

The Role of Local Governments in Reducing the Risk of Disasters (define BS14, BS16, etc.)

Yakup Bilgin Koçal

Introduction

On behalf of Yalova Municipality, I would like to share with you our work and experience related to earthquake preparedness strategies.

Yalova Municipality wants to change its image by changing the way it views disasters. We now see disaster management as one of the most important priorities of the new responsibilities handed to local authorities. Our objectives are to improve the municipality's disaster preparedness and management capacity and solve problems - such as the decrease in employment, social structure collapse, and deterioration of health services - that emerge following earthquakes.

To achieve these objectives, we had a thorough evaluation of the impacts of earthquakes and a critical assessment of errors that resulted in heavy loss of life and property. To correct the administrative and managerial errors that occurred during the 1999 earthquakes that struck our area, we are prepared to design short, medium, and long-term programs.

Despite the city's limited resources, we have initiated many projects in the recovery and reconstruction phases to improve the living standards of our citizens.

We will focus on three topics to evaluate the various aspects of our experiences:

- Identification of new settlement areas based on soil analysis
- Impact and damage assessment of the two earthquakes (August 17, 1999 and November 12, 1999) and evaluation of earthquake risk

- Improvements in health services to meet the needs for post-disaster psychological support and establishment of organizations to promote community awareness.

Defining the New Settlement Areas

Activities undertaken under this heading include:

- Reconstruction activities in areas where illegal construction is widespread
- Taking satellite photographs to identify new settlement areas
- Preparation of development plans and maps for residential areas and carrying out microzoning work
- Examination of building quality and soil analysis
- Development of specific earthquake-resistant construction techniques and preparation of local regulations in development and construction
- Making all information on existing maps and construction plans public via the Internet.

Impact and Damage Assessment

According to official data on damage, the number of buildings damaged beyond reconstruction was 3805 (16 percent of the total). The number of collapsed buildings was 25.7 percent of the total. Fourteen percent of the building stock stayed intact.

Categorizing buildings as completely damaged or collapsed was difficult. The reason was that initial damage assessments were carried out by observation, without the use of technical equipment. Therefore, the municipality carried out a thorough examination of each building in the “collapsed” and “remained intact” category. This investigation covered construction material quality as well. To define the quality of construction materials and damage caused by the earthquake, technical methods including x-rays were used.

The investigation revealed that construction did not comply with BS14 quality obligations and poor quality concrete was used in 761 buildings. Only three percent of buildings complied with BS16 and only two percent were above the BS16 quality obligation. Geotechnical-geological studies were carried out in destroyed buildings by drilling 15 meters deep using

dynamic parameters and the STP system. Soil analysis was applied in 650 buildings.

Reports on the geological investigation and the quality of construction materials were presented to building owners. Information on damage was also presented. Documentation included soil study reports, damage assessment results, and maps and plans for future development. The administration of Yalova municipality also identified new settlement areas and prepared development and construction plans. The development plans took into account new density data for the city since after the earthquake people moved to eastern parts of Yalova. This was confirmed by satellite photos.

During the emergency phase of the last earthquake, piles of debris blocked roads, making response impossible. To prevent this situation in the future, we carefully studied road width in the new construction areas. The minimum road width in these areas will be ten to twelve meters.

Following the emergency phase, construction plans were prepared for the Baglarbasi and Mustafa Kemal Pasa districts where illegal construction is widespread. There were two reasons for these arrangements. First, no construction plans exist for these illegal settlement areas. Second, the damage rates in these regions were lower than in the other parts the city. There are 1,140 two to three-storey buildings in the Baglarbasi district built without construction plans.

We also decided to set up e-municipal public works and e-government systems for the city and to incorporate these systems into the disaster management scheme to improve communication during disasters. We have realized the importance of applying systematic approaches to information dissemination activities.

To improve economic conditions in the region, the municipality developed specific local economic development projects. These projects aim at developing:

- An information technology-based industrial park
- Yalova as a university city
- Specialized floriculture region
- Yalova as a touristic center
- An e-municipal public works system
- An e-government system.

One of the main objectives of these projects is an improvement in relations and communication between citizens and local authorities. The municipality is aware that citizens' contributions and participation is needed to improve living conditions in the city. Parallel to the above efforts, the municipality has launched the implementation of "*Informatics City: Yalova*." Yalova has also been declared part of the e-Europe Program. Moreover, Yalova municipality has been identified as a participant in the Healthy Cities Project.

The Yalova Municipality relies on e-municipal public works and e-government systems to implement building stock reconstruction programs. Not everyone may agree with the logic of our reconstruction strategy, but we accept that developments of the 20th century transformed us into an information society. We intend to use the technical and communication opportunities offered by this information society in achieving our vision for Yalova. The opportunities given by these developments will also influence the social needs and strategies of local administration.

Improving Health Services and Promoting Community Awareness

We have built nine independent District Houses and set up communication systems via Internet. We have disseminated information packages in the form of technical reports and developed risk maps to improve citizens' knowledge about earthquake risk and planned mitigation measures. The main objective of this system is to make information available quickly whenever it is needed. The role of District Houses is to coordinate the activities of search and rescue teams and train them in disaster preparedness.

Volunteer search and rescue groups aim at reducing earthquake damage during the emergency phase. These groups are trained in using rescue equipment and techniques. The teams are authorized by provincial governors to carry out activities during emergencies.

The training programs designed for volunteer search and rescue teams will facilitate learning on how to use equipment and access personal and technical information. This communication system will make search activities easier for trained staff.

Psychological and Social Rehabilitation

Due to the fact that the last earthquake affected the entire population of Yalova Province, it became essential to allocate resources to cope with the disaster's socio-cultural impacts. One of the main areas of the post-disaster

rehabilitation program is the provision of psychological support to victims and the social rehabilitation of the community.

After the August 17, 1999 earthquake, our efforts focused on physical reconstruction: identifying new settlement areas, setting up temporary shelters and repairing and strengthening damaged buildings. In addition to reconstruction activities, Yalova Municipality launched general rehabilitation activities for earthquake survivors. Citizens thought that a city in "ruins" would disrupt the healing process. For this reason, debris removal works were accelerated. The local administration sent a team to Dinar city to gain experience in treating earthquake-related psychological trauma.

These rehabilitation activities were conducted with support from the Marmara Earthquake Rehabilitation Program (MERP) in partnership with the Municipality of Komotini. Stress questionnaires from the Istanbul Centre for Behavior Research and Therapy (ICBRT) will also be adopted and applied to assess the general psychological condition of Yalova residents. These post-traumatic stress disorder questionnaires will be distributed in cooperation with civil society organizations and schools. The survey will cover population groups from various social strata in order to obtain the most balanced results. Primary care centers and outpatient clinics in Yalova will be contacted and involved in this process. Seminars will be organized to train health professionals. Survey results will be evaluated, and psychological treatment will be designed and implemented by local health facilities. We plan to organize group therapy sessions in Kasem (Yalova Municipality Women's Health Centre). "*Self-help*" manuals will be distributed to all Yalova residents in the event people are hesitant to publicly request psychological treatment. With support from the MERP Project, we aim to reach as many people as possible who need psychological help. We will cooperate with all relevant organizations to reach this objective.

Significant earthquake damage and impacts have revealed deficiencies in infrastructure and the disaster management system. We have realized that the most important part of disaster preparedness is having a public awareness plan in hand. We established K-77, the local search and rescue team, after the Marmara earthquake. This is a significant step in the disaster-preparedness strategy. In addition, we have undertaken capacity strengthening activities for our fire department and trained them in earthquake-specific first aid. From this department, 30 people have completed their training in search and rescue, including emergency treatment and the use of equipment. K-77 and the fire brigade teams also attended the ABCD courses offered by Bosphorus University, Kandilli Observation Centre.

A District Disaster Volunteers' Search and Rescue Teams (MAG) project will be implemented in four parts (*mahalle*) with the help of the Swiss Agency for Development and Cooperation (SDC). The MERP Project will implement the same project in five other settlements. This project aims at establishing voluntary search and rescue teams in each district of Yalova Province. These teams will receive training and equipment. Voluntary groups will be supported with containers* of emergency equipment to be placed in each settlement. In this way, the centers will become part of a provincial information network. Each settlement will have a team of 50 volunteers, resulting in 450 people trained and equipped to be first responders in the event of an emergency. They should be able to cover the first 72 hours of a disaster. With such an early warning and intervention system and response teams, we should be able to minimize disaster harm.

These activities will raise public awareness since citizens will play an active role in disaster management. Local authorities, civil society organizations and the public will have responsibilities within disaster mitigation programs. In this way, programs are implemented with the participation and contribution of Yalova residents.

ABCD training will improve public knowledge of basic mitigation and preparedness. As a result, we expect a decline in human losses after an earthquake. We intend to educate our target groups through training and seminars using MERP project manuals and training handbooks.

We are keeping this issue on the agenda and continuing to implement the complex program described above. As a result, our disaster management strategies are improving, hopefully preventing repetition of past mistakes. We are committed to achieving our objectives in earthquake mitigation - to limit the financial and human losses from disasters.

* Containers are big metal boxes placed around the city. They contain material and equipment to be used in times of disaster.