

## Reduction of Urban Risks

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## Reduction of Urban Risks







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#### **Executive Bodies**

Governorship of Istanbul Istanbul Provincial Disaster and Emergency Directorate (Istanbul DED) Istanbul Project Coordination Unit (IPCU)

#### **Academic Consultant**

Asst. Prof. Dr. Seda Kundak

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# Introduction

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### Academic Assesment

#### Seda KUNDAK, Assistant Professor Doctor

Faculty Member Urban and Regional Planning Department, Architectural Faculty, Istanbul Technical University

 Disasters act as litmus paper showing what has been done correctly or wrongly in a city. Although the structure of the cities has changed throughout the process from the first settlements in history, the basic foundation objective, "settlements are areas where people maintain their life reliably and satisfy their requirements of accommodation, work and rest", has always remain same.

However, in this description, the element "maintain their life reliably" has been deeply affected most of time by conversion of natural threats to natural disasters.

While some cities have been discovered by long and careful studies of the archeologists only after long years due to unexpected and destructive power of the nature (e.g. Pompeii), some have resurrected from their own ashes again and again (e.g. Istanbul). Still, the mankind, with a perfect ability to survive, has developed its fight against the disasters by help of the scientific and technologic developments one more step all the time.

At the point we have arrived today, although earthquakes, volcanic eruptions, storms, etc. still pose threat to our daily life and security, we know what measures should be taken to minimize our loss.

However, the basic problem is in the implementation stage of such knowledge.

Although numerous earthquakes been done correctly or wrongly in a city.

Reduction of the urban risks requires understanding of the operation and interactivity of the sub systems that constitute the cities.



Eminönü Square

Before discussion of the strategies to cope up with the disasters, we should find an answer to the question "why have we remained so weak against earthquakes?"

In addition to the individual weakness of the structures, while a change made in a single point of the city plans as reflected on the space after a complex and intensive process may affect the entire urban system, planning b parts may also prevent functionality of the urban system.

At this point, disasters act as litmus paper showing what has been done correctly or wrongly in a city.

Reduction of the urban risks requires understanding of the operation and interactivity of the sub systems that constitute the cities. By its contents and matters it deals with, "Guide Book on Reduction of Urban Risks" has adopted this systemic approach and referred to the key points of the matter and emphasizes on the examples in different countries and Turkey in this respect.

### What are Urban Risks?

As a result of natural risks the denselypopulated urban area, loss of life and property occurs and problems increased related to density of the unplanned areas. Today, half of the world population living in the cities, the metropolitan areas of the countries are consisted of the developing areas where urban people live under unplanned and unhealthy conditions.

As a result of natural risks the densely-populated urban area, loss of life and property occurs and problems increased related to density of the unplanned areas.

All these factors increase vulnerability level of the cities, putting other risks on the existing natural disasters risks, thus expanding its scope further.

While zoning plans and programs prepared in various scales by the municipalities in the urban planning discipline meet requirements of the aspects such as housing, offices, transportation and infrastructure that constitute our living areas, they also take care to create a physical and livable environment by preserving natural and cultural resources. In this respect, it is important that the decisions and implementations with respect to the urban environment should be based on the concern about being prepared prior do realization of the said disasters in order to minimize possible consequences of the disasters.

All events and phenomena potentially harmful are defined as "hazard".

And "risk" is occurrence possibility of the loss in case of hazard. According to these definitions, risks occur in related to the hazard.

Living and non-living beings or assets should first be in hazard in order that they may be under risks.



#### **Relationship of Urban Risk Management and Conservation Plan**

Source: M. Kadıoğlu, Afet Riskini Azaltma: İstanbul'da Kensel Dönüşüm, Deprem ve Sanayi, 2012

This interaction raises a different question:

Does existence of hazard always generate existence of risk? In order to answer this question, we should define and some concepts associated with it.

Vulnerability is defined as "a measure of possible death, injury, damage, destruction, and loss that the society may suffer upon occurrence of a potential event".

In other words, vulnerability is opposite of the potential of the society to cope up with.

Risks with respect to the structures may be categorized under two main headings: risks related with the structural elements and risks not related with them.

Risks not related with the structural elements contain factors posing risks other than the structural elements. Articles, materials, cabinets and shelves overturned, etc. The concepts of "exposure" and "defenselessness" are also important in reaching a complete and correct result.

In this respect, the concept of exposure indicates "quantity and number of people and assets that a certain hazard affects or may affect.

Consequently, existence of exposure is considered with a hazard and existence of people and assets that such hazard may affect.

And the concept of defenselessness is the response to the questions "May it occur here? What happens if it occurs?" in the disasters management.

It is the extent of possible death, injury, damage and similar loss that the society may suffer upon occurrence of the potential disaster. In light of these concepts, which are critically important in terms of disaster management, it appears that the risk is the resultant of the concepts of hazard, vulnerability and exposure. And manageability should be considered as a concept apposite to vulnerability.

On basis of variables such as the existing institutional systems against possible risks, preparedness level, planning, existing loss reduction measures, laws and regulations, early warning and prediction, public awareness, information systems, resources, training levels and engagement, the potential of a society affected by a disasters to minimize and cope up with loss and damages are factors that constitute manageability. To mathematically express the risk concept shown in the figure above would make the concept understandable better.

RISK = Hazard possibility x Exposure x Defenselessness

Basing on the statistics, the experts say 60% of the world population will live in the cities in future. Detailed information about the matter is given in ADMIP Guide Book. Many people come to the cities from rural areas for a variety of reasons and, consequently, we observe an excessive population growth in the cities.

Basing on the statistics, the experts say 60% of the world population will live in the cities in future.

However, many Mega cities are under hazard of natural events such as earthquake, tsunami, landslip, hurricane, flood and drought. Here the important question is how come these nature events become natural disasters in these cities.

Intensive immigration, unplanned urbanization, illegal housing, political sanctions, lack of resources, capacity and trained technical persons, lack of knowledge, experience and teamequipment and non-existence of necessary preparations all increase the risk further.

#### **Urban Risks**

It is, in addition to natural disasters, the entire possible loss and damages that may occur due to reasons such as general layout of a city, urban texture, usage areas, existing housing, transportation system and infrastructures, planning and management weakness in a city.

#### Urban Risk Management

It is determination and analysis of social, economic, physical and environmental risks created by natural or human-sourced hazards in the settlements as well as the strategic plan and action programs prepared to determine the resources and priorities in order to allow taking and implementing precautions to eliminate or minimize them.

In order to reduce the risks and vulnerability of the society and prevent adverse effects of the disasters, strategies should be developed against potential risks and legal, political and technical studies should be performed. All these studies are called operations for "Reduction of Disaster Risk".



#### Schematic Display of the Disaster and Emergency Management and Phases of the Urban Risk Management

Source: T.C. Bayındırlık ve İskân Bakanlığı, Kentleşme Şurası 2009, Afetlere Hazırlık ve Kentsel Risk Yönetimi Komisyonu Raporu, 2009

Disaster Risk Management is to make the necessary administrative decisions, operational abilities, technical studies, intervention capacities and preparations implementable by legal regulations for reduction of the disaster risk, determination of the necessary strategies and methods and implementation of the same by constant drills.

In other words, the risk management may also be defined as determination and analysis of hazards and risks; determination of facilities, resources and priorities for prevention or reduction of the risks; planning and implementation of policy, strategy and action plans.

Today, it is evident that any loss arising from natural/technologic/ biologic or human-sourced disasters would be immense in terms of human life, goodsproperty, socio-economic structure and environment. At this point, the concept 'Disaster Management' include the entire process of analysis, planning, decision-taking and assessment for organization of all existing resources in order to be prepared against all kinds of hazards, prevention and risk reduction, intervention and improvement.

For this reason, disaster and risk management operations are entire.

In the cities, preparation against disasters and urban risk management are, as shown in the Figure 1, considerably consisted of operations to reduce loss arising from disasters and preparation against disasters.

#### Urban Vulnerability Assessment

"Vulnerability is the case when the individuals, societies, institutions or countries do not have the required characteristics and resources (capacity) with respect to their exposure to the hazards and to cope up with and reduce effects of such hazards" (UNDP, DED).

In addition to this definition, in the scope of the ENSURE and MOVE Projects which are executed under the European Union 7th Frame Programs, basing on the integrated vulnerability analyses, new approaches and definitions have been developed with respect to quality and scale of the variables required to conduct analysis. In this section, a categorization and assessment is made in line with the latest developments.

The vulnerability concept has been examined so far with its engineering effect, that is, physical vulnerability aspect.

#### **Structural Vulnerability Variables**

LOWER SCALE (Single structure/ Structureroup)	MEDIUM SCALE (Neighborhood/District)	HIGHER SCALE (City/Region/ Country)
<ul> <li>Building construction type</li> <li>Building status</li> <li>Number of floors</li> <li>Age of building</li> <li>Modifications and alterations</li> <li>Irregularities</li> <li>Building usage type</li> <li>Building/usage adaptation</li> <li>Building aggregations</li> <li>Transportation roads</li> <li>Road widths</li> <li>Road type</li> <li>Historical buildings</li> <li>Critical buildings</li> <li></li> </ul>	<ul> <li>Fulnes/Vacancy cycle</li> <li>Settlement texture</li> <li>Building density</li> <li>Age of settlement</li> <li>Land use</li> <li>Incompatibility between land uses</li> <li>Green and open land ratio</li> <li>Place of critical facilities</li> <li>Transportation system</li> <li>Traffic density (average/rush hours)</li> <li>Infrastructure facilities</li> <li>Historical texture</li> <li></li> </ul>	<ul> <li>Land use</li> <li>Transportation network</li> <li>Infrastructure network</li> <li>Urban/Archeological sites</li> <li></li> </ul>

Source: Integrated Urban Disaster Risk Management Strategies (IDRIS), 2012

Recent scientific studies have shown that different vulnerability components have also characteristics to affect each other and spread. While social or demographic vulnerability is matched with size of population that may be exposed to the effect of the threats, the economic vulnerability is considered as direct possible economic loss.

However, vulnerability contains all weakness that each element (human or a building) has had since the beginning or developed in course of time.

Furthermore, the recent scientific studies have shown that different vulnerability components have also characteristics to affect each other and spread.

Again, the concept "systemic vulnerability", which is frequently referred to recently, examines accessibility and availability of the critical facilities, especially hospital, fire brigade, etc., at time of disaster. In this context, components of urban vulnerability are shown under the headings given in the opposite page.

#### Structural-Physical Vulnerability

Structural vulnerability is a concept widely addressed in the disaster literature and rather examined by engineering approaches.

This type of vulnerability especially identify weak points of the single buildings, adjoining buildings, roads, bridges and infrastructure systems together with behavior of such structures in face of hazards.

However, to measure vulnerability of the urban structural loss, not only the structural characteristics of the buildings and structures, but the manner of their use, integrity of land use and, in association with it, identification of the incompatible uses is also important.

Furthermore, in case of damage

#### Interaction Among Different Vulnerability Components



#### Variables of Socio-Economic Vulnerability

LOWER SCALE (Individual/Family/ Organization)	MEDIUM SCALE (Neighborhood/District)	HIGHER SCALE (City/Region/ Country)
<ul> <li>Sex</li> <li>Age</li> <li>Education status</li> <li>Family size</li> <li>Household income</li> <li>Economic dependency</li> <li>Number of children/baby, elder and patient in the family</li> <li>Organization type</li> <li>Business line of organization</li> <li>Insurance</li> <li></li> </ul>	<ul> <li>Population density</li> <li>Population growth rate</li> <li>Population mobility (night/day)</li> <li>Ethnic diversity</li> <li>Number of tourist</li> <li>Economic activity fields</li> <li></li> </ul>	<ul> <li>Population growth rate</li> <li>Economic growth</li> <li>Interregional inequality</li> <li>Basic activities</li> <li>Import/Export</li> <li>Debts</li> <li>Added Value</li> <li>Tax</li> <li></li> </ul>

Source: Integrated Urban Disaster Risk Management Strategies (IDRIS), 2012

While the woman stands out as the most important player space in respect of social role for reduction of the risks in the living space, she also appears as the most vulnerable individual during and after disasters. of some structures, especially industrial plants, possibility and possible effects of the occurrence of technological accidents, defined as secondary or "na-tech" should also be examined in this respect.

#### Socio-Economic Vulnerability

Socio-economic vulnerability appears et the most complex type of vulnerability.

While, in the cyclic structure created by the composition of the socio and economic systems, the socio underdevelopment prevents development of the economic structure, economic constraints/problems also affect social development and thus increase vulnerability level of this component. For identification of the socioeconomic loss, rather than the population and economic assets under threat, weakness of these aspects should be emphasized.

Istanbul is, for example, is face to face with an earthquake hazard with its population about 14 million and this 14m-population is not have the same weakness (or resistance).

Under the heading of social vulnerability, women rank first under the headings significantly emphasized by UNDP in recent years.

While the woman stands out as the most important player space in respect of social role for reduction of the risks in the living space, she also appears as the most vulnerable individual during and after disasters.

#### Variables of Institutional Vulnerability

LOWER SCALE (Institutional/NGO)	MEDIUM SCALE (Neighborhood/District)	HIGHER SCALE (City/Region/ Country)
<ul> <li>Governance</li> <li>Transparency</li> <li>Reliability</li> <li>Risk Perception</li> <li>Communication</li> <li>Cooperation</li> <li>Professional education</li> <li>Identification of duties and responsibilities</li> <li>Resource</li> <li></li> </ul>	<ul> <li>Interinstitutional communication</li> <li>Interinstitutional coordination</li> <li>Interinstitutional cooperation</li> <li>Public engagement</li> <li></li> </ul>	<ul> <li>Law</li> <li>Regulation</li> <li>Institutional structure</li> <li>Representation</li> <li>Central/Local management relations</li> <li></li> </ul>

#### Variables of Systemic Vulnerability

LOWER SCALE (Critical Plant)	MEDIUM SCALE (Neighborhood/District)	HIGHER SCALE (City/Region/ Country)
<ul> <li>Lack of emergency equipment/spares in connection with institutional preparations</li> <li>Non-preparedness of the personnel</li> <li>Operational stop due to non- structural loss</li> <li></li> </ul>	<ul> <li>Access</li> <li>Security</li> <li>Orientation</li> <li>Evacuation</li> <li></li> </ul>	<ul> <li>Access to critical facilities</li> <li>Infrastructure loss</li> <li></li> </ul>

Source: Integrated Urban Disaster Risk Management Strategies (IDRIS), 2012

For example, as it has been experience in Kobe earthquake and some other disasters, it is given as statistical data those women, who are mother to 2 and more children, cannot escape from the place and remain under the wreckage.

Furthermore, in the societies with radical religious rules, we observe that in case of flood the women could not swim and drown because of the clothes they have to wear .

Due to these and similar "womenrelated" examples and genderdependent special cases, it is known that UNDP has developed a special women's program (gender issues) and performed actions to increase resistance of the women. In this framework, the individual variables are emphasized sensitively.

#### Institutional Vulnerability

Institutional structure includes not only central and local administration structure, but also civil society organizations and players of all kinds of governance activity.

Rules created by the administrative system (laws and regulations) as well as and developments of the current technologies and science in structural and urban scale are basic tools in the meaning of reliable housing.

These tools should be adopted and efficiently used by all stakeholders, particularly the decision-givers and technical personnel.

Furthermore, social organization, flow of information and perception of the factors that constitute the risk are also among the key elements for proper governance.

#### Systemic Vulnerability

Systemic vulnerability may be defined as one of the sub-systems of the great urban system makes other systems inoperative as a result of its damage at time of disasters.

The most widely used examples in this respect is the critical facilities (hospital, fire brigade, etc.) that become inoperative as a result of damages of the transportation and infrastructure systems.

Systemic vulnerability is also indirectly affected by the weakness in the economic and institutional structures, in addition to the structural loss that create successive loss in their own systems.

#### **Variables of Ecologic Vulnerability**

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LOWER SCALE (-)	MEDIUM SCALE (Neighborhood/District)	HIGHER SCALE (City/Region/ Country)
•	•	<ul> <li>Sensitive ecosystem</li> <li>Water resources</li> <li>Forest areas</li> <li>Agricultural areas</li> <li>Natural haritage sites</li> <li>Air quality</li> <li></li> </ul>

Source: Integrated Urban Disaster Risk Management Strategies (IDRIS), 2012

Quantitative and qualitative variables should be regulated to create a comprehensive database.

#### **Ecologic Vulnerability**

Sensitive ecological resources and region-specific flora and fauna are most affected by the technological accidents triggered by natural disasters.

Especially fire and leakage in the industrial plants may create great loss in the ecologic system.

Such loss may, directly or indirectly, first affect natural life, followed by human health, causing loss in economic sense as well.

In scope of ecologic vulnerability, relationship of special areas, agricultural areas with the settlements an structured environment should also be identified.

#### **Regional Vulnerability**

Regional defines areas which constitute a whole according to some determinatives.

Basic points in the regional vulnerability also include geographical integrity in addition to the social, cultural and economic bonds in a region.

Furthermore, interregional bonds and dependencies should also be examined in this respect.

#### Interaction Between Vulnerability Types

Recent scientific studies show that there is interaction between different types of vulnerability and that any weakness in any of them also spread to the other components.

Relation between physical and socio-economic environment may be shown as the characteristics of the socio-economic structure shown on the structured environment in way of increasing or reducing the living quality; and the characteristics of physical environment make performance of socio-economic activities easier or harder.

#### **Variables of Local Vulnerability**

LOWER SCALE (-)	MEDIUM SCALE (Neighborhood/District)	HIGHER SCALE (City/Region/ Country)
•	•	<ul> <li>Intraregional connections</li> <li>Interregional interaction</li> <li>Dependency</li> <li>International connections</li> <li></li> </ul>

#### Interaction variables between types of vulnerability

LOWER SCALE (Structure/Individual)	MEDIUM SCALE (Neighborhood/District)	HIGHER SCALE (City/Region/ Country)
<ul> <li>Structural environmental interventions by individual/family</li> </ul>	<ul> <li>Facilities demand</li> <li>Security request</li> <li>Special plan decisions</li> <li>Area-specific NGO structuring</li> <li></li> </ul>	<ul> <li>Remission of Development</li> <li>Illegal housing</li> <li></li> </ul>

Source: Integrated Urban Disaster Risk Management Strategies (IDRIS), 2012

Institutional structure and governance offer rules to the economic environment which should be observed or proposed; and the economic environment requests new regulations to expand and improve its own movement area.

The most critical relation is that of the institutional-structured environment. Here, while basic legal sanctions concerning the structured environment are generated by the institutional structure, the effect of the structured environment on the institutional structures and applications appears mostly in form of development amnesties.

### Determination of Urban Risks

Risk analysis is an assessment made after identification of threats and the weakness of the elements that may expose to such threats.

For this reason, quantitative and qualitative variables should be arranged so as to form a comprehensive database.

Risk levels identified by help of this database may be called "low", "medium" and "high"

Understanding of what will contribute to the identified risk levels in what rate would provide important inputs in determining priority areas for loss-reducing activities to be dealt with in the following sections. For example, an area in the center of or very close to the hazard an identified to be highly weak as a result of assessment of many viability components will also have a high risk level. Such areas are priority areas at time of intervention.

Risk is an estimated assessment and has a strong relation with formation of the hazard. Loss occur upon realization of the previously estimated risks when the hazard occurs. However, risk-reducing factors stand out as critical potentials in reducing the loss.

The matters such as position, accessibility and availability of such potentials (e.g. health facilities) should also be examined. Today statements made by the authorities after many disasters to the effect "a disaster much more great than what we have estimated" stem from failure to understand the uncertainties and from negligence of the lowest possibility rate in the probability calculations. The biggest danger in the risk estimations is to show the risks less or more than required.

This status stem most of the time from uncertainties with respect to the components of hazard resources and vulnerability.

Today statements made by the authorities after many disasters to the effect "a disaster much more great than what we have estimated" stem from failure to understand the uncertainties and from negligence of the lowest possibility rate in the probability calculations.

On the other hand, as occurrence frequency of great disasters is, as known, expressed by 100-200 years, some people consider investments against such a disaster as a waste of resources. For this reason, when integrated urban risks analyses are conducted, it is required to generate a variety of scenarios, make loss estimation from the best case related to the worst case and conduct benefit-cost analysis related to interventions.

In the framework of Istanbul Earthquake Master Plan (IDMP), the urban risks have been identified by sectors.

And then the strategies developed in the scope of KENTGES have been emphasized by the strategies shaped as per both IDMP and Harmonization Code of European Union.



#### Effect of Hazard and Vulnerability on the Risk

Source: Integrated Urban Disaster Risk Management Strategies (IDRIS), 2012

#### Land Use and Risk Areas

For identification of any risks that may stem from land use, it is required to identify types of land use in the existing structured texture both by the hazard areas and aggregation of them as well as the damage that possible effects of these risks during a disaster may give to both structured and socioeconomic environment.

Incompatibilities in the use of the urban area, incompatibilities between the neighboring uses and the resulting hazards, lack of buffer areas, areas with uncertain borders (commerce, industry, small manufacturing, etc.) homogenous areas (especially housing regions), mixed uses that constitute different incompatible categories (housing-service, housing-public, housing-commerce, housing-small manufacturing, housing-industry, housing-hazardous use) and unplanned development of the housing areas should be dealt with and risks associated with urban use should be determined.

Furthermore, ecologically important areas such as water catchment areas, natural and archeological sites and agricultural areas and housing and use on or near such areas should be identified and the risks arising from risk areas, geologically problematic areas, seismicity and landslide areas, both soil characteristics and density of the existing housing texture at such areas and low physical quality and equipment should be identified.

#### **Housing Areas**

Housing areas should be categorized by planned and developed old settlements, new planned and developed settlement areas, unplanned developed settlements/squatter settlements, mass housing areas and urban sites.

These areas should be assessed by housing density, building qualities, age of buildings, differences by socio-economic characteristics of the occupants.

Hazards to be possibly encountered should be identified after assessment and risk levels in these areas should also be determined.

Housing areas on the geologically risk areas (areas with potential liquefaction related to earthquake, areas with landslide risk and stream beds are considered as geologically problematic areas) and with high housing density should be identified.

#### Taking into

consideration the combination of mixed areas such as housing + industry, housing + commerce, risk analysis should be conducted for such areas.

#### **Industrial Areas**

Critical areas in terms of all hazards in the industrial areas and areas with a density of industrial plants should be superposed to identify risk areas.

#### **Service Areas**

Risks that would crease economic and social damages in case of a disaster to affect the entire city and to which important service and finance centers would expose should be identified.

#### **Open Areas**

Potentials of the open areas empty and sufficiently close to the settlements and may be used for gathering, access by air, stock and distribution of emergency rescue materials in emergency should be determined.

#### **Mixed Use Areas**

Risks for housing + commerce, housing + industry (small manufacturing), housing + recreation, housing + plants/ structures with high density of use (hospitals, schools, nursing home, care centers, prisons, indoor sport facilities, student dormitory, etc.) should be determined.

Taking into consideration the combination of mixed areas such as housing + industry, housing + commerce, risk analysis should be conducted for such areas.



Urban Areas

#### Structures Having Important Function in terms of Urban Systems

Emergency Services (hospitals, school buildings, fire brigade stations, police stations, bakeries, dry goods warehouses, cold stores, some public buildings, stadiums, etc.) which should be in good order and have vital importance in case of an earthquake or emergency as well as vital infrastructure units such as main transportations road, stations where a variety of transportation means intersects, bridges, tunnels, power transfer stations, water depots should be considered together with the entire city and the risks to which the Structures Having Important Function in terms of Urban Systems in the settlement level should be identified by taking into consideration their combination with other types of use.

#### Transportation and Infrastructure

Risks to which all roads used for transportation and transportation infrastructures are exposed should be determined.

#### Lack of Open Area

Risks with respect to all hazards should be identified for playgrounds, park areas, sport areas, picnic and entertainment areas, public woods and recreation areas, pastures-nursery gardens and forests, afforested areas, traffic islands apart from the accommodation, work, services and transportation areas of the settlements.

#### Hazardous Uses and Risk Areas

Hazardous uses may lead to accidents because of their function or materials stored and contained in them.

In order to prevent any possible accidents, spatial distribution of the buildings and plants posing threat to the environment, hazards they bear according to the microareas (explosive, combustive, pollutant, chemical, organic, etc.) and concentrated points thereof should be listed. Position and size of these hazards, uses around them, transportation relationship between the units containing hazardous materials at different points and transportation routes of the vehicles transporting hazardous materials and waste systems and depots should be identified.

Together with them all, the matters such as identification of the operational standards and responsibilities and clarification of thresholds and spatial distribution standards for different types should be addressed and thus risks related to the hazardous substances should be identified.

#### **Urban Risk Assessment Approach**



Due to great effect of the natural hazards and climate change on the urban investments, priority is given to proactive adaptable planning for reduction and management of waste and potential disasters.

#### **Urban Risk Assessment**

Urban Risk Assessment concerns consistency and reinforcement of conciliation in the operations performed by the World Bank and key partner bodies and minimization of duplicate efforts. The objective is to identify number and place of people that may suffer damage from the natural hazards and precise infrastructure that may cause harmful effects on the urban population when they suffer damage.

In the next twenty years, it is estimated that two billion persons will settle in the world cities already in development phase. Quick urbanization together with factors such as the increasing competition for land, increased vegetation cover, change in the land use and great climate changes are considered to trigger change in the population distribution, relative richness and poverty and potential hazards and vulnerabilities. For the international institutions and policies so far, intervention with the disasters have been generally of reactive types.

Due to great effect of the natural hazards and climate change on the urban investments, priority is given to proactive adaptable planning for reduction and management of waste and potential disasters

While identification, diagnosis and mapping of high risk areas become important by this approach, it also causes spread of urban hazard and risk assessment without a common approach.

Secondary objective of the Urban Risk Assessment is to better position the cities in order to attract and distribute the reserved adaptation funds.

#### **Urban Risk Assessment Levels and Columns**



There are no direct relationship between national adaptation programs and city-level applications and fund programs for applications.

While forestry and agricultural sectors benefit from the climate change adaptation funds, it is observed that the cities are devoid of necessary mechanisms and tools for disaster management. In order to develop an understanding of urban risk, assessment has been established on four basic principles:

- 1) Historical repetition of hazards
- 2) Geo-spatial data
- 3) Institutional mapping
- 4) Social engagement

Urban Risk Assessment has been developed in a flexible structure in order to ensure its application according to the institutional capacity and existing resources of a certain city. Together with such complexity and a progressive approach related to the necessary investments, the authorities of the city may select several sub-headings for each basic principle for individual and collective development of the understanding of urban risk.



### Urban Risk Reduction Activities Worldwide



### **Urban Risk Reduction Activities** Worldwide

It is reported by the United Nations that loss given by the disasters to the global economy is USD 2.5 trillion from the year 2000 so far.

Although destructive natural disasters have been experience in each era throughout the history, the economical development, population density and increased asset values have made the financial consequences of the disasters more destructive.

Strategic Targets of Hyogo Framework Action Plan include integration of the reduction of disaster risks with the sustainable development plans and policies, development of the institutional mechanisms and capacities for awareness and sensitivity with respect to disasters, reinforcement of the existing capacities, engagement with preparedness, intervention and improvement programs for reduction of disasters risks.

Risk for development arising from natural disasters is identified in the section four "Protection of our Common Future" in the report of Millennium Development Targets. In this section, the common objective is described as "concentration of collective efforts for production of the effects and number of nature and humaninduced disasters.

Objectives in the development targets and the targets expected to arrive are reduction of affectability of the people from the disasters.

Hyogo Frame Action Plan strongly emphasizes, especially in its first strategy and first priority action plan, the integration of the reduction of disaster risks with the development plan.

"Global Assessment Report on Disaster Risk Reduction for 2013" published on May 15, 2013 by "Disaster Risk Reduction Office" (UNISDR) attached to the United Nations clearly indicates damages given by the disasters to the global economy.

#### **5 Priorities of HFA**



Source: 5 Priorities of The Hyogo Framework for Action 2005-2015 (HFA)

It is reported by the United Nations that loss given by the disasters to the global economy is USD2.5 trillion from the year 2000 so far.

According to this study, it is seen that global estimation with respect to the disaster damages was surpassed by 50%.

The report warns that economical loss will further increase unless sufficient efforts are made to reduce disaster risks.

According to the report, total economic damage given by the disasters in 2000s (on basis of insured assets only) exceeds USD1 trillion.

It is estimated that annual estimated amount of damage only by the earthquakes and hurricanes would exceed USD180 billion. The report emphasizes necessity of cooperation with private sector in the "real" steps to be taken for management of the disasters risks and prevention of their damages.

Excessive growth of the requirements for assistance by the international organizations after the disasters, limited return of such assistance, increased insensitivity against hazards and risk-taking tendencies all caused questioning the policies of "relief" policies in 1980s.

From the beginning, the efforts of the United Nations with respect to the disasters have remained limited to international solidarity, post-disaster rescue and financial supports.

It is clearly recognized that such an approach has caused great costs and failed to make any important contribution to make the countries more cautious, but, in contrary, it has backed up recklessness in this respect. The United Nations have declared the period of 1990-2000 as "International Decade for Natural Disaster Reduction" (IDNDR) and organized Yokohama Conference (1994) and set up a new body called "International Strategy for Disaster Reduction" (ISDR, 2000).

In Kobe Conference held in 2005, the decade of 2005-2015 was recognized as a new action period.

It has ensured that new policies, thoughts and actions are not limited with 'emergency' period after disaster, but concentrate pre-disaster efforts and that risks should be taken bin the plans prepared, whatever be their extent, and defined "participating decision-taking" principle, especially giving priority to reduction of the risks of 'lowincome people".  On basis of the fact that risk-reduction applications are generally performed on local basis, local administrations were identified as "Global Actors" in the Incheon Conference. The United Nations organized Conference in Incheon, South Korea in 2009.

At the end of this conference, local administrations (independent of central administrations) were identified as "global players" on basis of the fact that risk-reduction applications are generally performed on local basis and Incheon Declaration was published where risk-reduction costs are define not as "cost", but "investment".

With Incheon decisions, "Resilient Cities Campaign" (2010-2011) was also initiated.

With this campaign, things that the local administration should give priority in their risk reduction efforts and support is given for entry of the local units into solidarity, exchange of their experience with each other, widely recognition of the successful examples and establishment of a network between local administrations. You may find detail information about Resilient Cities Campaigns in another book Disaster Resistant City Planning and Housing Guide Book among İSMEP Guide Books.

It has also been prescribed that Sasakawa Award given by the United Nations every two years since 1987 would be more appropriately reserved for the administration and authorities of successful city this time for their risk reduction efforts.

The last two Sasakawa awards (in 2011 and 2013) have been given to the cities successful in their risk reduction efforts.



Tehran, Iran

#### Sasakawa 2013 Model City and Projects

#### City of Tehran, Amekan Project, Iran

Tehran, capital city of Iran, is located on the slopes of Elburz Mountain. It is a region prone to earthquake.

Historical records show that the last great earthquake in this area occurred in 1830.

The Tehran Disaster Management and Mitigation Organization (TDMMO) is the organization in charge of all disasters in Tehran.

Together with various stakeholders, TDMMO coordinates all stages of disasters management including disaster reduction and preparedness; emergency intervention, restructuring and rehabilitation. The project, called Set up of Disaster Management Teams for Tehran, is based on training and awareness of the city dwellers and office workers voluntary to take disaster risk management training modules in addition to their daily duties in order to increase security at home and office and reduce possible hazards and risks.

#### Belo Horizonte City Council, Brazil

With a population of 2.75m, Belo Horizontei is the capital of Minas Gerais Province, Brazil.

With its undulating hills and important water basins, the city has 80 points bearing flood risk and several areas face to face with landslide risk.

During the year, Belo Horizonte City Council organizes all supervisions in the areas with the highest level of vulnerability in the city. These supervisions are performed by the regional dwellers, local fire brigade department, water, sewerage and representatives of power companies and private company.

In the medium- and low-risk areas, they try to move the families to the safer mass housing estates.

Natural disasters occuring in urban areas causes loss of life and property, and problems aggravates depending on the density of unplanned areas.

Additionally, the volunteers group called "Nuclei of Rainfall Alert" executes networks, alert systems, reinforcement and risk reduction measures of the city dwellers.

For example, local disasters volunteers marks the risk areas on Google Maps and find the most appropriate exits and share the information with the city dwellers. Mariko Sato, UN-Habitat Bangkok President, says "children as target would be an efficient method, thinking that they would share a message they receive with their parents and entire society".

Alerts are transferred to the city administrators, social leaders and media by phone call and SMS messages and to the public by e-mail, Facebook and Twitter. And slogan of this project is "We all are Civil Defense", emphasizing voluntariness and locality.

#### **Butuan City, Philippines**

Located in Mindanao region, Philippines, the city of Butuan is below sea level and quite defenseless against flood risk.

All water of the major regions in Mindanao such as Davao, Agusan Del Sur and Compostela Velley flows into Butuan Gulf.

The region has a background showing periodical floods that occur about every 20 years. Today there are more than 5,000 houses, mostly illegal, on the bank of the river and it is recognized that the city should be moved to safer lands.

"Butuan City has recovered from the flood occurred in January 2013 with zero damage.

Romea A. Solis, Provincial Director, Internal Affairs and Local Administration Department shows " collective movement of the community with respect to preparation, planning and implementation with respect to things required to be done against an imminent hurricane" as the reason of this success.

Each of 86 local administration units in Butuan City has acted in accordance to the training given by the city administration.

When Bopha hurricane stroke, efforts were made for reduction of loss of life and property.

National government has awarded the city with Gawad Kalasag Award, the second highest award which is given to the cities acting excellently with respect to disaster preparation and intervention.



Amadora, Portugal

#### Kamaishi City, Japan

Heavily stroked by the earthquake and tsunami in Japan (2011), the city of Kamaishi is a coastal village in Tohoku, Iwate province.

Tsunami has flooded three-storey buildings, including three public schools, along the coastal strip.

Although more than 1,100 people died or were lost only in the city of Kamaishi according to the official records, almost students of all primary and secondary schools survived.

Mariko Sato, UN-Habitat Bangkok President, says "children as target would be an efficient method, thinking that they would share a message they receive with their parents and entire society". For training the students, interesting means and methods have been used including dynamic tsunami simulation games, drills, composition writing, development of hazard maps collectively and reduction of disaster risks as integrated with other matters.

In the course of time, the school children were taught that they may not be protected against disasters with a passive approach.

They have become leaders that help other people such as children smaller than them and elders in their community.

"Tsunami defense infrastructure" has brought together with it misperception about security and an unnecessary self-confidence.

Coastal local administrations in Japan, just like in Kamaishi, have drawn attention to the fact that more training is required for disaster awareness.

#### Amadora Municipality, Portugal

Amadora Municipality has joined "Resilient Cities Campaign" in 2010. And it has triggered organization of a local campaign supported by a multidisciplinary work team.

Their strategy may be summarized as coordination, motivation and engagement.

The campaign currently includes more than 30 stakeholders (municipal services, social groups, private sector, national/local authorities, universities, school community and civil society organizations).

Over a period of three years during the campaign, training manuals as well as risk and security programs have been developed and access to 3000 students was achieved by means of 250 events organized.

#### **Islamic Relief Bangladesh Organization Chart**

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What is important for disaster preparation is to bring together a variety of factors. This concerns emergency plans and political frame of the government in the emergency plans of all levels, formation of appropriate action plans, performance of the activities in line with the plans and encouragement of volunteerism. Thanks to awareness activities and technical support in the field of natural hazards and fire safety, the citizens have prepared their own safety plans and joined the drills.

Partners of the campaigns have developed risk maps providing better intervention with the disasters.

Each year more than 100 weather status and civil defense alerts are published via website of the campaign and social media channels.

The target has been to promote awareness among the young, elder and disabled individuals in the city and development of a comprehensive unexpected and emergency plan.

#### Sasakawa 2013 Model Institutions and Projects

#### Chinese Management Sciences Academy – National Emergency Management Institute

Chinese Management Sciences, National Emergency Management Institute plays a special role in the efforts for reduction of and resistance against disaster effects in China.

From the beginning, the Institute has emphasized on development of systematic and applied capacity development programs for the government authorities on local and national level.

In the beginning, the said authorities have mostly shown relatively good performance in the intervention with the disaster; however, various difficulties have arisen in addressing to other stages of the disaster management.



Source: UNISDR The Sasakawa Award 2013: Islamic Relief Bangladesh

Programs conducted in the institute bring together various element of the disaster preparation. This concerns emergency plans and political frame of the government in the emergency plans of all levels, formation of appropriate action plans, performance of the activities in line with the plans and encouragement of volunteerism.

Institute has organized more than 100 workshops in the matter of disaster risk management and thousands of participants from various levels of the government, public organizations and departments have attended these operations.

Mr Jürgen Steiger, Assistant Director for China, from German Society for International Cooperaton (GIZ), a partner organization of the institute, "the participants have been multipliers of the matter of development of the awareness of disaster risk reduction covering almost all regions, districts and cities in China."

#### **Bangladesh Islamic Relief Society**

Bagladesh Islamic Relief Society has cooperated with the city of Sylhet for 6 years for reduction of disaster risks in the city.

Located northeast of Bangladesh and one of the biggest cities of the country, Sylhet is a city still developing and nominated as candidate for organization of 2014 Twenty20 cricket tournament.

Sylhet is also located in a region quite prone to earthquake, fire explosion, flood and deluge.

High population density, quick urbanization, badly built buildings, low level of information and skill for disaster preparation and intervention has made the city dwellers defenseless against the disasters.

"Formerly, the society was not sensitive and conscious with respect to the earth risk and preventive safety measures. There was no intervention mechanism on community level," says Khan Mohammad Bilal, Local Administration in Sylhet. With the fund from the European Commission, Bangladesh Islamic Relief Society, together with volunteering groups and various school disaster management committees, has assisted in setting up a Ward Disaster Management Committee (WDMC). These groups have worked among the society to raise awareness and risk develop reduction efforts.

After a period of 6 years, this has made the social groups more self-contained and self-confident ones by means of awarenessraising campaigns conducted by visiting home as well as medical camps, seminars, special days and simulation drills in order to reduce disaster risk.



Bosphorus

### Urban Risk Reduction Activities in Turkey

# Urban Risk Reduction Activities in Turkey



Especially loss of life and property during earthquakes occurred in Kocaeli and Düzce in 1999 and economic, social and environmental loss have caused to bring forward the loss reduction (risk) operations, instead of conventional approach of relief.

For this reason, "National Earth Strategy and Action Plan" (UDSEP) has been drawn up for the first time for creation of a prepared an resistant society to reduce earthquake risk and cope up with earthquake and formation of institutional infrastructure to this and determination of the related R&D activities in this respect.

Main objective of this plan is "prevent physical, economic, social, environmental and politic loss and damages that the earthquakes may cause and form new pre living environments, prepared and sustainable, safe and resistant against earthquake." Earthquake Advisory Committee (DDK) in the body of Disaster and Emergency Management Presidency (DED) started "Earthquake Strategy Development Study" in 2010 to offer proposals about activities to be performed after earthquake and determine policies and priorities for studies about earthquake.

Working commissions have determined problems, targets, strategies and action, together with their reasons, with respect to their respective fields for the Earthquake Strategy Development study.

Target, strategy and actions in UDSEP were categorized in three main axes. UDSEP has taken into consideration these three main axes, detailing each axis within itself by targets and actions by using reports of the working commissions.

COMMISSION A	Sub Working Commission on Studies for Earthquake Information Infrastructure
COMMISSION B	Sub Working Commission on Earthquake Hazard Analyses and Maps
COMMISSION C	Sub Working Commission on Conservation of Earthquake (Scenario-Risk Analyses)
COMMISSION D	Sub Working Commission on Safe Settlement and Housing
COMMISSION E	Sub Working Commission on Training and Public Awareness
COMMISSION F	Sub Working Commission on Protection of Historical and Cultural Inheritance Against Earthquake
COMMISSION G	Sub Working Commission on Legislation Development and Financial Regulations
COMMISSION H	Sub Working Commission on Crisis Management

#### **USDEP Sub Working Commissions**

Source: Ulusal Deprem Stratejisi Eylem Planı (2012-2023)

In UDSEP, the organizations directly in charge of actions, periods for realization and types actions (short-medium-long term), public-private sector cooperation, harmonization with EU technical legislation and earthquake insurance have also been taken into consideration.

Ministry of Environment and Urbanism prepared "KENTGES Integrated Urban Development Strategy and Action Plan (2010 – 2023)", the result document of Integrated Urban Development Strategy for Sustainable Urban Development and Action Plan Project (KENTGES)

During preparation of "National Earthquake Strategy and Action Plan 2023", the contents of the reports issued by the sub working commissions and KENTGES strategy and action plan as well as planned targets and strategies of other related ministries, organizations and institutions for earthquake and other disasters have been taken as basis. In the formation of KENTGES, basing on the proposals made in the Urbanization Conference in 2009, considerations, problems and opportunities related to urbanization, zoning and spatial planning for settlement and housing in Turkey and national and international grounds and guides and documents have been taken as basis.

KENTGES Action Plan put forwards targets, strategies and actions, implementable and consistent with each other, by considering resources, opportunities and facilities in Turkey at a maximum level.

Commission Reports and Final Declarations of the Urbanization Conference held in 2009 have constituted important source for KENTGES. Disaster Preparation and Urban Risk Management Commission is one of the commissions in the conference.

While, in the Disasters Preparation and Urban Risk Management Commission Report, the international new disasters policy gives priority to the regulations in the matter of risk reduction and conservation especially on city level, it emphasizes that an "conservation planning", identifying risk sectors in Turkey and integrating risk reduction methods, has not been developed in Turkey yet.

Accepted by Turkish National Assembly on June 28, 2006, the report by Settlement and Urbanization Special Commission, 9th Development Plan, State Planning Organization, Prime Ministry has mentioned about the understanding of conservation planning for the first time.

In the section Priority Basic Objectives and Policies for the Earthquake-Sensitive Settlement and Urbanization, the report mentions especially about urban risks and conservation planning. In the 9th Development Plans, proposals are to grant authorization and powers to the local administrations for preparation of "Urban Conservation Plans". In this respect, the development plan emphasizes that integrated measures should be taken for elimination and reduction of natural hazards and humaninduced risks in the settlements.

In compliance with the international declaration and contracts to which Turkey has also been a party, it has been emphasized that priority should be given to the urban risk studies.

Another important matter emphasized by the plan is that priority should be given to the comprehensive urban conservation planning, by leaving the understanding that the measures to be taken against earthquake and other hazards in Turkey are consisted of measures and reinforcement with respect to individual buildings. The 9th Development Plans also contain proposals for grant of powers and authorizations to the Local Administrations for preparation of "Urban Conservation Plans"; restructure of Compulsory Earthquake Insurance in a way to provide contribution to the risk management and conservation planning and grant of authorization and power to the respective Administrations to prepare Conservation Plans to cove minimum 10 risk sectors with a view of managing urban risks.



Industrial and Residential Area

#### **Risk Sectors**

Former approach and method of the international disaster policy concerned emergency management and relief approach.

The former approach of the disaster policies covered performance of post-disaster primary works and priority assistance.

The aim was to ensure research and rescue operations and sufficient health service to the respective persons and places and correct and proper delivery of national and international assistance.

And, in long term, it aimed determination of the damages, determination of the beneficiaries, and establishment of new settlements by determining housing conditions and construction and hygienic process of the settlement areas. Performance of these activities has required to be constantly prepared and reservation of high budget. And the primary basis of the new disaster management policy is reduction of the loss encountered after the disaster.

The focal point of the new policy is the "risk" concept.

All events an phenomena having potential to give damage are defined as "hazard". And "risk" is probability of the occurrence of the loss in case of hazard.

According to these definitions, the risk appears in relation to the hazard.

Living and non-living beings or assets should first be in hazard in order that they may be under risks.

It is possible to define the risks created by natural hazards at different levels. While destruction and damage risk may be identified on individual building level, it is required to take into consideration the value loss possibilities created by the interaction of the buildings in the presence of more than one building, escape facilities, safety of the near environment and consider different risks.

As it is, risks in the different urban environments and risks of the entire city may be defined by basing on different values and possibilities.

Risks of a certain region or disaster risks on national level require us to refer to different concepts.

And on international basis, we observe that the risks are generally identified on basis of measures such as its rate in GDP or rate of possible loss of life in the population exposed to the disasters.

#### **Istanbul Earthquake Zones Map**



Source: B. Özmen, M. Nurlu, H. Güler, "Coğrafi Bilgi Sistemi ile Deprem Bölgelerinin İncelenmesi", 1997

The basic objective is to improve urban living quality and safety by development of healthy and safe living environment resistant to the disasters, especially earthquake, with reduced risks in Istanbul with a very comprehensive and multidisciplinary approach. Urban risks are not, contrary to what seems to some people, sum of the risks of the individual buildings only with respect to destruction and damage possibility.

Consequently, urban risk management is not a field of activity where only the buildings prone to destruction and damage are determined and "by repair" or "reinforcement".

In social context, the risk reduction (conservation) applications require design of finance conditions and solution of social problems in addition to the physical arrangements.

Istanbul Regional Plan was approved in 2010 in order to speed up regional development in compliance with the principles and policies specified in the national development plan and programs to mobilize the local potential.

Istanbul Development Agency, INGOA, headed by Hüseyin Avni Mutlu, Governor for Istanbul, continues activities for implementation of the plan. In the activities organized during the preparation process of the Regional Plan, it has been put forward that no concrete implementations were performed with respect to the operations or the region.

In this context, operations have been starter for analysis of risk sectors such as macro and urban textural risks, risks arising from incompatible use, risks from hazardous use, risks associated with the existing building stock and risks related to historical and cultural inheritance identified in the region and development of measures and models for implementation in the said risk sectors.

In this respect, the basic objective is to improve urban living quality and safety by development of healthy and safe living environment resistant to the disasters, especially earthquake, with reduced risks in Istanbul with a very comprehensive and multidisciplinary approach.



**Unplanned Housing** 

Conservation Plan approved in 2009 as indicated in the Istanbul Environmental Layout Plan: it has been defined as main programs where projects for management (exclusion, reduction and share) of the risks in the systems and sectors throughout the city arising from earthquake and other hazards.

And Risk Sectors have, in the scope of Urban Damage Reduction Plan (Conservation Plan), been specified as sub working areas where risks arising from different causal relations.

In the Istanbul City Environment Layout Plan, the risk sectors to be examined for reduction of urban damage have been specified.

Among them are risk areas such as loss of production (industry, fixed and movable infrastructure, labor); building stock and urban infrastructure systems; textural risks (housing type; land, road, car park, open space, density); macro and urban growth tendency; incompatible land use (incompatibilities on land and building levels); special areas (valleys, slopes, shores, basins underneath dams); special buildings of cultural inheritance (historical and monumental buildings and their environments); hazardous use (combustive, explosive, chemical, radiationgenerating use, etc. warehouse, equipment areas); emergency officer (ADG) (hospital, fire brigade, school, communication center, etc.) facilities, managerial qualification (expert personnel, dateline-training, lack of institutional capacity), external factors (accidents, sabotages, terrorism).

In the Strategic Plan 2010-2014 of Istanbul Metropolitan Municipality, consideration of the urban risks in the Planning operations is specified as "Aspects Required to be Developed" in the analysis of Zoning Management.

One of the main objectives of the Strategic Plan is to develop capacity of Istanbul Metropolitan Municipality to intervene with disasters and improve by means of effective risk management.

Orientation of the society on a risk-based cooperation and organization means adoption of a more conscious and resistant living style and culture. Started by Istanbul Metropolitan Municipality, Earthquake Master Plan (IDMP) contains pioneering features such as risk analysis and Conservation Planning proposals. In this study commissioned by Istanbul Metropolitan Municipality to four universities, the planning approach developed by the group of ITU-ODTU identifies a dozen of "risk sectors" for the entire city and defines respective "parties" in each sector as well as applications, projects, responsibilities and contributions for the entire city by means of the sector strategies to be developed by engagement of this sectors.

Determination of the risk sectors for the city as a whole is a distinction made for direct performance of the implementations and wide engagement of the groups in the society as far as possible.

IDMP also brings "Action Plans" as urgent planned intervention proposals in some areas posing high risk as well as contents and characteristics of such planning.

#### **Risk Sectors in Istanbul Earthquake Master Plan**

RISK SECTORS	DESCRIPTION
MACROFORM RISKS	Macroform Analyses examination of the use of the parts of the cities in terms of density and space and assessment of the relative risks related to such land use, soil conditions and micro-regions.
URBAN TEXTURAL RISKS	Study of the urban physical elements (width of the roads and their relations with the building height; hierarchical or grid structuring and sizes structure of the road network and population density, block and lot sizes an divisions, building configurations and intensity, pedestrian circulation, existence of car park, type of ownership and similar textural characteristics) together with the soil conditions determines different risk levels in the urban texture.
USE RISKS	Determination of the risks associated with the urban use; identification of the types of use in the existing structured urban texture by both hazardous areas and risks constituted by combination of them and identification of the loss that possible effects of these risks during a disaster on both structured and socio-economic environment may give.
LOSS OF PRODUCTION RISKS	In addition to the city economy, half of the national economy may be affected by a possible earthquake. Due to multiplier effect of the loss of production to be suffered by the companies that manufacture intermediate goods and investment goods, it will probably cause great problems throughout the country.
SPECIAL RISK AREAS	Areas subject to special hazard and conditions and the buildings and uses there in should be subject to independent risk analysis.
RISK OF SPECIAL BUILDINGS	Building units and areas which have historical, symbolical, cultural and aesthetic values require special risk analyses with respect to seismic hazards.
RISKS ARISING FROM HAZARDOUS USE	With respect to the buildings and facilities which are subject to accidents and pose threat to their environment due to the function they serve, materials they use or store or procedures they contain, their spatial distribution and hazards they have by the micro-areas are considered a risk sector which requires specialties in accordance with international norms.
EMERGENCY OFFICER SPATIAL DISTRIBUTION INADEQUACY RISKS	With respect to emergency officer elements whose use during disaster is of vital importance such as hospital and school buildings, their positions, service areas and capacities should separately be assessed in terms of spatial distribution.
LACK OF OPEN SPACE	In emergency cases, urban open spaces are required for more than one reason. Under those conditions, safety and temporary accommodation, collection and distribution and temporary storage operations are of vital significance. Green areas, sport fields, car parks and squares etc., which have been protected when housing should be sufficiently close and sized and especially kept empty.



Risk for Historical Structures

#### Transfaorming Disaster Risk Areas

Today because of deterioration of the physical environment, traffic problem, squatting, unplanned housing, risk of loss of the natural and historical/cultural assets and impairment of the urban identity as a whole, failure of the urban economy and increase of urban poverty, the cities are in search of solution to these problems.

Problems, multifaceted and complex, also required solution as multifaceted and complex as they are.

This requirement requires coordinated efforts of a number of different specialty fields in solving any urban problem.

Turkish Language Agency defines the urban conversion as destruction of the buildings which do not comply with the Zoning Plan of the city and formation of collective settlements in compliance with the plans instead. Urban conversion means determination of the problematic areas in the city and rebuilding them to make them healthy and livable.

In short, urban conversion is elimination of the problems impairing urban texture.

In this way, the aim is to prevent illegal housing and rebuilding of the building which are not durable to earthquake and expire their economic lifetime with a view to minimizing loss that may result from possible natural disasters.

The following requirements may arise during the process of urban conversion: construction of new buildings, reconstruction of the buildings in the areas subject to natural disaster risk or risky due to heir structure, prevention of the construction of weak structure (slums), making the city modern and capable to meet contemporary requirements (construction of congress and finance centers, park and entertainment areas). It is a known fact that city conversion should not be considered just only a physical planning. Urban conversion as also related to socio-economic and cultural characteristics of the local population and, thus, it is a comprehensive application with the legal-administrative problems arising in the field of application.

The conversion application also contains expectations for property and future of the social structure. And the legal processes arising as a result of dealing with these numerous and multifaceted problems are great in number. Goal of the Law 6306 is to ensure that necessary measures are taken before natural disasters occur, prevent loss before its actual realization and make people live in healthy and safety areas and buildings. Goal of the Law 6306 is to ensure that necessary measures are taken before natural disasters occur, prevent loss before its actual realization and make people live in healthy and safety areas and buildings.

Reduction of disaster risks covers operations in very different areas and disciplines which start by identification, analysis and assessment of the hazards and risks, ranging from spatial planning to training, information and awareness of the people, officers and authorities; from institutional organization to development of legal documents such as laws and regulations and supervision of the implementation; from reinforcement of the buildings and infrastructure to elimination of poverty and instability between regions; from development of disaster insurances to formation of a risk-reducing culture in the society; from installation of early alert systems to disaster medicine.

As it is, they are operations required to be planned and implemented before, during and after the disastrous event. And it would not be correct to consider such activities as limited to spatial planning activities prior to disaster. The reason is that while each disaster may lead to new hazards and risks just after the disasters, the temporary and permanent development operations should keep the disastrous hazards and risks that may occur in future and establish a new living environment more safe and developed.

Because of the safety status of the buildings in our country and especially the dense squatting and presence of risky buildings in Istanbul, it has been required to convert these buildings and prepare the buildings against a possible risk of disaster.

With a view to preventing a greater disaster after Gölcük and Van earthquakes, Law No. 6306 of 16.05.2012 on "Conversion of Areas Under Disaster Risk" was enacted for reduction of such disasters, elimination of loss of life and property and construction of modern, hygienic and livable cities under the leadership of the Ministry of Environment and Urbanization in our country prone to earthquake.



Structures at Risk

Law provides for conversion of the areas under risk of disaster, aiming at preventing illegal housing by violation of the development legislation and reducing risks that may occur due to the property estates in case of disasters such as earthquake.

Goal of the Law 6306 is to ensure that necessary measures are taken before natural disasters occur, prevent loss before its actual realization and make people live in healthy and safety areas and buildings.

While the previous laws were for relief with respect to loss after occurrence of disaster, the Law 6306 primarily aims life safety of the citizens.

Beneficiaries with their risk-prone building has been destructed may benefit from supports such as loans, allocation of housing and office and housing certificate.

For efficient realization of the urban conversion, the local administrations have been authorized efficiently. In the framework of the said Law, the terms "risk area" or "risk building" have been mentioned for the first time and determination of them has been specified by respective legal arrangements and regulations.

Risk area means the area having risk to cause loss of life and property due to its soil condition or housing of it as determined by the ministry or administration by securing comment of the Disaster and Emergency Management Presidency and finally resolved by the Council of Ministers upon proposal made by the ministry.

As per the article 5 of the Application Regulations, the determination of the risk is requested by the Ministry or by TOKİ or administration from the Ministry. As per the Article 2, paragraph D of the Law 6306, the risk building means is building(s) inside or outside a risk area which has/have expired its/their economic lifetime or bear(s) risk of destruction or heavy damage as determined basing on the scientific and technical data. Risk areas and buildings, which bear risk to cause loss of life and property due to its soil structure or housing on it and has expired their economic lifetime and are face to face with destruction or heavy damage are determined pursuant to the Law 6306.

Applications to be started after determination of the risk will be included in the "Urban Conversion Action Plan". Priority of the urban conversion action plans is for the cities located in the primary seismic zones and the secondary seismic region and the places with most imminent risk.

After the process of destruction, the property value is assessed. Such assessed value of the property at the application area will be deducted from the construction cost of the house or office to be given to the owner.

An if the owner has any receivable after calculation in such a way, this amount may be paid as per the contract to be executed between the parties, in cash or exchange with other property or transfer of the development right to another area. Rent assistance launched by the Ministry to the beneficiaries living at the areas to be converted has reached to 28,5 million TL. The greatest novelty brought by the law with respect to the decisiontaking process is elimination of the requirement of unanimity rule.

Rent assistance to those evacuated by contract as per the law and exempt from some fees at the land registry and municipality are among new applications.

In the first year of the conversion process, which requires demolition of totally 6.5 buildings having risk of disaster risk in a period of 20 years, 443 agencies and organizations were quickly licensed by the Ministry for determination of the risk buildings.

In one year, a land of about 4 hectares was declared risky. While there are 163,098 unit hose in 101,221 buildings on this area, population subject to the conversion application has reached to 634,000. During the process, 13,008 units in 7,088 buildings were demolished. And, furthermore, demolition of 33,841 units in 11,318 buildings continues. And rent assistance launched by the Ministry to the beneficiaries living at the areas to be converted has reached to 28,5 million TL.

In the second quarter of 2013, 40,000 houses and offices in total were demolished in Istanbul as per the law. By the end of 2014, 50,057 risk units will have been demolished. Operations continue on the area of 714,023,000 square meters which has been declared risky area by the decision of the Council of Ministers.

Preliminary Report on Cities and Urban Conversion Special Expert Commission, which will provide input for the Tenth Development Plan covering the period of 2014-2018 is consisted of basic approach and application tools of the public policies concerning urban conversion on the basis of the habitableness concept and habitable cities.



Planned Structuring

Today, with restart of the process of "conversion of the conversion", the goal is to discuss new urban models and establishment of the basic principles of the "comprehensive conversion" including the social development and economic aspects through a wide participation. In this framework, in addition to the "habitableness" concept of the urban conversion, discussion of the "city economy" and "economic development" will create important opportunities for reorganization of the future of the cities.

About to start a very comprehensive process of urban conversion in Turkey, the operations of the Habitableness Cities and Urban Conversion Commission under the Tenth Development Plan are of great significance to discuss the existing applications, specify innovative applications and answer the question of how the cities in Turkey should be in the 21st century. In this sense, manner of urban conversion for habitable cities in Turkey will constitute basic subject of discussion for the Commission.

Preparation of a city for earthquake is not limited to making its building stock safe for earthquake.

Human, infrastructure, environment and management understanding of the city should also be able to cope up with the disaster.

And it will be possible by integration of everybody living in the city with the administration in a cooperative way in terms of labor and mentality.



## ISMEP Approaches

### **ISMEP** Approaches

Identification of the hazard resources and determination of the elements under threat is important in the fight against disaster.

#### Disaster and Emergency Prevention, Response and Recovery (ADMIP)

With the Disaster and Emergency Prevention, Intervention and Improvement Plan (ADMIP), which efficiently addresses to the requirements of the disaster management in accordance with a concrete plan previously set and fulfillment of the tasks by the intervening organizations at time of disaster, operations continue in Istanbul, acting a pioneer for a new and modern disaster planning process.

In this organization, set to fulfill all requirements in each stage of the disaster management of the city, the administrative and coordination structure is consisted of 27 service groups under 4 main service headings.

The plan, which includes more than 100 agencies and organizations, is to be constantly kept updated and operative by means of drills. In the scope of organization, promotion, functionality and dissemination among the organizations for ADMIP, a cooperative meeting was held in May 2013 for introduction of the plan.

About 450 attendants representing about 100 private and public organizations have attended the meeting. 4-day meeting was organized between May 21-24, 2013 with a view to introducing Istanbul ADMIP and information of additional requirements expected from the organizations.

In the meeting, organized under the slogan "ADMIP Meeting 2013 for Safe Future of Istanbul", comments and proposals of the organizations were received and Service Group Action Plans were assessed. As per the coordination structure of ADMIP, parallel sessions were held in 4 conference halls simultaneously with each 4 services having made assessments.

In this line, 21 meeting sessions in total, 15 of which in form of parallel sessions were held together with all stakeholders. Further detailed information about the matter may be found in ADMIP Guide Book.



ADMIP Meeting 2013

#### Integrated Urban Disaster Risk Management Strategy

Understanding of disaster management in the former periods was consisted of reconstruction and relief by hand of government after the disaster.

Today, the frequently called concept of risk management aims at preventing conversion of the hazards into disasters in a wide range by means of estimation of the hazards previously and prevention of them if possible, taking measures against such hazards, minimizing all kinds of urban, structural, social, economic and ecologic weaknesses, improving cooperation and coordination among the institutions and encouraging public engagement.

To this end, numerous scientific studies have been made since 1999 and new legal regulations have been put into effect. The project "Integrated Urban Disaster Risk Management Strategy for Istanbul" is based on the findings and propositions from the studies performed in the country in general and in Istanbul in particular, aiming at developing strategies against all possible threats in an integrated way.

Identification of the hazard resources and determination of the elements under threat is important in the fight against disaster.

In other words, "diagnosis before treatment" comes forward as a process required to be studied carefully for correct interventions.

While the hazards the cities are face to face may be examined independently and in detail, they may also be examined by the possibilities of them triggering each other or occurring altogether. In this line, production of integrated hazard maps, assessment of different vulnerability components and identification of the interaction among them would help identify weak points of the settlements and society against the possible threats and taking powerful measures.

These to data set consisting of hazards and weaknesses will allow generating comprehensive and realistic risk analyses, identification of the emergency intervention areas and intervention manners and establishing integrated urban disaster risk management strategies in this manner.

The study of "Integrated Urban Disaster Risk Management Strategy" takes the information and proposals produced and made in the projects previously made as basic inputs, putting forward a method in compliance with the basic strategies laid down in the The cities are generally defined as "living organisms". That is, the cities move in the course of time in terms of their space, users and mission in the country. For this reason, updating of the changes and developments in the city in a database to be generated appears as an important work package.

In Turkey, which lives together with a number of natural hazards, in order to establish disaster and risk culture, it would be appropriate to start with an updated and reliable data base system. With this first motion, it would be possible to take great steps for social knowledge, awareness and change of attitude.

Due to its geographical location, characteristics, urban texture and economic and politic significance worldwide, Istanbul is face to face with a number of threats, natural an technologic in origin.

Identification of the threats, determination of the weakness of the urban elements which may be affected from such threats and performance of risk assessment studies constitute the basis of the integrated urban disaster risk management strategy.

And during the process of generation of the strategies, the existing legal regulations, application facilities of such legislation and regulations and sustainability of the new regulations appear as the most important tools.

Furthermore, spread of the insurance system, public engagement, awareness raising and access to the wider groups of people by means of training programs would enable ownership and internalization of the strategies to be generated.

Compared with the loss of life and property, economic fluctuations and psychological traumas caused by the recent disasters, the labor, workforce and capital to be spent to generate strategies for reduction of loss from disaster would, of course, be very low.

Operations for reduction of disaster risks are not luxury, but compulsory.

#### Basic Work Packages of Integrated Urban Disaster Risk Management Strategy Project for Istanbul

It concerns formation of database for generation of the integrate hazard maps and scenario of possible results of the hazards that may trigger each other.

Assessment of urban vulnerability (structural, social, economic, environmental, etc.)

#### Basic Work Packages of the Integrated Urban Disaster Risk Management Strategy Project for Istanbul

PACKAGE		3 PACKAGE	
Identification of Hazards and Generation of Respective Database	Assessment of Urban Vulnerability (structural, social, economic, environmental, etc.)	ldentification of Urban Risks	Generation of Loss Reduction and Disaster Risk Management Strategies

The aim is to determine the elements constituting the urban structure and vulnerability criteria arising from interaction among them, linking them with the space.

#### **Identification of Urban Risks**

It concerns identification of the urban risks by sectors and presentation of them integrated with the space.

#### Generation of Loss Reduction and Disaster Risk Management Strategies

It concerns generation of strategies and production of alternatives basing on the findings from the first three work packages.

#### Activities within the Integrated Urban Disaster Risk Management Strategy Project for Istanbul

• Identification of the profile of the hazards posing threat to the city and collection of data as input to the planning activities of any type and in any scale.

- Understanding of the types, scopes and realization possibility of hazards with respect to different fields in cooperation with the respective organizations and research units and determination of the principles to prepare or get prepared documentation related to them.
- Identification, documentation and analysis of the urban hazards, weaknesses and risks
- Development of disaster scenarios about the sectors and areas posing hazards, preparing and getting them prepared.
- Identification of the urban risks and related parties and institutionalization of the risk reduction operations concerning possible loss and priorities in each sector.

- Organization of the preparatory principles of the Risk Reduction Strategic Plans, planning system and integration process with other legislation in order to establish foundation for plans on city scale and reduce risks.
- Determination of the principles and methods to identify macroform, infrastructure, housing, urban texture, open spaces, types of use and hazardous use, emergency service facilities and gathering places, evacuation axis and historical and cultural assets in the settlements and special risk areas and planning to provide coordination of them.
- Organization of the preparatory principles of Disaster and Emergency Response, Risk Management and Mitigation Plans and process of integration of them with the applications and legislation to establish foundation for emergency and crisis management on city level.

Goal of this leading operation, aiming to reduce adverse social and economic effects of a possible disaster in Istanbul, to spread it all organization in Istanbul and set example to other cities in our country.

### Future Risk Reduction Activities

Disaster and emergency planning operations, which are conducted in the scope of Reduction of Seismic Risk for Istanbul and Emergency Preparation Project, is designed as city-specific and living system.

Ultimate aim of all these activities is to leave a city where future generations may live safely.

Goal of this leading operation, aiming to reduce adverse social and economic effects of a possible disaster in Istanbul, to spread it all organization in Istanbul and set example to other cities in our country.

"Istanbul Urban Disaster Risk Management Strategy" is developed to identify all other hazards that threaten Istanbul, but not dealt with systematically yet and take measures to reduce loss that may arise from them. In this process, great importance is given to the engagement and support of the public organizations and agencies, media and private sector.

When the said operations are completed, the plan will be shared with various concerned organizations and agencies such as private sector and universities and a public version of it will be prepared for the people living in Istanbul.

And preparation of Risk Management Strategy Guide as a guide which expresses ideal approaches for identification of hazards and possible damages for Istanbul, a world city, and conduct of risk analysis.

The document is intended to act as reference for collection of data and generation of database, hazard and risk analysis and job descriptions for the risk and loss reduction areas.



#### Vision

#### Future-Oriented Assessment Area 1

Especially emphasizing the matters of disaster prevention, preparation, risk and loss reduction, the integration of the points that require attention with respect to the disasters risks with the sustainable development policies in an efficient way and, additionally, planning and scheduling activities at all levels are among the future-oriented assessments of ISMEP.

It is especially observed that capacity for reduction of disaster risks in the planning operations on local level is insufficient.

Disaster risk reduction operations require interdisciplinary work with engagement of multiple stakeholders and there is a lack of coordination in this respect. In the preparation stage of the 10th Development Plan covering the period of 2014 – 2018, a temporary committee was set up and the commission report completed by this committee.

Disaster risk reduction activities will be integrated with the 10th Development Plan.

National Earthquake Strategy and Action Plan (UDSEP 2012-2023) prepared on national level will provide fulfillment of short, medium and long term actions.

Together with the disaster risk reduction activities, the Climate Change, Rural Development, Integrated Urban Development Strategy and Action Plans will also ensure fulfillment of the short, medium and long term actions specified on national level.

National Platform has been established and effective operation of the platform will be assured. National risk reduction an national rescue plans are prepared. Capacity development plans for the disaster risk reduction activities on local level are performed and guides elated to the matter will be prepared.

#### Future-Oriented Assessment Area 2

Contributions will be made to make the buildings resilient systematically and organizations, mechanisms and capacities of all levels, especially social level, will be developed and reinforced.

As known, in a disaster resilient community, the government, business circles, civil society organizations and individuals should fulfill their respective responsibilities at all levels.

In the last 10 years, Turkey has immensely strengthened its capacity on the central management level in the field of disaster management. However, bureaucratic and financial obstacles have restricted development of the capacity on local levels.

In order to have a resilient community, Turkey should develop and reinforce its organizations, mechanisms and capacities at all levels.

Established to centrally coordinate centrally all related organizations, including Civil Society Organizations before, during and after the disaster and emergency cases, DED prepared the first strategic plan covering the period of 2013-2017. Because of its approach of integrated disaster management, DED has set its mission as "generate a disaster resilient society".

On basis of this strategic plan, AFD aims at developing and reinforcing all organizations, mechanisms and capacities across Turkey by itself on central basis and through Provincial DED Directorates on local level. As the basic organization of the disaster management, DED, as an organization constantly developing and learning, primarily increases its own capacity and improves cooperation with other countries to become a leading organization internationally.

All related players such as public organizations, public sector and civil society organizations will be made integral part of the system, thus achieving an integrated disaster management system. Disaster management standards will be established and disseminated.

And it will serve reinforcement of the disaster management mechanisms of all players, thus resulting in standardization.

In order to have access to the society and individuals, a training campaign has been launched for the families, schools, companies, young volunteers, media, critical and disadvantageous groups to make them prepared for the disasters. In the scope of the campaign, 8 million persons will be trained vis-à-vis in 5 years. Additionally, access to the rural areas will be achieved by regional and mobile disaster training centers.

#### Future-Oriented Assessment Area 3

Another future-oriented assessment area is integration of the risk reduction approaches with the design and implementation of the improvement programs for emergency case preparation, intervention and restructuring of the affected societies.

Risk management approaches are still a quite new approach for great majority of the sectors in Turkey.

Although the concerned organizations are aware of the disaster management approaches and try to adapt them to their own programs, most of the programs still concentrates on the intervention and rescue operations.



ADMIP Meeting 2013

Reconstruction operations performed after the earthquake in the city of Van have been good application to set example to the future programs for the first time in Turkey.

National Disaster Management Strategy will be prepared by an integrated approach in a period of two years.

It will involve with all stages and players of the disaster management and establish policies and actions applicable to reduce risk in long term and loss in future.

It will concentrate on prevention and mitigation and act as a guide for support of the sustainable development and management of the disasters. It will aim at creating a disaster resilient society.

Additionally, National Multiple Disaster Mitigation plan will be prepared in 2013. It will be a long term policy and action plan for reduction of the disaster loss, concentration on common responsibilities in generating a resilient city.

#### Future-Oriented Assessment Area 4

Award 66/199 taken by the general assembly of United Nations specified development of the framework after 2015 for reduction of the disaster risk.

The first frame will be formed for Global Platform 2013 and a draft will be drawn up by the end of 2014 for consideration and acceptance in the Disaster Reduction World Conference in 2015.

#### Disaster Risk Reduction Framework (2015-2025)

Proposals for clearer and more applicable actions should take place in the Frame Action Plan. Especially role of the private sector and civil society organizations should be defined in a clean way and activities for engagement of them with the disaster risk management should be increased. SMEs are among the most affected sectors and one of the elements which have important role for restoration of life and improvement activities to be performed. In this respect, SMEs should be prepared for disasters and made awareness about disaster risk management and targets and strategies should be identified and activities should be proposed.

Capacity should be developed in the technical matters, particularly in the matters of hazard, vulnerability, risk analysis and risk reduction and authorizations of the local administrations should be more emphasized.

In addition to them, legal regulations should be developed for better supervision of the local administrations and improvement should be made in the supervisory systems.

### References

#### JICA

#### (Japonya Uluslararası İşbirliği Ajansı) (2001),

"Afet Önleme Azaltma Temel Planı" İstanbul Büyükşehir Belediyesi Deprem ve Zemin İnceleme Müdürlüğü Resmî Gazete Sayı: 24295.

#### Başbakanlık Afet Ve Acil Durum

Yönetimi Başkanlığı (2011), "Ulusal Deprem Stratejisi ve Eylem Planı 2012-2023" Resmî Gazete Sayı: 28029

#### İstanbul Büyükşehir Belediyesi (2009),

"İstanbul Büyükşehir Belediyesi Stratejik Plan Raporu 2010 -2014" İstanbul Büyükşehir Belediyesi, İstanbul, 2009.

#### İstanbul Büyükşehir Belediyesi İmar ve Şehircilik Daire Başkanlığı Şehir Planlama Müdürlüğü (2009),

"1/100.000 Ölçekli İstanbul Çevre Düzeni Planı Raporu", İstanbul Büyükşehir Belediyesi, İstanbul, 2009.

#### İstanbul Büyükşehir Belediyesi Planlama Ve İmar Dairesi Zemin Ve Deprem İnceleme Müdürlüğü (2003), "İstanbul İçin Deprem Master Planı" İstanbul

Büyükşehir Belediyesi, İstanbul, 2003.

#### İNGOA

(İstanbul Kalkınma Ajansı) (2010), "2010 -2013 İstanbul Bölge Planı" Devlet Planlama Teşkilatı Müsteşarlığı, Ankara, 2010.

#### T.C. Çevre ve Şehircilik Bakanlığı (2010), "Kentges Bütünleşik Kentsel Gelişme Stratejisi ve Eylem Planı 2010-2023", Resmî Gazete Sayı: 27749

#### T.C. Çevre ve Şehircilik Bakanlığı (2012),

"Üst Ölçek Mekânsal Strateji Planlaması Hazırlama, Uygulama Ve İzleme Süreci, Yöntem Ve Esaslarının Belirlenmesi Projesi" Çalıştay Sunumu, Çevre ve Şehircilik Bakanlığı Mekansal Planlama Genel Müdürlüğü 12 Ekim 2012, Ankara.

#### T.C. Devlet Planlama Teşkilatı (2007),

"Yerleşme ve Şehirleşme Özel İhtisas Komisyon Raporu", 9. Kalkınma Planı, yayın no 2708, 2007 Ankara.

#### T.C. Kalkınma Bakanlığı (2012),

"Yaşanabilir Kentler Ve Kentsel Dönüşüm Özel İhtisas Komisyonu Ön Raporu" 10. Kalkınma Planı, 2012 Ankara.

#### TBMM (Türkiye Büyük Millet Meclisi) (2006), "0. Kollurana Diani 0007, 0010", Deami Care

"9. Kalkınma Planı 2007-2013", Resmî Gazete Sayı : 26215.

TBMM (Türkiye Büyük Millet Meclisi) (2012), "10. Kalkınma Planı 2014-2018", Resmî Gazete Sayı : 28314.

#### The World Bank (2011),

"Urban Risk Assessments An Approach For Understanding Disaster & Climate Risk In Cities", Urban Development & Local Government Unit, 2011 working draft, World Bank. Washington, DC, USA.

#### UN (The United Nations) (2000),

"United Nations Millennium Declaration", General Assembly, United Nations Headquarters, New York from 18 September 2000.

#### UN

(The United Nations) (2005), "2005 World Summit Outcome", General Assembly, United Nations Headquarters , New York from 14 to 16 September 2005. UN (The United Nations) (2007), Hyogo Framework for Action 2005-2015: "Building the Resilience of Nations and Communities to Disasters" Geneva, 2007.

#### UN

(The United Nations) (2009),

"The Incheon Declaration; Building A Local Government Alliance For Disaster Risk Reduction", 11-13 August 2009 Conference, Incheon.

#### UN

(The United Nations) (2012), "Rio +20", United Nations Conference on Sustainable Development, Rio de Janeiro, Brazil 20-22 June 2012.

#### UNISDR

#### (The United Nations Office for

**Disaeaster Risk Reduction)** (2007), "Chair's Summary" Global Platform for Disaster Risk Reduction First session Geneva, Switzerland 5-7 June 2007.

#### UNISDR

#### (The United Nations Office for Disaeaster Risk Reduction) (2009), "Chair's Summary" Global Platform for Disaster Risk Reduction Second session Geneva, Switzerland 16-19 June 2009.

#### UNISDR

#### (The United Nations Office for

**Disaeaster Risk Reduction)** (2011), "Chair's Summary", "Invest today for a Safer Tomorrow – Increase Investment in Local Action." Third Session of the Global Platform for Disaster Risk Reduction and World Reconstruction Conference Geneva, 8-13 May 2011.

#### UNISDR

### (The United Nations Office for Disaeaster Risk Reduction) (2011),

"Strategic Framework 2025" Work Programme 2012-2015 With Addendum On Budget Requirements For 2012-2013, Geneva, October 2011.

#### UN

#### (The United Nations) (2012),

"The Millennium Development Goals Report 2012", United Nations Headquarters, New York, 2012.

#### UNISDR

### (The United Nations Office for Disaeaster Risk Reduction) (2011),

"European Forum for Disaster Risk Reduction", Council of Europe (COE), United Nations Office for Disaster Risk Reduction - Regional Office for Europe (UNISDR EUR), Belgium, http://www.unisdr.org/files/19800\_ efdrrwebfinal.pdf.

#### UNISDR

#### (The United Nations Office for Disaeaster Risk Reduction) (2012),

"How To Make Cities More Resilient" A Handbook For Local Government Leaders, A contribution to the Global Campaign 2010-2015 Making Cities Resilient – My City is Getting Ready!, Geneva, March 2012.

#### UNISDR (The United Nations Office for Disaeaster Risk Reduction) (2013),

"UNISDR Turkey National Final Report On The İmplementation Of The Hyogo Framework For Action (2011-2013)", An HFA Monitor update published by PreventionWeb, http://www. preventionweb.net/english/countries/europe/ tur/.

#### UNISDR (The United Nations Office for Disaeaster Risk Reduction) (2013),

"2013 Global Assessment Report on Disaster Risk Reduction", From Shared Risk to Shared Value: The Business Case for Disaster Risk Reduction, Geneva, 2007.

#### UNISDR

### (The United Nations Office for Disaeaster Risk Reduction) (2013),

"The UN Sasakawa Award for Disaster Risk Reduction 2013", Fourth Session of the Global Platform for Disaster Risk Reduction, http:// www.unisdr.org/2013/sasakawa/.

### **ISMEP Guide Books**



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Disaster-Resilient Urban Planning and Structuring



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M. Kemalettin Mah. Tiyatro Cad. No: 8 34126 Beyazıt İSTANBUL T : +90 212 518 55 00 F : +90 212 518 55 05 info@ipkb.gov.tr www.ipkb.gov.tr