INPUT PAPER

Prepared for the Global Assessment Report on Disaster Risk Reduction 2015

Before And After HFA

Retrospective View of Progress in Disaster Risk Reduction System in Turkey

Funda Atun

Politecnico di Milano, Department of Architecture and Urban Studies

Seda Kundak

Istanbul Technical University, Department of Urban and Regional Planning

December 2013

Table of Contents

Abstract

This paper focuses on changes in the disaster regulatory system and societal pattern in Turkey, and examines the failures with all their facets considering re-adjustments, accomplishments and malfunctioning. The purpose of the paper is to indicate the current situation following Hyogo framework for Action (HFA) 2005-2015. Thinking over the gathered information, four main points come into prominence. First two points signalize some positive aspects in the system; the last two reveal some challenges. First, new regulations added new duties and guidelines for the disaster risk reduction (DRR) as risk mitigation measures and processes to the post disaster response activities. Second, the responsibility of risk mitigation is appointed to local administrative bodies by law, which increases the efficiency of implementations, as local bodies stay close to public and are aware of their problems. Moreover, the major problem is not being able to combine development plans with disaster management plans. Disaster management related plans have to be supported by development plans. Otherwise provided solutions could be short lived. Lastly, Turkey seems to have many fragments within its regulatory system with highly similar responsibilities that may lead to confusion among institutions. Therefore, this paper discusses national HFA priorities and examines them in regulatory and planning system in Turkey.

Introduction

Even the most disastrous events have been noted as earthquakes that Turkey experienced in the last years, seasonal floods, landslides and storms emphasize the diversity of hazards in the region and as well as gradually growing drought threat is currently propagating throughout the country. It is worthy to note that large-scale earthquake disasters have been milestones in the regulatory system, such as the 1999 Kocaeli Earthquake; however, there are still lack of awareness and interventions on the rest. The paper starts with the changes in the legal system and continues with the new organizational pattern. Then the result of a survey, which conducted with 286 individuals in August in 2012 in Istanbul, is given to understand the changes in the societal pattern regarding to perception and awareness of earthquake risk, information programmes and population's individual preparedness.

Changing regulations and legal system

Before the 1999 Kocaeli earthquake, the focus of disaster risk mitigation regulations and policies were on disaster management (DM) activities instead of disaster risk reduction (DRR). The **Disaster Law** (Law no: 7269) issued in 1959, which has been revised in 1968, 1992, 1993 and 1995, is the primary law related to the emergency preparation plans during and after a disaster. The law aims to increase public intervention capacity and to improve the efficiency of relief operations after disasters. According to this law, the provincial and district governor could command and control public, private, and even military resources for managing relief and recovery activities. In addition, the **1982 Constitution** focuses on post-disaster activities by describing the conditions of "The State of Emergency," and the role of the authorities including the rights, rules, and administrative procedure.

After the 1999 Kocaeli Earthquake, in addition several projects conducted by aiming to assess, mitigate, and manage earthquake risk in Istanbul by the universities, governmental organizations, and institutions, the legal system has supported as well by laws regarding DRR.

First of all, the **8th National Development Law** was prepared by the Turkish State Planning Organization, considering disaster mitigation strategies for the period between 2001 and 2007. In addition to post-disaster actions, the plan suggests that a small part of resources shall be used for the pre-disaster activities. Within this development law, section seven "Natural Disasters" and chapter nine "Enhancement Efficiency in Public Services" focus to increase the awareness of natural disaster risks and support earthquake engineering postgraduate programs in universities.

Moreover, according to the "**Compulsory Earthquake Insurance**," which was issued on 27 March 2001, all existing and future privately owned properties are required to contribute to the Turkish Catastrophe Insurance Pool (TCIP). The intention of this decree is to create a fund supported by homeowners' annual payments to be used in case of disasters. This compulsory insurance directive provides the right to claim for losses of insured parties against the Natural Disasters Insurance Council (DASK in Turkish abbreviation). The payments of Turkish Catastrophe Insurance Pool will be proportional to actual losses. Maximum assurance amounts by TCIP were calculated according to the building construction cost defined annually by the Ministry of Public Works and Settlements, without considering

land value leading with an assumption of the damaged or collapsed property would be raised regarding to its previous condition (Kundak, 2012). Therefore, the amount payable by TCIP essentially covers a limited amount required for a modest new accommodation. With the law number 6305 issued in 2012, the earthquake insurance became obligatory and people cannot be subscribed for electricity and water services without buying the insurance first. Before, the penetration of insurance was still around 40% in 2012 (Cakti, 2012). Moreover, when the vulnerable housing stock is considered, it is not realistic to expect that the collected money would be sufficient to cover the absolute losses including expenses related to replace household equipment, legal and technical assistance in building construction and so.

In 2004, **Metropolitan Municipality Law** was issued (23.07.2004/5216) and the 7th clause states the responsibility of metropolitan municipalities for DRR and DM. The stated responsibilities are; to provide the disaster plans and preparations in accordance with the city scale plan; to support other disaster zones when necessary with equipment and provisions; to sustain the fire brigade and emergency aid services; to detect the locations of explosive and flammable materials production and storage places; to inspect potentially crowded places with respect to their measures against fire and other disasters; to evacuate and demolish buildings those are above a certain risk level; and to provide necessary authorizations according to legislations (23.07.2004/5216).

Metropolitan municipality law was followed by the **City Management Law** (04.03.2005/5302) and **Municipality Law** (13.07.2005/5393) in 2005.

The 6th clause of the **City Management Law** that regulates the duty and responsibilities of the Special Provincial Administration covers sustaining emergency aid and rescue services outside municipal borders. Also, with the 69th clause, Special Provincial Administration has the responsibility to prepare plans and provide logistics for pre disaster preparedness and emergency situations, with respect to the natural features of province (04.03.2005/5302).

According to the 14th clause of **Municipality Law** (13.07.2005/5393) in 2005, emergency aid and rescue services are added to the responsibilities of municipalities. Also, with the 53th clause, municipalities have the responsibility to prepare plans and provide logistics for pre disaster preparedness and emergency situations, with respect to the natural features of area (13.07.2005/5393).

Building Audit Implementation Regulations of 2008 (05.02.2008/26778) made independent inspecting organizations to be responsible of construction activities and logistics, controlling also geotechnical reports and implementation projects.

Regeneration of disaster risk zones law number 6306 (16.05.2012) was passed to regulate norms and safety standards of uses to rehabilitated, renewed, closed out and demolished as some municipalities already start working on this. The purpose of the Act is defined in the first article as to define procedures and principles to renovate or reconstruct the disaster risk areas of risky buildings according to health and safety norms and standards. To increase the implementation success of the law, the power is concentrated on centrally. The risky areas are defined by Ministry of the Environment and Urbanization and/or by municipalities. The owners of the building have to leave the property in 30 days after

receiving the notice from authorities. However, if they have objections the law does not allow them to go to courts, they would rather go to the administrative bodies. On one hand this procedure increases the efficiency of implementations, on the other it is based on anti-democratic procedure, as indicated also by Balamir in GAR13 (2012). The main problem of this law is that it is open to land speculations. The law shall be implemented successfully unless it is supported by the land speculations and market trends.

The new organizational schema

In 2009 "Prime Ministry Disaster and Emergency Management Presidency" (AFAD in Turkish abbreviation) was established. A unique disaster related body used to be the General Directorate of Disaster Affairs, which had been under the Ministry of Public Works and Settlement. Within a new adjustment among ministries, the Ministry of Environment and Urbanism was established with also being charged of duties that used to be related to the Ministry of Public Works and Settlement. A part of the experienced team working at the General Directorate of Disaster Affaires, moved to the AFAD. According to the related law, the responsibilities of the Prime Ministry Disaster And Emergency Management Presidency (17.06.2009/5902) is to coordinate all disaster and emergency situations and civil protection issues in the country, through policy production and implementation, considering pre-disaster preparedness, during disaster reaction and after disaster rehabilitation services. AFAD consists of 6 sub-groups those are "planning and harm reduction, intervention, rehabilitation, civil protection, and earthquake and management services. In addition to the Disaster and Emergency Management Presidency, Disaster and Emergency Directorates have been established under the command of Province Governor and Special Provincial Administration with the same responsibilities (29.05.2009/5902).

Changing societal perception

Disastrous events affect the societal pattern as well. To understand the changes in the societal pattern a structured survey has been conducted with 286 individuals in Istanbul in 12, in August 2012. The survey conducted with public focuses on three parts: "perception and awareness of risk condition and earthquake", "awareness of information programmes and access of information" and "population's individual preparedness".

Part 1: Perception and awareness of risk condition and risk of earthquake

Mainly because of the 1999 Kocaeli Earthquake, and increasing concern in the media after each minor earthquake following the major one, almost all the respondents know that Istanbul is located in an earthquake prone area. 72% of the respondents experienced the 1999 Marmara earthquake. 56% of the respondents said that they knew that Istanbul is located in an earthquake prone area before the occurrence of the Kocaeli earthquake, as minor earthquakes occur frequently in the Marmara Region. Furthermore, 60% of the respondents expect a major earthquake (more than 7 Mw) to occur in Istanbul, however 36% of them say that it is impossible to know. Balamir (2000) defines Turkey as a "*fatalistic society*" suggesting that fatalistic societies are not aware of risks, or ignore them. Although this attitude has changed after the occurrence of 1999 Marmara earthquake, a part of population –according to results of the questionnaire: 1/3 of respondents - still keeps the fatalistic approach.

While awareness of earthquake risk is high, the perception of potential consequences is very low. Around half of the respondents believe that the building that they live in is resistant to seismic hazard. However, very limited number of respondents checked their building against seismicity or investigated the situation of building in terms of being resistance to a seismic hazard when buying or renting their apartment. (Figures 1, 2 and 3).

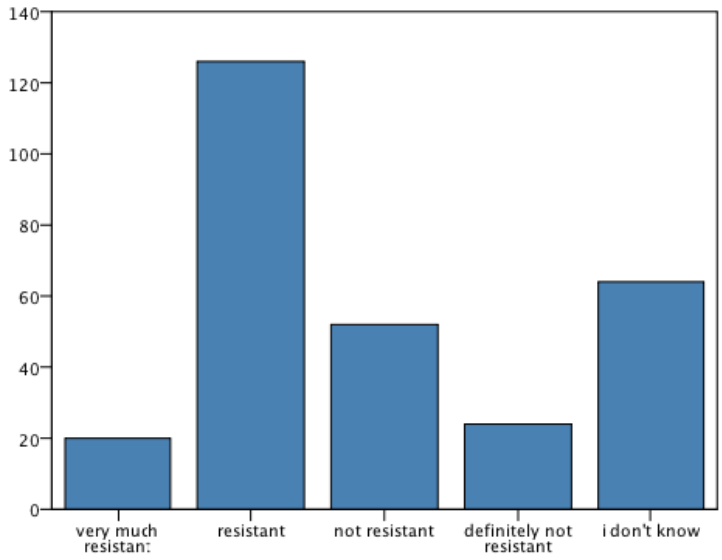

Figure 1: Do you think that the building that you live in is resistant to an earthquake? (Atun, 2013)

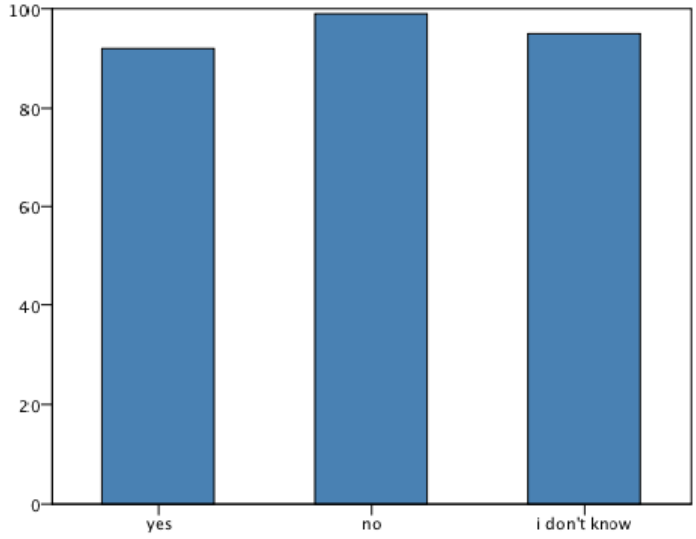

Figure 2: Was the building checked against seismic risk? (Atun, 2013)

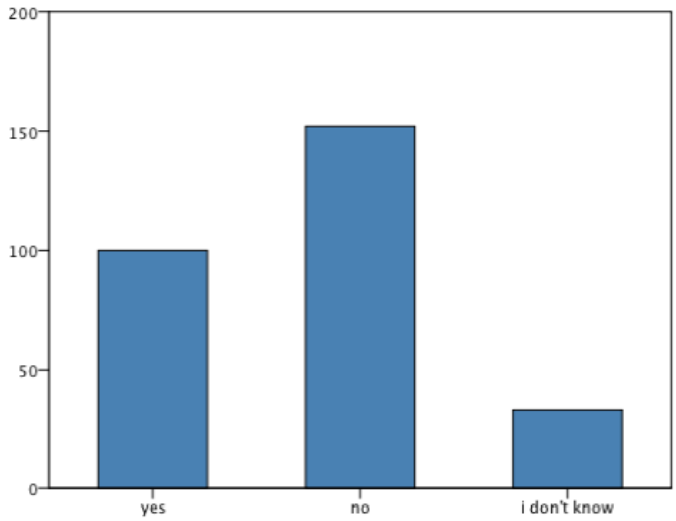

Figure 3: Before buying or renting the apartment that you live in, did you investigate vulnerability of the building to seismic risk? (Atun, 2013)

Moreover, around 38% of the respondents do not have an idea about the occurrence time of an earthquake with more than 7 Mw. However, 54% of them believe that it is very probable an earthquake with more than 7 Mw will occur within the next 30 years (3% within 12 months, 24% within next 5 years, 27% within next 30 years) (Figure 4).

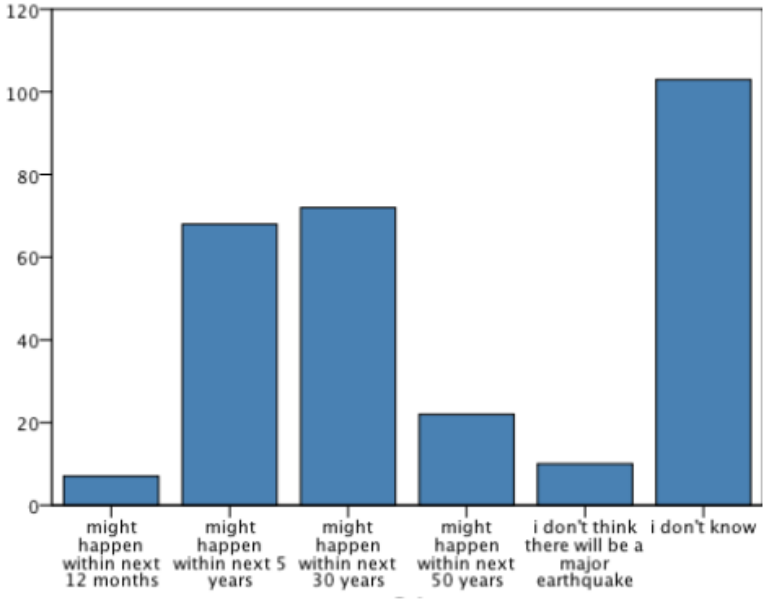

Figure 4: The likeliness of occurrence of a major earthquake (more than 7Mw) (Atun, 2013)

Part 2: Awareness of information programmes and access of information

Another change after the Kocaeli earthquake is the increasing number of information campaigns prepared both by governmental and volunteers organizations. Although they have had extensive participation in number, the percentage of participants in these activities is less than 0.04% of the total population of Istanbul (according to the 2011 data).

The main reasons are

- People do not know the existence of such kind of activities
- People know, but they ignore
- People know, they do not ignore but they have other priorities
- People know, but they do not believe of those activities may be successful

According to the results of the survey, 85% of them have information on the mitigation works against earthquake and information related programmes, but none of them have been actively involved in any kind of activities related with earthquake mitigation. Although, they encounter disaster risk related information on TV and newspapers, most of them ignore or avoid getting detailed information.

Part 3: Population's individual preparedness

According to the answers of the respondents, population's individual preparedness is very low. The most taken precautions against earthquake are; having a home insurance against earthquake and mounting libraries and wardrobes well attached on the wall.

During an emergency, people behave instantly in most of the cases. Thinking and planning before an emergency could increase the probability of taking the right decision during an emergency. Immediately after an earthquake before leaving the building electricity, gas and water valves need to be shut down, and important documents should be accessible in case of need. Majority of the respondents (98%) know how to shut down the valves, 65% know how to use an extinguisher and 75% keep their important documents in safe and easy to reach location.

Trust in authorities is another important factor to forecast behaviour pattern of public. If trust is high, most probable people follow the orders given by the authorities and they do not panic. As they know there is someone who could help them. Therefore, another question in the survey aims to understand people's trust to authorities including local authorities, head of neighbourhood, Istanbul Metropolitan Municipality, government, and media. The results of the survey show that trust in authorities is very low in Istanbul. People trust local authorities and head of neighbourhood more than Istanbul Metropolitan Municipality and government. Moreover, almost 90% of the respondents do not trust the media. %70 of the respondents trust to none of them.

In case of evacuation, mobility capability of people becomes very crucial. An evacuation plan must consider not only people who are not able to move due to physical or mental reasons. Previously occurred disasters showed that having pets, not having a driving licence, having a person at home who is not capable to move and not having a place to evacuate are some of the reasons for not joining the evacuation process. More than half of the respondents do not know where evacuate to. As an evacuation mode most of the respondents prefer to use their own cars or their neighbour cars (Figure 5). When considering the high percentage of car ownership in Istanbul, it is very clear that traffic congestion and fuel shortage could be main concerns in case of an emergency.

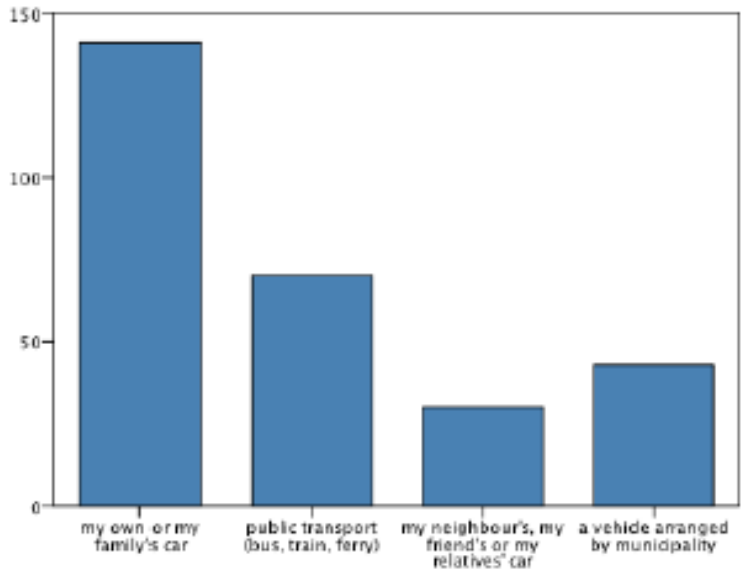

Figure 5: Preferred transportation mode for evacuation (Atun, 2013)

Conclusion and HFA's five priorities

The first priority of HFA is "**to ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation**". The 1999 Kocaeli earthquake revealed new regulations that added new duties and guidelines as risk mitigation measures and processes to the disaster risk reduction. The responsibility of DRR is appointed to local administrative bodies as Special Provincial Administration, Metropolitan Municipality and other Municipalities by law. Shifting responsibility to Local Authorities increases the efficiency of implementations, as local bodies stay close to public and aware of their problems. However, at the same time the DRR has become very fragmented with highly similar responsibilities that may lead to confusion among institutions. In such a "the more the better" logic, without proper share of responsibilities, one can expect a task to be tackled by multiple institutions along with orphaned tasks. There is a need of declaring a checklist for every institution with a special priority order of tasks to evade exaggerations on the bright side or shortcomings more realistically.

Regarding to the second priority, "**identify, assess and monitor disaster risk and enhance early warning**", the assessment and monitoring of disaster risk work properly by the several projects conducted by public institutions and universities. Moreover, the early warning system for Istanbul is under construction. The only shortcoming regarding to this priority is that all the works are concentrated in Istanbul and Marmara Region. Considering this, an earthquake or a flood event in other cities would be a surprising event, such as Van earthquake in 2011.

The third priority is not only related with the authorities effort, it also needs a good many participants from public. Mainly in Istanbul there are several activities "**to build a culture of safety and resilience at all levels"** provided by several governmental and non-governmental institutions (such as ISMEP, AFAD, AKUT). However, as the result of the

survey shows as well, the willingness of participation to such activities is very low when it is compared with the total population of Istanbul.

The fourth priority is related with to "**reduce the underlying risk factors**". The risk factors could be reduced with strong integration between DRR and development activities. In Istanbul case, the earthquake master plan was issued in 2004 and Istanbul development plan was issued in 2009. However, the development plan does not provide decision that could bridge the decisions taken in the earthquake master plan. According to the report published by the UNDP (2004), to integrate disaster risk management and development plans, the basic data of disaster risk should be collected and after this, planning policies should be used as a tool to set up a bridge between development and disaster risk management. Turkey is successful in collecting basic data on existing disaster risk, but more efforts need to be taken to achieve development plans that embed risk mitigation concerns. Furthermore, to diminish risk of direct and indirect damage, structural mitigation measures are taken especially in public facilities such as hospitals, schools, and governmental buildings etc. However, more than half of the building stock of Istanbul is vulnerable to earthquake in different levels. As the number is very high, government or municipalities cannot provide funding and most of the people cannot afford the cost of strengthening their houses.

The last priority is about "**strengthen disaster preparedness at all levels"**. One of the interesting outcomes coming from the survey with the public in Istanbul is that, although public awareness of earthquake risk is very high, disaster preparedness level of people is very low no matter what their educational or economical level is. In addition to 236 subjects chosen randomly, 50 subjects, who have been chosen among the architects, urban planners and civil engineers, have been interviewed to understand their awareness and preparedness level. Although they know the risk of earthquake, most of these respondents did not know how to protect themselves in case of occurrence of a major event. Though the organizational system is not fatalistic any more, the fatalistic approach is still dominant at the public level.

Furthermore, preparing disaster emergency plans is an obligation for municipalities, and some municipalities are very well prepared. However, there are two major problems. First, in Istanbul some municipalities' borders have changed due to establishment of new municipalities in 2008 according to the law number 5447. This situation led to changes in the population and structural density, and the proportion of void/solid areas in the municipalities. Although some of them prepared the emergency management plan for the entire municipality area, now they have to prepare it again by considering these changes. Second problem is related with implementation. Some municipalities implemented emergency road network plan and organized the first-degree disaster-emergency roads, where parking is not allowed at all times. However, due to scarcity of parking lots and inadequate controls, those roads turned into parking spaces again. This brings to the major problem that is not being able to combine development plans with disaster management plans. In addition to forbidden parking in an area where previously people were allowed to park, the parking problem has to be solved by opening new parking lots and/or restricting car access into those areas. Disaster risk reduction related plans have to be supported by development plans as it is highlighted in the fourth priority. Otherwise provided solutions - as it is seen in this case - could be short-lived.

References

Atun, F. 2013. *Enhancing Resilience of Transportation system in case of disasters*. PhD thesis at Politecnico di Milano, Department of Architecture and Urban Studies, PhD Program in Spatial planning and Urban Development, 25th Cycle.

Balamir, M. 2000. *Is Turkey in the Process of Restructuring its Earthquake Strategy?* Mimarlık 295: 44-47 (in Turkish).

Balamir, M. 2012. *Obstacles in the Adoption of International DRR Policies: The Case of Turkey.* Geneva, Switzerland: UNISDR

Cakti, E. 2012. Assesment of Earthquake Risk in Istanbul. In "Cities at Risk: Understanding, Perceiving and Responding" international PhD seminar. November, 2012, Politecnico di Milano, Italy.

Hyogo Framework for Action 2005 – 2015. *Building the resilience of nations and communities to disasters. World conference on disaster risk reduction*. 18-22 January 2005, Kobe Hyogo Japan.

Kundak, S. 2012. *Economic Vulnerability in Housing – Case Study*: *Istanbul*. Germany : Lambert Academic Publishing.

UNDP Disaster Risk Report, 2004. *A Global report: reducing disaster risk. A challenge for development*. Available at (pdf):
http://www.undp.org/content/dam/undp/library/crisis%20prevention/disaster/asia_pacific/Reducing%20Disaster%20risk%20a%20Challenge%20for%20development.pdf