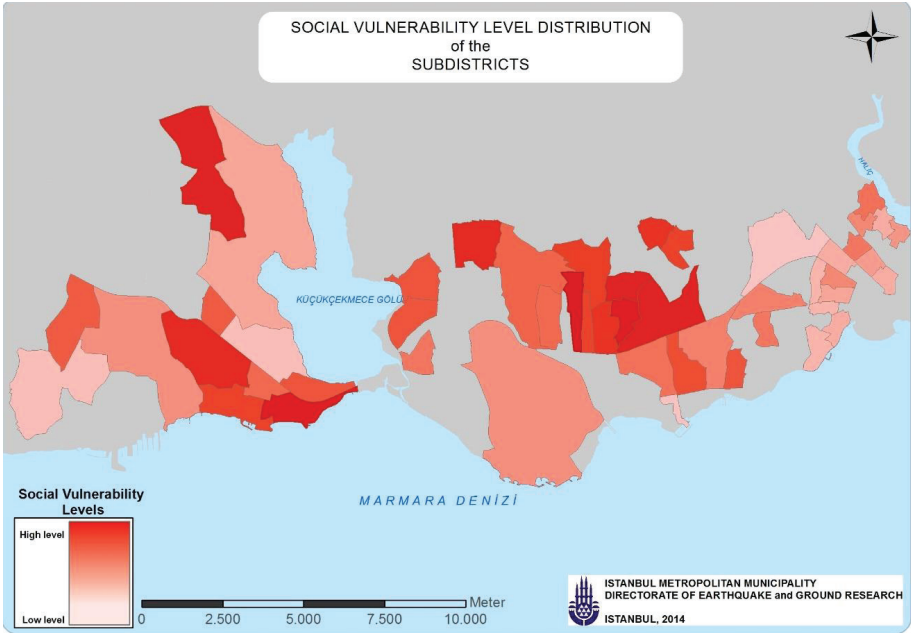
Persons/Institutions Responsible for the Project:

Under the auspices of the Directorate of Earthquake and Ground Research
Mahmut BAŞ (Director)

Osman KILIÇ (Deputy Director)

Emin Yahya MENTEŞE (R&D Coordinator)

Sema KARA (Geological Engineer)



PROJECT TITLE

2.3. UPDATING ESTIMATIONS OF THE PROBABLE EARTHQUAKE LOSSES IN İSTANBUL

Project Start and End Date:

2008–2009, (Updated study: 2017–2018)

Purpose of the Project:

The aim in this project is to estimate the physical losses (building, infrastructure damages, loss of life, etc.) that may occur in the event of an earthquake in the İstanbul province. (This study will be updated by 2018).

Summary of the Project:

This study, carried out to update urban earthquake loss determinations, includes the following phases:

1. Probabilistic and Deterministic Earthquake Ground Motion Determination
2. Ground Amplification Analyses
3. Defining Ground Problems (Liquefaction and landslide)
4. Identification and typification of the structural inventory
5. Improving the relationship between structural fragility and socio-economic vulnerability
6. Determining the error limits in fragility and vulnerability relationships
7. Determining building damage and related error limits
8. Identifying injured people and casualties as well as related error limits
9. Identifying financial losses due to structural damage and related error limits
10. Determining the number of households that need emergency shelter and related error limits
11. Determining the rate of road closures (in terms of emergency relief and rescue effectiveness)

12. Determining the penetration-explosion possibilities of fire-hazardous materials
13. Estimation of losses of industrial plants
14. Estimation of infrastructure damage
15. Estimation of direct economic losses

For the determination of losses, ground-dependent deterministic earthquake ground-motion patterns were assigned to each grid in İstanbul, corresponding to a probability of exceedance of 50 percent in 50 years, and the abovementioned losses were determined with their error limits.

Contribution of the Project to the Relevant Area:

It can be predicted through this project how an earthquake would affect the province by determining the location and extent of possible earthquake damage that may occur in İstanbul, allowing risk reduction activities to be prioritized.

Unique Value of the Project:

This is the first study to be conducted using the **Earthquake Loss Estimation Routine (ELER)** methodology in Turkey that has provided accurate results related to many international earthquake events.

Applicability of the Project:

The project can be applied or adapted worldwide as long as the appropriate input data sets are provided.

Problems Encountered During the Implementation of the Work and Suggested Solutions:

Data obtained from different sources is not produced to a standard quality. For this reason, key personnel who are familiar with the area and the region are needed.

Target Beneficiaries of the Project:

All relevant public and legal entities.

Type of Disaster Covered by the Project:

Earthquake

Project Budget/Resource and Costs:

The İstanbul Metropolitan Municipality (IMM)'s internal resources were used.

The project budget is approximately TRY 700,000.00

Persons/Institutions Responsible for the Project:

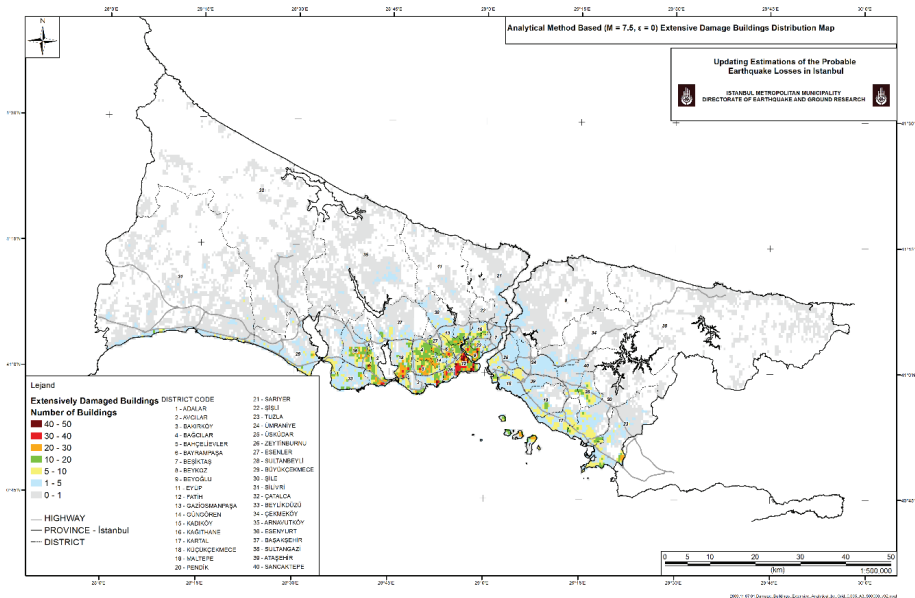
Under the auspices of the Directorate of Earthquake and Ground Research
Mahmut BAŞ (Director)

Osman KILIÇ (Deputy Director)

Emin Yahya MENTEŞE (R&D Coordinator)

Özge UZUNKOL (Geophysics Engineer)

Sema KARA (Geological Engineer)



PROJECT TITLE

2.4. UPDATING OF TSUNAMI HAZARD AND RISK ANALYSIS STUDIES

Project Start and End Date:

2007–2009 (Updated study: 2017–2018)

Purpose of the Project:

Determination of the effect of a tsunami event that may occur after a possible earthquake in İstanbul, and to analyze its effect considering different scenarios.

Summary of the Project:

Within the scope of the project, it is aimed to create different tsunami scenarios (seismogenic and probably non-seismogenic) by determining the parameters (fault length, fault width, earthquake epicenter, hypocenter, strike, dip, rike, displacement, mechanism) of a fault rupture that would cause a tsunami in the location and at the magnitude of the earthquake in the Marmara section of the North Anatolian Fault Zone. It is also aimed to determine the characteristics of a possible tsunami source based on these scenarios, and to make simulations, to prepare tsunami and flood maps, to prepare tsunami-related vulnerability maps using the current structure inventory in the flood area, and to identify the spatial distribution of the tsunami disaster risk.

Contribution of the Project to the Relevant Area:

Thanks to the abovementioned efforts, the tsunami effect, as a secondary event after a possible critical disaster that may occur in İstanbul, will be analyzed, and support for all kinds of measures to be taken in which regions will be created.

Unique Value of the Project:

This study was conducted for the İstanbul province in 2007, and analyzed tsunami-related vulnerability for the first time in Turkey. Furthermore, an updating study that is planned to be completed in 2018 will allow us to determine how the tsunami-induced inundation will progress. Through this activity, any kind of tsunami-related infrastructure and superstructure damage will be assessed.

Applicability of the Project:

Detailed bathymetric and geological data of the implementation area is

needed for the project to be carried out. If such supports can be provided, the project can be implemented in different locations.

Problems Encountered During the Implementation of the Work and Suggested Solutions:

High-performance computers will be required to process the supporting data and to produce maps with high resolution. These computers will also play an important role in the development of tsunami scenarios.

Target Beneficiaries of the Project:

All public institutions and people living in İstanbul.

Type of Disaster Covered by the Project:

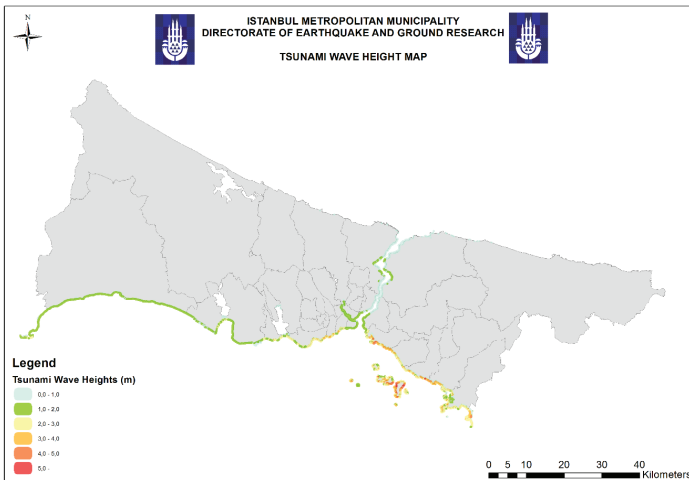
Earthquake and tsunami

Project Budget/Resource and Costs:

The İstanbul Metropolitan Municipality (IMM)'s internal resources were used. Project budget: About TRY 600,000.00

Persons/Institutions Responsible for the Project:

- Under the auspices of the Directorate of Earthquake and Ground Research
- Mahmut BAŞ (Director)
- Osman KILIÇ (Deputy Director)
- Emin Yahya MENTEŞE (R&D Coordinator)
- Ahmet TARIH (Geological Engineer)



PROJECT TITLE

2.5. MICROZONATION STUDIES

Project Start and End Date:

2006–2010

Purpose of the Project:

The aim of the micro-zoning work is (i) to identify areas with different hazard potentials in terms of their geological, geotechnical, geophysical properties, earthquake impacts and local ground conditions, prioritizing the risks and making plans according to the areas with large populations and with high numbers of buildings in İstanbul, as well as areas where risks associated with local ground conditions are high, (ii) to come up with solutions, (iii) to prepare the necessary map products based on the obtained data, and (iv) to prepare 1/2000 Scale “Land-Suitability Maps” that will serve as the basis of Urban Development Plans.

Summary of the Project:

The project was completed on a 182-km² area south of the European side of İstanbul and a 509-km² area on the Anatolian side of İstanbul. The project areas were divided into 250m x 250m grids, and for each grid, risks such as destructive ground motion, liquefaction, consolidation, landslide, flooding and surface faulting were classified and mapped. After a detailed analysis and evaluation of the geological, geotechnical, geomorphological and geophysical measurements results, the following maps were produced: Earthquake Hazard Map, Tsunami Hazard Map, Slope Map, Geological Map, Engineering Geology Map, Groundwater Level Map, Microtremor Map, Fault Map, Ground Motion Map, Liquefaction Hazard Map, Landslide Hazard Map, Earthquake-Induced Flood Map, Slide Wave Map and Ground Classification Map. Finally, the “Settlement Convenience Map” was completed based on a multi-hazard analysis approach.

Contribution of the Project to the Relevant Area:

The detailed hazard maps make it possible to take a risk-based approach as the basis for planning activities. In this way, risks are avoided with no loss, or are reduced to a controllable level.

Unique Value of the Project:

The Settlement Convenience data generated by the integrated hazard analysis is the original output of the project, and was implemented by our Directorate for the first time in İstanbul, Turkey.

Applicability of the Project:

Under the current legislation, similar activities can be frequently applied in Turkey.

Problems Encountered During the Implementation of the Work and Suggested Solutions:

Difficulties may be encountered during the integration of different forms of hazard data, and so experts should be involved in the projects to improve the quality of the produced data. These experts should be able to interpret the impact of each hazard type on a settlement in detail, and to evaluate their interactions with each other.

Target Beneficiaries of the Project:

Institutions and organizations with authorities and responsibilities in the field of urban planning, and institutions that make any kinds of infrastructural investments.

Type of Disaster Covered by the Project:

Earthquake, Landslide, Tsunami, Flood, Karstification

Project Budget/Resource and Costs:

The İstanbul Metropolitan Municipality (IMM)'s internal resources were used. Project budget: About TRY 6,000,000.00

Persons/Institutions Responsible for the Project:

Under the auspices of the Directorate of Earthquake and Ground Research:

Mahmut BAŞ (Director)

Hikmet KARAOĞLU (Deputy Director)

Teoman GÜLER (Civil Engineer)

Ahmet TARIH (Geological Engineer)

Tarık TALAY (Geological Engineer)

Kemal DURAN (Geophysics Engineer)

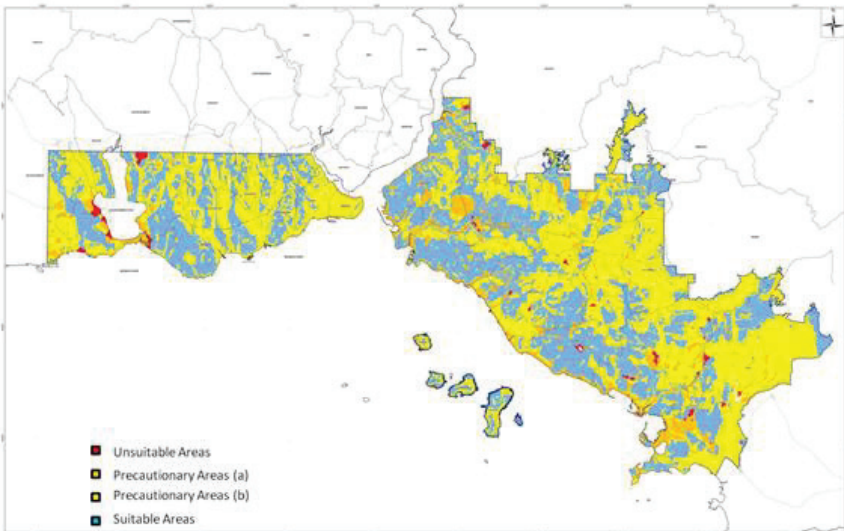
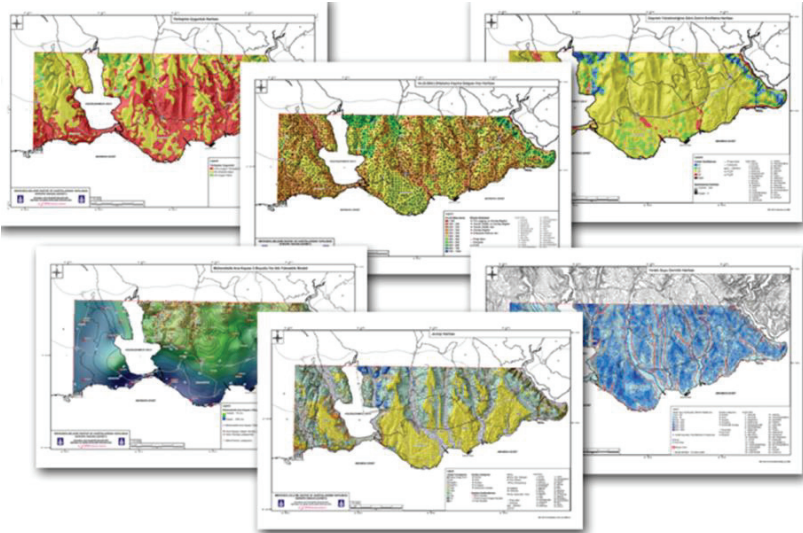
Salim GÜMÜŞ (Geophysics Engineer)

Celalettin ÖZBEK (Geological Engineer)

Evrens Rıza YAPAR (Geological Engineer)

İsra BOSTANCIOĞLU (Geological Engineer)

Muhammed Emin KARASU (Civil Engineer)



PROJECT TITLE

2.6. İSTANBUL GEO INFORMATION SYSTEM (YERBİS)

Project Start and End Date:

2016–2018

Purpose of the Project:

The İstanbul Geo Information System (YERBİS) has been created for the storage, processing and use of spatial and non-spatial geological data on GIS infrastructure, allowing the data to be accessed by relevant persons via a web-based system.

Summary of the Project:

It is aimed to present the spatial and non-spatial geological data that is generated within the body of Directorate of Earthquake and Ground Research through an integrated GIS infrastructure and web-based system, and to retain, process and use this data in accordance with current standards. Geological data is added, updated and mapped according to international standards through the use of dedicated modules. Spatial queries can be made among the existing layers in the database, and all data can be accessed rapidly.

Contribution of the Project to the Relevant Area:

Analyses can be made with the modules developed specifically for disaster risk reduction, and new modules can be developed and added to the portals as required.

Unique Value of the Project:

A web-based portal has been created for the first time in Turkey that enables geological data to be queried and analyzed in detail, and stored on a single database.

Applicability of the Project:

It is easy to access and use, being a web-based portal.

Problems Encountered During the Implementation of the Work and Suggested Solutions:

Various problems have been encountered when combining and associating different types of data. For this reason, the format of the data had to be converted. Similar studies should be made to predict how the data conversion affects the process, and planning should be carried out accordingly.

Target Beneficiaries of the Project:

Public institutions that use geological data

Type of Disaster Covered by the Project:

Earthquake, Landslide

Project Budget/Resource and Costs:

İstanbul Metropolitan Municipality (İMM)'s internal resources / About TRY 140,000.00

Persons/Institutions Responsible for the Project:

Under the auspices of the Directorate of Earthquake and Ground Research:

Mahmut BAŞ (Director)

Osman KILIÇ (Deputy Director)

Emin Yahya MENTEŞE (R&D Coordinator)

Özge UZUNKOL (Geophysics Engineer)



PROJECT TITLE

2.7. SAFE LIFE WITH SMALL STEPS (MAGYA) TRAINING PROJECT

Project Start and End Date:

This continuous program is carried out for the duration of the work schedule period determined by the Ministry of National Education.

Purpose of the Project:

This project aims to raise awareness of disasters among pre-school and kindergarten children, to increase awareness of disaster prevention in children, and to serve the public through “a child is a family” approach by increasing the number of children provided with safe life education by the İstanbul Metropolitan Municipality.

Summary of the Project:

Within the scope of the MAGYA project developed for the İstanbul province, appropriate behavior patterns in the event of natural and man-made disasters are to be taught by İstanbul Metropolitan Municipality Disaster Coordination Center (AKOM) instructors to pre-school children in their own school environment. The training sessions will involve games, songs, and an animated cartoon movie named “*Deprem Nöbetçileri* (Earthquake Guards)” starring a cartoon character named “*Rafadan Tayfa*” that the children know well from TV. This training program was prepared by AKOM with the aim of informing and educating children in the 5–6 year-age group about disasters.

Contribution of the Project to the Relevant Area:

AKOM is introduced to children; kindergarten teachers are trained and made conscious; children are taught how to react in the event of a disaster; the number of children who receive disaster training is increased; and the “safe life” theme is reinforced with games and drama, and is included in kindergarten education.

Unique Value of the Project:

The original value of the project is that the disaster training for children is

reinforced with games and play, with a special episode of a cartoon called “Deprem Nöbetçileri” starring the popular cartoon character “Rafadan Tayfa”, educational materials appropriate for the age group are provided, children are awarded with individual certificates, and coloring books are given.

Applicability of the Project:

This training program is applicable to all preschool and kindergarten children in the İstanbul province.

Problems Encountered During the Implementation of the Work and Suggested Solutions:

The provided training may cause post-traumatic stress disorder in people who have been previously exposed to disasters. In this regard, before providing such training, permission should be obtained from the families of those who will receive training after briefing them on the nature of the training.

Target Beneficiaries of the Project:

Pre-school children (5–6 years old) and their families, pre-school and kindergarten teachers

Type of Disaster Covered by the Project:

The MAGYA project, developed for İstanbul, involves the provision of training in such hazards as earthquakes, fire, flood, storm, cold and heat airwaves for pre-school children within their own school environment.

Persons/Institutions Responsible for the Project:

Ahmet TUNÇSOY (Manager, AKOM)

Selçuk TÜTÜNCÜ (Deputy Manager, AKOM)

PROJECT TITLE

2.8. FLOOD EARLY WARNING SYSTEM (FLEWS)

Project Start and End Date:

The Flood Early Warning System (FLEWS) software and hardware were developed in 2013–2014 as part of a pilot project involving five streams in İstanbul, by a cooperation involving AKOM and the İstanbul Water and Sewerage Administration (ISKI). The development of the FLEWS software and hardware have been completed, and around four years of archival data has been garnered.

Purpose of the Project:

FLEWS provides a warning to the relevant persons, giving them information about the point at which a stream will flood one to three hours in advance of a flood, thus minimizing loss of life and property as a result of flooding.

Summary of the Project:

For the FLEWS project, work and consultations are being carried out jointly with ISKI and other relevant institutions in İstanbul to analyze weather conditions and river levels using sensors and 24-hour cameras at 10 different Flow Monitoring Stations (FMS) installed in five different basins. These measures allow possible flood events to be predicted in advance.

Contribution of the Project to the Relevant Area:

FLEWS provides for the minimization of loss of life and property by enabling people to take the necessary measures in advance in areas located along the river bed and in the province and by warning those living in these areas by way of an early warning system.

Unique Value of the Project:

The FLEWS system provides significant support to decision makers, displaying all weather forecasting models, meteorological satellite data and radar images, as well as flow observation station data, and then provides early warning to the public after analyzing all of the data.

Applicability of the Project:

The FLEWS system:

- warns the relevant persons, giving them information about at what point the stream will flood one to three hours in advance of a flood, thus minimizing loss of life and property due to flooding.
- can determine regions under flood risk in advance, and can check the development of those areas.

Problems Encountered During the Implementation of the Work and Suggested Solutions:

Problems were encountered in the provision of energy and communication, and in ensuring station security, as the stations were located in areas distant from residential areas and neighborhoods and on the streams. For the abovementioned reasons, facilities that will invulnerable to energy and security problems are preferred.

Target Beneficiaries of the Project:

İstanbul Metropolitan Municipality (IMM) and Turkish State Meteorological Service (MGM)

Type of Disaster Covered by the Project:

Excessive precipitation, flood

Project Budget/Resource and Costs:

IMM budget

Persons/Institutions Responsible for the Project:

Ahmet TUNÇSOY (Manager, AKOM)

Selçuk TÛTÛNCÛ (Deputy Manager, AKOM)

PROJECT TITLE

2.9. ICE EARLY WARNING SYSTEM (IEWS)

Project Start and End Date:

Ice Early Warning System (IEWS) was introduced in December 2007, and was established at 43 points determined as critical along roads, bridges, viaducts and similar routes within the provincial borders of İstanbul. In 2018, it is planned to install more IEWSs at 17 critical points to be determined along new routes.

Purpose of the Project:

Weather is one of the most significant factors affecting traffic and in the event of severe weather, measures need to be taken related to the status of the road surface, making necessary works, warning drivers of traffic, and ensuring traffic flow and road safety. IEWS allows for the constant measurement of meteorological parameters by the İstanbul Metropolitan Municipality, 7 days a week, 24 hours a day, on the highways. It further aids in the determination, evaluation, recording and informing of road surface conditions, and safely transmits this information to the data collection center, from where it is sent to the systems of the related units in the İstanbul Metropolitan Municipality.

Summary of the Project:

Thanks to the stations installed at 43 critical points determined as critical along the roads, bridges, viaducts and similar routes within the provincial borders of İstanbul, possible icy conditions can be determined in advance based on a combined analysis of air and road conditions, after which, a warning message is sent , to the relevant persons.

Contribution of the Project to the Relevant Area:

Through the use of IEWS, road gritting and remedial works can be completed before the roads become icy as part of preparations for winter. In order to avoid accidents, which lead to loss of life and property, and to not negatively affect traffic, roads at risk of ice in İstanbul are controlled by the IEWS system on a 24/7 basis.

Unique Value of the Project:

IEWS stations analyze air and road conditions together, are able to detect possible ice in advance, and send warning messages to the relevant staff. Furthermore, the measured data can be archived for analysis or use in academic works, when necessary.

Applicability of the Project:

Through the IEWS system:

- Instant road and weather information can be disseminated among the public via the DMS (Mobile Message System), SMS and IMM Traffic Density map;
- Ice formation and ice depth can be estimated in advance based on precipitation/snow time, allowing the prevention of the adverse effects of rainfall and ice on the main transport networks;
- Ice formation and snow depth can be estimated 3 hours in advance, allowing snow plows to be rapidly deployed to the region where ice is expected as an early response.

Problems Encountered During the Implementation of the Work and Suggested Solutions:

Problems were encountered in the provision of energy and security, as the stations were located in areas distant from residential areas and neighborhoods on the main transportation network. For the above-mentioned reasons, alternative energy sources (Solar and Wind Energy) have been utilized in areas where no energy source is available. Wire fencing and warning signs have been installed to prevent security-related incidents such as theft.

Target Beneficiaries of the Project:

Drivers using the main arterial roads in İstanbul and members of the public using the Traffic Control Center's Traffic Density Map

Type of Disaster Covered by the Project:

Ice, Snow

Project Budget/Resource and Costs:

The IMM budget

Persons/Institutions Responsible for the Project:

Ahmet TUNÇSOY (Manager, AKOM)

Selçuk TÛTÛNCÛ (Deputy Manager, AKOM)

PROJECT TITLE

2.10. WEB-BASED EARTHQUAKE LOSS ESTIMATION ROUTINE (ELER) PROJECT

Project Start and End Date:

30.10.2013–24.03.2014

Purpose of the Project:

To produce maps and information on settlement areas affected by earthquakes, and to estimate the number of damaged buildings, losses of life and emergency housing requirements. This information is communicated to the relevant authorities following a disaster, facilitating rapid response.

Summary of the Project:

In 2011, within the scope of the European Union Sixth Framework Program NERIES Project, a research has been carried out to investigate the vulnerability of buildings and potential losses in the event of an earthquake. The Boğaziçi University Kandilli Observatory and Earthquake Research Institute carried out the project, which was completed in 2011, and the project output, named ELER, is presented along with sample data and documentation via their website. The program allows the user to analyze loss of life, the number of injured persons and the losses and damage after an earthquake.

Contribution of the Project to the Relevant Area:

The generated risk analyses and disaster plans have been made shareable, searchable and classifiable through a website.

An updateable risk analysis infrastructure has been established to address earthquake risk in İstanbul. Through this infrastructure and a dynamic disaster plan, an effective response can be developed after determining the damage distribution and loss of life as soon as possible after an earthquake.

A shareable and updateable risk analysis infrastructure has been established for the IMM AKOM Disaster and Emergency Plan.

The analysis results and data types of other risks and potential factors that may arise due to earthquake damage will be colored according to their purposes, and a higher level of disaster planning infrastructure will be supported.

Unique Value of the Project:

In the project that is being carried out by our directorate within the scope of the İstanbul Development Agency (ISTKA)'s 2012 Financial Support Program for Disaster Preparedness, the ELER program – a desktop software – has been transformed into a web-based and open-source coded program that can be updated via the data entry interfaces. İstanbul Metropolitan Municipality and any relevant institutions can use the program to update the data to be used in the analysis and to carry out risk analyses for different earthquake scenarios. A shareable and updateable risk analysis infrastructure has been established for the IMM AKOM Disaster and Emergency Plan.

Applicability of the Project:

The program starts to run automatically after an earthquake, providing an analysis of loss of life, and establishing the number of injured and damage within five minutes. A five-level structural damage analysis is performed (completely damaged, severe, moderate, minor, undamaged). The system can be operated as a scenario earthquake, and works automatically in the event of a real earthquake.

Problems Encountered During the Implementation of the Work and Suggested Solutions:

The operation of the system may be interrupted in the event of an interruption in communications, being a web-based program. Building data should be able to be updated continuously.

Target Beneficiaries of the Project:

İstanbul Metropolitan Municipality, Governorship of İstanbul, İstanbul Water and Sewerage Administration (ISKI), IETT, İstanbul Metropolitan Municipality Companies, District Municipalities, AFAD, Universities, Boğaziçi University Kandilli Observatory and Earthquake Research Institute, İstanbul Provincial Directorate of the Environment and Urban

Planning, Ministry of Transport, Maritime Affairs and Communications, 1st Regional Directorate of Highways, Marmara Municipalities Union, Turkish Red Crescent Society, Turkish Natural Catastrophe Insurance Pool (DASK), NGOs and the people of İstanbul.

Type of Disaster Covered by the Project:

Earthquake

Project Budget/Resource and Costs:

TRY 572,300.00

Funded by the İstanbul Development Agency (ISTKA)

Persons/Institutions Responsible for the Project:

Ahmet TUNÇSOY (Manager, AKOM)

Selçuk TÜTÜNCÜ (Deputy Manager, AKOM)

PROJECT TITLE

2.11. URBAN RENEWAL PROJECT FOR BAYRAMPAŞA DISTRICT

Project Start and End Date:

30.09.2016–01.03.2019

Purpose of the Project:

To create disaster-resilient places with a high quality of life through urban regeneration projects in part of the İsmetpaşa neighborhood in the Bayrampaşa district, which has been declared as an urban development area and has a high risk of earthquake.

Summary of the Project:

In 2012, the Ministry of Justice took control of 80,000m² land through a “generate, transfer, evacuate model”. The right holders of the neighborhood, declared as the urban development area, immediately adjacent to the residential and commercial units built in this location, were given their rights in return.

Contribution of the Project to the Relevant Area:

İstanbul Metropolitan Municipality aims to donate the most valuable and largest area of land in Bayrampaşa to the residents of İsmetpaşa, and to improve the old neighborhood culture to create a better quality of life by combining it with innovative and safe buildings of İstanbul Residence Development Plan Industry and Trade Inc. (KİPTAŞ) quality.

Unique Value of the Project:

- an urban renewal model to be applied for the first time
- a financial model to be implemented for the first time
- green building applications and technical infrastructures to be applied for the first time

Applicability of the Project:

An available reserve area and budget need

Problems Encountered During the Implementation of the Work and Suggested Solutions:

Bureaucratic processes between institutions, and the prejudices of the public against urban renewal (coordination between institutions and sharing of experiences).

Target Beneficiaries of the Project:

Beneficiaries included in the relevant area

Type of Disaster Covered by the Project:

Ground-related disasters (i.e. earthquake)

Project Budget/Resource and Costs:

TRY 700,000,000.00

Persons/Institutions Responsible for the Project:

IMM, KİPTAŞ



**KOCAELİ
BÜYÜKŞEHİR
BELEDİYESİ**

ÇALIŞINCA OLUYOR

KOCAELİ METROPOLİTAN MUNICIPALITY

PROJECT TITLE

3.1. PROJECT ON DISASTER PREPAREDNESS TRAINING FOR KOCAELİ RESIDENTS

Project Start and End Date:

Start Date: 14.10.2016 End Date: 14.04.2018

Purpose of the Project:

The general purpose of the project is **“to Create a Disaster Resilient Community”**.

Project Outputs:

- An evaluation made after the training revealed that the project was liked by the participants, and this is the most important output of the project, indicating that the Purpose of the Project has been achieved, which is very pleasing for us.
- The feedback obtained during the project shows that people are sensitive about participating in activities aimed at fighting against disasters.
- At the end of the training, it could be clearly seen that participants had become aware of the hazards and risks around them, and were willing to be a part of the measures to be taken.
- It can be said that activities in which the public are given the opportunity to speak are more interesting and more beneficial than one-way training.
- The adoption of a concept of “Being a disaster-resilient community” by the community,
- Through an Observational Neighborhood Hazard Analysis, administrators and members of the public were brought together in a field application, and an environment was set up in which they could make joint decisions regarding solutions and responsibilities. Individual awareness of being part of the solution has been raised. Through the Safe Room, a multi- directional practice was created for the reduction of non-structural risks.

Summary of the Project:

Considering their impacts and consequences, disasters affect all parts of the community. Disaster readiness works cover a wide range of activities, including those that are community-based, such as being prepared for disasters and emergencies, with measures on risk reduction at individual, family and institutional levels, improving response capacities, and developing knowledge and skills through training and exercises.

Accordingly, the preparation for disasters is the responsibility of local authorities, the central authority, the private sector, universities, non-governmental organizations and individuals – in short, all segments of the community. Taking this responsibility into account, the Project on Disaster Preparedness Training for Kocaeli residents has been prepared in which volunteers take part in various training sessions on disaster preparedness.

This training project is conducted jointly by the Kocaeli Metropolitan Municipality Directorate of Reconstruction and Urban Planning Directorate of Earthquakes and Ground Investigation, Kocaeli University and the Kocaeli Provincial Directorate of AFAD. The project is coordinated by the Kocaeli Metropolitan Municipality, while the Kocaeli Provincial Directorate of AFAD and Kocaeli University contribute to the training events.

Started on 14.10.2016, the project was completed on 14.04.2018, although there are plans for its continuation. The general objective of the project is to create a disaster awareness culture in the community, and **895** volunteer community representatives, including neighborhood *mukhtars* (local administrators), imams, teachers, members of parent-teacher associations, parents and neighborhood spokespersons from 23 communities took part in two days of full-time disaster preparedness training.

Number of districts or neighborhoods in which the training events were carried out, and the number of participants:

District	Number of neighborhoods	Number of Participants
İzmit	2	181
Derince	2	105
Gölcük	6	260
Karamürsel	5	108
Körfez	8	241
TOTAL	23	895

Content and Duration of Training:

Name of Training	Duration	Institution
Being a Disaster-Resilient Community	45 min	Kocaeli University
Disaster Awareness	70 min	Kocaeli Provincial Directorate of AFAD
CBRN and Light Search and Rescue	50 min	Kocaeli Provincial Directorate of AFAD
Psychological First Aid in Disaster	50 min	Kocaeli Metropolitan Municipality
First Aid	60 min	Kocaeli Metropolitan Municipality
Fire	60 min	Kocaeli Metropolitan Municipality
Mitigation Training	60 min	Kocaeli University
Observational Neighborhood Hazard Analysis - Theoretical and Practical	120 min	Kocaeli University
Reducing Non-Structural Risks - A Safe Room	60 min	Kocaeli Metropolitan Municipality

Being a Disaster-Resilient Community

- Concepts of resilience and vulnerability,
- Core, Internal and External Resilience,
- Resilience in Disaster Management,
- Being a disaster-resilient community, and creating disaster-resilient communities in Turkey.

Disaster Awareness

- Basic concepts of disasters,
- Disaster types in Turkey,
- Appropriate behavior patterns in disasters,
- Individual and social disaster planning.

CBRN and Light Search and Rescue

- CBRN risks,
- Detecting CBRN threats and appropriate behavior patterns,
- Warning and notice signs and alarms,
- Importance of light search and rescue components, and volunteering in disaster response.

Psychological First Aid in Cases of Disaster

- Psychological first aid methods,
- Appropriate and correct response to the effects of shock in disasters and psychological support processes

First Aid

- What is first aid?
- Mild and moderate injuries and first aid techniques.

Fire

- What is fire and burning?
- Fire safety precautions, fire extinguishers and their use

Reducing Non-Structural Risks – The Safe Room

- The Safe Room is a container measuring 6 m length, 2.40 m in width and 2.40 m in height.
- Its external walls are covered with images providing general information about non-structural risks and fixing methods. Videos related to fixing techniques are shown on the plasma TV inside.
- There are also examples of correctly- and incorrectly-fixed household items, such as a plasma TV, kitchen cabinets, bookshelf, dresser, glass coffee table, armchairs, medicine cabinet, fire extinguisher and chandelier.
- The Safe Room is brought to the neighborhood in which the project is being implemented. With this case study, important steps will be taken in raising awareness in the community of the reduction of non-structural risks against earthquakes, and significant positive changes are expected

in the knowledge and attitudes of those who visit the Safe Room. Within the scope of the project, a fixing service for household items will be provided free of charge by Kocaeli Metropolitan Municipality staff to those who wish to properly fix their items, but are not capable themselves.

Apart from the neighborhoods in which the project is being implemented:

The Safe Room was exhibited in Cumhuriyet Park during Earthquake Week on March 1–7:A total of 786 people, including 196 residents,

- 224 students of Hızır Reis Primary and Secondary School,
- 36 students of Izmit High School,
- 246 students of 75. Yıl Primary and Secondary School, and
- 84 students of Şükrü Arıcı Primary School,

were provided mitigation training on Reducing Non-Structural Risks in the Safe Room.

Mitigation:

- Mitigation concept,
- Its role and importance in disaster management,
- Individual and institutional mitigation activities.

Observational Neighborhood Hazard Analysis (ONHA);

- Reviewing the basic concepts of disaster management,
- Information on urban infrastructure in the settlement areas, in the vicinity of a building and facade risks, and how these hazards can be identified,
- Explaining the type of ONHA to be used in the field application.

Observational Neighborhood Hazard Analysis (ONHA) Field Application;

An ONHA Form (checklist) that has been prepared by the instructor is given to the participants to inform them about how to use their theoretical training in a field application. Then, under the supervision of instructors and assistants, the field application is carried out at a determined location in the region where the training is being conducted. During the field application, the participants identify current hazards and risks in the area in which they live. The data obtained at the end of the application is evaluated in the final stage of training, and opinions and suggestions are presented.

Contribution of the Project to the Relevant Area:

The most important contribution is the fact that the project was carried out with the cooperation of the local authority, AFAD and academia, all of which have responsibilities in the building of disaster-resilient communities. Through this project, communication between the three institutions has been increased to a higher level. Very positive reactions were received from the public after seeing the municipality, AFAD and university authorities working together in an organized manner. The academic contribution of the university, the experience of Provincial Directorate of AFAD and the technical support of the metropolitan municipality are all important factors in the success of the project.

Unique Value of the Project:

- Adoption of a concept of “Being a disaster-resilient community” by the community,
- Through the Observational Neighborhood Hazard Analysis, the public and administrators were brought together in a field application, and an environment was established in which they were able to make joint decisions on solutions and responsibilities. The awareness of the participants of being part of the solution has been raised.
- Through the Safe Room, a multi-directional application was created for the reduction of non-structural risks.

Applicability of the Project:

This project can be applied in all provinces, and is of great importance in terms of overcoming the lack of communication between institutions, which is one of the greatest problems in disaster management, and in preparing the community for disasters.

Problems Encountered During the Implementation of the Work and Suggested Solutions:

The most significant problem encountered in the project was finding participants to take part in the two-day full-time training sessions. Efforts should be made to persuade the people living in the neighborhoods in which the project is being carried out to participate in the training.

Target Beneficiaries of the Project:

Volunteer community representatives, including neighborhood mukhtars, imams, teachers, members of parent-teacher associations, parents and neighborhood spokespersons.

Type of Disaster Covered by the Project:

Earthquake, flood, landslide, CBRN events.

Project Budget/Resource and Costs:

The financial expenses of the project were covered by Kocaeli Metropolitan Municipality. The Kocaeli University and the Provincial Directorate of AFAD provided educational support.

Total expenditures incurred within the scope of the project correspond to TRY 110,000.00.

Persons/Institutions Responsible for the Project:

Name of the Institution	Name of Personnel	Contact
Kocaeli Metropolitan Municipality	Ahmet ÖZDEMİR, Geophysics Engineer	0 506 401 57 22
Kocaeli Provincial Directorate of AFAD	Alper ŞEN, Geo. Eng.	0 505 526 84 53
Kocaeli University	Dr. Serpil GERDAN, Lecturer	0 532 636 83 84





BÜYÜKŞEHİR
GAZİANTEP
GAZİANTEP BÜYÜKŞEHİR BELEDİYESİ

GAZİANTEP METROPOLITAN MUNICIPALITY

PROJECT TITLE

4.1. GAZİANTEP RISK MAP

Project Start and End Date:

01.01.2015–Ongoing

Purpose of the Project:

The purpose of the project is to create a risk map for Gaziantep, to be able to take preventive measures and to reduce potential losses through the creation of a risk map.

Summary of the Project:

In this geographic information system-based project, all events in the province are processed on district- and neighborhood-based maps, and all training and supervision is detailed on the map, along with response vehicles, hydrants and response stations. The aim is to facilitate rapid and effective response by creating a risk map for Gaziantep, taking into account the regional distribution of all emergencies and disasters that have occurred in Gaziantep, and to establish an effective field management approach based on all the information included in the system.

Contribution of the Project to the Relevant Area:

Potential disasters and risks in Gaziantep will be determined, an action plan for the actions to be taken before, during and after a disaster will be created, and thus, the risks and damage associated with disasters will be reduced.

Unique Value of the Project:

All data is kept based on real statistics. In addition, records are kept and added to the system based on regional distribution, disaster and emergency type, and neighborhood, ensuring the accuracy of the results. This is being implemented for the first time in Turkey, and to date, 30,000 events have been entered into the system.

Applicability of the Project

All data is recorded by our staff and kept up-to-date, and response action plans are determined based on this data. The system has been operating continuously for three years, and is now institutionalized.

Target Beneficiaries of the Project:

All residents of Gaziantep

Type of Disaster Covered by the Project:

Fire, earthquake, flood, landslide, land fire, all search & rescue incidents.

Project Budget/Resource and Costs:

The system was designed by the Gaziantep Metropolitan Municipality Fire Department, and the software was developed by the Gaziantep Metropolitan Municipality Information Technologies Department. The system is currently in use by the fire brigade.

Persons/Institutions Responsible for the Project:

Gaziantep Metropolitan Municipality Fire Department



**ANTALYA
BÜYÜKŞEHİR
BELEDİYESİ**

**ANTALYA METROPOLITAN
MUNICIPALITY**

PROJECT TITLE

5.1. URBAN RENEWAL PROJECT FOR KEPEZ AND SANTRAL NEIGHBORHOODS

Project Start and End Date:

The Kepez and Santral Urban Renewal Project was started on December 25, 2014 and the implementation works are continuing. The project is scheduled for completion in 2019.

Purpose of the Project:

The aim of the project, which has been implemented in Kepez district of Antalya province, is to not only design and build a sound city, but also to resolve the ownership problems of beneficiaries who acquired ownership rights under Law No. 2981. Within the scope of the project, it is further aimed to:

- transform the region into a sound and safe urban area in which infrastructure works and social facilities have been completed;
- determine the methods and approaches related to the applications to be applied in the region;
- take decisions to remove structures causing problems in terms of safety and that are under disaster risk, having been built without any engineering oversight, and those of which the useful economic life has expired;
- prepare the region for a possible earthquake;
- consideration of the reinstatement of beneficiaries in the area as a basic principle,
- create projects aimed at functionalizing the potential dynamics in the region,
- create the reference points and focal points that a city needs,
- analyze transportation systems considering the population living in the area, according to the areas of usage specified by planning and design, and

- To create applicable, sustainable and renewable strategies to resolve problems that may arise after all these objectives have been achieved.

Summary of the Project:

The area in which Kepez and Santral neighborhoods are located is a former slum-housing zone. Although its location makes it one of the most important areas in terms of providing a first impression of the city, it is characterized by low-quality development due to slum housing and inadequate social facilities and infrastructure.

The project area is located within the boundaries of Kepez Municipality in the Antalya Province, and covers an area of about 132.7 ha. It is bounded by the Antalya–Burdur Highway to the east, the Ferro Chrome Plant, Cezaevi and Ünsal neighborhood to the south, forestland and the zoo to the north, and the forest and Kepez Hydroelectric Power Plant to the west.

With reference to implementation practices and the urban renewal incentives laid down in Law No. 6306 on the Transformation of Areas Under Disaster Risk, the 132.7ha area owned by Antalya Metropolitan Municipality that includes Kepez and Santral neighborhoods has been declared an “Area under Risk”, and is included within the scope of Law No. 6306, as per decree no. 7041 of the Council of Ministers dated November 24, 2014, published in the Official Gazette No. 29216 on December 25, 2014.

Contribution of the Project to the Relevant Area:

The standard and quality of life will be improved through the development of qualified buildings and recreation areas in the field. Unsafe constructions in the area will be demolished, and sound and safe buildings will be constructed in accordance with scientific and artistic rules and standards. Through the arrangements to be made, the area will be developed in many aspects, creating sound physical conditions and providing economic viability. It is further aimed to resolve the problem of slum housing in the area and to provide their residents with certificates of ownership. Through the Kepez-Santral Urban Renewal Project, the solution to the property ownership issue, which is a common problem throughout Turkey, has been included in the urban renewal vision, and it has been ensured that the region will gain a sound environment and socio-demographic structure.

Unique Value of the Project:

The project area is owned by Antalya Metropolitan Municipality, and the aim is not only to design and build a sound province, but also to resolve the ownership problems of beneficiaries who acquired ownership rights with Law No. 2981. Within the scope of the project, focus is not only on regenerating the area into a modern and resilient residential district, but also to provide basic services such as schools, places of worship, health centers, commercial areas, green areas and parking areas. Volunteer-based regeneration was encouraged, with assistance and support provided to the beneficiaries within the scope of the project.

This project has proved that urban renewal processes with multiple participant groups can be carried out in a collaborative framework through a single piece of software, and that the public may actively participate in the works being carried out.

The feature that most differs the present project from existing urban renewal projects is that new generation information technologies such as Geographical Information System infrastructure, *e-Devlet* (e-State) services and mobile applications are used actively in all processes, and all of which are carried out in accordance with the Smart Urban Renewal methodology.

Applicability of the Project:

Within the scope of Law No. 6306 on the Transformation of Areas under Disaster Risk, the transformation of large areas in Turkey has become a key issue. In the enforcement of this law, the methods used by the Antalya Metropolitan Municipality within the scope of the Kepez-Santral Urban Renewal Project have created a transparent, accurate and rapid environment that will not damage the relationship between the state and the public, which is based on mutual trust.

In the project, the public is provided with information via web portals and electronic media as an e-service, serving as an example for other institutions.

Problems Encountered During the Implementation of the Work and Suggested Solutions:

- The public has made prejudgments against the project due to the title deed problems that have continued for many years. A coordination office has been set up in the project area and a team of experts has held meetings and individual interviews with the residents, during which all kinds of information has been provided.
- Some beneficiaries were unable to visit the coordination office, being resident in other provinces and countries, or due to health problems.
- Through the information portal provided by the project as an e-service via electronic media, beneficiaries were able to monitor the process online.

Target Beneficiaries of the Project:

The target beneficiaries of the project is all residents of Antalya and foreign citizens who came to Antalya to live with expectations of a quality environment, as well as the owners of slum houses (*gecekondu*) in the Kepez District and Santral neighborhood. The project thus has also an international dimension.

Type of Disaster Covered by the Project:

Earthquake

Project Budget/Resource and Costs:

Within the scope of the project, the Ministry of Environment and Urbanization approved a resource allocation of TRY 55,000,000.00 for rent subsidies and TRY 2,376,577.82 for consultancy services. Other costs within the scope of the project are covered by the Antalya Metropolitan Municipality Budget.

Persons/Institutions Responsible for the Project:

Antalya Metropolitan Municipality, Directorate of Urban Aesthetics, Urban Renewal Branch Office

PROJECT TITLE

5.2. URBAN RENEWAL PROJECT FOR THE GÜNEŞ NEIGHBORHOOD

Project Start and End Date:

The project was started on July 19, 2016 and implementation works are continuing.

Purpose of the Project:

The intention is to create modern residential and commercial areas, as well as active recreational zones, creating a livable city that is prepared for earthquakes. The Project will resolve such problems as risky construction stock that does not comply with public housing laws, unsound and unplanned urbanization, inadequate urban infrastructure, and the unfavorable physical conditions that have resulted from uncontrolled development in the project area where there are buildings fail to meet scientific standards and norms.

Summary of the Project:

As per Resolution No. 2016/9724 of December 27, 2016, an area of around 9.77 ha (25,505 blocks and eight lots) owned by Antalya Metropolitan Municipality within the boundaries of the Güneş neighborhood in the Kepez district has been declared an “Area under Risk” in accordance with Law No. 6306 on the Transformation of Areas under Disaster Risk, published in the Official Gazette No. 29954 of January 20, 2017. A 1:1000 scale Urban Development Implementation Plan has been approved with Metropolitan Municipality Council Decree No. 773 of July 15, 2016.

Within the scope of Güneş Neighborhood Urban Renewal Project, the contract and preliminary protocol have been concluded with the beneficiaries. In the area in which the evacuation process and demolition phases have been completed, the application process has begun.

Contribution of the Project to the Relevant Area:

The standard and quality of life will be improved through the development of qualified buildings and recreation areas in the field. Risky constructions in the area will be demolished, and sound and safe buildings will be constructed

in accordance with scientific and artistic rules and standards. Through the arrangements to be made, the area will be developed in many aspects, creating sound physical conditions and providing economic viability. It is further aimed to resolve the problem of slum housing in the area and to provide slum house owners with certificates of ownership. Through the Güneş Neighborhood Urban Renewal Project, the solution to the property ownership issue, as a common problem throughout Turkey, has been included in the urban regeneration vision, and it has been ensured that the region has a sound environment and socio-demographic structure.

Unique Value of the Project:

Based on the analyses and determinations made to date, it has been determined that the area is located in the development center of the city, and that the area is inadequate in terms of meeting the needs of the residents due to the development problems and the continuous construction of unsafe buildings. The quality of the building stock and economic life of the building is contrary to the Building Inspection Regulations, and can be considered risky in that all of the existing buildings in the relevant risk area have been constructed without a building engineering service plan. Accordingly, the risk associated with a possible earthquake in the Antalya province should be considered, and the area should be declared “Under Risk”, in accordance with *Law No. 6306 on the Transformation of Areas under Disaster Risk*, and should consequently be transformed. Furthermore, threats to the safety of the people living in that region in the event of an earthquake need to be eliminated. It is further aimed to reconstruct the structures under risk in line with the principles of an “Earthquake Resistant Design Code”, and to create durable and safe urban spaces with a high quality of life.

Applicability of the Project:

Within the scope of Law No. 6306 on the Transformation of Areas under Disaster Risk, the transformation of large areas in Turkey has become a key issue. In the enforcement of this law, the methods used by Antalya Metropolitan Municipality within the scope of the Güneş Neighborhood Urban Renewal Project have created a transparent, rightful and agile environment that will not damage the trust-based relationship between state and the public.

Problems Encountered During the Implementation of the Work and Suggested Solutions:

Within the scope of the project, potential problems have been avoided by working with a team of experienced experts on the management of urban renewal projects and processes.

Target Beneficiary of the Project:

While the main target beneficiaries of the project is the owners of the slum houses in the Güneş neighborhood, all residents of Antalya province stand to benefit.

Type of Disaster Covered by the Project:

Earthquake

Project Budget/Resource and Costs:

Within the scope of the project, the Ministry of Environment and Urbanization has approved a resource allocation of TRY 4,471,200.00 for rent subsidies. Other costs within the scope of the project are covered by the Antalya Metropolitan Municipality Budget.

Persons/Institutions Responsible for the Project:

Antalya Metropolitan Municipality, Directorate of Urban Aesthetics, Urban Renewal Branch Office

PROJECT TITLE

5.3. ARRANGEMENT STUDIES FOR FLOOD PROTECTION AND SEDIMENTATION CONTROL ON THE BOĞAÇAY, ÇANDIR AND GÖKSU (KARAMAN) RIVERS

Project Start and End Date:

09.10.2017–08.10.2018

Purpose of the Project:

The purpose of the project is to ensure the sound discharge of water generated through precipitation.

Summary of the Project:

Floods that may occur in the Konyaaltı region will be avoided by carrying out an appropriate project in the Konyaaltı basin, lies at the junction of the Boğaçay, Çandır and Göksu (Karaman) Rivers.

Contribution of the Project to the Relevant Area:

The project will prevent houses and workplaces from flooding in the Konyaaltı Region.

Unique Value of the Project:

The damage from floods that may occur in the Konyaaltı region will be prevented through the specified project in the Konyaaltı basin, which lies at the junction of the Yağışlar, Boğaçay, Çandır and Göksu (Karaman) Rivers.

Applicability of the Project:

Works are ongoing.

Problems Encountered During the Implementation of the Work and Suggested Solutions:

No problems were encountered during implementation.

Target Beneficiaries of the Project:

All individuals.

Type of Disaster Covered by the Project:

Flood

Project Budget/Resource and Costs:

Resource - TRY 7,667,718.93 (VAT included)

Persons/Institutions Responsible for the Project:

Antalya Water and Wastewater Administration General Directorate (ASAT)

PROJECT TITLE

5.4. RAINWATER DRAINAGE LINE CONSTRUCTION IN THE DEMRE NEIGHBORHOOD OF DEMRE DISTRICT

Project Start and End Date:

07.10.2016–10.05.2018

Purpose of the Project:

The purpose of the project is to ensure the sound discharge of water generated through precipitation.

Summary of the Project:

The water that accumulates in the Demre neighborhood of the Demre district due to precipitation will be collected in rainwater drainage channels. The collected water will then be discharged through these channels, preventing flooding.

Contribution of the Project to the Relevant Area:

It will prevent houses and workplaces from flood damage in the Demre neighborhood of the Demre district.

Unique Value of the Project:

Once the relevant project has been completed in Demre neighborhood of the Demre district, flood damage will be prevented.

Applicability of the Project:

Work has been completed.

Problems Encountered During the Implementation of the Work and Suggested Solutions:

No problems were encountered during implementation.

Target Beneficiaries of the Project:

All individuals.

Type of Disaster Covered by the Project:

Flood

Project Budget/Resource and Costs:

Resource - TRY 4,865,210.56 (VAT included)

Persons/Institutions Responsible for the Project:

Antalya Water and Wastewater Administration General Directorate (ASAT)

PROJECT TITLE

5.5. RAINWATER DRAINAGE LINE CONSTRUCTION AT GÖKSU STREET IN THE GÜNDOĞDU NEIGHBORHOOD

Project Start and End Date:

05.01.2016–25.12.2017

Purpose of the Project:

The purpose of the project is to ensure the sound discharge of water generated through precipitation.

Summary of the Project:

The water that accumulates on the roads of the Gündoğdu neighborhood due to precipitation will be collected in rainwater drainage channels. The collected water will then be discharged through these channels, preventing flooding.

Contribution of the Project to the Relevant Area:

The Project will prevent houses and workplaces from flooding in the Gündoğdu neighborhood.

Unique Value of the Project:

Once the relevant project has been completed in the Gündoğdu neighborhood, the risk of damage from flood will be decreased.

Applicability of the Project:

Work has been completed.

Problems Encountered During the Implementation of the Work and Suggested Solutions:

No problems were encountered during implementation.

Target Beneficiaries of the Project:

All individuals.

Type of Disaster Covered by the Project:

Flood

Project Budget/Resource and Costs:

Resource - TRY 18,847,679.66 (VAT included)

Persons/Institutions Responsible for the Case Project:

Antalya Water and Wastewater Administration General Directorate (ASAT)

PROJECT TITLE

5.6. RAINWATER DRAINAGE LINE CONSTRUCTION IN MANAVGAT DISTRICT (ESKİHİSAR AND AŞAĞIHİSAR NEIGHBORHOODS)

Project Start and End Date:

10.08.2015–29.04.2017

Purpose of the Project:

The purpose of the project is to ensure the sound discharge of water generated by precipitation.

Summary of the Project:

The water that accumulates on the roads in the Eskihisar and Aşağıhisar neighborhoods because of precipitation will be collected in rainwater drainage channels. The collected water will then be discharged through the elevation system, thus preventing flooding.

Contribution of the Project to the Relevant Area:

The project will prevent houses and workplaces from flood damage in the Aşağıhisar and Eskihisar neighborhoods of the Manavgat district.

Unique Value of the Project:

Once the project has been applied in the neighborhoods near the Manavgat River, damage from flooding will be prevented.

Applicability of the Project:

Work has been completed.

Problems Encountered During the Implementation of the Work and Suggested Solutions:

No problems were encountered during implementation.

Target Beneficiaries of the Project:

All individuals.

Type of Disaster Covered by the Project:

Flood

Project Budget/Resource and Costs:

Resource - TRY 8,843,574.26 (VAT included)

Persons/Institutions Responsible for the Project:

Antalya Water and Wastewater Administration General Directorate (ASAT)

PROJECT TITLE

5.7. RAINWATER DRAINAGE LINE CONSTRUCTION IN TURGUT REİS, TONGUÇ AND YILDIZ STREETS IN MURATPAŞA DISTRICT OF ANTALYA PROVINCE

Project Start and End Date:

07.01.2016–26.12.2017

Purpose of the Project:

The purpose of the project is to ensure the sound discharge of water generated through precipitation.

Summary of the Project:

The water that accumulates on the Turgut Reis, Tonguç and Yıldız Streets, and the associated side streets because of precipitation will be collected in rainwater drainage channels. The collected water will then be discharged through these channels, thus preventing flooding.

Contribution of the Project to the Relevant Area:

The project will prevent houses and workplaces on the Turgut Reis, Tonguç and Yıldız Streets from flooding, as well as the associated side streets.

Unique Value of the Project:

Once the relevant project has been applied in the Turgut Reis, Tonguç and Yıldız Streets and the associated side streets, damage from floods will be prevented.

Applicability of the Project:

Work has been completed.

Problems Encountered During The Implementation of The Work and Suggested Solutions:

No problems were encountered during implementation.

Target Beneficiaries of the Project:

All individuals.

Type of Disaster Covered by the Project:

Flood

Project Budget/Resource and Costs:

Resource - TRY 25,361,762.16 (VAT included)

Persons/Institutions Responsible for the Project:

Antalya Water and Wastewater Administration General Directorate (ASAT)

PROJECT TITLE

5.8. VARSACK STAGE 1 (SÜLEYMAN DEMİREL BOULEVARD) RAINWATER DRAINAGE LINE CONSTRUCTION

Project Start and End Date:

28.09.2015–17.03.2017

Purpose of the Project:

To ensure the sound discharge of water generated by precipitation

Summary of the Project:

The water that accumulates on the roads in the Varsak region through precipitation will be collected in rainwater drainage channels. The collected water will then be discharged through these channels, thus preventing flooding.

Contribution of the Project to the Relevant Area:

The project will prevent houses and workplaces in the Varsak region from flooding.

Unique Value of the Project:

Once the relevant project has been applied in the Varsak region, damage from flooding will be prevented.

Applicability of the Project:

Work has been completed.

Problems Encountered During the Implementation of the Work and Suggested Solutions:

No problems were encountered during implementation.

Target Beneficiaries of the Project:

All individuals.

Type of Disaster Covered by the Project:

Flood

Project Budget/Resource and Costs:

Resource - TRY 20,094,717.08 (VAT included)

Persons/Institutions Responsible for the Project:

Antalya Water and Wastewater Administration General Directorate (ASAT)



AMADORA REGION, PORTUGAL

PROJECT TITLE

COMMUNITY ENGAGEMENT IN DISASTER RISK REDUCTION (DRR)

Project Start and End Date:

2010–

Purpose of the Project:

The city has an overarching strategy that focuses on strong leadership and coordination, recognizing these as vital to the successful creation and maintenance of city resilience and to empowering the entire community in their participation in urban risk management.

Summary of the Project:

Engaging local stakeholders in Amadora and drawing upon their motivation and enthusiasm to participate in urban resilience has enabled real improvements to be made in the city's capacity to manage and coordinate responses to emergencies resulting from natural hazards. This includes the development of new contingency and emergency plans; improvements to the availability and dissemination of local information on disaster losses, hazards and risks, leading to better risk communication and improved public awareness; strengthened early warning systems; the encouragement of active public participation through school programs and community training; and the promotion of risk reduction measures in the facilities of stakeholders.

Contribution of the Project to the Relevant Area:

The success of the approach is reflected in Amadora, where more than 30 stakeholders (community groups, private sector, national/local authorities, academia, school communities, non-governmental organizations) are working alongside the local administration.

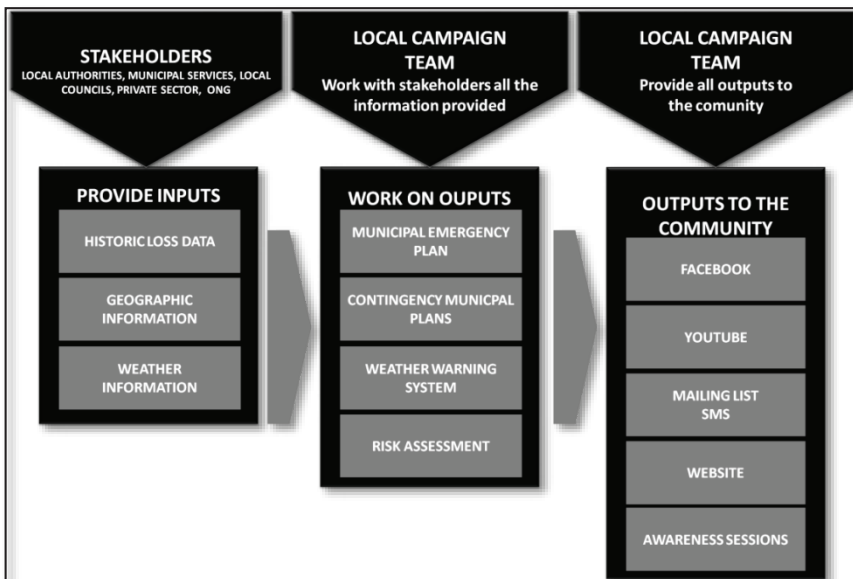
Unique Value of the Project:

A summary of stakeholder involvement follows:

- Academic-scientific entities have developed a set of studies related to risk and vulnerability assessment;

- Local councils promote contacts with local associations and citizens' groups in order to increase awareness;
- Municipal services bring cooperation and collaboration to the campaign team (facilitating contacts and disseminating information throughout the municipality: education, environment, urban services);
- Rescue and emergency service providers provide data about losses from disasters, and support the stakeholders (through local campaigns) with training and awareness in first aid and drills;
- Public-private entities and private social solidarity institutions receive technical support (via the local campaign team) aimed at improving their emergency plans, and organize social and cultural activities related to disaster risk reduction among their clientele;
- NGO's support public awareness initiatives, provide free training (first aid; and risk, disaster and resilience frameworks) to campaign stakeholders;
- The school community organizes training activities and raises awareness about risk and disaster. Some schools have created civil protection centers where students can develop skills, facilitating a culture of safety.

A model of the stakeholder inputs that have been converted into community outputs follows:



All of the produced outputs are converted into a simplified language informing of risks within the municipality and making recommendations for the reduction of the impacts of disasters. This demonstrates an important strategy in which complex technical data is communicated to all stakeholders in language that is understandable to them. Presentations include activities (question-and-answer games, quizzes, simulations) that ensure that the audience has understood the presented information.

In addition to organization-community engagement strategies, the team focuses on raising awareness of the specific risks facing the Amadora community. The main challenges identified initially by the team were a lack of information about risks in the municipality, and the lack of a mentality of prevention in the community. The team's stakeholder engagement strategy to address these challenges follows.



Applicability of the Project:

Amadora considers the community to be made up of families that communicate with the wider neighborhood via word of mouth. Training sessions provide the community with information on practical steps they can take to reduce the population's exposure to risk, and the causes and consequences of disasters. For example, in the seismic risk session presented in secondary schools, the team describe the impacts of an earthquake on society, and what can be done to prevent them. The students make oral presentations about the preventive measures that can be taken in emergency and urban planning. Some secondary schools have created volunteer civil protection teams to encourage various activities (query's, games, flyer distribution) that support the local campaign by raising awareness.

Problems Encountered During the Implementation of the Work and Suggested Solutions:

1. The main challenges initially identified by the team were the lack of information on risks in the municipality, and the lack of a mentality of prevention in the community.
2. Get more funds to the DRR issues. Amadora has few mechanisms to ensure a financial disaster, and so developing and establish funding mechanisms should be a priority. The private sector should be more involved in the creation of a fund for before, during and after a disaster. The fund should be used to encourage the creation of environmentally sustainable projects (energy-efficient buildings and green transport), new technologies for risk assessments, and encouraging the relocation of people and activities from areas with the highest risk.
3. It would also be beneficial if the national government would put forward some generic guidelines about DRR at a local level.

Target Beneficiaries of the Project:

Amadora has disseminated the concepts of disaster risk reduction among various institutions (social welfare providers, schools and the elderly). In addition to providing technical support for the implementation of recommendations or self-protective measures for individual institutions, Amadora has organized information and awareness-raising sessions for the target audience in each institution. In the institutions providing social welfare (immigrant and needy population) and assistance to the elderly, sessions are organized to provide information about risks at a local scale, safety equipment (how to use fire extinguishers) and the entities that we can and should use in a disaster situation. These activities are supported by the Fire Department, the National and Municipal Police, the Red Cross and members of the Civil Protection Service. The main goal is to approach this target group with concepts of security and resilience and make them more active in the community. For example, elderly people (the most isolated and vulnerable group) who live alone are supported by the social department (Amadora Campaign stakeholder) of the Municipality of Amadora, and the provided home support includes the dissemination of information about disaster risk reduction (flyers) and emergency services contacts.



Type of Disaster Covered by the Project:

Natural disasters (floods, forest fire, earthquake, landslide, storms, tornados, strong winds)

Technological/man-made disasters (residential fire, industrial fire, terrorism, civil unrest)

Project Budget/Resource and Costs:

7,500€ (Civil Protection Municipal Service Budget)

Persons/Institutions Responsible for the Project:

Amadora Local Campaign Team



POTENZA REGION, ITALY

PROJECT TITLE

#weResilient

Project Start and End Date:

Time: Starting in 2013, with the formal approval of the Provincial Territorial Coordination Master Plan (TCP, 2013), capitalizing on the experience gained over the previous years.

Ongoing

Purpose of the Project:

The Best Practice is based on a new concept in territorial governance that provides for the structural introduction of “Resilience” – related to disasters and climate change – into territorial development policies to be implemented through specific actions at local and urban levels.

The strategic implementation path comprises both an urban planning coordination activity and an “awareness-raising” element, with a supportive and subsidiary process that targets mainly Municipalities, Communities and Citizens, and that pursues proper territorial governance and land-use policies/actions in the local context.

The main achievements and results of the #weResilient campaign are:

- Promoting comprehensive Resilience across the provincial territory;
- Engaging local communities and indigenous cultures in the implementation of Resilience;
- Permanent networking with cities, stakeholders and major groups to ensure comprehensive and sustainable territorial development;
- Performing supportive actions in Cities with a subsidiary and wide-area approach;
- Launching programs and activities to include communities and people in the relevant institutional decision-making processes, and in capacity-building, capability developing and awareness-raising efforts, while increasing political will and public support in local disaster risk reduction efforts; and
- Building local to trans-national cooperative partnerships for the sharing of best practices.

Summary of the Project:

Since 2004, the Province of Potenza has played a specific role in the enactment of DRR policies and actions, both in its own institutional duties (provincial roads networks, high schools, buildings estates, territorial planning, disaster management and civil protection, etc.) and in the provision of specific support and coordination to municipalities in a subsidiary way.

In all of its previous DRR policies and activities, the Province of Potenza has established a multi-stakeholder and communities network in which institutions and groups representing different social categories have been involved.

In this way, capitalizing on its best governance practices of the last decade, the Province of Potenza outlines the #weResilient strategy in the pursuit of territorial development through a structural combination of environmental sustainability, territorial safety and climate change-tackling policies.

In 2013, a milestone in the strategy was achieved when the community was provided with an important tool for the guiding and addressing of provincial territorial governance, being the Provincial Territorial Coordination Master Plan (TCP). The TCP is a “structural” tool for analyzing needs and steering the decisions of local governments from a “wide-area” development perspective.

The outlined strategy meets with an intuition: making Advocacy towards municipalities, relevant stakeholders, major groups and communities in the implementation of local development policies by integrating them with DRR and territorial and communities Resilience to disasters.

The strategic implementation path comprises both an urban planning coordination activity and an “awareness-raising” aspect, with a supportive and subsidiary process addressed mainly to municipalities and communities.

For the outlining and implementation of #weResilient, the Province of Potenza established a permanent Local Platform aimed at engaging Municipalities, institutions/authorities, stakeholders, major and social groups, communities and citizens in the translation of the strategy into concrete actions.

The Province is providing support and is cooperating with local communities, and with municipalities in particular, with the goal of integrating sustainable development policies with the requirements of resilience of communities into its urban planning efforts.

Contribution of the Project to the Relevant Area:

The Best Practice (BP) is based on a people-centered approach in which policies and institutional commitments are enhanced with the goal of increasing public support and the capacity of communities to contribute to building resilience within their communities.

The BP has, as its central hub, the implementation of the TCP, which introduces the risks-mitigation directives and recommendations (also providing technical, organizational and knowledge support) to be applied in local and urban planning and strategic activities in order to involve local actors, the private sector and the community itself in resilience implementation processes.

The aim in this regard is to develop effective territorial/urban resilient strategies, and the province is, in fact, strengthening the implementation of Resilience through an increasingly devolved “integrated territorial governance” coordination role, and downscaling the experience to the urban context by activating and coordinating participatory urban planning paths.

Unique Value of the Project:

- This new concept in territorial governance provides for the structural introduction of “Resilience” to disasters and climate change into territorial development policies to be implemented through specific actions at local and urban levels.
- A strong vision and political commitment to the coordination and assisting of Municipalities and Communities in facing up to future challenges related to local Sustainable and Resilient Development.
- Transforming DRR and Resilience to disasters into real “structural” policies.
- Accountability (social, political and public) as an integral aspect of governance and the strategy outlined by the Province of Potenza

(As a result of this BP, on January 25, 2015, the Province was recognized as a Role Model for Inclusive Resilience by the UN Office for Disaster Risk Reduction [UNISDR]).

Moreover the Province, along with its Communities and Municipalities Network, received formal recognition by the UNISDR as a “Champion in the Reduction of Disaster Risk for IDDR 2015”, for its “inclusive” way of working in the implementation of resilience through a network-based approach.)

Applicability of the Project:

For the implementation of this BP, only a few “easy-to-find” resources are necessary: A strong and consolidated long-term relationship between the public authority, communities and the public; a shared vision for strategies and goals; and a bottom-up approach that can provide communities with ownership of follow-up activities over time.

Problems Encountered During the Implementation of the Work and Suggested Solutions:

Problems identified:	Solutions Incurred
Need for Public support – Political will	Act on a “structural” channel: Land-Use and Government Policy
Need for dialogue with and within stakeholders	Coordination Engage/Involve
Small-sized Municipalities	Provide Support/Cooperation
High urban and Communities Sprawl	Entrust/Empower and facilitate dialogue with stakeholders
Resources	Build partnerships/share experiences
Skills and capacities	Attract Private Business (\$\$\$): PPP/ PPPP
Community engagement in Decision Making	Engage civil society in decision making
Public Awareness	Enhance capacities Enhance public awareness

Target Beneficiaries of the Project:

In the #weResilient strategy implementation, most of the effort has been expended in setting up a complex system of social involvement, with the main goal of entrusting and engaging social groups and the public in institutional policy-making related to sustainable and resilient territorial and urban development. To reach this goal, many activities have been launched and carried out to date, including the setting-up of a “permanent platform” with major groups for the discussion of problems and the formulation of possible solutions to be adopted;

Institutions and groups representing different social categories have been involved (women, elderly, youth, disabled people, migrants, etc.), with each “potentially vulnerable” social category – which constitutes the strong interest groups (Majors Groups) in numbers and skills and can turn into a real strength as concern risks and disasters. Starting out from the contributions of these social categories, the entire community and its institutions can and should benefit from the development of safe and sustainable territorial policies.

Type of Disaster Covered by the Project:

All kinds of natural and man-made disasters

Project Budget/Resource and Costs:

Human resources with deep experience (at local/national and international levels) in the field of disaster risk reduction and sustainable development, a great commitment to these issues and a close relationship with the Community. Capitalization of all available material and financial resources, and the facilitation of new mechanisms to attract innovative resources (for example, the private sector: PPP and PPPP).

Persons/Institutions Responsible for the Project:

Province of Potenza (Local Authority), Italy-Territorial Planning and Development, Environment and Civil Protection Office

- Alessandro Attolico
Executive Director of Territorial Planning and Development, Environment and Civil Protection Office for the Province of Potenza
UNISDR Advocate and SFDRR Local Focal Point for the UNISDR
“Making Cities Resilient” Campaign
alessandro.attolico@provinciapotenza.it
- Rosalia SMALDONE,
Environmental Engineer; #weResilient Technical Officer, Technical Officer of Territorial Planning and Development, Environment and Civil Protection Office for the Province of Potenza
rosalia.smaldone@provinciapotenza.it



APPENDIX

WORKSHOP ON THE ROLE OF LOCAL AUTHORITIES IN THE BUILDING OF DISASTER RESILIENT COMMUNITIES GENERAL REPORT

May 10–11, 2018, Kocaeli/TURKEY

TABLE OF CONTENTS

1. INTRODUCTION	79
2. GENERAL SITUATION	82
3. PRESENTATIONS	82
3.1. UNDP Resilient Cities – Examples of Good Practices.....	82
3.2. Overview of the Making Cities Resilient Campaign under the Sendai Framework, 2030 Agenda and Paris Agreement	84
3.3. Making Cities Resilient Campaign Tools and the UScore 2 Project	85
3.4. Best Practices in Turkey	85
3.5. Disaster Resilient Settlements.....	90
4. PROBLEMS AND SOLUTION RECOMMENDATIONS FOR PROVIDING RESILIENCE	92

1. INTRODUCTION

The “Workshop on the Role of Local Authorities in the Building of Disaster Resilient Communities” was held on May 10–11, 2018 in the Kocaeli province. The aim of the workshop was to better define and empower the role of local authorities and in order to raise awareness within the scope of “Making Cities Resilient” campaign launched by the United Nations Office for Disaster Risk Reduction (UNISDR). During the workshop, which aimed at contributing to institutional capacity strengthening, relevant groups came together to discuss the problems encountered in Turkey in a multi-dimensional and disciplinary manner, and to come up with solution recommendations after listening to presentations on the “formation of resilient cities”.

The participants included the Governor of Kocaeli, the Mayor of the Kocaeli Metropolitan Municipality and the President of AFAD, as well as representatives from the UN (Portugal-Amadora provincial representative, Italy-Potenza provincial representative), the Ministry of Development, the Ministry of Environment and Urbanization and Kocaeli University; experts from the Ankara, İstanbul, Antalya, Gaziantep, Kocaeli and Yalova Municipalities, and from the Provincial Directorates of AFAD, Provincial Environment and Urbanization Directorates and Regional State Hydraulic Works (DSI) Directorates.



Figure 1. Workshop opening ceremony

Speaking during the opening ceremony of the workshop, AFAD President Dr. Mehmet Güllüođlu, said that local authorities were the leading actors in disaster management. While he admitted that central authorities such as AFAD and relevant Ministries play important roles in both determining policies and sourcing the budget, he said that raising awareness in society is of particular importance in understanding a disaster at a local level and in taking the necessary measures. Mr. Güllüođlu underlined the three main principles behind the building of a resilient city: (i) understanding and knowing the risk, (ii) making investments and plans at a local authority level with regard to these risks, and (iii) constructing safe buildings and facilities.

Kocaeli Metropolitan Municipality Mayor İbrahim Karaosmanođlu stated that central and local authorities have significant responsibilities in protecting cities from disasters, and added that they had taken significant preemptive steps to mitigate the effects of many types of disasters.



Figure 2. Opening remarks by Dr. Mehmet Güllüođlu, President of AFAD



Figure 3. Opening remarks by İbrahim Karaosmanoğlu, Mayor of Kocaeli Metropolitan Municipality

Kocaeli Governor Hüseyin Aksoy noted that significant activities had been launched in the province: “Kocaeli was deeply affected by the Marmara Earthquake in 1999, and is one of the provinces with significant experience in this regard. It would be useful to address this problem in a solution-oriented manner at such an important workshop, in which the role of local authorities in risk reduction is being analyzed.



Figure 4. Opening remarks by Hüseyin Aksoy, Governor of Kocaeli

2. GENERAL SITUATION

Local authorities have important roles to play in the reduction of the risks of disasters, as the impacts of disasters are primarily local. In this regard, it is of great importance to better define the roles of local authorities and to give them increased authority in the formation of disaster-resilient communities. Under the “Making Cities Resilient” campaign launched by UNISDR, it is emphasized that local authorities should be prepared to reduce the risks associated with disasters and to become more resilient to their effects. In Turkey, five Metropolitan Municipalities have been included in the campaign to date, namely İstanbul, Kocaeli, Yalova, Antalya and Gaziantep.



Figure 5. The provinces covered by UNISDR's "Making Cities Resilient" campaign

3. PRESENTATIONS

3.1. UNDP Resilient Cities - Examples of Good Practices

The UNDP's disaster risk-reduction efforts are implemented within the scope of the Sustainable Development Goals (SDG) and Sendai Framework Targets, with the aim being to reduce the risks related to Turkey's development. In this regard, works are carried out with the related institutions and organizations in order to reduce the risks associated with disasters, to improve the consistency of climate-adaptation efforts, to provide access to information on risks and early warning systems, to strengthen emergency preparedness and response measures, and to bolster the resilience of urban and rural communities.

The presentation provided details of climate change and its effects, and it was further stated that Turkey has four strategic entry points in its adaptation to climate change:

1. Strengthening national decision-making mechanisms and priority sectors with “adaptation instruments”
2. Developing adaptation action plans at a provincial level, and preparing an “adaptation catalog”
3. Institutional capacity building through training and communication platforms
4. Taking action through a grant scheme for provinces and sectors based on a developed adaptation plan.



Figure 6. Presentation by Nuri Özbağdatlı



Figure 7. Workshop Overview

3.2. Overview of the Making Cities Resilient Campaign under the Sendai Framework, the 2030 Agenda and Paris Agreement

The Sendai Framework was adopted in March 2015 at the Third UN World Conference on Disaster Risk Reduction, held in Japan. It is a 15-year non-binding agreement that highlights that governments should play the primary role in the reduction of disaster risk, but that this responsibility should be shared with all stakeholders, including local authorities and the private sector. The Sendai Framework emphasizes that disaster risk reduction is necessary to achieve sustainable development.

The “Making Cities Resilient” campaign, launched in May 2010 to address local risk management, urban risk and resilience, supports sustainable urban development and activities that encourage stakeholders to better understand the disaster risks in their local region. During the presentation, the participation process within the “Making Cities Resilient” campaign and the model city concept were explained, and the work carried out in Potenza region was shared.



Figure 8. Presentation by Alessandro Attolico

3.3. Making Cities Resilient Campaign Tools and the Uscore2 Project

The Municipality of Amadora (Portugal) joined the “Making Cities Resilient Campaign” in November 2010, which has provided an excellent opportunity to address several shortfalls in the disaster risk-reduction process. The strategy has been, simply: coordination, motivation and participation. Strong coordination/ leadership is vital for the campaign to be successful and to empower the entire community in the provision of disaster risk management. “At this moment, we have more than 40 stakeholders (community groups, private sector, local authorities, academia, school community, non-governmental organizations) working with us. Through their motivation and participation, it has been possible to increase our capacity in the management of disaster situations, local information on disaster losses, hazards and risks, early warning system, school programs, community training, emergency plans, risk reduction on stakeholders facilities and public awareness,” said Carvalho.

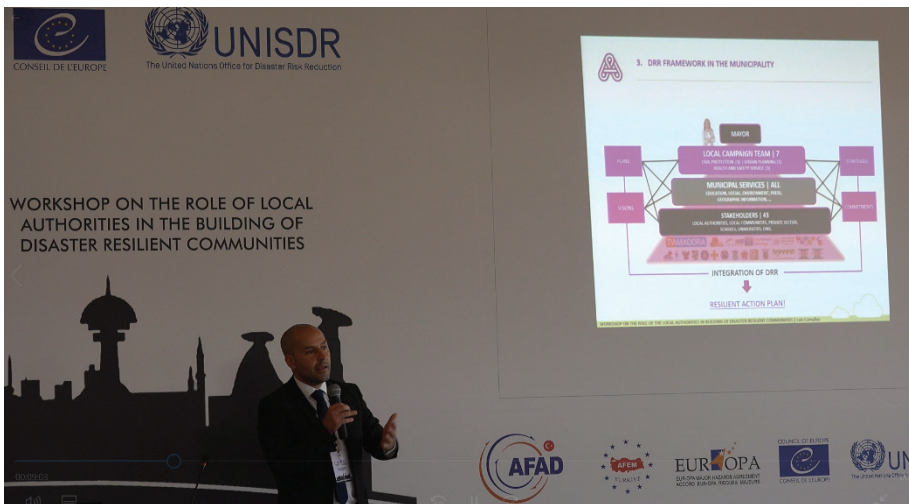


Figure 9. Presentation by Luis Carvalho

3.4. Best practices in Turkey

During the session, which was moderated by Prof. Dr. Handan Türkoğlu, who is a member of the academic staff at İstanbul Technical University, the disaster risk reduction activities carried out by the İstanbul, Kocaeli and Gaziantep Metropolitan Municipalities were shared with the participants. The activities undertaken are summarized below:



Figure 10. *Sharing of best local practices*

Activities of İstanbul Metropolitan Municipality;

- Within the scope of risk reduction/mitigation activities, work is being carried out related to Disaster Hazards, Urban Geology and the Micro-zoning of the İstanbul province. An Earthquake risk analysis and an İstanbul Earthquake Master Plan have been completed.
- The Earthquake risk analysis (basic plan for disaster prevention and mitigation) was prepared in cooperation with JICA in 2002 and was updated by Kandilli in 2009.
- The Earthquake master plan was jointly prepared by İstanbul Technical University (ITU), Middle East Technical University (METU), Yıldız Technical University (YTU) and Boğaziçi University.
- The İstanbul Metropolitan Municipality (IMM) Disaster and Emergency Response Plan was issued and published detailing the necessary cooperation and coordination between the departments of the Metropolitan Municipality and the related organizations, and further regulating the organizations, duties and working principles of the

Emergency Services.

- The Dynamic Earthquake Damage Estimation Routine Project (ELER) has been completed under the İstanbul Development Agency's grant program. Thanks to this project, the following data can be calculated dynamically in the aftermath of an earthquake: estimated casualties and injured, the extent of structural damage and emergency shelter requirements.
- In İstanbul, the Flood Early Warning System (FLEWS), which oversees five rivers and 10 flow observation stations, was established to provide warnings not only in the event of earthquakes, but also possible flood risks.
- Within the framework of a protocol signed with the Turkish State Meteorological Service, observations are made at automatic meteorology stations established at 10 different points in İstanbul, and the relevant IMM Units are warned of expected bad weather conditions, allowing the necessary measures to be taken.
- All segments of society, whether young and old, are provided with awareness-raising training related to disasters and emergencies. An average of 600 Turkish citizens participate in these activities every year.
- After examining best practices from around the world, the IMM Disaster Coordination Center (AKOM) was established in 2000 to cooperate with and coordinate between the IMM units and other relevant organizations in the event of a disaster or emergency.

Activities of Gaziantep Metropolitan Municipality;

- Response: 19,602 fire responses and 5,367 rescues
- Training: 54,980 people, including students and teachers at kindergarten, primary school, secondary school and high school levels, have taken part in training sessions. First-response training has been delivered to 51,467 employees of public institutions, organizations and private sector companies; and 16,845 people have been provided training in the prevention of CO poisoning.

- Fire regulation software: The regulations related to the protection of buildings against fire have been transferred into an easily accessible and practical software to be used either during the design of buildings or during fire safety controls, serving all users and allowing standardization and convenience in implementation. The system can be accessed via computer or smart devices running Android or iOS operating systems.
- Geographical information system (GIS) and risk maps,
- Urban regeneration projects.

Activities of Kocaeli Metropolitan Municipality;

- Soil Classification and Seismic Hazard Assessment Project for the Kocaeli Province: Ground amplification maps, which are considered as the starting point for development plans of all types and scales, help determine to what extent the soil will affect the severity of an earthquake. Based on these maps, areas in which ground amplification is high are planned as green areas, while high-rise or significant buildings are planned for construction on safer soils. Such issues are important parameters to be evaluated by city planners while making planning decisions.
- Seismic Monitoring and Earthquake Training Center: In accordance with a protocol signed with the Disaster and Emergency Management Authority (AFAD), collaborative works are being carried out to determine earthquake hazards and risks in the Kocaeli Province through the Local Earthquake Recording Network by the Seismic Monitoring and Earthquake Training Center of the Ground and Earthquake Investigation Division, affiliated to the Department of Reconstruction and Urban Planning. Within the scope of the protocol, data sharing, earthquake data assessment, and site selection activities are being carried out, along with the establishment of an earthquake station.
- Earthquake training: Earthquake training is being provided to students, non-governmental organizations, military staff, and public and private sector employees. Training protocols have been signed with the Kocaeli Provincial Directorate of National Education, Training and Doctrine Command (EDOK) and the Kocaeli Police Department. Joint

projects are being carried out in cooperation with Information Centers, District Municipalities, Turkish Association of Municipalities (TBB), Gez-Gör Kocaeli and other associations. Schools are also being visited as part of training activities. Participation Certificates are awarded to trainees upon the completion of training. Earthquake training has been provided to 75,248 people since 2004.

- A theater play entitled “*Kıvrıdayan Dünya*” (The Moving Earth), Promoted under the slogan “Being Prepared Saves Lives”, was prepared in cooperation with the Kocaeli Regional Theater. The play tells the story of a teacher giving his/her students homework about what to do before, during and after an earthquake. “*Kıvrıdayan Dünya*” was performed at 45 schools in Kocaeli in 2009–2010, and was watched by around 20,000 students.
- Earthquake training for visually- and hearing-impaired students, as well as students with low-level mental disabilities.
- Disaster Preparedness Training for Kocaeli Residents Project: District residents are provided with theoretical and practical training on the disasters that may occur in their neighborhoods with the aim of raising local awareness. The Safe Living Room activity aims to raise awareness among the residents of neighborhoods on the reduction of non-structural risks. Within the scope of the project, training has been provided to 894 volunteer residents from 22 neighborhoods.
- Smart Province Implementation Project for Disaster Loss Reduction: The aim of the project is to develop 31 accelerometer networks in Kocaeli to be operated by the Kocaeli Metropolitan Municipality Department of Reconstruction and Urban Planning Ground and Earthquake Investigation Division. Furthermore, network data will be processed and archived, acceleration distance-reduction relationships will be calculated from the garnered data, the Kocaeli Earthquake Hazard Maps will be updated, and an earthquake intensity distribution map will be prepared as a final product so as to support real-time emergency response in the event of an earthquake affecting the Kocaeli province, with relevant institutions notified via SMS. The project partners are the Disaster and Emergency Management Authority (AFAD) and Gebze Technical University.

- Natural Disaster Training Park Project: A natural disaster-training park is to be established to raise awareness of the dangers of natural disasters among Turkish people, and especially earthquakes. The park comprises a first aid experience section, a tremor room, a smoke experience room, a fire-fighting experience section, three-dimensional earthquake images, and tsunami and liquefaction simulations. The natural disaster-training parks will provide visitors with a realistic simulation of such disasters as earthquakes and fire, with the ultimate goal of informing them what to do in the event of a disaster, but also entertaining them and providing them with practical experience.
- Kocaeli Earthquake Master Plan Project
- Disaster-Oriented Social Vulnerability Project
- Project for a Structural Seismic Monitoring System for Historical and High-Risk Buildings
- Kocaeli Fault Activity Research Project
- Project for the Preparation of a Distribution Map of Existing Fuel Stations and Factories in Kocaeli, based on the Earthquake Risk Map
- Cooperation Projects with Local Governments in Europe

3.5. Disaster Resilient Settlements

Sustainability and resilience are similar concepts, although the concept of sustainability has three dimensions, being social, economic and physical. The components of the sustainability concept are the urban/structural environment, the natural environment and the socioeconomic environment, all of which are affected by external factors in the event of disasters.

Resilience is defined as the ability/capacity of a system to adapt in the face of a disaster and its effects, and covers the social, economic, environmental and institutional characteristics of a settlement, as well as the relationships between them. Resilience is linked with the capacity to cope and adapt. Regardless of the number of disasters experienced by a settlement and the level of impact, all socio-economic and structural environments should be able to cope with such disasters, and their capacity to adapt to the situation must be strong.

Indicators have an important role in the measurement of resilience.

The indicators, developed based on actual experiences, are as follows:

- The level of damage caused by natural and technological disasters
- The response capacity of emergency services after a disaster
- The length of the recovery period
- The role/rate of foreign aid in the recovery period
- The effectiveness of the rehabilitation process
- The recovery period (not only in terms of the physical environment,
- but also the social and economic aspect)
- National or international aid given as a credit or grant may be necessary in some cases to make a fresh start. On the other hand, there are also settlements with a high capacity for self-recovery, and this capacity is considered an indicator of resilience.

In resilient settlements, the city in which we live should be planned properly, the buildings we use should be safe, infrastructure and roads should be robust, the local authority should act with due consideration of the natural environment, the community should be conscious, there should be participatory decision-making systems in place, the necessary organizations should be available and cooperation between institutions should be sound. As the first step of disaster planning, the threats to a settlement should be identified and scenarios should be developed.

Local authorities are responsible for ensuring the enforcement of law and regulations through inspections. The following can be performed to this end:

- Provision of awareness raising
- Provision of training to occupational groups
- Updating of data and taking precautions for the safety of historical buildings
- Contributing to the reduction of disaster risk by cooperating with the local authorities, local community, non-governmental organizations and employers.

4. PROBLEMS AND SOLUTION RECOMMENDATIONS FOR PROVIDING RESILIENCE

On the second day of the workshop, during a session moderated by Prof. Dr. H. Murat Günaydın of İstanbul Technical University, experts from different organizations came together to identify the problems that may arise while providing resilience. To this end, 10 working groups were organized with the participation of six experts, all of which were allowed to present their opinions and to listen to the opinions of others.



Figure 11. Establishment of working groups



Figure 12. Teamwork

After a joint assessment, each table presented their opinions and items were put to the vote, and around 100 problem areas were identified that were then prioritized according to their level of importance.

These opinions and suggestions were analyzed under six categories:

- (i) Legislation,
- (ii) Institutional/administrative,
- (iii) Cooperation and coordination,
- (iv) Capacity,
- (v) Information, training and exercise and
- (vi) Implementation and control.

An evaluation of these analyses is presented below:

Legislation: Law No. 7269 and the related regulations stipulate the general principles for the mitigation efforts and response actions to be carried out at central and local levels. The relevant law, however, contains no regulations regarding the development of policies or strategies, the preparation of strategic plans for mitigation in each measure, or the integration and coordination of activities. The deficiencies in the legislation and the confusion in the allocation of duties and the authorities of the local and central government following the restructuring efforts carried out in line with the needs of the country need to be tackled, and the responsibilities of the stakeholders should be redefined.

- *Deficiencies, inaccuracies, gaps and conflicts in the legislation (13 points)*
- *Deficiencies and revisions in the terms of the legislation (Law no. 7269) (10 points)*
- *Solution-oriented institutional and legislative complexities related to buildings damaged by disasters (5 points)*

Institutional/Administrative: Public officials working in the disaster management system in Turkey lack accurate information on the danger and risks associated with disasters or on disaster response plans in their areas of responsibility, as their workplace changes often. This leads to a loss of institutional culture and institutional memory. For effective disaster management, the skills and abilities of the staff to be assigned in the event of disasters and emergencies should be improved, an institutional memory should be created and sustainability should be ensured.

- *Political concerns in local authorities (16 points)*
- *The fact that the technical staff are not assigned tasks that are in accordance with their job definitions (15 points)*
- *Manager's lack of information/interest or political avoidance (12 points)*
- *Absence of an institutional culture and confusion of authorities (7 points)*
- *Lack of national-sectoral-institutional vision (4 points)*
- *Absence of monitoring and follow-up of activities (4 points)*

Cooperation and coordination: Effective cooperation and coordination cannot be assured between the central and local authorities at every stage in the disaster management system, particularly during the response and recovery stages. Considering the effectiveness of the local management of disasters, it must be ensured that the existing system, in which local authorities are empowered while the central government is responsible for coordination, is used effectively. In order to provide an effective response to a disaster, data should be shared between public organizations and organizations in a fast, secure and effective way.

- *Lack of coordination between organizations (17 points)*
- *Lack of communication and coordination between organizations (12 points)*
- *Cooperation between local authorities/NGOs, the public and the community is low or far from the standard (11 points)*
- *Lack of, or deficiencies in, data sharing between organizations (9 points)*
- *Similar activities being carried out by different units (8 points)*
- *Absence of a holistic planning approach (4 points)*

Capacity: Problems in administrative processes can be listed as insufficient staff capacity in terms of training and expertise, a lack of technological infrastructure and the service buildings in particular. It is of great importance to develop and improve capacity for prevention of disasters or reduction of their impacts. In particular, local fire brigade units must complete standard development training and units should be improved in terms of teams and equipment.

- *Failure to organize together and as a team (6 points)*
- *Absence of a disaster coordination unit in central and local authorities (e.g. İstanbul Metropolitan Municipality AKOM) (5 points)*
- *Lack of expert staff in the field (5 points)*

Information, training and exercise: Training programs focused on disaster mitigation, disaster preparedness cannot be expanded in the community. Community participation was not achieved at all stages of the disaster-management system. It is not possible to reduce disaster losses and to be prepared for disasters, or to launch rapid and effective response and recovery activities, without public support and active public participation. Starting to provide training for disasters at school age, and ensuring that such training is provided continuously in all segments of society, is important in creating a disaster culture in society. To this end, the necessary legislative arrangements should be made to ensure that the topic of disasters is covered in the curriculum. Impact analysis and performance measurements should be performed during the training.

- *Sustainability (18 points)*
- *Disaster education is not covered sufficiently in the school curriculum (8 points)*
- *Basic disaster awareness is not compulsory in formal training (7 points)*
- *Disaster management cannot be spread to the social level (6 points)*
- *Public participation in exercises cannot be achieved (6 points)*
- *Lack of sustainable urban consciousness (4 points)*
- *The public is not informed about plans and projects (4 points)*

Implementation and Control: In efforts related to disasters, it is often seen that organizations make repeated investments and carry out activities without integrating with each other. It is necessary to prioritize disaster risk reduction investments if losses from disasters are to be minimized. Control mechanisms should be used effectively in the disaster sector, and authorization should be in accordance with the existing legislation. New structures must be inspected during the project and construction phases.

- *The negative impacts of unplanned urbanization and existing building stocks on resilience (11 points)*
- *Failure to develop systems that are compatible with the digital age (end. 4.0-5.0) (7 points)*
- *Lack of inspection in the planning and operation phases of industrial organizations (6 points)*
- *Problems in the project and implementation phases of building projects (5 points)*

AGENDA OF THE WORKSHOP

May 10–11, 2018, Ness Thermal Hotel, Kocaeli-TURKEY

May 10, 2018, Thursday

09:00 Registration

09:30-10:30 Opening Remarks: **Hüseyin AKSOY**,
Governor of Kocaeli
Dr. Mehmet GÜLLÜOĞLU,
AFAD President
İbrahim KARAOSMANOĞLU,
Mayor of Kocaeli Metropolitan Municipality

10:30-10:50 **Coffee break**

10:50-11:10 **UNDP Resilient Cities – Examples of Good Practices**
Nuri ÖZBAĞDATLI, UNDP Climate Change and Environment Portfolio Manager, Turkey

11:10-11:35 **Overview of Making Cities Resilient Campaign under the Sendai Framework, Agenda 2030 and Paris Agreement A.**
Alessandro ATTOLICO, SFDRR Local Focal Point for the UNISDR “Making Cities Resilient” Campaign, Italy

11:35-12:00 **Making Cities Resilient Campaign Tools and the UScore 2 Project**
B. Luis CARVALHO, Civil Protection Chief, Amadora Municipality, Portugal

12:00-13:30 **Lunch**

13:30-14:00 **DRR Studies in Potenza Province as a Role Model**
A. Alessandro ATTOLICO, Italy

14:00-14:30 **DRR Studies in Amadora Province as a Role Model**
B. Luis CARVALHO, Portugal

14:30—14:50 **Coffee break**

14:50-16:30 **Best Practices in Turkey**

Session Leader: Prof. Dr. Handan TÜRKÖĞLU

- Presentation of İstanbul Metropolitan Municipality
 - o DRR studies and Response Capacity in İstanbul
 - o DRR studies of the Directorate of İstanbul Urban Transportation
- Presentation of Gaziantep Metropolitan Municipality
- Presentation of Kocaeli Metropolitan Municipality

May 11, 2018, Friday

- 09:00-09:45 **Disaster Resilient Settlements**
Prof. Dr. Handan TÜRKOĞLU, ITU, Turkey
- 09:45-10:00 **Creation of Working Groups**
- 10:00-10:20 **Coffee break**
- 10:20-11: 20 **1st Session: Problems for Providing Resilience**
Moderator: Prof. Dr. H. Murat GUNAYDIN, ITU, Turkey
- 11:20-12:00 Evaluation
- 12:00-13:30 **Lunch**
- 13:30-14:30 **2nd Session: Prioritization of Problems and Solution Recommendation**
Moderator: Prof. Dr. H. Murat GUNAYDIN, ITU, Turkey
- 14:30-15:10 **Evaluation and Discussion**
Moderator: Prof. Dr. Handan TURKOĞLU, ITU, Turkey
- 15:10-15:30 **Closing Ceremony**

Prepared and Contributed by:

Name and Surname	Position	Organization
Yusuf AYSU	Head of Department	Disaster and Emergency Management Authority (AFAD)
Dr. Yeliz TEKER	Geological Engineer (MSc)	
Bengi ERAVCI	Geological Engineer	
M. Akif ALKAN	Geophysics Engineer	
Ömer Murat YAVAŞ	Hydrogeological Engineer	
Sedef KURT	Geological Engineer	
Özlem VELİOĞLU	Geological Engineer	
Murat BEYHAN	Geophysics Engineer	
Fettah OLCAR	Deputy Director	
Faruk SARI	Chief	
Nuray KAYA	Teacher	
Mahmut BAŞ	Director	Directorate of Earthquake and Ground Research/İstanbul Metropolitan Municipality
Osman KILIÇ	Deputy Director	
Emin Yahya MENTEŞE	R&D Coordinator	
Dr. Betül ERGÜN KONUKÇU	Geological Engineer (MSc)	Urban Transformation Directorate/İstanbul Metropolitan Municipality
Mehmet ESMER	Planning and Operation Executive	Disaster Coordination Center (AKOM)/İstanbul Metropolitan Municipality
Ahmet ÖZDEMİR	Geophysics Engineer	Reconstruction and Urban Planning Office/Kocaeli Metropolitan Municipality
Dr. Cafer YILMAZ	Head of Department	Fire Brigade Department / Gaziantep Metropolitan Municipality
Özgür ALPAYDIN	Head of Training and Audit Unit	
Ahmet Kısa	Head of Department	Fire Brigade Department /Antalya Metropolitan Municipality
Şahap Engin DENİZ	Geological Engineer (MSc)	

Advisors:

Name and Surname	Position	Organization
Handan TÜRKOĞLU	Prof. Dr.	İstanbul Technical University
H. Murat GÜNAYDIN	Prof. Dr.	İstanbul Technical University

Contact Person : Dr. Yeliz TEKERe-mail : yeliz.teker@afad.gov.tr

Phone : +90 312 258 2726

