LOCAL ADMINISTRATIONS AND DISASTER RISK MANAGEMENT IN TURKEY

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

GÜLCAN ULUTÜRK

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF SCIENCE IN CITY PLANNING
IN
CITY AND REGIONAL PLANNING

DECEMBER 2006

Approval of the Graduate School of Natural and Applied Sciences

Prof. Dr. Canan ÖZGEN
Director

I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Science.

Prof. Dr. Melih ERSOY
Head of Department

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Science.

Prof. Dr. Murat Balamir
Supervisor

Examining Committee Members

Prof. Dr. Melih Ersoy	(METU, CRP)	
Prof. Dr. Murat Balamir	(METU, CRP)	
Prof. Dr. Mehmet Ecevit	(METU, SOC)	
Assoc. Prof. Dr. Çağatay Keskinok	(METU, CRP)	
Assist. Prof. Dr. Nil Uzun	(METU, CRP)	

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Name, Last name: Gülcan ULUTÜRK

Signature :

ABSTRACT

LOCAL ADMINISTRATIONS AND DISASTER RISK MANAGEMENT IN TURKEY

Ulutürk, Gülcan

M.S., in City Planning, Department of City and Regional Planning

Supervisor: Prof. Dr. Murat Balamir

December 2006, 254 pages

Global policies in disaster management have radically changed since 1990s, shifting the previously entrenched emphasis on emergency management, towards new applications of risk management. A series of international declarations expressed the determination and principles to reduce risks at every level, which were followed by many national governments. The disaster management system in Turkey seems to tend towards this approach, not necessarily based on an awareness of the global trends, but due to the severe impacts of the 1999 events. Since no understanding and political commitment for disaster mitigation prevails in Turkey, risk mitigation planning at every level is yet far from being effective.

This claim constitutes the basic working hypothesis of the study. Verification of the hypothesis is based on a comparative analysis of the organizational structures of the selected countries, and a survey of recent local performance. The framework developed by the Kobe Conference is employed in both analyses. The former analysis indicated that despite the new institutional developments like 'construction

supervision' and 'obligatory insurance', Turkey in its disaster policy is still far from a comprehensive mitigation approach in terms of the Kobe criteria.

Although the laws of local administrations now contain new tasks of city-level disaster management, not only confusions between pre-disaster and post-disaster responsibilities prevail, but no operational guidance is given for the fulfillment these responsibilities. A whole range of activities are therefore in need of being streamlined into the tasks of urban planning in the reduction of disaster risks. With the amendment of laws, modification of the professional practice and the training of planners are expected.

Keywords: Mitigation Planning, Disaster Risk Management, Disaster Management, Kobe Conference, Local Administrations.

ÖZ

TÜRKİYE'DE AFET RİSK YÖNETİMİ VE YEREL YÖNETİMLER

Ulutürk, Gülcan
Yüksek Lisans, Şehir Planlama Bölümü
Tez Yöneticisi: Prof. Dr. Murat Balamir

Aralık 2006, 254 sayfa

1990'dan bu yana, Dünya'da uluslararası kuruluşlar ve bilim çevrelerinde afet yönetimi ile ilgili zihinsel bir değişim yaşanmaktadır. Bu yeni anlayış olası tehlikeler karşısında önceliği, 'arama-kurtarma' ve 'yara sarma' gibi reaktif hazırlıklar yerine, risklerin azaltılması aktif çabalarına, yani 'sakınım' çalışmalarına vermektedir. Uluslararası kuruluşlar doğal afetlere karşı, özellikle 'risk azaltma' çalışmalarını sürdürülebilir kalkınmanın bir önkoşulu olarak tanımlamış, güçlü bir adanmışlık ve etkin bir küresel program geliştirme çabalarına girmişlerdir. Bu çabaları takiben, Dünya'daki pek çok ülke yeni anlayışa paralel olarak, yasal ve kurumsal yapısını revize etmiştir. Türkiye'de ise, 1999 depremlerinden sonra tehlikelere karşı önlemler alınması gereği anlaşılmış, ancak bu zihinsel değişime dayanan kapsamlı bir sakınım yaklaşımı geliştirilememiştir. Türkiye'de 'sakınım' ile ilgili siyasi bir adanmışlık sağlanamadığı sürece, afet risk yönetimi ve planlama uygulamaları istenilen düzeye ulaşamayacaktır.

Bu iddia, tezin ana hipotezini oluşturmaktadır. Tezde hipotezi doğrulamak üzere, bir taraftan seçilen ülkelerin örgütsel yapısının karşılaştırmalı çalışması, bir taraftan da Türkiye'deki yerel performansı değerlendirme çalışması yapılmıştır. Kobe Konferansı'nda ülkelerin afet risk yönetimini değerlendirmek amacıyla ortaya konulan değerlendirme kriterleri bu iki çalışmanın da temelini oluşturmaktadır.

Tezde yapılmış olan analiz çalışmaları, Kobe kriterleri açısından, Türkiye'nin afet yönetim sisteminin hala kapsamlı bir sakınım anlayışından uzak olduğuna işaret etmektedir. Yapılan değerlendirmelerin ışığında, Türkiye'de afet yönetiminin kamu gündeminde düşük önceliğe sahip olduğu, bu konuda siyasi bir adanmışlığın olmadığı ve planlamanın disiplinin afet risk yönetimini sahiplenmediği en büyük eksiklikler olarak gözlenmektedir. Risk yönetimi çalışmalarının, yerel yönetim düzeyinde yürütülebilmesi için yerel yönetimlerin bu konuda adanmışlığının sağlanması ve kapasitelerinin güçlendirilmesi gerekmektedir. Diğer bir gereksinim ise, afet risk yönetimi konusunda uzman plancıların yetiştirilmesi ihtiyacıdır.

Anahtar Kelimeler: Sakınım Planlaması, Afet Risk Yönetimi, Afet Yönetimi, Kobe Konferansı, Yerel Yönetimler.

ACKNOWLEDGMENTS

I wish to express my deepest gratitude to my supervisor Prof. Dr. Murat Balamir for his guidance, advice, criticism, encouragements and insight throughout the research.

I would like to thank my jury members; Prof. Dr. Melih Ersoy, Prof. Dr. Mehmet Ecevit, Assoc. Prof. Dr. Çağatay Keskinok, and Assist. Prof. Dr. Nil Uzun for their advice and criticism.

I am specifically grateful to my friends, my colleagues at the university and professional life; Özce Yalıner, Tümay Çin, Mert Burnaz, and Meltem Şenol for their keen friendship and support.

Finally, I must acknowledge the boundless support of my family, especially my parents, Sabahat and Sabahattin Ulutürk, in every stage of my life. I am grateful to them for the feeling of safety they offer.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

ADPC	Asian Disaster Preparedness Center
BA	The Building Act 1991
BIF	Building Inspection Firm
CAE	Centre for Advanced Engineering
CBA	Cost-Benefit Analysis
CDEM	Civil Defence Emergency Management
CIDA	Canadian International Development Agency
ECLAC	Economic Commission for Latin America and the Caribbean
EERL	Emergency Earthquake Recovery Loan
EMPI	Earthquake Master Plan for Istanbul
FAO	Food and Agricultural Organization: United Nations
FEMA	Federal Emergency Management Agency
FRST	New Zealand Foundation for Research, Science and Technology
GDCG	General Directorate of Civil Defense
GDDA	General Directorate of Disaster Affairs
GOT	Government of Turkey
HMGP	Hazard Mitigation Grant Program
IATF/DR	Inter-Agency Task Force on Disaster Reduction
IDNDR	International Decade of Natural Disaster Reduction
IFRC	International Federation of Red Cross and Red Crescent Societies
IISD	International Institute for Sustainable Development
ISDR	International Strategy for Disaster Reduction
ITU	Istanbul Technical University
JICA	Japan International Cooperation Agency
JIS	Japanese Risk Management Standard
LGA	The Local Government Act 2002

MCDEM	Ministry of Civil Defence and Emergency Management
MDG	Millennium Development Goal
MEER	Marmara Earthquake Emergency Reconstruction Project
METU	Middle East Technical University
MMI	Metropolitan Municipality of Istanbul
MPWS	Ministry of Public Works and Settlement
NGO	Non-governmental Organization
NZ	New Zealand
PIU	Project Implementation Unit
RMA	The Resource Management Act 1991
SAR	Search and Rescue
SDF	Japan's Self Defense Forces
SIDA	Swedish International Development Cooperation Agency
SPO	State Planning Organization
TCIP	Turkish Catastrophic Insurance Pool
TEFER	Turkey Emergency Flood and Earthquake Recovery Project
TEMAD	Turkish Emergency Management General Directorate
TRCS	Turkish Red Crescent Society
UN	United Nations
UNDHA	United Nations Department of Humanitarian Affairs
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UN/OCHA	United Nations Office for Coordination of Humanitarian Affairs
UN/ISDR	Inter-Agency Secretariat for the ISDR
USA	United States of America
WCDR	Word Conference on Disaster Reduction
WMO	World Meteorological Organization
WSSD	World Summit on Sustainable Development

CHAPTER I

1. INTRODUCTION

Today, a strong consensus in the international arena claims that a new policy attitude has evolved in disaster management since the 1990s. With the involvement of a variety of disciplines and professional bodies, a new understanding of disaster risk is formulated. The declaration of the International Decade of Natural Disaster Reduction (1990-1999), the Yokohama Strategy and Plan of Action for a Safer World (1994), the formulation of the International Strategy for Disaster Reduction (2000), the Millennium Declaration (2000), and the second World Conference on Disaster Reduction (2005) confirmed the international relevance of disaster risk management and disaster risk reduction.

Despite the recent international (and some national) focus on prevention and mitigation issues, the continuing increase in losses has been the main motivator of this change. A paradigm shift gradually occurred where disasters were no longer seen as events to respond to. A focus on disaster risk management has emerged and this new policy introduced a number of issues:

- the transformation in disaster management from emergency management into risk management, and the description of the latter as a set of distinct technical and administrative tasks;
- the emphasis on the impacts of disasters in development and the need to consider risk management as an integral part of all aspects of development;
- the relevance of planning therefore in disaster management, now being more extensively acknowledged;

- understanding that risk management implies distinct technical and administrative tasks at the different levels of administration;
- recognizing that among national, regional, urban, local, and etc. contexts, risk management is particularly complex but effective at the city level; and
- the need for participatory process are acknowledged, which has greatest contribution at local level.

1.1. Problem Definition

Turkey, with a history of centralized and reactive disaster management approach, suffers from frequent natural disasters such as earthquakes, floods, etc. After the 1999 Earthquake disasters, it was claimed that these events would make a turning point in the history of disaster management in the country. Today a new perspective was introduced with the official recognition of mitigation and risk management with a number of major mitigation and preparedness projects undertaken and a significant progress achieved in emergency management and preparedness work. Local administrations are better equipped today for disaster management then ever. However, Turkey has not fully recognized the need for a powerful disaster risk management, and the progress is yet far from being at a satisfactory level. This could be observed in several points:

- low priority is given to risk management at the public agenda;
- there is a lack of effort in clarifying mitigation methods at the different levels of administration;
- there is a lack of a powerful and long-term political commitment to shift the orientation of disaster management toward the reduction of disaster risks; and
- very little research and implementation efforts are observed for mitigation especially at the settlement level.

Despite the international focus on disaster risk management, the conventional disaster management system in Turkey still ignores the nature of new policy and the

roles of local administrations and communities in mitigation efforts. Most requirements for disaster risk management however point to the need to empower local administrations and to mainstream risk reduction in the developmental sectors of urban planning. Disaster risk management efforts in Turkey have not fully recognized the relevance of planning at the local level and developed the necessary tools for it. The major research questions of this study then are:

- "What are the reasons underlying the resistance of Turkish conventional disaster management system to the new global policy?"
- "What role the local administrations and planning could acquire in adopting the new policy in reducing disaster risks even in the absence of commitments of the central administration in Turkey?"

1.2. The Aim and Scope of the Study

This study aims to survey and evaluate the role of local administrations and urban planning in reducing disaster risks in Turkey. A background study on the international development of the concept of disaster risk management and its components are initially introduced. The study surveys the conventional disaster policy and the recent changes in disaster management in Turkey. The research views disaster management systems and policies in terms of two distinct components: 'Emergency Management' and 'Risk Management'. It focuses on disaster risk management activities besides emergency management activities, and investigates the role of local administrations in disaster risk reduction within the Turkish context.

Having observed the recent approaches and models of disaster management within the international context, the major research questions of this study require the following sets of information:

- current international policies and world experiences that shaped disaster risk management in Turkey,
- the conventional disaster policy in Turkey,

- changes in disaster management in Turkey after the 1999 Earthquakes,
- major mitigation and preparedness projects undertaken in Turkey after the 1999 Earthquakes,
- recent laws and draft laws for disaster management in Turkey, and
- the role of planning in local administrations in reducing disaster risks in Turkey.

1.3. Research Method

The research relies fundamentally on literature study and surveys of documents which makes it an exploratory type of study. Written works and documents were primarily used as part of the evidential material in this research (Chapters 2 and 3). Books, articles, government and national reports, conference proceedings, and research reports and documents were consulted in order to ascertain the current developments in disaster risk management. Existing data, empirical findings, laws and other regulatory devices as well as standards within the field of disaster risk management were also investigated (Chapters 3, 4 and 5). This research further made use of a comparative study of disaster-related policies in four countries to observe how mitigation policies are effectively built-in, in the organization of the central and local administrations (Chapters 3 and 5). For the evaluation of Turkey's disaster management system and exploration of the reasons underlying the resistance of conventional system to the new understanding of disaster management, interviews with different source individuals were employed as a means of immediate data collection (Chapter 5). Lastly, new laws enacted by the Grand National Assembly of Turkey concerning disasters and local administrations are reviewed.

In the comparative study, Japan, New Zealand and the U.S.A, besides Turkey are selected. The reasons for selecting these countries are that they all have most developed and effective disaster management systems. Although the administrative structural configurations between the national agencies do differ, they all promoted 'mitigation' as a national policy priority during the last decade. In addition, they all

have revised their laws and regulations, and implemented disaster risk reduction projects to adopt disaster risk management strategies. The purpose is to observe how mitigation policies are practiced in the central and local administrations. To provide a common basis for a uniform comparison and observations about these countries, issues of disaster risk management under the following titles are formulated on the basis of the thematic areas addressed in the World Conference (2005), which are also referred to in the interviews focusing on an assessment of the disaster policy performance in Turkey:

- natural legislation and strategy addressing disaster risk management;
- national body for coordination in disaster risk management;
- financing mechanisms for disaster risk management initiatives;
- integrating disaster risk management into the development process; and
- role of local administrations in reducing disaster risks.

In the analysis of effectiveness of mitigation policies in the central and local levels in Turkey, the structure of administration and its performance is evaluated. To build a more effective basis for this assessment, a number of interviews were organized. Specialists chosen from the field of disaster management in Turkey were asked to take part in the interviews (Chapter 5). The first interview was from the General Directorate of Disasters attached to the Ministry of Public Works and Settlement, the second from the General Directory of Emergency Management attached to the Prime Ministry, and the last from the Directorate of Civil Defense attached to the Ministry of the Interior. In addition to these, interviews with the vice-chairman of the National Earthquake Council and the legal advisor of the Ministry of the Interior were accomplished. In the interviews, the knowledge and opinion of the participants about the following issues were obtained with direct reference to the Kobe criteria (See Chapters 3 and 5, and Appendix C):

- the World Conference on Disaster Risk Reduction (WCDR);
- Turkey's National Report submitted to the WCDR;

- recent changes and developments in disaster risk management in the international as well as Turkish environment;
- the draft Law of Disasters; and
- role of local administrations in reducing disaster risks were highlighted.

Points raised in these observations were then employed also in the assessment of the disaster policy performance in Turkey. This is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, as the boundaries between phenomenon and context are not clearly evident. The units of analysis in this survey are the interview records, focusing on Turkey's disaster management system and local administrations' role in reducing disaster risks. The inquiry provided multiple sources of evidence.

All data obtained from the literature study, comparative analyses, and focus group interviews have directly contributed to analytical assessments and recommendations (Chapter 6).

1.4. Key Terminology underlying the Study

The disaster management community has developed a body of knowledge and tools over the past decades for managing disaster risks. The issue of disaster risk management also enjoys global international attention and is supported by binding legal agreements. However, the terminology used to define emerging experiences is interpreted in vastly different ways by practitioners engaged in managing disaster related risks. It is also found that the interpretations of the terminology used, change over time. The result has been some confusion and duplication of meanings and practices. The definition and discussions about disaster risk related terms are indicated in Appendix B. However, it is significant that some of these basic terms be defined and discussed in detail in order to ensure clarity and the correct application thereof. This is a particular requirement as the discipline of urban planning has been

exposed to the field of disaster risk mitigation only very recently. It is not surprising to observe that every recent effort and formal report related to disaster policy submit a glossary of its own, as the new policy also gave rise to areas of study introducing a conceptual challenge. It is aimed here to clarify possible sources of confusion on few terms that are particularly important to the conceptual framework of urban planning, as a means of introduction. It is further most relevant to concentrate on the uses of the concept of 'risk', which directly implies future events, the control of which is then the subject matter of planning.

1.4.1. Disaster Risk

The term disaster risk is a multidisciplinary concept and may be used in a variety of contexts (UNDP, 2004). Kelman (2003:6) is of the opinion that various disciplines define risk in different ways, and that the definition of risk depends on the observer. In the case of disaster risk reduction and disaster risk management, disaster risk has a specific focus (UNDP, 2004). A review of the literature defining risk reveals varied opinions, but some communality can also be identified.

Risk is usually associated with the human inability to cope with a particular situation. Risk embraces exposures to dangers, adverse or undesirable prospects, and the conditions that contribute to danger (Hewitt, 1997:22).

Helm (1996:4-7) as well as Sayers (2002:36-38) define risk as the probability of an event occurring linked to its possible consequences. Tobin and Montz (1997:282) argue that risk is the product of the probability of an occurrence and expected loss due to vulnerability to the occurrence.

Blaikie (1994:21) indicates that risk is a complex combination of vulnerability and hazard. The UNISDR (2002:24) defines disaster risk as the probability of harmful consequences, or expected losses (lives lost, persons injured, damage to property

and/or the environment, livelihood lost, and the disruption of economic activities or social systems) due to the interaction between humans, hazards, and vulnerable conditions. Cardona (2003:2) and Granger (1999) agree with this definition.

Lewis (1999) and Bethke, Good and Thomson (1997) also agree with the UNISDR (2002:24) definition and according to them, risk is a statistical probability of damage to a particular element which is said to be 'at risk' from a particular source or origin of hazard.

Risk could therefore be viewed as the possibility that a particular hazard (of certain magnitude within a specific timeframe) might exploit a particular vulnerability (of a certain type within a specific timeframe). It is the product of the possible damage caused by a hazard due to the vulnerability within a community. It should be noted that the effect of a hazard (of a particular magnitude) would affect communities differently (due to different levels and types of vulnerability) (Von Kotze, 1999:35). This is also true because of the different coping mechanisms within a particular community. In general, poorer communities are at greater risk (and less resilient) than communities in possession of 'coping capacities' (be it social, economic, physical, political or environmental).

The word 'risk' derives from the early Italian *risicare*, which means 'to dare'. In this sense, according to the Britton (1998:5), risk implies a choice rather than a fate. *"Activities undertaken by individuals, organizations, or governments all involve some degree of risk through choice. All activities expose people to a potential loss or gain of something they value; their health, money, career, social position, the environment, and so on"* (Britton, 1998:5). This is what makes the subject in essence a topic for planning.

There is a growing public awareness of common risks around the globe. Indeed, one of the most prevalent discourses, namely the risk society of Beck and Giddens,

places risk at the core of the world transition: *"The social world has become a world at risk, a world that makes transparent our vulnerabilities"* (Jaeger et al 2001:15). The increasing consciousness of the world as a whole due to social globalization – which refers to the transnational character of social processes and networks – offers opportunities to the limits of agency and structure in the deliberative process in this perspective. The more 'reflexive modernization' calls into question traditional views of science, progress and development, as well as undermining political categories.

With regard to his structuration theory, Giddens (Jaeger et al 2001) further argues that citizens orient themselves within a complex arrangement of traditions, individual routines and socio-cultural expectations. In other words, each individual actor is part of the forces that shape the future context of actions for others, but at the same time is bound by constraints that were constructed by past actions and choices of others. In this context, Beck has argued for the interdependence of highly specialized agents of modernization: *"no single agent is responsible for any risk"* (cited in Caplan, 2000:3-4). This leads to what he calls 'organized irresponsibility'. Beck states that risk management systems of industrialization are unable to cope with the new globe threatening uncertainties (Beck, 1992). Moreover, risks become individualized and people are increasingly left to assess risks based on their own risk bibliographies (Beck, 2001). It becomes apparent that the very regulatory agencies in place to manage risk normalize threats and thus condone their continuation - they practice 'organized irresponsibility' (Beck, 1992).

By contrast, scientific knowledge hardly understands some of these global environmental risks at all (Jacobs, 2001). So the risk is not a calculable probability of damage, but an unknown possibility. In these fields science is better characterized as one of ignorance than of mere uncertainty.

Another intriguing dimension in the risk society discourse is found in the universalistic claim (Beck, 2000; Caplan, 2000; Giddens and Hutton, 2000; Lupton

1999), namely that risk is a general condition of each individual, although some groups are more vulnerable due to the heterogeneity and diversity in society.

As a summary, increased emphasis is now placed on risk, and an acceptance that disaster, development and environmental problems are inextricably linked. Disaster risks exist, or are created, within social systems (UNISDR, 2002:24). Attention should therefore be paid to the social context in which risk occurs, and it should be noted that people will therefore not share the same perceptions of risk and their underlying causes due to their differing social circumstances (UNISDR, 2004). Rather than merely responding to their consequences (Lewis, 1993:37), communities, governments, civil society and professionals from various fields are increasingly recognizing the value of sustained efforts to reduce the social, economic and environmental costs associated with disasters, (UNISDR, 2002:15) by addressing disaster risk.

1.4.2. Risk Identification and Assessment

According to FEMA, *"risk assessment is the process of measuring the potential loss of life, personal injury, economic injury, and property damage resulting from natural hazards by assessing the vulnerability of people, buildings, and infrastructure to natural hazards. Risk assessment answers the fundamental question that fuels the natural hazard mitigation process: 'What would happen if a natural hazard event occurred in your community'"* (FEMA, 2001:iii).

A risk assessment tells:

- *"The hazards to which your state or community is susceptible;*
- *What these hazards can do to physical, social, and economic assets;*
- *Which areas are most vulnerable to damage from these hazards; and*
- *The resulting cost of damages is costs avoided through future mitigation projects"* (FEMA, 2001:iii).

Smith defines risk assessment as undertaking to find out what the problems are. *"It involves evaluating the significance of a given quantitative (if necessary, qualitative) measure or risk in an integrated way. . .Generally speaking, risk assessment is such a complex concept that a single, scientifically repeatable, solution will rarely satisfy all the political and social realities of the decision-making process"* (Smith, 1996:54). Also he indicates that *"the statistical analysis of risk. . .based on mathematical theories of probability and scientific methods for identifying causal links between different types of hazardous activity and the resulting adverse consequences"* (Smith, 1996:57).

According to Kates and Kasperson (1983), risk assessment comprises three distinct steps:

1. An identification of hazards likely to result in disasters, i.e. what hazardous events may occur?
2. An estimation of the risks of such events, i.e. what is the probability of each event?
3. An evaluation of the social consequences of the derived risk, i.e. what is the loss created by each event?

Godschalk, Kaiser, and Berke are in the same opinion that risk assessment estimates the probable degree of injury and property damage in a given area over a specific time interval (Godschalk, Kaiser and Berke, 1998:99).

In the 2004 version of 'Living with Risks', risk assessment is defined as a methodology to determine the nature and extent of risk by analyzing potential hazards and evaluating existing conditions of vulnerability that could pose a potential threat or harm to people, property, livelihoods and the environment on which they depend.

"The process of conducting a risk assessment is based on a review of both the technical features of hazards such as their location, intensity, frequency and probability; and also the analysis of the physical, social, economic and environmental dimensions of vulnerability and exposure, while taking particular account of the coping capabilities pertinent to the risk scenarios" (UNISDR, 2004).

Risk assessments include detailed quantitative and qualitative understanding of risk, its physical, social, economic and environmental factors and consequences (UNISDR, 2004). Its relevance for development of disaster risk reduction strategies was explicitly addressed during the IDNDR. *"In the year 2000, all countries, as part of their plans to achieve sustainable development, should have in place comprehensive national assessments of risks from natural hazards, with these assessments taken into account in development plans"* (UNISDR, 2004:63).

This was also outlined in Principle 1 of the 1994 Yokohama Strategy and Plan of Action for a Safer World. *"Risk assessment is a required step for the adoption of adequate and successful disaster reduction policies and measures"*.

According to 'Living with Risks', risk assessment encompasses the systematic use of available information to determine the likelihood of certain events occurring and the magnitude of their possible consequences. As a process, it is generally agreed that it includes:

- *"identifying the nature, location, intensity and probability of a threat;*
- *determining the existence and degree of vulnerabilities and exposure to those threats;*
- *identifying the capacities and resources available to address or manage threats; and*
- *determining acceptable levels of risk"* (UNISDR, 2004:63).

Figure 1.1 shows the basic stages undertaken in a risk assessment process. The identification of hazards is usually the starting point for a systematic assessment of risk.

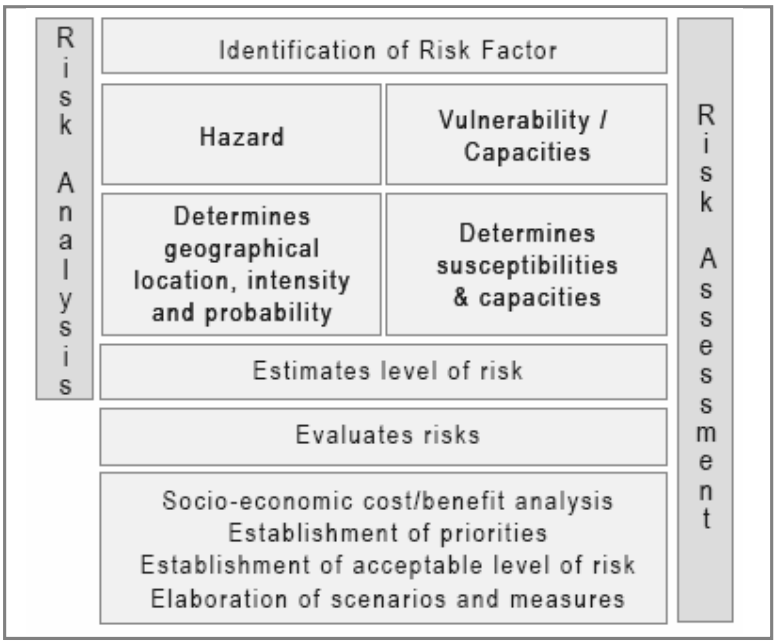

Figure 1.1 Stages in Risk Assessment
(Source: UNISDR, 2004)

According to Britton (1998:10) the risk assessment process insulates scientific activity from political pressure, and maintains the analytic distinction between the magnitude of a risk and the cost of coping with it. On the other hand, according to him, the risk management process helps to make the understanding of risk more acceptable by exposing the technical analysis to wider social and political scrutiny (Britton, 1998:5).

Thus, *"while risk management and risk assessment are very different, they should be regarded as two sides of the same coin, since one builds on the other. Different training, skill-sets and different perspectives are required to undertake these complementary task-sets; and hence different methods of application are needed. Since it is as much social and political as it is technical, risk management can only be achieved through a combination of multi-disciplinary and lay input"* (Britton, 1998:10).

1.4.3. Acting on Disaster Risks

The changing nature of global and community hazardscapes, and in particular, the ways in which our contemporary lifestyles are dependent on closely-coupled systems, means that there is now a very real need to re-consider how we manage disaster risks, and whether we have adopted the most appropriate tools to assist in identifying, understanding, accepting, reducing and recovering from disasters.

Acting on disaster risks; disaster risk reduction, disaster risk mitigation, and/or disaster risk management approaches are specific developments that have the potential to greatly assist communities gain greater control over their environment and reduce disaster risks. These practices provide viable methods to cope with increased complexity by integrating processes through a systems approach.

1.4.3.1. Disaster Reduction and Disaster Risk Reduction

The terms 'disaster reduction' and 'disaster risk reduction' have elicited some discussion and confusion over the past two years (Ritchie, 2003). Jeggle (2003) is of the opinion that in essence both terms refer to the same phenomenon, and that the ISDR (2002) has not made any significant distinction between the two terms since 2004. However, in the 2004 version of 'Living with Risks', the ISDR indicates that *"the view that disasters are temporary disruptions to be managed only by*

humanitarian response, or that their impacts will be reduced only by some technical interventions has been replaced by the recognition that they are intimately linked with sustainable development activities in the social, economic and environmental fields". This explains the increasing use of the expression 'disaster risk reduction' recognizing the importance of risk issues, in contrast to the previously employed 'disaster reduction'.

The increasing use of the concept of 'disaster risk reduction' indicates an emphasis on what is being reduced, as opposed to 'disaster reduction' which might increase the perception that the main focus of disaster (risk) reduction is disasters, rather than hazards and conditions of vulnerability. With the above in mind, although the terms 'disaster risk reduction' and 'disaster reduction' can be understood as synonyms, 'disaster risk reduction' will be used beside 'disaster reduction' to ensure compatibility in this thesis.

The UNISDR (2002:25) defines disaster risk reduction as *"the systematic development and application of policies, strategies and practices to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevent) or to limit (mitigate and prepare) adverse impacts of hazards, within the broader context of sustainable development"*. The UNDP (2004:135) concurs with the before-mentioned definition.

Disaster risk reduction may also be defined as the *"consequence of adjustment policies which intensify efforts to lower the potential for loss from future environmentally extreme events"* (Mileti, 1981; Nigg and Mileti, 2002). Such adjustment policies may refer to a broad range of guidelines, legislation and plans that help to minimize damage potential (i.e. exposure to a hazard or maximizing coping capacity of a region or community by, e.g. guaranteeing resources and preparing adequate plans for pre-disaster mitigation and post-disaster response

measures). Risk reduction involves both policy/regulatory issues and planning practices which has greatest contribution at local level.

1.4.3.2. Disaster Risk Mitigation and Disaster Risk Management

In the 'Internationally Agreed' Glossary of Basic Terms Related to Disaster Management, (UNDHA, 1992) disaster risk mitigation is defined as *"measures taken in advance of a disaster aimed at decreasing or eliminating its impact on society and environment"*. The UNISDR (2002) defines disaster mitigation as *"structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards"*. ESPON also defines mitigation as *"a proactive strategy to gear immediate actions to long-term goals and objectives"*.

Dynes (1993:17) indicates that *"…mitigation is the social attempt to reduce the occurrence of a disaster, to reduce the vulnerability of certain populations, and to more equitably distribute the costs within the society"*. Krimm (1998) simply states that mitigation is risk management. According to him it is getting a handle on the costs of disasters in the society, including not only moneys, but also suffering and economic disruptions (Krimm, 1998). McLoughlin (1985:166) is of the opinion that mitigation is *"activities that reduce the degree of long-term risk to human life and property from natural and man-made hazards; e.g., building codes, disaster insurance, land-use management, risk mapping, safety codes, and tax incentives and disincentives"*.

According to FEMA (1997:xxii) mitigation is *"…sustained action taken to reduce or eliminate long-term risk to people and property from hazards and their effects. Mitigation distinguishes actions that have a long-term impact from those that are more closely associated with preparedness for, immediate response to, and short-term recovery from a specific event"* and mitigation actions are accomplished by:

- *"acting on the hazard, seeding hurricanes or triggering avalanches may eliminate a hazard before a disaster occurs;*
- *redirecting the hazard, a seawall or dune restoration program helps keep water away from people by redirecting the impact areas away from vulnerable locations;*
- *interacting with the hazard, seismic safety provisions incorporated into building codes result in structures that are more able to withstand impacts and earthquakes; and*
- *avoiding the hazard, river corridor projects create multiple beneficial uses of the floodplain while relocating structures to less vulnerable locations"* (FEMA, 1999).

From the definitions it is therefore clear that disaster risk mitigation entails a wide focus on issues of action. Disaster mitigation aims to implement certain strategic initiatives (policies, strategies and practices) that will ultimately reduce or eliminate conditions of hazard and vulnerability at the local level.

On the other hand, the UNISDR (2002:25) and UNDP (2004) define disaster risk management as *"the systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters"*. This comprises all forms of activities, including structural and non-structural measures to avoid or to limit adverse effects of hazards (UNISDR, 2004).

Gratwa and Bollin (2002:19) define disaster risk management as a series of actions (programmes, projects and/or measures) and instruments expressly aimed at reducing disaster risk in endangered regions, and mitigating the extent of disasters. According to them disaster risk management includes risk assessment, disaster prevention and mitigation and disaster preparedness.

Smith (1996:54) defines disaster risk management as reducing the threats to life and property (and the environment) posed by known hazards, whilst simultaneously accepting unmanageable risks and maximizing any associated benefits. According to Britton (1998:1) risk management is a process used to decide what to do where a risk has been determined to exist. He indicates that it *"involves identifying the level of tolerance the community has for a specific risk or set of risks and determines what risk assessment options are acceptable within a social, economic, cultural, and political context. To achieve this, the process must be open since it has to factor in benefits, costs of control, and any statutory or socially approved requirements needed to manage the risk. Hence, it requires communicating and consulting with the public-at-large either directly or through appropriate representation as well as with specialists"* (Britton, 1998:1).

Disaster risk management is further a tactical and operational embodiment of strategic decisions (policy, strategies, and programmes) like disaster risk mitigation (Gratwa and Bollin, 2002:20). For all means and purposes it would be accurate to argue that disaster risk management is aimed at addressing the disaster risk problem within the resources and constraints imposed by the strategic focus of disaster risk reduction, within the tactical and operational levels.

In practice, disaster risk management and disaster mitigation tend to focus on the 'loss', or fate side rather than the 'gain' or opportunity side (Britton 1998:5). However, risk management and/or mitigation, if it is practiced correctly, can keep the element of choice in achieving the balance between gain and loss (Britton 1998:5). Risk management is *"the process of considering the social, economic and political factors involved in risk analysis; determining the acceptability of damage and/or disruption that could result from an event; and then deciding what actions should be taken to minimize likely damage or disruption"* (Britton and Clark 1998:5).

According to Britton and Clark (2000a:6), the risk management approach actually has several advantages over the traditional, more prescriptive and centralized approaches. They state that *"it ensures that risks are managed as part of wider decision-making. This addresses one of the common problems that those involved in disaster management have traditionally faced - they have been seen as a 'block' to development, because they are seen to argue against development or to limit it. Utilizing a risk management approach means that the risks are considered in order to help achieve a goal, not as a blockage to achieving it"* (Britton and Clark, 2000a:6).

According to UNISDR (2005c) disaster risk management offers an alternative to disaster management. *"It seeks to address the root causes of disasters, reducing the exposure and vulnerability of people and economic assets in order to reduce losses. Cost effective risk management requires being able to identify where hazards are most likely to strike, who or what will be exposed, and what vulnerabilities will lead to those assets being damaged or destroyed"* (UNISDR, 2005c). Disaster risk management, therefore, depends not on identifying the consequences of disasters but rather the causes. These causes need to be made visible and real so that the risks can be perceived, understood and reduced (UNISDR 2005c).

Disaster risk management competes with a variety of other national priorities and development needs (UNISDR, 2005b). Nevertheless, natural disasters are intimately connected to the processes of human development: disasters put development gains at risk, while at the same time the development choices made by individuals, communities and nations affect the distribution of disaster risk (UNISDR, 2005b). Therefore, all policy alternatives should ensure that every aspect of development contributes to identifying, managing and reducing disaster risk rather than generating new risks (UNISDR, 2005b). This is usually referred to as mainstreaming disaster risk management into development, which is supported by the recognition of the links between reducing disaster risk and the achievement of the Millennium

Development Goals (MDGs) (UNISDR, 2005b). According to UNISDR (2005b) *"good policy statements will refer to the importance of disaster mitigation in achieving sustainable development, and set out the broad goals and strategic objectives for reducing disaster vulnerability and risks, as well as for strengthening key capacities"* (UNISDR, 2005b).

At the World Conference on Disaster Reduction (WCDR 2005) it was demonstrated that disaster mitigation is a worthwhile investment that may reduce post-disaster costs (UNISDR, 2005c). The World Bank presented analyses showing that one dollar invested in disaster reduction pays back seven times in reduced post-disaster costs (UNISDR, 2005c). Both from a humanitarian and economical point of view there seem to be good reasons for countries to invest in disaster mitigation towards strengthened resilience at national and community levels, as was agreed in the Hyogo Framework of Action (UNISDR, 2005c).

When faced with risks from natural hazards, policymakers have to decide which of several ways of dealing with risk they will accept (Burby, 1999:254). They can try to eliminate risk, reduce it, or put in place mechanisms to share it (see Figure 1.2) (Burby, 1999:254). According to Burby (1999:254), *"for a variety of reasons, policymakers generally have ignored risk elimination and, instead, have emphasized risk reduction and risk sharing. This bias makes sense if the goal is limited to foster intensive development of hazardous areas. In the process of doing that, however, the federal government in the United States has severely limited the choices state and local governments can make about land use. In particular, it has crippled their ability to pursue risk elimination and environmental enhancement as complementary policy objectives"* (Burby, 1999:254).

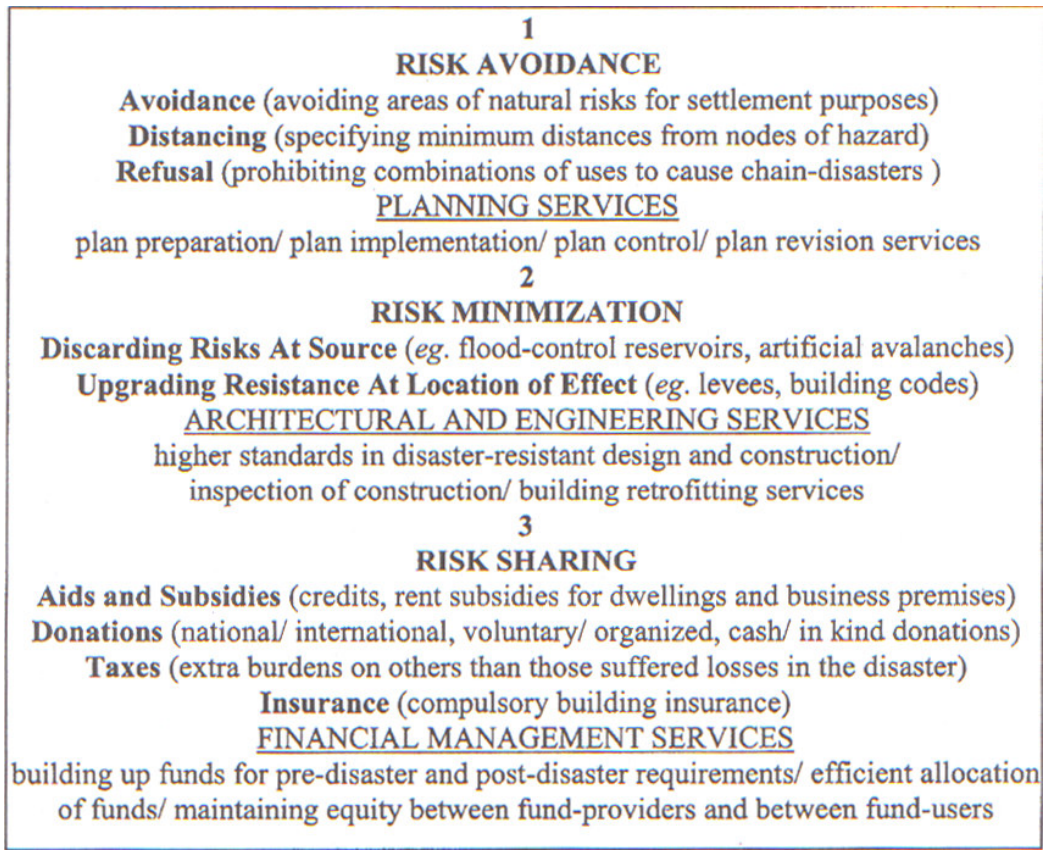

Figure 1.2 Priorities in Disaster Risk Management

(Source: Balamir, 2001a)

1.5. Structure of the Study

A thematic approach is followed throughout and this thesis is divided into the following chapters. Graphical presentation of the structure of the study and its logical flow are given below (see Figure 1.3):

i. Chapter 1 serves as the problem statement to the thesis. In this chapter the problem statement, key research questions and objectives of the research are explained. Furthermore, the terms of 'disaster risk', 'disaster mitigation' and

'disaster risk management' are defined and their requirements are discussed. The method of investigation is also explained, and the contribution of the research to the disaster risk management body of knowledge is given.

ii. In Chapter 2, the development of the concept of disaster management and its components in the international literature are reviewed. A comparison of two different approaches to disaster management is clarified. The theoretical aspects which contribute to disaster management are also examined through different models of disaster management. Finally the significant role of planning in reducing disaster risks is explained.

iii. In Chapter 3, international policies and mechanisms that shaped disaster management are reviewed. Disaster management systems of Japan, New Zealand and United States are compared with a selective number of issues of disaster risk management leading to propositions for Chapter 5.

iv. Chapter 4 is an analysis of the Turkish environment. Firstly, the conventional disaster policy in Turkey is discussed. Secondly, the recent changes, the new bodies, the new laws and draft laws about Turkey's disaster management system are reviewed. Lastly, the major mitigation and preparedness projects undertaken after the 1999 Earthquakes in Turkey are highlighted with the identification of a number of issues to be tested.

v. In Chapter 5, reports on the interviews conducted are evaluated. Furthermore, a comparison of Turkey's disaster management system with three other national systems investigated in chapter three, and the role of local administrations in disaster risk management are discussed relying on the findings of chapter two, three and four, providing data for the method followed. Lastly the recent legislative action related to disaster risk management and local administrations are evaluated.

vi. The final chapter, Chapter 6 contains a synthesis and findings of previous chapters of the research. It further provides recommendations for future research on disaster risk management.

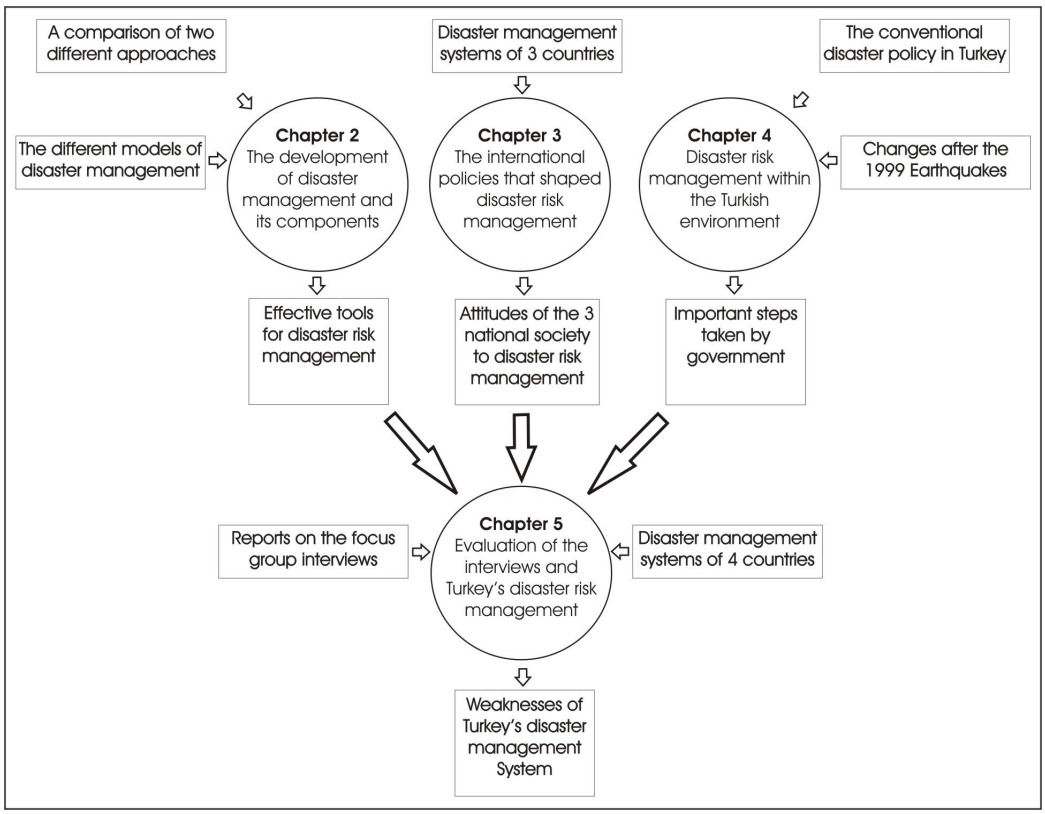

Figure 1.3 Structure of the Study

CHAPTER II

2. DISASTER MANAGEMENT SYSTEM

Natural disasters include both natural and man-made dimensions, such as lithosphere disasters (landslide, subsidence, earthquake), atmospheric disasters (rain, lighting, temperature), hydrosphere disasters (flooding, coastal erosion), biologic disasters (forest fires and wildfire), and technological disasters (oil spills, transport accidents, and failures of constructions). Although disasters are so varied and defy easy classification, Smith (2004) describes them as: *"an event, concentrated in time and space, in which a community experiences severe danger and disruption of its essential functions, accompanied by widespread human, material or environmental losses, which often exceed the ability of the community to cope without external assistance"*. In the final years of the 1990s, several natural disasters occurred in different parts of the world, in countries large and small, industrialized or agrarian, technologically advanced or developing. The types of natural hazards that activated these disasters varied from the seemingly unexpected occurrence of earthquakes, to more predictable seasonal floods and periodic storms.

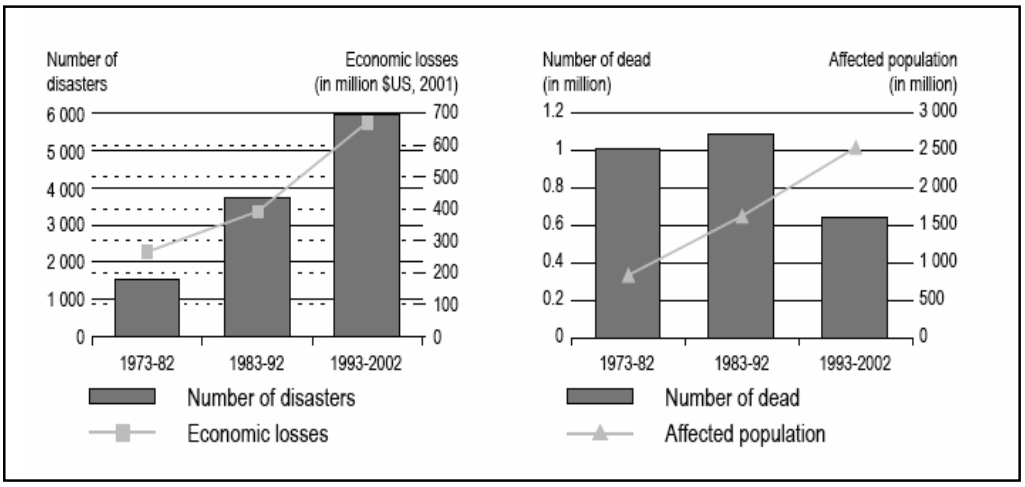

Figure 2.1 Economic and Human Effects of Disasters, 1973–2002
(Source: EM-DAT, The OFDA/CRED International Disaster Database.)

The trend during the last three decades shows an increase in the number of natural hazard events and an increase in the number of affected populations (See Figure 2.1) (UNISDR, 2002:3). However, in spite of the fact that the number of disasters has more than tripled since the 1970s, the death toll due to these disasters has almost halved (UNISDR, 2002:3). Despite losses of US$ 30 billion in 2000, an amount that is only moderate in comparison to the average annual loss of the past decade, both the number of major natural disasters and their costs have increased rapidly in recent years (UNISDR, 2002:3). Because of the increasing economic and human effects of disasters, human actions, environmental management, and growth management and above all, disaster management are becoming ever more crucial. The ever growing human, economic and environmental losses due to disasters evidence the need for a systematic approach to the management of disasters.

Even if it may not be possible to formulate a universally acceptable definition of disaster management that will satisfy all practitioners, some common definitions

were formulated. Jeggle (2003) says that disaster management is the organization of resources and responsibilities for dealing with all aspects of emergencies, in particular preparedness, response and rehabilitation. Coburn, Spence and Promonis (1991) are of the opinion that disaster management is a collective term encompassing *"all aspects of planning for and responding to disasters, including both pre- and post-disaster activities. It refers to the management of both the risks and the consequences of disasters"*.

The end of the 1980s saw a keen interest within the international community towards the systematic development of methodologies which could be applied to ensure better pre-disaster activities. Gradually the common use of the concept 'disaster management' emerged. Jeggle (in Rosenthal, Comfort and Boin, 2001:334-335) contrasts the earlier concepts of emergency assistance and disaster management. He points out that there are distinctive managerial and functional implications for the organization of disaster management for the future. These are summarized in the Table 2.1 below.

Table 2.1 Emergency Assistance vs. Disaster Management

(Source: Jeggle in Rosenthal, Comfort and Boin, 2001:335)

Emergency Assistance	**Disaster Management**
Primary focus on **Hazards.**	Major focus on **Vulnerability.**
Single, event-based scenarios.	Dynamic, multiple risk issues.
Basic responsibility to respond to an event.	Fundamental need to assess, update.
Often fixed, location-specific conditions.	Extended, shared or regional locales.
Responsibility in single authority or agency.	Multiple interests, actors, responsibilities.
Command and control, directed operations.	Situation-specific functions, free association.
Established hierarchical relationships.	Shifting, fluid and tangential relationships.
Urgent, immediate-to-short time frames in outlook, planning, attention, returns.	Comparative, moderate-to-long time frames in outlook, planning, return values.
Rapidly changing, dynamic information usage. Often conflicting or 'sensitive'.	Accumulated, historical, layered-updated comparative, information. Open or public.
Primary, 'authorized' or singular sources.	Multiple and diverse or changing sources.
Need for definitive 'facts'.	Differing perspectives, points of view.
Operational or public information-based use of communications.	Multiple-use, shared exchange, inter-sectoral information, matrixes, nodal, lateral flows in communication.

Disaster Management is composed of 2 systems: emergency management system and risk management system which is the systematic process of using administrative decisions, organization, operational skills and abilities to implement policies, strategies and coping capacities of the society or individuals to lessen the impacts of natural and related environmental and technological disasters (UNISDR, 2004; Strand, 2003). From the table above, it is therefore clear that changing organizational and institutional roles in disaster management mark a fundamental shift towards disaster risk management for the future. Different views of disaster management are clarified below.

2.1. Approaches in Disaster Management

The conventional view of disaster management draws the method of this social organization as a set of cyclic activities with reference to the periodical occurrence of disasters (Balamir, 2004a). According to this view, disaster management requires a continuous chain of activities that includes 'mitigation, preparation, emergency, and recovery' (See Figure 2.2). Although there is some variation in terminology for the different phases of disaster management, and numerous typologies have been developed in conventional view (e.g. Alexander, 2000; Berke, Kartez, and Wenger, 1993), they all describe a disaster management cycle that consists of connected activities and phases, which occur sequentially.

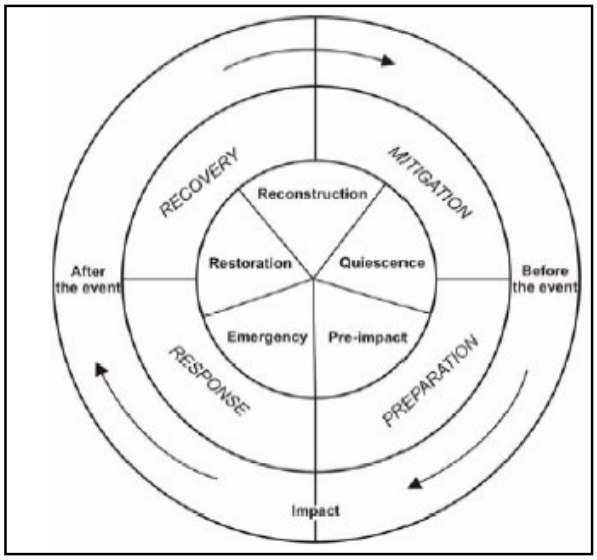

Figure 2.2 Disaster Management Cycle
(Source: Alexander, 2000)

In the mid-1990s, some of the inadequacies of the disaster management cycle became more evident. In this model activities are arranged in a linear sequence, when in practice they do not fit in exact sequence in the way shown in most diagrams and they often need to coincide (Department for International Development, 2004). Due regard, disaster management as a number of phased sequences of action or a continuum, the need to carry out some disaster management activities and phases simultaneously is not taken into account. The idea of a 'disaster cycle' appears inherently to discount successful mitigation and preparedness. This approach did not consider the importance of hazards and risk, and all planning were mere contingencies for a given event.

This conventional view is also based on the assumption that some 'empowered and capable agent' could conduct all of such activities in a sequential order (Balamir, 2004a:15). It ignores the need to differentiate risk management from emergency

management as distinct technical and administrative tasks, variable in nature and emphasis, at the different levels of administration (Balamir, 2004a:15). Due to the inadequacies of this conventional model, an alternative view has emerged recently.

The alternative approach rejects the circular conceptualization of disaster events which is considered as a fatalist acceptance of disasters, leading to passive modes of response, or to preparations only for the emergency conditions, rather than considering every possible proactive and sustained form of mitigation measures. It views disaster policy in terms of either 'emergency management' or 'risk management' activities, and relates these two components to the different levels of administration (Balamir, 2004a:15). Furthermore, it takes into consideration the functional differences of the various levels of administration: 'central, regional, local, and community;' their mode of interaction; and recognition that dealing with 'risk' demands a separate set of expertise, concepts and tools of action (Balamir, 2004a:15). The characteristics of the latter approach that distinguish it from traditional emergency preparation and action are elaborated below.

2.2. Models of Disaster Management Systems

Organization of disaster management in the different levels of administration could be classified in terms of 6 bipolar concepts with reference to Balamir (2004a:15-17).

1) Depending on the structure of decision making where actions are legitimately taken:
   a) The **'top-down'** model, with authorized institutions of 'command and control', implies that the central administration exercises power. It has an obvious attraction in the crisis period of disasters, when difficult decisions have to be made quickly under difficult conditions, and decisiveness and strong leadership can inspire feelings of confidence in the public.

b) In the **'bottom-up'** model, priorities are identified and initiatives are taken by local communities, groups of individuals and NGOs. The pertinence of this model have recently been more extensively recognized and expressed. The bottom-up strategy seems to provide more effective results both in mitigation and preparedness. The role of local administrations is of greater significance in this model. The nature of local decision making could also be expressed in terms of participatory procedures, which could vary from 'right to know' to 'right to implement' of the local communities.

2) Depending on the general attitude of administrations focusing disaster related activities:
   a) The **'reactive'** model treats natural disasters in an emergency response mode. It reacts to natural disasters by providing relief or emergency assistance to the affected areas. This model generally relies on central administrations knowing what they need and being able to request it from lover-level administrations.
   b) The **'proactive'** model generally relies on local administrations. Mitigation efforts would be effective only if local hazard conditions are determined and measures taken accordingly. Responsibilities and capabilities for the proactive approach must therefore reside within local administrations and communities. In other words, reactive or proactive attitudes have different priorities for different levels of administration.

3) Depending on the distribution of powers, responsibilities and liabilities between the administrative levels:
   a) In the first model, power, responsibility and liability are **'concentrated at the center and diminished rapidly as one moves to the outer periphery'** of administrative organization. The current structure of disaster management in Turkey is a classical example of this model since the declaration of a disaster

concentrates all power and resources under the central government, and municipalities were deprived of independent action.

b) In the second model, there is a **'hierarchical and proportionate distribution'** of power, responsibility and liability among different levels of administration. Therefore, in the case of a small scale emergency, only local administration is responsible for responding. If larger-scale disasters occur, the provincial, regional, and central administrations are obliged to take part in a proportional manner, according to the response plans. The same applies to recovery operations. Small-scale damage is to be met by local resources. If the scale of loss exceeds local resources, additional funds from the upper-level of administration are provided. In this structure, each level has some threshold of power and liability. Mitigation activities could also be envisaged in terms of a cascading arrangement. Individuals will be expected to purchase insurance, and local administrations will be held responsible for mitigation-related public investment on a smaller-scale. The central government will be responsible for the safety measures of large-scale infrastructure systems. Thus, the whole administrative system is involved in the disaster preparedness and emergency response. New Zealand is a good example of this model, where administrative liabilities are hierarchically distributed.

The two models describing the above structures are the 'Central Provision for All' and the 'Cascading Thresholds' Models (Figure 2.3 and Figure 2.4).

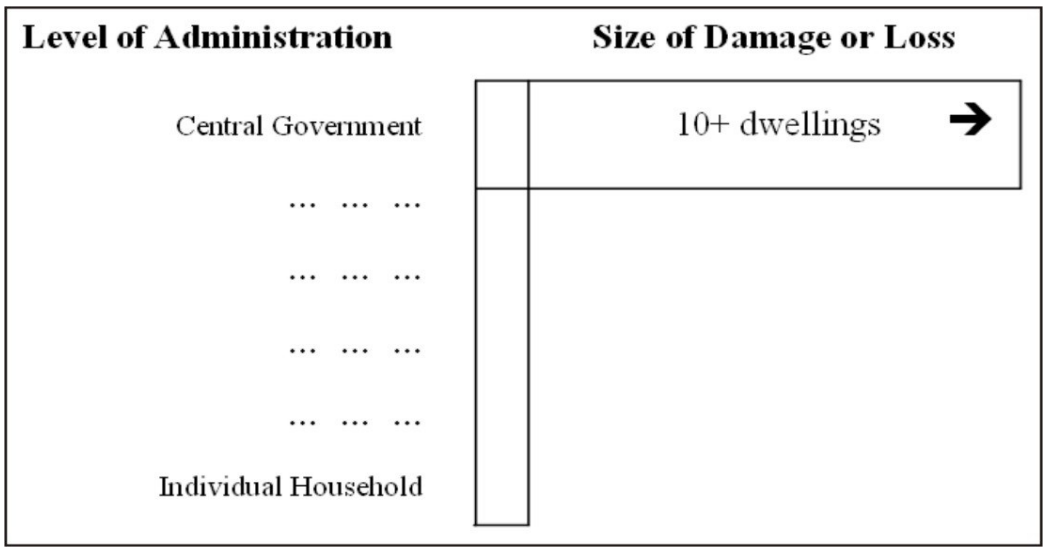

Figure 2.3 'Central Provisions for All' Model

(Source: Balamir, 2004a:30)

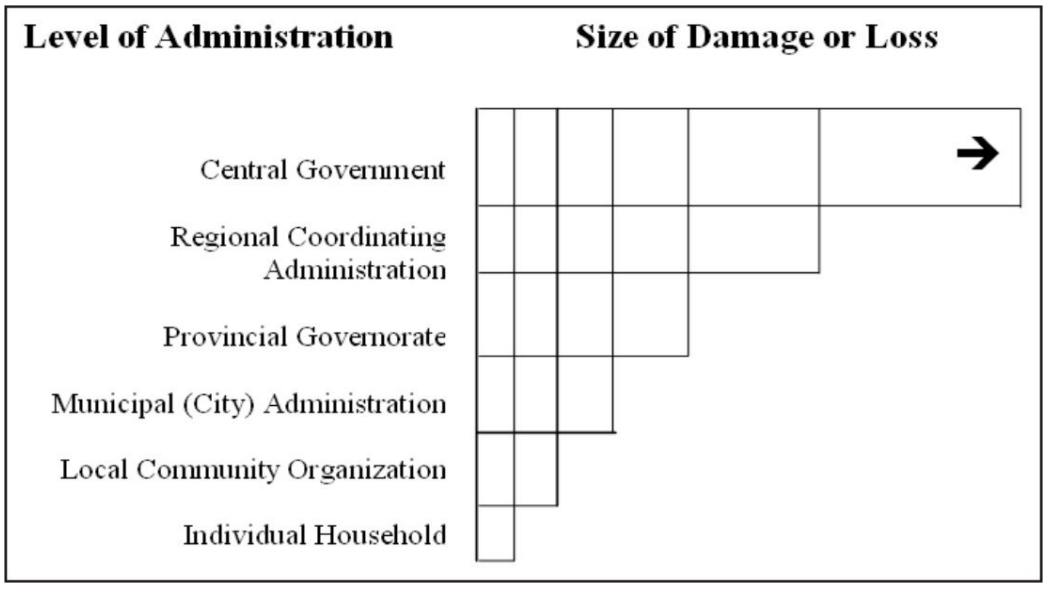

Figure 2.4 'Cascading Thresholds' Model

(Source: Balamir, 2004a:30)

4) Depending on the types of interaction between administrations:
    a) In the **'coercive'** model, mandates treat local administrations as regulatory agents charged with following rules prescribed by upper-levels of administration (May and others, 1996:3). These mandates are composed of detailed standards and procedures for achieving disaster policy goals, thereby reducing local discretion in disaster management (May and others, 1996:3). Sanctions are applied when governments fail to undertake their prescribed roles. Mandates in Florida (May and others, 1996:4) and Turkey tend to be coercive.
    b) In the **'cooperative'** model, mandates try to enhance local administration interest in and ability to work toward achieving higher level disaster policy goals (May and others, 1996:3). Local administrations act as regulatory trustees in seeking appropriate means to meet goals they share with upper-level administrations (May and others, 1996:3). Cooperation is a vital condition in disaster management both within the hierarchy and among peers.

Administrative power in disaster management is also arranged according to emergency and risk management responsibilities. Authorities and administrations with responsibility for urgent action in the event of emergency are given binding and coercive prerogatives, whereas administrations held responsible for risk management are expected to cooperate with the lower and higher levels of administration as well as with their peers.

A distinction between coercive and cooperative forms of intergovernmental policy is shown in Table 2.2.

Table 2.2 Intergovernmental Policy Designs

(Source: May and others, 1996:4)

Comparison of Policy Features		
Features	*Coercive policy design*	*Cooperative policy design*
Role of lower-level administrations (state, regional or local)	*Regulatory agents:* Enforce rules or regulations prescribed by upper-level administrations.	*Regulatory trustees:* Develop and apply rules that are consistent with upper-level administrations.
Emphasis of intergovernmental mandate	Prescribe regulatory actions and process. Specify regulatory actions and conditions, along with required process or plans.	Prescribe process or goals. Specify planning components and considerations, along with performance goals.
Control of lower-level administrations	Monitoring for procedural compliance. Enforcement and sanctions for failing to meet deadlines, for not adhering to prescribed process, or for not enforcing prescribed rules.	Monitoring for substantive compliance with more limited monitoring for procedural compliance. Monitoring systems for assessing outcomes and progress toward them.
Assumptions about intergovernmental implementation	Compliance is a potential problem. Need for uniformity in application of policies.	Compliance is not a problem. Need for local discretion in policy development.
Implementation emphasis	Including adherence to policy prescriptions and regulatory standards. Building "calculated" commitment as a primary means of including compliance.	Building capacity of subordinates to reach policy goals. Enhancing "normative" commitment as a primary means of including compliance.

5) Depending on the standardization of actions and routines:
    a) The model of **'standardization of tasks, modules, information and devices'**, whether employed in emergency actions or mitigation efforts, carried out by task forces and experts. It allows familiarity by local administrations and generates a medium for **'inter-operability'**. Inter-operability is particularly crucial in emergencies and in conducting cooperative activities throughout the administrative system. Although it is the local administrations which will earn the benefits of inter-operability, often the decisions of a central authority is needed for standardization.

6) Depending on the attributes of the society:
    a) The **'fatalist society'** relies on healing discourse and is more often centrally monitored.
    b) The **'self-relying society'** is generally dependent on the local adoption of mitigation methods and relies on preparedness discourse.

Any society could lie somewhere between these two extremes, closer to one end or the other. This could be described in terms of a number of attributes as shown in Figure 2.5.

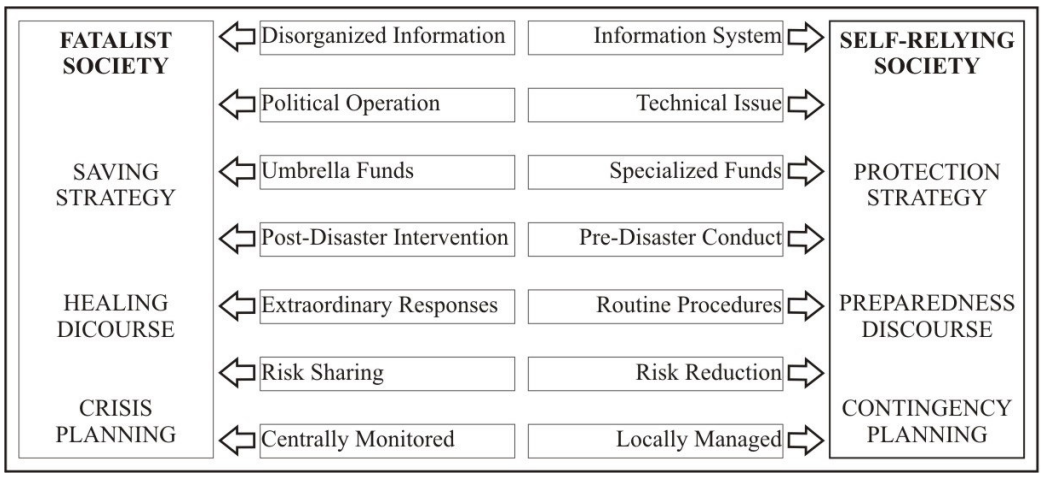

Figure 2.5 Attributes of the Two Extreme Models of Strategy in Disaster Policy (Source: Balamir, 2004a:31)

Also according to Berke, state governments can take various approaches to promote local disaster risk reduction activities. May and Williams (1986) maintain that these approaches can be determined by identifying how they deal with two sets of issues raised in the intergovernmental policy implementation literature. One issue is the degree to which higher and local levels of government share funding, and administrative authority and responsibility. That choice ranges from a general to a limited partnership. In a limited partnership, one level of government (usually lower) takes a limited role in using funds and implementing a program initiated by another (usually higher) level of government. Expected performance is thus greater for one of the partners. In a general partnership, each level of government has a significant, but not necessarily equal role and responsibility. Under this arrangement each partner tends to specialize in a different type of activity.

A second issue is the use of incentive versus regulatory activities. The incentive-based approach is non-coercive and typically involves providing credible

information, technical assistance, funds, training, and other resources to local governments. The resources are intended to enhance local commitment and the capacity to carry out state initiatives without use of coercive actions. The regulatory approach attempts to control and direct the actions of local governments by creating standards for assessing compliance and using sanctions to enforce compliance.

These approaches mentioned above intensified the drive towards the development of disaster risk management. A realization grew that there is a need to differentiate the components of disaster management as distinct technical and administrative tasks at the different levels of administration and the emphasis is on having a proactive land use and growth management policy designed to prevent or lessen loss, rather than simply reacting to the crises when disasters strike. Furthermore, the relevance of planning in disaster management has now been more acknowledged. Following section will address planning and land-use planning which is an effective tool for reducing disaster risks, and not necessarily a new innovation (Germen, 1980).

2.3. Land-use Planning, Urban Planning and Disaster Risk Reduction

Policy makers are now coming to realize that a different approach is needed if natural disaster risks are to be reduced (Burby and others, 2000). According to the National Research Council's Board on Natural Disasters (1999), *"communities can often achieve significant reductions in losses from natural disasters by adopting land-use plans"*. In fact, the Second National Assessment on Natural and Related Technological Hazards concluded that, *"no single approach to bringing sustainable hazard mitigation into existence shows more promise at this time than increased use of sound and equitable land-use management"* (Mileti, 1999).

Land-use planning is the means for gathering and analyzing information about the suitability for development of land exposed to natural hazards, so that the limitations of hazard-prone areas are understood by citizens, potential investors, and government

officials (Burby and others, 2000:101). It combines technical analysis and community participation to make wise choices among alternative strategies for managing changes in land use (Burby and others, 2000:101). Integrating natural disaster mitigation into land-use planning can help a community become more resilient through:

- *Intelligence* about long-term threats posed by natural hazards to the safety and viability of human development and environmental resources.
- *Problem solving* to cope with imminent threats prior to, during, and after a disaster.
- *Advance planning* to avoid or mitigate harm from a future disaster and to recover afterwards.
- *Management strategies* to implement plans through policies, regulations, capital improvements, acquisition, and taxation (Burby and others, 2000:102).

Land-use plans state community goals, principles, and actions (Kaiser, Godschalk and Chapin, 1995 provide an in-depth look at the process of preparing land-use plans.), and can be a powerful tool for reducing risks from natural disasters (Burby, 1999:252). Planning programs reduce losses by affecting both the location and the design of urban development (see Godschalk, Kaiser and Berke, 1998) and by helping create a knowledgeable constituency of citizens who support disaster mitigation programs (Burby and May, 1998). By guiding urban expansion and redevelopment to locations that are free of hazards, planning programs eliminate the possibility of significant damage (Burby, 1999:252). Where hazardous areas have advantages for development that cannot be foregone, planning programs reduce potential losses by steering development to the least hazardous parts of building sites and by modifying building and site design practices so that risk is reduced (Burby, 1999:252). For past development located in hazardous areas, planning programs help property owners relocate their homes and commercial buildings to hazard-free sites, or to modify them to reduce the risk of loss (Burby, 1999:253). To further limit the risk of loss after development has taken place, planning controls set standards to

reduce the risks (Burby, 1999:253). For example, if the amount of imperviousness in watersheds is reduced, peak runoff can be kept at or near predevelopment levels (Burby, 1999:253). Finally, by involving citizens in all phases of the planning process, planning programs help build citizen awareness of the risks posed by natural hazards and create a base of citizen support for efforts to reduce risk by planning for and managing urban development and redevelopment (Burby, 1999:253).

Local administrations have used two approaches in planning to cope with natural hazards (Burby, 1999:252). In one, disaster mitigation is undertaken through special, stand-alone disaster mitigation plans (Burby, 1999:252). In the second, disaster mitigation is one component of broader comprehensive plans for entire jurisdictions or regions (Burby, 1999:252). Both have advantages (Burby, 1999:252). Stand-alone plans typically have greater technical experience, but by focusing solely on the areas exposed to hazards, they can inadvertently promote increased occupancy of those areas by making them safer for development (and by ignoring opportunities to steer development to hazard-free sites) (Burby, 1999:252). Comprehensive plans have the advantage of taking into account a broader array of community goals, involving a larger number of citizens, and of discovering the potential for accommodating economic development and population growth in areas at lesser risk (Burby, 1999:253).

Recent reviews indicate that where they have been adopted, stand-alone plans and the disaster mitigation elements of comprehensive plans have a positive effect in fostering more robust local adminstration disaster mitigation programs and a reduction in property damage in natural disasters (For more information, see Burby, May, Berke, Dalton, French and Kaiser, 1997; Burby, French and Nelson, 1998; Deyle and Smith, 1994; Olshansky and Kartez, 1998).

Local administrations that plan, create public awareness of the hazards they face, and have adequate staff resources are most successful (Olshansky and Kartez, 1998). In addition, mandates and assistance from higher levels of government are essential to

create the local commitment to disaster mitigation and the capacity to prepare land-use plans for mitigation (Burby and May et al 1997). Governments must take care in carrying out disaster mitigation planning, minding both the political and technical details. Some of the lessons from local experience show that communities must be both visionary and pragmatic. They need to be far-sighted in gathering credible data, preparing maps, building consensus through planning, and paying attention to development management well before pressures build to use hazard areas more intensively (Burby and others, 2000:102). They also must be practical in using site-specific approaches, integrating disaster mitigation into their normal development review procedures, taking advantage of post-disaster windows of opportunity, and being prepared to purchase properties if necessary (Burby and others, 2000:102).

Land-use planning for disaster mitigation is an essential ingredient in any recipe for building disaster resilient communities (Burby and others, 2000:106). It is again an effective tool for risk avoidance and minimization especially during reconstruction stages (Velasquez et al, 1999). Although land-use planning, microzonation, and building code changes are effective tools for disaster risk management (Velasquez et al, 1999), urban planning and disaster mitigation which affect the most socially vulnerable people have to be re-evaluated again and represents an area for new innovations.

The limited disaster-related literature from an engineering perspective focuses mainly on structural issues related to the post-disaster scenario of exceptionally large-scale disasters, looking at general safety issues for reconstruction programmes or large-scale engineering solutions. More general literature on cities and development has also a limited focus, treating cities primarily as engines for economic growth (see for example World Bank, 2000:125-138).

Literature from an ecological and health-centered perspective of authors such as Hardoy, McGranahan, Mitlin, Satterthwaite, and Girardet (e.g. Hardoy et al, 2001)

offers a wider view. These authors, and some compilations on urban sustainability include, but do not specifically focus on, disaster risk reduction measures.

General disaster studies tend to focus, not on the actual vulnerability, but on the hazards, addressing scientific aspects and related technical solutions, such as expensive high-tech prediction systems. The socially-oriented disaster studies look mainly at the social causes of vulnerability and poverty. The latter often neglects planning as being vitally important risk reduction measures, since it is perceived as purely a physical tool.

Some recent publications recognize urban disasters, pointing out that existing risk is magnified by the failure of adequate planning, and tend to focus on the interplay between urban disasters and planning. According to Wamsler (2004), the aspects influencing the interplay between urban disasters and planning can be presented as follows (See Figure 2.6):

- ***Social Aspects****: Due to the functioning of land and property markets in cities, and the inability of formal housing and planning sectors to cater for the priorities of the population (e.g. access to work opportunities), vulnerability expresses itself in the growth and development of illegal settlements in marginal high risk areas.*
- ***Environmental Aspects****: General processes of urban expansion contribute towards increasing risk through environmental degradation, such as the transformation of the physical environment and the overexploitation of natural assets in formal and informal areas.*
- ***Demographic Aspects****: Growing urbanization creates new challenges for planning as the population is living increasingly closer to hazards, and urban areas generate increasingly higher concentrations (e.g. of people, social networks, buildings and infrastructure), including the central state government and the financial centers of economic life. This concentration generates vulnerabilities as its disruption easily creates disasters.*

- ***Economic Aspects****: With urbanization, people become increasingly dependent on infrastructure. Economic activities are incrementally related to housing of the poor, which provides space for income generation through labour opportunities and room rental. Furthermore, economic activities and disasters is the fact that in the poor urban areas of developing countries, construction is mainly an activity of the informal sector, which has major economic importance.*
- ***Institutional Aspects****: Centralized and separate disaster and planning institutions and inadequate enforcement schemes can create vulnerabilities* (Wamsler 2004).

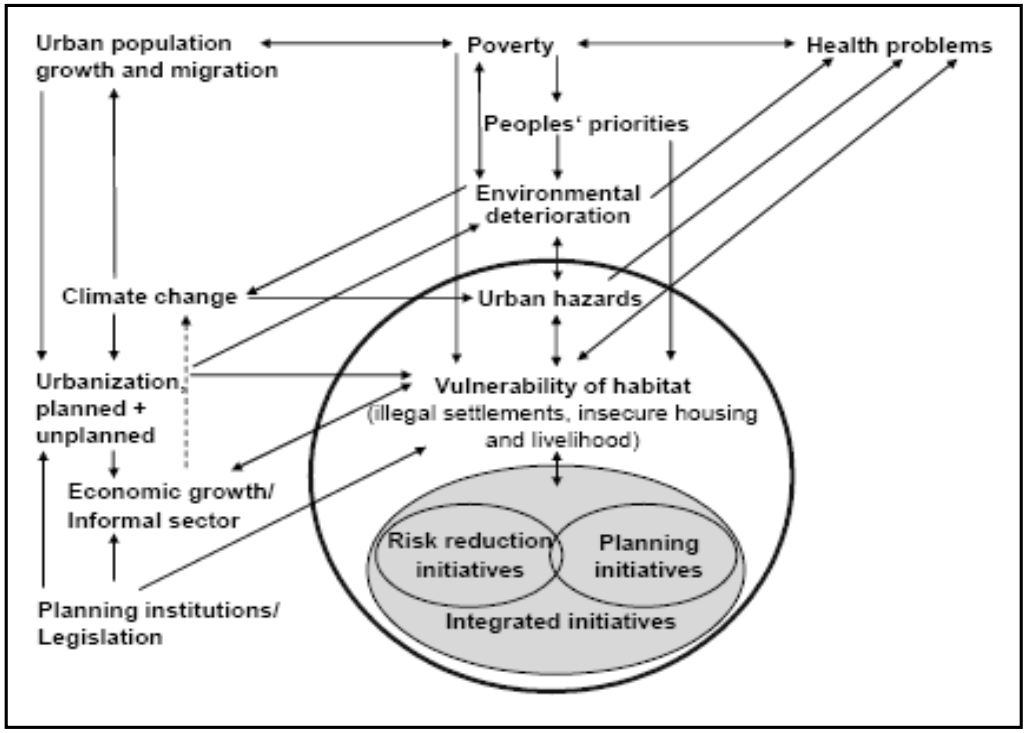

Figure 2.6 Interplay between Planning and the Occurrence of Disasters
(Source: Wamsler, 2004)

As Maskrey (UNDP-BCPR) stated: *"The trend is for the risk to become urban"*. Therefore, it is essential to determine what kind of pre-disaster initiatives can help to mitigate disaster risk, especially in urban. *"Urbanization affects disasters just as profoundly as disasters can affect urbanization"* (Pelling, 2003:7). However, urban growth, whether planned or unplanned, is seldom carried out with a view to reduce disaster risk. Furthermore, little research has been done on how risk reduction can be effectively mainstreamed in the developmental sectors of urban planning. Cases that directly confront the disaster mitigation, and intend to develop methods in comprehensive urban planning (rather than that of land-use planning alone) are very few and recent (Balamir, 2006). This gap between urban planning and disaster risk management should be demonstrated by the literature, planning history, discourses, and international/national initiatives.

CHAPTER III

3. WORLD EXPERIENCES THAT SHAPED INTERNATIONAL DISASTER MANAGEMENT

Since the 1990s, there has been an evolution in the common understanding of disaster management at the international arena. In the international community, with the involvement of a variety of different disciplines and international organizations, there has been a growing consensus that a 'shift' is required to move from reactive, response-based disaster management to more proactive forms of efforts aimed at disaster mitigation and disaster risk management (Henstra and McBean, 2005). Following this idea, a series of declarations of interest and determination to reduce risks have taken place at the international context (Balamir, 2005). The International Decade for Natural Disaster Reduction (IDNDR) (based on UN General Assembly Resolution 42/169, 1987), Yokohama Strategy and Plan of Action for a Safer World (1994), International Strategy for Disaster Reduction (ISDR) (2000), the Millennium Declaration (2000), The World Conference on Disaster Risk Reduction and the Hyogo Declaration (2005), and the Hyogo Framework for Action 2005-2015: "Building the Resilience of Nations and Communities to Disasters" are the main milestones of this trend (See Figure 3.1) (Balamir, 2005).

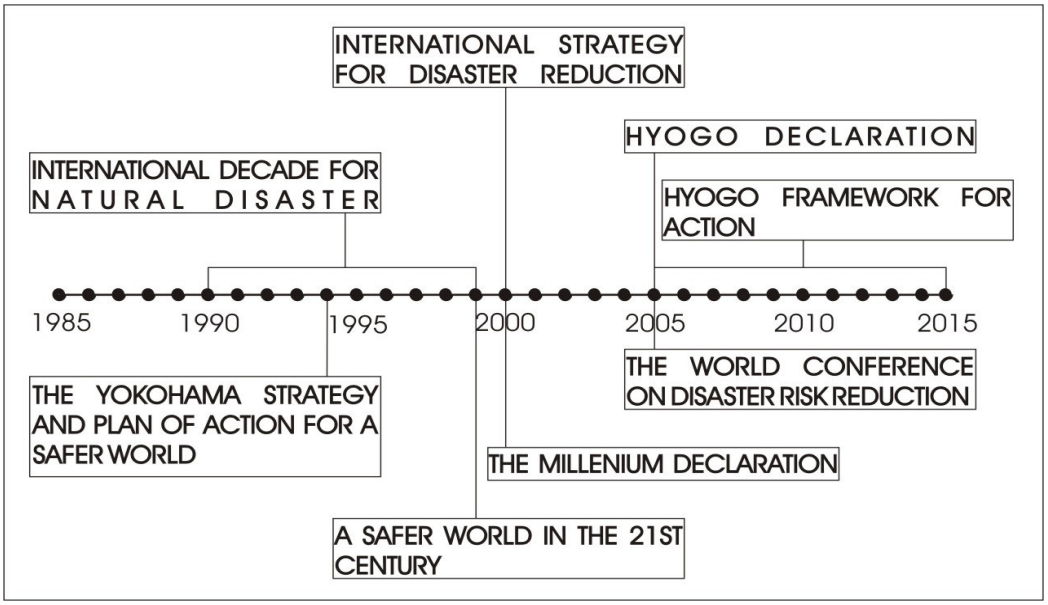

Figure 3.1 Milestones of International Disaster Management Process

3.1. The International Decade of Natural Disaster Reduction

In December 1987, the United Nations General Assembly adopted Resolution 42/169 and declared the years 1990–1999 as the International Decade for Natural Disaster Reduction (IDNDR) (WMO, 1997:1; Smith, 2004:348; UNISDR, 2002:17; Lechat, 1990:2; UN, 1987). During this decade an international effort was attempted to reduce the loss of life, property livelihoods, and the social and economic disruption caused by the impact of nature on vulnerable conditions. The aim of this decade was to ensure a shift in reactive approach towards natural disasters to that of proactive planning (Husner, 1989:45-46; Lechat, 1990:2; Smith, 2004:358). The five main goals of the Decade were:

- *"to improve the capacity of each country to **mitigate the effects of natural disasters**, paying special attention to assisting developing countries in the*

assessment of disaster risks and in the establishment of early warning systems and disaster resistant structures when and where needed;

- *to **develop guidelines and strategies** for applying existing scientific and technical knowledge, taking into account the cultural and economic diversity of different countries;*
- *to foster scientific and engineering endeavors aimed at closing **critical gaps** in knowledge in order to reduce the loss of life and property;*
- *to disseminate existing and new technological information related to **measures for the assessment, prediction and mitigation of natural disasters**; and*
- *to **develop measures for the assessment, prediction and mitigation of natural disasters** through programs of technical assistance and technology transfer, demonstration projects, and education and training, tailored to specific disasters and locations, and to evaluate the effectiveness of those programs"* (UN, 1987; Smith, 2004:348).

With the above goals as objectives, the IDNDR set certain targets to be reached by all countries by the year 2000. The IDNDR envisaged that all countries would have conducted national risk assessments, developed national and/or local prevention preparedness plans and implemented global, regional, national and local warning systems (UNESCO, 2000).

Initially the IDNDR was largely influenced by scientific and technical interest groups as the objectives above clearly alluded to (UNISDR, 2002:17). However, a much wider global interest in the economic and social consequences of natural disasters developed as the Decade progressed (Bates, Dynes and Quarantelli, 1991:288-289). This indicated a much broader interest in issues of risk management practices. The importance given to socio-economic vulnerability as a rapidly increasing factor of risk in most societies, underlined the need to encourage the wider participation of local communities in mitigation and risk reduction activities (UNISDR, 2002:17).

At the end of the Decade it was accepted that 10 years is not enough time in the international arena to address all the challenges identified adequately. Smith (2002) indicates that the IDNDR was merely *"a signpost near the start of a very long journey"*.

In the concluding forum of the IDNDR held in Geneva, Switzerland in July 1999, the document 'A Safer World in the 21st Century: Disaster and Risk Reduction' was adopted. The document was complied through consensus discussions among hazard and risk management stakeholders and includes a commitment by all stakeholders:

- *"to **conduct a national audit or assessment process of existing functions** necessary for a comprehensive and integrated national strategy of hazard, risk and disaster prevention, projected over 5-10 and 20 year time periods;*
- *to **conduct dynamic risk analysis** with specific consideration of demographics, urban growth, and the interaction or compound relationships between natural, technological and environmental factors;*
- *to **build, or where existing, strengthen regional/sub-regional, national and international approaches**, and collaborative organizational arrangements that can increase hazard, risk and disaster prevention capabilities and activities;*
- *to establish coordination mechanisms for greater coherence and improved effectiveness of **combined hazard, risk and disaster prevention strategies** at all levels of responsibility;*
- *promote and encourage know-how transfer through partnership and among countries with particular attention given in the transfer of experience amongst those countries most exposed to risks;*
- *to establish national, regional/sub-regional, and global information exchanges, facilities, or websites dedicated to hazard, risk and disaster prevention, linked by agreed communication standards and protocols to facilitate interchange;*
- *to **link efforts of hazard, risk and disaster prevention more closely with the Agenda 21 implementation process** for enhanced synergy with environmental and sustainable development issues;*

- *to **focus multi-year risk reduction strategies on urban concentration** and mega-city environments;*
- *to **institute comprehensive application of land-use planning and programmes in hazard prone-environments**;*
- *to develop and apply standard forms of statistical recording of risk factors, disaster occurrences and their consequences to enable more consistent comparisons;*
- *to undertake periodic reviews of accomplishments in hazard, risk and disaster reduction efforts at all levels of engagement and responsibility; and*
- *to study feasibility of specific alternative funding and resource allocation modalities that can ensure continued commitment to sustained risk and disaster prevention strategies"* (IDNDR, 1999).

3.2. The Yokohama Strategy and Plan of Action for a Safer World

The Yokohama Strategy and Plan of Action for a Safer World (Yokohama Strategy) conceived at the World Conference on Natural Disaster Reduction in Yokohama in 1994, stressed that each country has the sovereign responsibility to protect its citizens from the impact of natural disasters (UNISDR, 2004). It further emphasized the importance of *"**developing and strengthening national capacities and capabilities** and, where appropriate, **national legislation for natural and other disaster prevention, mitigation and preparedness**, including the mobilization of non-governmental organization and **participation of local communities**"*. Furthermore the Yokohama Strategy pointed to the importance of promoting and strengthening sub-regional, regional and international cooperation in prevention, reduction and mitigation of natural and other disasters.

In order to achieve the above objectives, the plan of action stipulates ten principles which are critical for the success of the strategy. These principles are as follows:

1. *"Risk assessment is a required step for the adoption of adequate and successful disaster reduction policies and measures.*
2. ***Disaster prevention and preparedness are of primary importance in reducing the need for disaster relief**.*
3. ***Disaster prevention and preparedness should be considered integral aspects of development policy and planning at national, regional, bilateral, multilateral and international levels**.*
4. ***The development and strengthening of capacities to prevent, reduce and mitigate disasters is a top priority area to be addressed so as to provide a strong basis for follow-up activities to IDNDR**.*
5. *Early warnings of impending disasters and their effective dissemination are key factors to successful disaster prevention and preparedness.*
6. ***Preventive measures are most effective when they involve participation at all levels from the local community through the national government to the regional and international level**.*
7. *Vulnerability can be reduced by the application of proper design and patterns of development focused on target groups by appropriate education and training of the whole community.*
8. *The international community accepts the need to share the necessary technology to prevent, reduce and mitigate disaster.*
9. *Environmental protection as a component of sustainable development consistent with poverty alleviation is imperative in the prevention and mitigation of natural disasters.*
10. *Each country bears the primary responsibility for protecting its people, infrastructure, and other national assets from the impact of natural disasters"* (UNISDR, 1994).

Although articulated in 1994, these principles of the Yokohama Strategy and Plan of Action for a Safer World are possibly more relevant in the 21st century that when

they were conceived (UNISDR, 2004). They are provided the foundation on which much of the disaster risk management thinking of the new millennium is based.

The IDNDR and the Yokohama Strategy cultivated fertile soil for the announcement of its successor, The International Strategy for Disaster Reduction (ISDR) in 2000.

3.3. The International Strategy for Disaster Reduction

As the successor to the IDNDR, the International Strategy for Disaster Reduction (ISDR) proceeded with the emphasis of the management of disaster risks, reducing vulnerability and building resilient communities (UNISDR, 2002:19). The ISDR takes a global approach to disaster reduction inculcating a culture of risk avoidance behavior through the fostering of local level.

The ISDR aims to increase public awareness to understanding risk, vulnerability and disaster risk management globally. One of the major emphases of the ISDR is ensuring political commitment to the development and implementation of disaster reduction policies and actions by all governments, but in particular those most exposed to the possible impact of hazards. Stimulating interdisciplinary and inter-sectoral collaboration and the expanding of existing networks is one of the key focus areas of the ISDR. Learning from the IDNDR, the ISDR calls attention to the importance of research and the improvement of scientific knowledge of disaster reduction.

In order to ensure that the ideals of the ISDR will be reached, the Inter-Agency Secretariat for the ISDR (UN/ISDR) was established as the focal point by the United National General Assembly through its resolutions 54/219 (UN, 2000a) and 56/195 (UN, 2002). The UN/ISDR must ensure synergy between disaster reduction activities and those in the socio-economic and humanitarian fields (UNISDR, 2002:19). One of the strengths of the UN/ISDR is the ability to bring together a wide array of different

stakeholders from various sectors through the Inter-Agency Task Force on Disaster Reduction (IATF/DR).

The IATF/DR is the principal body for the development of disaster reduction policy. It is headed by the UN Under-Secretary General for Humanitarian Affairs and consists of 25 UN, international, regional and civil society organizations.

The mandated functions of the IATF/DR are:

- *"to serve as the main forum within the United Nations system for devising strategies and policies for the reduction of natural hazards;*
- *to identify gaps in disaster reduction policies and programs and recommend remedial action;*
- *to provide policy guidance to the ISDR secretariat; and*
- *to convene ad hoc meetings of experts on issues related to disaster reduction"* (UNISDR, 2004).

The Task Force has established four working groups to focus on: climate and disasters; early warning; risk, vulnerability and impact assessment; and wildland fires (UNISDR, 2004). Beside these working groups, the Task Force has indicated that it aims to pursue additional areas such as: drought; ecosystem management; land-use planning; raising the political profile of disaster reduction into development planning.

The ISDR further served as the organizing body for the second World Conference on Disaster Reduction (WCDR). A discussion on the contemporary events which are shaping disaster risk management would be incomplete without a focus on the above conference.

3.4. The World Conference on Disaster Reduction

In December 2003 (UN, 2003), the UN General Assembly adopted resolution 58/214, in which it decided to convene a second World Conference on Disaster Reduction (WCDR). As mentioned previously, the first World Conference on Disaster Reduction took place in Yokohama, Japan in May 1994 and set a plan of action called the Yokohama Strategy.

The WCDR held in Kobe, Japan in 2005 has the following five specific objectives:

- *"to conclude and report on the review of the Yokohama Strategy and its Plan of Action, with a view to updating the guiding framework on disaster reduction for the twenty-first century;*
- *to identify specific activities aimed at ensuring the implementation of relevant provisions of the Johannesburg Plan of Implementation of the World Summit on Sustainable Development (WSSD) on vulnerability, risk assessment and disaster management;*
- *to share good practices and lessons learned to further disaster reduction within the context of attaining sustainable development, and to identify gaps and challenges;*
- *to increase the reliability and availability of appropriate disaster-related information to the public and disaster management agencies in all regions, as set out in relevant provisions of the Johannesburg Plan of Implementation of the WSSD"* (UN, 2005:8).

One of the prime objectives of WCDR was to review and update Yokohama Strategy. The policy context for this was the impact of natural disasters on sustainable development (highlighted at, e.g., the 2002 Johannesburg Summit) and on the MDGs. The strong message that emerged was that consideration of natural hazards must permeate all thinking about development. In addition to the Yokohama review, the two main formal outputs were the Hyogo Declaration and the Hyogo Framework for Action

2005 – 2015: Building the Resilience of Nations and Communities to Disasters. The latter in particular is now in large measure setting the disaster agenda, at least within the UN system. The Hyogo Framework for Action 2005-2015 has been announced which gave greater emphasis on mitigation and also in section four of the declaration, it calls on governments to:

"***Mainstream disaster risk considerations into planning procedures*** *for major infrastructure projects, including the criteria for design, approval and implementation of such projects and considerations based on social, economic and environmental impact assessments. (To)* ***develop, upgrade and encourage the use of guidelines and monitoring tools for the reduction of disaster risk in the context of land-use policy and planning****"* (Section 4:12).

National authorities and platforms on disaster reduction have also been invited to provide information to identify needs and develop future policy recommendations for consideration at the Conference.

To provide a common basis for consolidated observations, the Conference addressed issues of disaster reduction under the following broad thematic areas:

- Political Commitment and Institutional Aspects;
- Risk Identification;
- Knowledge Management;
- Risk Management Applications and Instruments;
- Preparedness and Contingency Planning.

The countries as participants submitted national reports addressing these thematic areas. When these reports and thematic clusters observed, it is clear that especially countries like Japan, New Zealand, the U.S.A and Australia have explicitly reviewed their disaster management policies emphasizing disaster risk management, disaster risk reduction and local commitment. Furthermore countries like Canada, Greece, and Armenia have been in the process of shifting the emphasis to mitigate risk and

hazards with a more proactive approach. In Turkey's National Report, the tasks of Turkey Emergency Management General Directorate, the project named Preparedness for Disasters and Emergencies, the Turkish Japanese joint project called Earthquake Disaster Prevention Research, province and district disaster emergency relief plans were mentioned. However Earthquake Master Plan for Istanbul, Marmara Earthquake Emergency Reconstruction Project, National Earthquake Council, Obligatory Earthquake Insurance System, Turkey Economics Congress Disaster Management Study Group, and Earthquake Council Studies were not reported. In general, Turkey's National Report has not reflected the developments in Turkey's Disaster Management Agenda in a comprehensive manner.

In common, these landmarks of this trend express that *"a culture of disaster prevention and resilience, and associated pre-disaster strategies…must be fostered at all levels… and (represent) sound investments"* (UNISDR, 2005). Accordingly, mitigation of the impact of hazards, risk assessments, proactive, integrated, multi-sectoral approaches and concrete actions are necessary. In response to these challenges, many governments around the world have changed, or are in the process of changing, their disaster management policies to explicitly emphasize 'disaster mitigation' and 'local commitment'. Some of these initiatives are described below.

3.5. Japan's Disaster Management System

Japan is one of the world's countries most prone to natural disasters and since 1880s there has been a great political attempt to develop many disaster countermeasures as a response to the suffering from frequent natural disasters such as earthquakes, typhoons, floods, tsunami and volcanic eruptions (Cabinet Office, 2005). Also since the 1950s the Government of Japan has invested significant financial resources in natural disaster mitigation and prevention (Sudo, 2000). Japanese observers have reported that the government routinely spent between 5-8% of the annual national

budget (about 0.8% of GDP) in disaster reduction, with most of this directed to structural mitigation developments (Sudo, 2000). The most recent figures, for fiscal year 2003, identify a budget of ¥2.7 trillion, about 5% of the total general account budget dispersed by various government departments for research development, disaster preparedness, national land conservation and disaster recovery and reconstruction (Government of Japan, 2005).

In Japan, although the first disaster related legislation was adopted in 1880, there was not a comprehensive national disaster management system until the late 1950s (Britton, 2005). In 1959, the Typhoon Ise-wan that left over 5,000 dead was a turning point in the history of Japan's disaster management (Cabinet Office, 2005) and prompted the government to prepare a comprehensive disaster management system which can be followed by the 1961 Disaster Countermeasures Basic Act (Britton, 2005). The Act defines essential administrative policies at each level of government and for 60 designated public corporations under the Disaster Countermeasures Basic Plan (Government of Japan, 2005). Both instruments are periodically revised with following a major disaster, the most recent of which took place following the 1995 Hanshin-Awaji earthquake, the 2004 Niigata-ken Chuetsu earthquake, and the 2004 typhoon season; at the time of writing a further revision was under consideration following the 2005 Fukuoka-ken Seiho-oki earthquake (Britton, 2005).

Under the 1961 law, national level councils, ministries and agencies are responsible for updating the Basic Plan and developing operational guidelines (Cabinet Office, 2005) (See Figure 3.2). At the next level, Prefectural governments are charged with the execution and coordination of disaster operations and preparing Prefectural level prevention plans (Shrestha, 2001). Below this level, municipal governments have responsibility to include specific disaster prevention operations on site and prepare a municipal plan (Cabinet Office, 2005). In practice, however, many decisions are deferred to higher levels in the hierarchy before action can be taken (Britton, 2005).

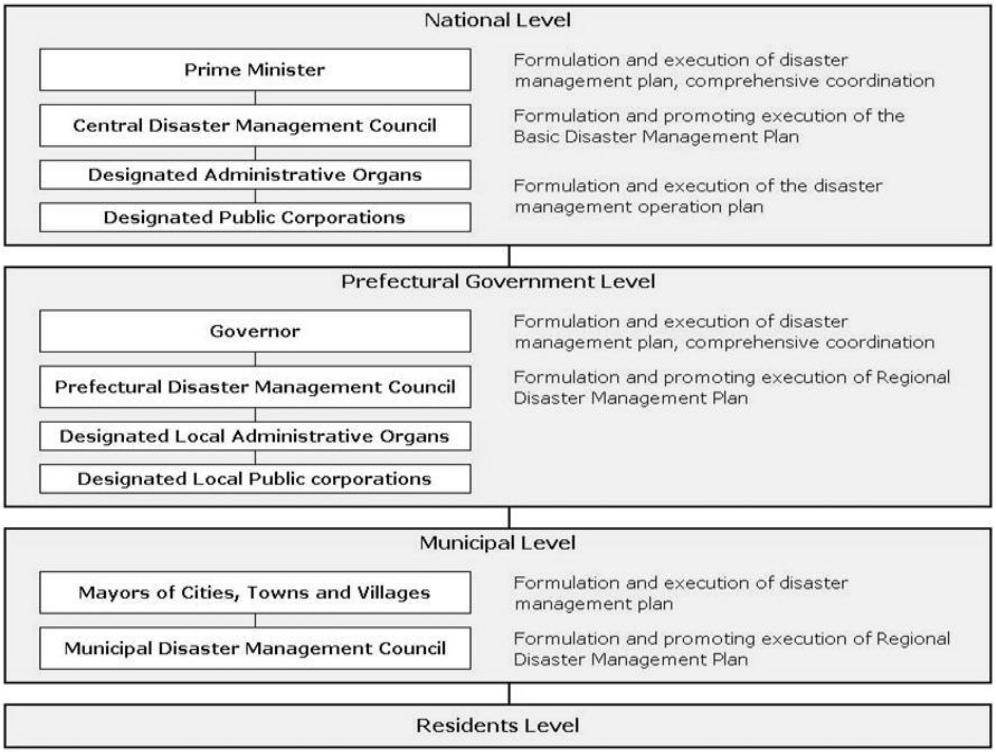

Figure 3.2 Disaster Management Organizations in Japan

(Source: Cabinet Office 2005)

After the Kobe Earthquake, the Japanese Government enacted another law, the Special Act for Countermeasure to Earthquake Disaster 1995. This act forced the central government to grant local governments the responsibility to strengthen prevention measures such as survey of potential of earthquake-generating geological faults, which are distributed everywhere in Japan.

Another keystone legislation is the 1998 Comprehensive National Development Act which requires *"making Japan a safe and comfortable place to live"* (Government of Japan, 2005). This has been defined as improving the country's safety with regard to

large scale earthquakes and other natural disasters (Government of Japan, 2005). Specific objectives entail establishing a disaster resilient transport and communications infrastructure; introducing public works design standards; promoting the assurance of earthquake resistance capacity in buildings; establishing an earthquake watch network; promoting research into disasters and their prevention; assessing and publishing the degree of risk of local disasters and reflecting the information in local development and land use; providing disaster management manuals for local, corporate and administrative bodies; and provisions for people requiring help in the event of disaster (Government of Japan, 2005).

More recently, the People Protection Law, adopted in 2004, obligates central government to develop a full security system for the nation which covers *"the proper and prompt implementation of measures to protect people, using its own initiative and employing every available resource including its organization and functions"* (Fire and Emergency Management Agency, 2005). It is unclear, however, how these legislative pillars and their planning accompaniments either bind or build upon the plethora of existing individual acts, national level structures, national level research initiatives (see Table 3.1) and other related national level actions (Government of Japan, 2005; Higashida, 2005).

Table 3.1 National Level Disaster Management Actions in Japan

(Source: Cabinet Office, 2005)

General Legislation	Hazard Specific Legislation
• 1880 Provision and Saving Act for Natural Disaster • 1899 Disaster Preparation Funds Special Account Act • 1947 Disaster Relief Act • 1947 Fire Organization Act • 1951 Act Concerning National Treasury Share of Expenses for Recovery Projects for Public Civil Engineering Facilities Damage due to Disasters • 1961 Disaster Countermeasures Basic Act • 1962 Act Concerning Special Financial Support to Deal with the Designated Disaster of Extreme Severity • 1972 Act Concerning Special Financial Support for Promoting Group Relocation for Disaster Mitigation • 1987 Act Concerning Dispatch of Japan Disaster Relief Team • 1995 Partial Revision of Disaster Countermeasures Basic Act • 1996 Act Regarding Special Measures to Weigh the Preservation of Rights and Profits of the Victims of Specified Disasters • 1997 Act for Densely Inhabited Areas Improvement for Disaster Mitigation • 1998 Act Concerning Support for Reconstructing Livelihoods of Disaster Victims • 1998 Comprehensive National	• 1897 Erosion Control Act • 1897 Forest Act • 1908 Flood Prevention Association Act • 1911 Flood Control Expenditure Funds Special Accounts Act • 1949 Flood Control Act • 1952 Meteorological Service Act • 1956 Seashore Act • 1958 Landslide Prevention Act • 1960 Soil Conservation and Flood Control Urgent Measures Act • 1962 Act of Special Countermeasures for Heavy Snowfall Area • 1964 River Act (1896 Act revised) • 1966 Act for Earthquake Insurance • 1969 Act Concerning Prevention of Steep Slope Collapse Disaster • 1970 Marine Pollution Act • 1975 Act on Prevention of Disaster in Petroleum Industrial Complexes and other Petroleum Facilities • 1978 Act on Special Measures for Active Volcanoes • 1978 Large Scale Earthquake Countermeasures Special Act (Basic Plan for Earthquake Disaster Prevention) • 1980 Special Fiscal Measures Act for Urgent Improvement Project for Earthquake Countermeasures in Areas under Intensified Measures Against Earthquake Disaster • 1995 Act for the Statement of

Development Act
- 2000 Housing Quality Act
- 2004 People Protection Law

National Level Structures

- 1941 Establishment of Tsunami Warning Organization
- 1948 Establishment of Board of Damage from Earthquakes
- 1952 Establishment of the National Fire Fighting Headquarters
- 1956 Establishment of Japan Meteorological Agency
- 1960 Establishment of the Ministry of Home Affairs Fire and Emergency Management Agency
- 1962 Establishment of Central Disaster Management Council
- 1963 Formulation of Basic Disaster Management Plan
- 1984 Establishment of Disaster Prevention Bureau in National Land Agency
- 1992 General principles relating to Countermeasures for Earthquakes directly below the Southern Kanto Region
- 1997 Amendment of Basic Disaster Management Plan
- 1998 Amendment to Japanese Building Standard
- 1999 Amendment of Basic Plan for Earthquake Disaster Prevention
- 2000 Amendment of Basic Disaster Management Plan
- 2001 Amendment of Earthquake Insurance System
- 2001 Establishment of Disaster Management Section in Cabinet Office in Connection with restructuring of Government ministries and agencies

Principles and Organization of the Great Hanshin-Awaji Earthquake Revival
- 1995 Earthquake Disaster Management Special Measures Act
- 1995 Act for Promotion of the Earthquake Proof Retrofit of Buildings
- 1998 Building Standard Law revised
- 1999 Special Measures of Nuclear Disaster Act
- 2000 Building Standard Law Enforcement Order revised
- 2000 Sediment Disaster Countermeasures for Sediment Disaster Prone Areas Act
- 2004 Law on Special Measures for the Tonankai and Nankai Earthquakes

Research Related Initiatives

- 1880 Establishment of the Seismological Society of Japan
- 1925 Establishment of Earthquake Research Institute, Tokyo Imperial University
- 1951 Establishment of Kyoto University Disaster Prevention Research Institute
- 1963 Establishment of National Sciences and Disaster Prevention
- 1969 Establishment of Coordinating Committee for Earthquake Prediction
- 1974 Establishment of Coordinating Committee for Prediction of Volcanic Eruption
- 1981 Basic Plan for Research on Disaster Prevention

An additional contextual element is the Japanese risk management standard (JIS, 2001). In general, standards are self-regulatory generic system standards designed to help modify extremes of management behavior by providing information (Fernandez and Britton, 2004). A distinctive feature of the Japanese standard is a section on establishing disaster response procedures and preparation (Britton, 2005). The Japanese approach to risk is that it is a 'top management' issue and hence, there is little need for risk communication with its emphasis on feedback (Britton, 2005). Moreover, while the risk management approach has been useful as a research and practice tool by some Japanese researchers and whereas the private sector demonstrates signs of exercising this standard, the government shows no knowledge of it (Fernandez, 2005).

There are two factors brought up with respect to the national level disaster management system. The first factor is highlighted by a newspaper editorial in the Japan Times (Japan Times, 2005). The editorial identifies some issues associated with the Japanese bureaucracy. The first is a tendency toward compartmentalization that results in less than ideal interaction amongst relevant offices (Japan Times, 2005). The second issue is a tendency to create a new organization when a new task has been identified rather than to incorporate the activity into an existing organization (Japan Times, 2005). A third is the tendency to focus on refining technical solutions and products rather than dealing with implementation processes (Japan Times, 2005). If new initiatives can be defined as technical, they can be developed in a relatively unfettered manner, even if this results in duplication of effort or jurisdictional overlap (Japan Times, 2005). The alternative, innovation through the establishment of new principles, would necessitate the creation of new norms or institutions (Eisenstadt, 1996) that would upset the complex and enduring social practices that put strict codes of behavior on relationships (Nakane, 1997).

The second factor is Japan's tendency to look to the USA, and in particular FEMA, for inspiration even though structural configurations between the nations' focal

agencies differ (Bosner, 2001; Bosner, 2002); emergency services have different arrangements; the nature of and relationship between central and local governments are not the same; power and authority relations are different; substantial differences exist in socio-cultural behavior patterns (Nakamura, 2001); and at the same time FEMA itself is heading in new directions (Tierney, 2005). The Japanese and Americans have had a formal research link for the social sciences since 1972. This link was further cemented in the mid 1990s when US President Clinton and Japan Prime Minister Hashimoto endorsed bi-national cooperative activities to improve earthquake disaster policies and programs (Palm, 1998), and lately top-level discussions suggest the USA is very keen for collaboration to continue on a wider crisis management front (Schoff, 2004).

In general terms, with a long history of experience with disasters, the Government of Japan has taken intensive measures against natural disasters to reduce the impacts of them, in particular, in terms of the technological and engineering fields. Thus it has inevitably developed its unique culture of living with natural disasters and centralized, coercive, impact-based and hazard-specific disaster management approach. However, there is not a sufficient attempt to link land use management, risk management, and environmental management.

3.6. New Zealand's Disaster Management System

New Zealand's disaster management system is based on sound disaster management principles and one of the international best practices (Britton and Clark, 1999a). Since the early 1990s, it has been systematically transformed from a rigid, reactive model to a coordinated, proactive, multi-level, and all-hazard disaster management system (Jensen 1998; Britton and Clark, 2000b). However, it is specifically tailored to New Zealand's risks; it also tailored to the social, political, economic and cultural conditions in the nation (Britton and Clark, 1999a). For this reason, it needs to be

viewed within the context of wider social and economic reforms that have taken place in New Zealand since the 1990s.

In the 1990s, a number of reviews, reports, conferences and workshops questioned the effectiveness of New Zealand's disaster management practices (Britton, 2005). A report by the Law Commission (1991) identified changes needed in executive powers to deal effectively with a national disaster, suggesting a review of relevant legislation. In like manner, in 1991 a major study of how utility lifelines would perform following a maximum credible earthquake in the Wellington region revealed a series of significant vulnerabilities that had not hitherto been considered (CAE, 1991). A 1992 review of civil defense found that reforms in the public sector which occurred since the passing of the Civil Defense Act 1983 (an update of the 1962 legislation) had *"dislocated much of the current Act from modern realities"* (Civil Defense Review Panel, 1992), and concluded that existing structures would not cope in a major civil disaster (Britton, 2005). Two years later, in 1994, a number of local conferences revealed the weaknesses in local disaster management systems and identified a need to concentrate on developing coordination between utilities and the emergency services (Britton, 2005).

The consistency of these messages started to be noticed by central government (Britton and Clark, 2000b), and in late 1994, the Minister for Internal Affairs (also Minister for Civil Defense) hosted a workshop to asses the performance of the emergency services and to generate ideas on improvements for the short and long term (Britton, 2005). The workshop proposed that a comprehensive "green-fields" review of emergency services be undertaken (Britton, 2005). Subsequently, in April 1995, encouraged by a conference in March 1995 that explored what impact a Kobe-type Earthquake would have on Wellington (CAE, 1995), Cabinet appointed a five-member Task Force to undertake a Review of Emergency Services (1995). The terms of reference, however, identified only preparation and first response capability as priority areas of the Review (Britton and Clark, 1999b). This was tempered to a

degree when the Minister of Finance commissioned a Review of Disaster Recovery Preparedness (1996 and 1997) with particular reference to issues pertaining to the private sector (Britton and Clark, 1999b). At the same time, a number of concerns about the structure of the emergency response system were identified, including issues about cooperation between emergency services (issues about horizontal integration), problems of continuity management especially if the level of management response may change (issues of vertical integration), the lack of disaster-relevant professional advice and management, and the need for elected authority to make declarations (Britton, 2005).

Throughout its deliberations, the Task Force found there was general consensus of the need for change. The Task Force recommended to Government a new disaster management structure comprising a Ministry with policy, purchase, and audit functions, and an operational structure to deal with emergency response that would integrate local and central government emergency service providers (Britton, 2005). The Task Force also recommended that the disaster management system should be more comprehensive in outlook and approach, rather than maintaining an avowedly response-focused orientation (Britton and Clark, 1999b). In addition, the Task Force suggested the sector as a whole needed to move more quickly and farther in areas of professional development; it also reinforced the orthodox view that accountability for declarations of emergency (providing extraordinary powers and limits on liability) should remain the task of elected officials at the most appropriate level of government (Britton and Clark, 1999b). These recommendations were endorsed and extended by an Officials Committee that was established to comment on the report (Britton, 2005).

Following the submission of the Task Force Report and the comments from the Officials Committee, Government subsequently made five fundamental decisions:

- In 1996 a set of principles were approved as the basis for an overarching disaster management framework.

- Central government responsibility was redefined to include establishing the disaster management framework and identifying the principles, roles and responsibilities of all agencies in the sector.
- In 1997 establishment of a new Ministry which is called Ministry of Civil Defense and Emergency Management (MCDEM) was approved and came into being July 1999.
- In 1998 the concept of local disaster management consortia (referred to as Emergency Management Groups) was approved based on the framework principles.
- In 2002 the Civil Defense Emergency Management (CDEM) Act, replacing the 1983 Civil Defense Act, was passed which redefined the duties of central and local governments and brought private sector utilities into the disaster management strategic decision-making and operational contexts. The Act promoted sustainable management of hazards and risks in a way that contributes to the well-being and safety of the public and property (Britton, 2005).

The reforms called for a refocusing of attention and action onto the management of risk and the options available for reducing or managing different levels of potential impact (Britton, 2005). A key component of the New Zealand approach is the application of risk management principles (Britton, 2002), and recent legislation has implicitly, and often explicitly, called for a risk management application (Britton, 2005). In many cases private sector models for risk management have been modified to meet public sector needs, and while at times this has been difficult it has nevertheless proven useful because it has assisted in integrating risk management into everyday decision-making (Britton, 2005). The framework for the national disaster management strategy is based on a risk management approach developed by Standards Australia and Standards New Zealand (Standards Australia, 1999). This non-mandatory Standard defines risk management as *"the culture, practices, processes and structures that come together to optimize the management of potential opportunities and adverse effects"*. Together with a risk management approach for

local governments (Standards New Zealand, 2000), the Standard has been promoted as the basis for developing a disaster risk management approach and for communicating the concepts of risk management to groups with disaster management responsibilities (Britton, 2005). The attempt to involve end-users is not restricted to disaster management practice: the New Zealand Foundation for Research, Science and Technology (FRST), a Crown entity that operates on behalf of the government to invest public funds in research, requires successful fund applicants to specifically identify and involve users of intended research outputs (FRST, 2003).

To ensure overall consistency, the CDEM Act requires central government's administering agency to develop a 10-year National Civil Defense and Emergency Management (CDEM) Strategy which contains four goals, each with its own objectives and measurable targets for action (New Zealand's National Report, 2005). The goals are:

- *to increase community awareness, understanding and participation in CDEM;*
- *to reduce the risks from hazards to NZ;*
- *to enhance NZ's capability to manage emergencies; and*
- *to enhance NZ's capability to recover from disasters* (MCDEM, 2005).

The strategy is aligned to central government's vision of Resilient New Zealand (MCDEM, 2004). New Zealand also runs a devolved and decentralized system of governmental responsibility and for disaster risk management the principle is that communities are the ones affected (MCDEM, 2005). Therefore, communities should aim to reduce the likely impact from, prepare for, and be able to respond effectively to, emergency events on their own (MCDEM, 2005). To ensure this, responsibility for disaster risk reduction and risk management is driven down to the community level and held by local government with obligatory consultation with and participation by the community (See Figure 3.3).

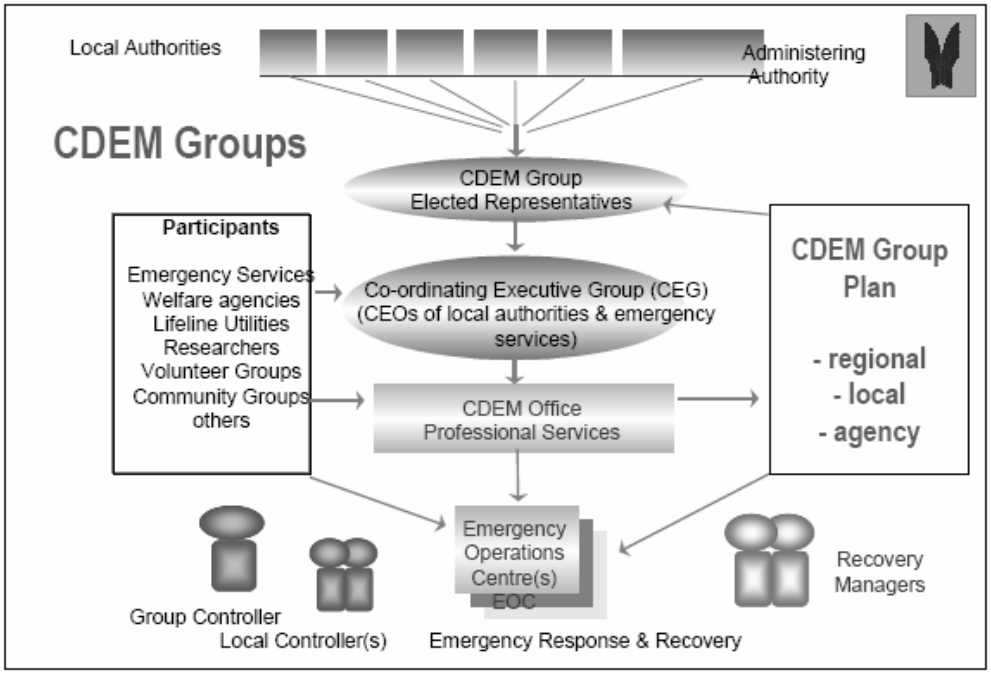

Figure 3.3 New Zealand's Disaster Management Structure at Regional and Local Level (Source: MCDEM, 2005)

These decisions are all designed to modernize the disaster management approach, and in particular to improve the capability of the emergency services and the communities they serve to understand and hence deal with risk more effectively; and to promote community continuity and resilience by institutionalizing risk management practices and processes (Britton and Clark, 1999a).

3.6.1. Effects of Other Reforms on Disaster Management

In the early 1990s achieving better management of disasters was not an explicit aim of any of New Zealand's reforms. However, the reforms of local government, resource management and building controls have had fundamental effects on the way

disasters are managed in New Zealand. It is difficult to appreciate the approach to disaster management in New Zealand without understanding these three areas.

3.6.1.1. Local Government Act

Alongside the significant changes, many functions of the Government have been significantly devolved and commercialized (Britton and Clark, 1999a). This has been described by some observers as an attempt to 'get government out of business while bringing business into government' (May and others, 1996).

Local government was extensively reformed. The intention of these specific reforms was to ensure that local government is:

- *more efficient and effective,*
- *more attentive and responsive to the community's needs,*
- *more autonomous, with increased flexibility, and*
- *more accountable, including politicians being accountable to the electorate for overall performance* (Department of Internal Affairs, 1994).

An integral part of this reform was the restructuring of the units of local government (Britton and Clark, 2000a). The key change, which was necessary in order to achieve other aspects of local government reform, was the reduction in the number of local government units from 691 to 72 (Howell, McDermott and Forgie, 1996). Local government, (which consists of 16 regions and 72 territorial district bodies) through this reform, has been primarily responsible for the implementation of risk assessment and risk reduction (MCDEM, 2005). The Local Government Act 2002 (LGA), which updated the 1974 Act, recognizes the importance of local government in New Zealand and contains extensive new provisions relating to planning, decision making and accountability (MCDEM, 2005).

One of the key outcomes of this reform is the transfer of much of the responsibility and power for decision-making from central government to local government and others (Britton and Clark, 1999a). This transfer has been accompanied by an increased attention to risk management frameworks within the public sector (Britton and Clark, 1999a). This is evident both in terms of the central government (for example, designing enabling policy frameworks for decision-making that ensure the risks of those decisions are managed) and in other sectors such as local government (such as implementing those frameworks).

3.6.1.2. Resource Management Act

The enactment of the Resource Management Act 1991 (RMA) was another integral part of New Zealand's wider reform, and in itself encapsulated much of the devolution of decision-making to local government (Britton and Clark, 2000a). It replaced nearly 70 statutes, regulations and orders with a single comprehensive legislative framework (Ericksen and others, 2000). The purpose of the Act is 'to promote the sustainable management of natural and physical resources'. It defines this as the management of the use, development and protection of natural and physical resources in a way, or at a rate which enables people and communities to provide for their social, economic and cultural well-being and for their health and safety (Britton and Clark, 2000a).

Under this legislation, regional and local councils have overlapping functions and it was anticipated at the outset that councils would work toward the goals of the RMA in a cooperative partnership, along with relevant central government agencies (May and others 1996). While Central Government has a role in the Act, most decisions are made and implemented by local government (Kerr, Claridge, and Milicich, 1998). Responsibilities are allocated to regional and district levels of local government (Britton and Clark, 2000a).

A key aspect of the Act is the shift from a focus on directing activities (as evident in the previous Town and Country Planning Act 1977) to a focus on avoiding, remedying and mitigating the negative effects of those activities (Britton and Clark, 2000a). The management of natural disasters is explicitly addressed within the Act (Britton and Clark, 2000a). Each of the elements of the Act (preparation of policies and plans, monitoring, record keeping, providing information, resource and subdivision consents) makes reference to 'avoiding, remedying, and/or mitigating natural hazards'. However, this must be achieved within the overall framework, and utilizing the mechanisms, contained within the Act (Britton and Clark, 2000a).

3.6.1.3. Building Act

Compared to the Resource Management Act, the Building Act 1991 (BA) has a relatively strong regulatory approach (Britton and Clark, 2000a). In addition, it is applied on a national basis, as opposed to the more decentralized approach of the Resource Management Act where there is much scope for different approaches at the regional or district level (Britton and Clark, 2000a). However, the Act, and subsequent codes and regulations, are largely administered by the Building Industry Authority, an independent Crown Entity funded by a levy on building consents (Britton and Clark, 2000a).

The intent of the Act is to *"safeguard the health, safety and amenity of people, protect other property from damage, and facilitate efficient use of energy*" (Building Industry Authority, 1997). The Building Code does not focus on how a building should be designed or constructed (Britton and Clark, 2000a). Rather, it is a performance-based code that outlines how a building must perform, and objectives to be achieved (Britton and Clark, 2000a).

The Building Act also provides local authorities powers to deal with existing buildings that are 'earthquake-prone' (Britton and Clark, 2000a). Again, the

definition of earthquake-prone is performance-based, and depends on the building structure and the likely seismic events, rather than having technical specifications that apply to all buildings regardless of the actual risk in a particular instance (Britton and Clark, 2000a).

Together these Acts provide a context for much of the management of natural disasters (Britton and Clark, 2000a). A key advantage is that risk reduction measures are considered alongside other aspects of decision-making (Britton and Clark, 2000a). Also these Acts provide a framework whereby disaster management can be seen as a way to support and enhance development and economic and social well-being by a non-regulatory approach (May and others, 1996).

In general terms, New Zealand's disaster management approach is a deliberate attempt to link land use management, risk management, and sustainable development. There is a process of implementing a non-regulatory, reactive and decentralized approach to the management of disasters. In addition, there are various efforts in New Zealand to understand how the natural and built environments produce risk, and how to keep the environment out of the way of hazards in a way that supports economic and social development on the one hand, and reduces social and economic risk on the other.

3.7. United States of America's Disaster Management System

The United States has a long history of preparedness, response, and recovery activities in the face of natural disasters (Henstra, 2003). Despite these capabilities, property damage from disasters continues to escalate, partly due to more frequent and more severe extreme weather events, but also because human activity has put people at greater risk (Henstra, 2003). As a result, over the last decade, advocates in the U.S. have struggled to promote mitigation as a federal policy priority (Henstra, 2003).

In the U.S., local governments are officially expected to play the primary role in disaster management, supported by state or provincial governments and then the federal government (Henstra, 2003). In practice, the situation has evolved differently; to develop a disaster management capability, the federal government has taken a leadership role (Henstra, 2003).

To address problems incurred in the handling of the 1979 Three Mile Island nuclear power plant accident and in response to pressure from the National Governors' Association to centralize federal disaster management, President Jimmy Carter issued two executive orders that created the Federal Emergency Management Agency (FEMA) (Schneider, 1998; FEMA, 2001). The agency was established as an independent executive body responsible for the federal role in disaster management and reports directly to the Office of the President (Henstra, 2003).

The Federal Emergency Management Agency is headed by a director, who is appointed by the president and confirmed by the Senate (FEMA, 2002b). Since the agency's inception in 1979 there have been six directors and nine acting directors (FEMA, 2002b). During the tenure of James Lee Witt in the period 1993 to 2001, the position was elevated to federal cabinet status, establishing much closer ties between the agency and the Office of the President (FEMA, 2002b).

The agency's functions are organized into seven directorates that deal with different aspects of disaster management (FEMA, 2002c). For example, the Readiness, Response and Recovery Directorate has six divisions that coordinate emergency planning, response operations and recovery efforts, while the Federal Insurance and Mitigation Administration Directorate concentrates on mitigation efforts, such as hazard mapping, and administers the federal flood insurance program (FEMA, 2002c). The programs are administered through ten regional offices, each of which serves four to six states in a regional area (FEMA, 2002c). Regional staff works with state officials to coordinate mitigation, planning and response efforts (FEMA,

2002c). It draws its authority and functions from two main pieces of legislation, the Robert T. Stafford Disaster Relief and Emergency Assistance Act (1988) and the Disaster Mitigation Act (2000).

The Stafford Act is a comprehensive framework created to clarify the parameters for federal involvement in emergencies and the role of FEMA in disaster management (Henstra, 2003). The act differs from previous disaster management legislation in that, combined with the traditional federal priorities of disaster insurance and post-disaster relief, it incorporates an emphasis on mitigation (Henstra, 2003). Previous legislations pertaining to mitigation were generally limited in scope; for example, the Flood Control Act (1936) was passed in response to increasing damages from flooding and it authorized structural control strategies such as dams and levees to be undertaken by federal departments (Henstra, 2003). The Stafford Act takes a much broader approach to mitigation, applying the principle to all natural hazards and authorizing the federal government to encourage mitigation through non-structural means such as land-use planning and building-code enforcement (Henstra, 2003).

As outlined in the Stafford Act, the federal role in mitigation is quite substantial, mainly as a source of financial and technical assistance for the creation and implementation of mitigation programs at other levels of government (Henstra, 2003). The act authorizes the federal government, through FEMA, to *"provide technical assistance to the States in developing comprehensive plans and practicable programs for preparation against disasters, including hazard reduction, avoidance, and mitigation"* and *"to make grants not to exceed 50 per centum of the cost of improving, maintaining and updating State disaster assistance plans, including evaluations of natural hazards and development of the programs and actions required to mitigate such hazards"* (The Stafford Act, 1988). Based on these principles, FEMA developed the Hazard Mitigation Grant Program, which provides federal funds for the incorporation of mitigation strategies into post-disaster reconstruction efforts (FEMA, 2002a). The initiative takes advantage of the lessons

learned from a recent disaster to promote safer building methods and greater resilience at the reconstruction stage (FEMA, 2002a). To date, the program has been quite effective and has successfully harnessed the high degree of public and political interest that is common in the aftermath of a disaster (FEMA, 2002a).

To assure a national focus on mitigation, FEMA introduced a 15 year National Mitigation Strategy in 1995. The strategy promotes the partnership of government and the private sector to ensure safer communities (FEMA, 2002a). The strategy, which was developed with input from State and local officials, as well as individuals and organizations with expertise in mitigation, has two goals:

- *to substantially increase public awareness of natural hazard risk so that the public demands safer communities in which to live and work; and*
- *to significantly reduce the risk of death, injury, economic costs, and destruction of natural and cultural resources that result from natural hazards* (FEMA, 2002a).

The emphasis on mitigation was further demonstrated in the Disaster Mitigation Act (2000), which goes beyond the Stafford Act to promote a national strategy for mitigation (Henstra, 2003). Its title signals an increased emphasis on proactive mitigation as opposed to reactive preparedness, response, and recovery (Godschalk, 2002). It changes the Stafford Act's post-disaster approach to a pre-disaster mitigation planning approach (Godschalk, 2002) and it differs from and complements the Stafford Act by encouraging the use of mitigation tools such as hazard assessment and mapping, land-use planning and building-code enforcement before a disaster occurs (Henstra, 2003). It establishes new requirements for local mitigation plans, authorizes the use of Hazard Mitigation Grant Program (HMGP) funds for mitigation planning, and provides states with approved mitigation plans with additional HMGP funds (FEMA, 2005). The legislation established FEMA's Pre-disaster Mitigation Program to manage the funds which totaled $25 million in 2002 appropriated for this purpose (The Disaster Mitigation Act, 2000).

In recognition that mitigation efforts are most effective at the local level, where they can be tailored to specifically address the hazards facing a community, initiatives such as the Hazard Mitigation Grant Program and the Pre-Disaster Mitigation Program provide funding for local mitigation ideas that are submitted through state agencies (Henstra, 2003). This is perhaps one of the most important aspects of FEMA's approach to mitigation: by allowing innovative ideas to percolate from the local level, the agency is able to foster a cooperative effort between the various levels of government, while also reducing overall national vulnerability to hazards (Henstra, 2003).

However, since 11 September, federal disaster management in the United States has shifted away from natural hazards towards such security oriented issues as terrorism or war and the response to a future attack (Henstra, 2003). Management of disasters and emergencies has been shaped by institutional and legislative changes that have grown out of the post-11 September environment (Henstra, 2003). The Homeland Security Act (2002) has major implications for federal emergency management. Primarily centered on counterterrorism, the act has profound impacts on the natural hazards emergency management structure (The Homeland Security Act, 2002). The act created the Department of Homeland Security, which has absorbed the functions of dozens of other organizations, including the FEMA, and coordinates their combined efforts to detect and deter terrorism, respond to and recover from catastrophic events and reduce American vulnerability to disaster (The Office of Homeland Security, 2002). Under the Homeland Security Act, the functions of the FEMA director are assumed by the Under Secretary for Emergency Preparedness and Response (The Office of Homeland Security, 2002).

As well as triggering structural changes in federal emergency management, the attacks on 11 September also had notable impacts on the mitigation policy environment (Henstra, 2003). As indicated earlier, mitigation is about reducing vulnerability; it involves proactive to minimize the impacts of disasters. The events

of 11 September provide a striking illustration of urban vulnerability and serve to bring attention to the need for stronger mitigation strategies to address all types of hazards (Henstra, 2003). However, because this particular disaster was caused by a deliberate act of terrorism, rather than by an accident or natural event, it has prompted greater efforts in the area of counter-terrorism, deflecting attention from the need for more investment in mitigation (Henstra, 2003).

The creation of the Department of Homeland Security in the United States involves both positive and negative implications for mitigation (Henstra, 2003). From a negative perspective, FEMA's being part of the Department of Homeland Security is detrimental to the progress that was being made before 11 September (Henstra, 2003). Also the new department with its targeted focus on security and heavy emphasis on terrorism fails to address the wider issue of vulnerability and appears unaccommodating to the development of policies for mitigating natural hazards (Henstra, 2003). From a positive perspective, the inclusion of FEMA into a wider emergency management network may be an opportunity to promote stronger mitigation policies (Henstra, 2003). Through the use of shared resources and information within the department, FEMA may be better equipped to implement mitigation, provided that its focus is not hijacked by an exclusive emphasis on terrorism (Henstra, 2003). Although the process after the events of 11 September 2001 in the United States makes more funds available for emergency management and can be a foundation for implementing more progressive mitigation policies, it seems to deflect the attention from the cost of mitigating natural hazards (Henstra, 2003).

In general terms, the federal government has come a long way toward reducing disaster risks in the United States (Godschalk, 2002). Also FEMA's mitigation implementations and the Disaster Mitigation Act of 2000 take an important step toward wise federal disaster management policy (Godschalk, 2002). However, because of the heavy emphasis on security and terrorism after the events of 11

September (Henstra, 2003), these do not go far enough (Godschalk, 2002). Also the concept of mitigation is treated as a technical problem to be solved, rather than a complex challenge of building social learning systems that could respond creatively to the unpredictable stresses of disasters (Godschalk, 2002).[1]

3.8. Comparison of Three National Disaster Management Systems

In this comparative study, three countries, Japan, New Zealand and the U.S.A are selected. The reasons for selecting these countries are that they all have very effective disaster management systems. Although the administrative structural configurations between the nations' agencies may differ and they have different arrangements, they all promote 'mitigation' as a national policy priority since the last decade. In addition, they all have adopted disaster risk management strategies, revised their laws and regulations, and implemented disaster risk reduction projects. The purpose here is to observe how mitigation policies are effectively built in the organization of the central and local administrations.

As a summary, there has been developed many disaster countermeasures as a response to natural disasters since 1880s in Japan (Cabinet Office, 2005). Prior to 1961, Japan had a reactive approach focused on rendering aid and providing financial assistance to victims (Palm and Carroll, 1998). However, the Typhoon Ise-wan was a turning point in the history of Japan's disaster management (Cabinet Office, 2005) and prompted the government to prepare a comprehensive disaster management system which can be followed by the 1961 Disaster Countermeasures Basic Act and Disaster Countermeasures Basic Plan (Britton, 2005). Both instruments are periodically revised with following a major disaster (Britton, 2005).

[1]Over 95 percent of the expenditures for the Hazard Mitigation Grant Program (HMGP) under the Stafford Act between 1988 and 1995 went for physical projects, leaving less than 5 percent for planning, education and training, and administration (Godschalk et al 1999).

In Japan, other keystone legislations are the Special Act for Countermeasure to Earthquake Disaster 1995, the Comprehensive National Development Act 1998, and the People Protection Law 2004. An additional contextual element is the Japanese risk management standard (JIS, 2001). With these intensive measures against natural disasters, Japans have developed a centralized, coercive, impact-based and hazard-specific disaster management approach. However, there is not a sufficient attempt to link land use management, risk management, and environmental management.

On the other hand, since the early 1990s, New Zealand has undergone fundamental and wide-ranging reform (Britton and Clark, 2000a). An integral part of this reform was the enactment of the Resource Management Act 1991 and Building Act 1991. The management and mitigation of natural disasters are addressed within the Acts (Britton and Clark, 2000a). The restructuring of the units of local government (Britton and Clark, 2000a) was another integral part of this reform. Through this reform local government has been primarily responsible for the implementation of risk assessment and risk reduction (MCDEM, 2005). The key outcome of this reform is the transfer of much of the responsibility and power for decision-making from central government to local government (Britton and Clark, 1999a). This transfer has been accompanied by an increased attention to risk management (Britton and Clark, 1999a). New Zealand in the last 10 years has moved to a comprehensive approach that links disaster management with land use management, environmental management and sustainable development.

A key component of the New Zealand approach is the application of risk management principles (Britton, 2002). New Zealand also runs a cooperative and decentralized system of governmental responsibility for disaster management. The principle is that communities are the ones affected (MCDEM, 2005). Therefore, communities should aim to reduce the likely impact from, prepare for, and be able to respond effectively to, emergency events on their own (MCDEM, 2005). To ensure this, responsibility for disaster risk reduction and risk management is driven down to

the community level and held by local government with obligatory consultation with and participation by the community.

Beside Japan and New Zealand, in the United States, development of a comprehensive national government program for disaster management can be traced to 1979, when President Jimmy Carter pulled together a disparate group of federal agencies with a variety of disaster responsibilities, put them under one roof and called his creation FEMA (Bosner, 2002). The U.S. has a long history of preparedness, response, and recovery activities (Henstra, 2003). Also over the last decade, there has been a struggle to promote mitigation as a federal policy priority (Henstra, 2003). Mitigation is explicitly incorporated into disaster management through the Robert T. Stafford Disaster Relief and Emergency Assistance Act (1988) and the Disaster Mitigation Act (2000).

The Stafford Act authorizes the federal government to contribute financial and technical assistance to state and local governments in the development and implementation of comprehensive disaster management plans, which include mitigation (Henstra and McBean, 2005). One of the outcomes of this legislation is the Hazard Mitigation Grant Program, administered by the Federal Emergency Management Agency (FEMA) and provides federal funds to encourage state and local governments to incorporate mitigation during post-disaster reconstruction (FEMA, 2005a). Disaster mitigation is also promoted through the Disaster Mitigation Act (2000), which identifies mitigation as a national priority and authorizes the use of federal funds as an incentive for the development of state and local mitigation plans (Henstra and McBean, 2005). The act differs from and complements the Stafford Act by encouraging the use of pre-disaster mitigation tools such as hazard assessment and mapping, land-use planning, and building code enforcement (Henstra and McBean, 2005). Under the act, FEMA has established the Pre-Disaster Mitigation Program, which provides funding for state and local mitigation projects (FEMA, 2005b).

Japan, New Zealand, and the United States all have effective disaster management systems and they all promote 'mitigation' as a national policy priority during the last decade. However, the structural configurations between the nations' focal agencies differ (Bosner, 2001; Bosner, 2002); emergency services have different arrangements; the nature of and relationship between central and local governments are not the same; power and authority relations are different; and substantial differences exist in socio-cultural behavior patterns (See Table 3.2). The purpose of this section is to observe how mitigation policies are effectively built in in the organization of the central and local administrations.

To provide a common basis for consolidated comparison and observations about these countries, issues of disaster risk management under the following titles are formed on the basis of the elements of broad thematic areas addressed in the World Conference (2005). These issues also refer to the focus group interview questions and evaluation of Turkey's Disaster Management System in Chapter 5.

3.8.1. Natural Legislation and Strategy Addressing Disaster Risk Management

In Japan, the cornerstone of legislation on disaster risk management is the Disaster Countermeasures Basic Act 1961, which set out the basis for measures to reduce disaster risk (Japan's National Report, 2005). Under the Disaster Countermeasures Basic Act, the Basic Plan for Disaster Management has been drafted, setting out comprehensive and long-term plans for disaster risk reduction in Japan (Japan's National Report, 2005). Based on this Plan, a comprehensive disaster management planning system has been established (Japan's National Report, 2005). Following major disasters, Japan's disaster risk management legislation and government policy are periodically revised. The last revision has been under consideration following the 2005 Fukuoka-ken Seiho-oki Earthquake (Britton, 2005).

New Zealand's national legislation addressing disaster risk management is the Civil Defense Emergency Management Act 2002, replacing the 1983 Civil Defense Act (New Zealand's National Report, 2005). This followed 10 years of reviews over the 1990s as to the effectiveness of NZ arrangements and capacity to manage significant disasters (New Zealand's National Report, 2005). The Civil Defense Emergency Management (CDEM) Act 2002 has brought in responsibilities and structures that have started to allow NZ to improve their nation's approach to disaster management (New Zealand's National Report, 2005). The CDEM Act requires central government's administering agency to develop a 10-year National Civil Defense and Emergency Management (CDEM) Strategy which contains four goals, each with its own objectives and measurable targets for action (New Zealand's National Report, 2005). The strategy is aligned to central government's vision of Resilient New Zealand (MCDEM, 2004).

The U.S.A.'s national legislation addressing disaster risk management is the Disaster Mitigation Act 2000, which goes beyond the Stafford Act to promote a national strategy for mitigation (Henstra, 2003). There is an increased emphasis on proactive mitigation as opposed to reactive preparedness, response, and recovery (Godschalk, 2002). In 1995, FEMA developed the National Mitigation Strategy to encourage partnerships between the public and private sectors for significantly reducing the impacts of natural hazards by the year 2010 (The U.S.A.'s National Report, 2005). In 1996, the President's National Science and Technology Council Committee on the Environment and Natural Resources developed the Natural Disaster Reduction Plan for the Nation to complement FEMA's Mitigation Strategy (The U.S.A.'s National Report, 2005). The goal for all of these activities is aimed at taking action to prevent or reduce the impacts of natural disasters (The U.S.A.'s National Report, 2005).

3.8.2. National Body for Coordination in Disaster Risk Management

In Japan, the overall policy development and coordination of disasters lies with the Cabinet Office, with each ministry having specific responsibilities. At the national level, the Prime Minister heads the Central Disaster Management Council (Japan's National Report, 2005). Along with designated administrative bodies and public corporations (such as TV, electricity, gas and telephone companies), the Council is responsible for: *"(1) formulation and execution of disaster management plan, comprehensive coordination; (2) formulation and promoting execution of the Basic Disaster Management Plan; and (3) formulation and execution of the disaster management operation plans"* (Japan's National Report, 2005).

New Zealand does not have a national body that combines all sector coordination and collaboration in disaster risk reduction (New Zealand's National Report, 2005). Disaster risk reduction is done, but through a number of structures. The Ministry of Civil Defense and Emergency Management (MCDEM) is responsible for promoting disaster risk reduction generically across disasters, and is responsible for the management of all-hazard risks and disasters with the exception of health (Ministry of Health); law and order issues, terrorism (Police); and agriculture (Ministry of Agriculture & Fisheries). These agencies act as 'lead agency' in their respective risk areas and are responsible for both risk reduction and disaster response (New Zealand's National Report, 2005). The 28 person central government MCDEM provides leadership to the disaster management sector, promotes a risk management approach across the reduction, readiness, response and recovery aspects of disaster management, encourages and supports the implementation of the CDEM Planning framework, builds commitment to the goals and purposes of the Act, facilitates whole of government involvement and supports regional structures in both peace time and during emergencies (New Zealand's National Report, 2005). New Zealand has a national disaster management committee, called the Officials Domestic and External Security Committee (ODESC), administered by the Dept of Prime Minister

and Cabinet, which coordinates central whole of government disaster response and recovery (New Zealand's National Report, 2005).

In the U.S.A., the central coordinating agency is Federal Emergency Management Agency (FEMA). The agency's functions are organized into seven directorates that deal with different aspects of disaster management (FEMA, 2002c). There are also ten regional offices which work with state officials to coordinate mitigation, planning and response efforts (FEMA, 2002c).

3.8.3. Financing Mechanisms for Disaster Risk Management Initiatives

In Japan, disaster risk management is covered in the state budget (Japan's National Report, 2005). In fiscal year 2003, the budget for disaster risk reduction was approximately 2.7 trillion yen, which is about 5% of the total general-account budget (Japan's National Report, 2005).

In New Zealand, risk reduction initiatives are funded through annual local government budgeting processes (New Zealand's National Report, 2005). Occasional special case specific funding is approved from central government for projects where the costs of reducing likely risk are beyond the ability of the community to pay for it (New Zealand's National Report, 2005). Post disaster, central government funding is also available through a formula process of shared funding, but government policy emphasizes the responsibility of regional and local authorities making a significant effort to invest in risk mitigation work before central government funding is available (New Zealand's National Report, 2005).

There are three major FEMA grant programs available for disaster risk management initiatives to cities and counties (The U.S.A.'s National Report, 2005). They are the Pre-Disaster Mitigation (PDM) Program, the Hazard Mitigation Grant Program (HMGP); and the Flood Mitigation Assistance Program (FMAP).

The PDM program provides funds to communities for disaster mitigation planning and implementation of mitigation projects prior to a disaster event (The U.S.A.'s National Report, 2005). These grants are awarded on a competitive basis with at least a 25 percent non-Federal cost share match required (The U.S.A.'s National Report, 2005). Communities wishing to apply for PDM project funds must have a FEMA-approved mitigation plan to be considered eligible (The U.S.A.'s National Report, 2005). In addition, local government applicants must be participating and in good standing with the National Flood Insurance Program (NFIP), if applicable (The U.S.A.'s National Report, 2005). Proposed projects must be deemed long-term, feasible, cost-effective, and must meet all FEMA requirements (The U.S.A.'s National Report, 2005). The Hazard Mitigation Grant Program (HMGP) is another potential source of funding for up to 75 percent of the costs for implementing natural hazard mitigation measures but is only available to communities during immediate recovery from a presidentially declared disaster (The U.S.A.'s National Report, 2005). The third source of funding is FMAP which is for reducing flood risk in local communities (The U.S.A.'s National Report, 2005). Funding for the program is provided through the National Flood Insurance Fund (The U.S.A.'s National Report, 2005). The Flood Mitigation Assistance Program (FMAP) offers grants for developing a local Flood Hazard Mitigation Plan and for completing flood mitigation projects to reduce flood risk in the community (The U.S.A.'s National Report, 2005).

3.8.4. Integrating Disaster Risk Management into the Development Process

There is a comprehensive plan setting out Japan's policy on development, based on the Comprehensive National Development Act (Japan's National Report, 2005). The National Development Plan, drafted in 1998, identifies *"making Japan a safe and comfortable place to live"* as one of the five fundamental objectives of national development, and defines its aim as improving the country's safety with regard to large-scale earthquakes and other natural disasters. 'Disaster mitigation counter risk

reduction measures' based on the principle of minimizing the damage caused by disasters is prioritized as the main task (Japan's National Report, 2005).

In New Zealand, disaster risk management is taken into consideration in the preparation of regional and local development plans. It is also a fundamental driver for utility planning. Regional and territorial local authorities are required to do risk management under the Local Government Act 2002. Developmental Plans such as Regional Policy Statements, Regional Plans, District Plans, Coastal Management Plans, Water Plans, etc. link development and disaster risk management including community safety goals.

Under the Resource Management Act, 1992 (RMA) local and regional authorities must manage land use for the purpose of reducing or avoiding natural hazards (New Zealand's National Report, 2005). Local authorities also maintain data such as fault line mapping, flood plains and natural disaster history on property documents (New Zealand's National Report, 2005). The RMA also binds development through resource consent and consultation processes (New Zealand's National Report, 2005). The RMA is linked to the CDEM Act 2002 in a requirement to consider natural hazards. The Ministry for the Environment also legislates around environmental safety and development which other agencies are required to take account of in development (New Zealand's National Report, 2005).

3.8.5. Role of Local Administrations in Reducing Disaster Risks

In Japan, local administrations have responsibility to include specific disaster prevention operations on site. They also prepare and implement local disaster plans (Cabinet Office, 2005). In practice, however, many decisions are deferred to higher levels in the hierarchy before action can be taken (Britton, 2005).

In New Zealand local authorities are required to do risk management under the Local Government Act, 2002. Local authorities manage land use for the purpose of reducing or avoiding natural hazards (New Zealand's National Report, 2005). Local authorities also maintain data such as fault line mapping, flood plains and natural disaster history on property documents (New Zealand's National Report, 2005).

In United States strategies for disaster mitigation such as land-use planning and building code enforcement are areas that are delegated to local government, making mitigation primarily a local responsibility (Cigler, 1988). In most cases, local disaster management is handled by a community committee tasked with the coordination of personnel from police, fire and medical response units (Henstra and Sancton, 2002). This local agency is expected to identify the hazards facing the community and work with public and private organizations in order to develop an emergency plan suitable to address these risks (McLoughlin, 1985). Some of the local authorities manage land use for reducing disaster risks. In many cases however, local administrations have not established mitigation programs yet, lacking the political support, financial resources or technical expertise required to create and sustain them (Henstra and Sancton, 2002). Moreover, local governments rarely see disaster management as a primary concern and are reluctant to dedicate personnel strictly for this purpose, focusing instead on more visible problems (Clary, 1985).

In general, Japan offers a contrast to the New Zealand approach (Britton, 2004). Whereas New Zealand has been consolidating legal requirements through the creation of 'umbrella acts', developing 'enabling' legislation, identifying gaps in practice and systems and encouraging organizations to work closer together, as well as developing an all-hazards approach to hazard management, Japan's approach is more reactive and fragmented (See Table 3.2). Similarly, while Japan's exposure to a number of natural disaster risks is among the most serious in the world, this has not resulted in an 'all-hazards approach to disaster management and loss mitigation' (Britton, 2004).

Japans have developed a centralized, coercive, impact-based and hazard-specific disaster management approach. Beside Japan, New Zealand runs a decentralized, cooperative, consequence-based and comprehensive system of disaster management, and the U.S. has a centralized, regulatory, impact-based and comprehensive disaster management approach. They have shared points as well as their differences. The major one is that there has been a struggle to promote ‘mitigation’ as a national policy priority over the last decade. In addition, they all have adopted disaster risk management strategies, reviewed their laws and regulations, and implemented disaster risk reduction projects.

Table 3.2 Comparison of Three National Disaster Management Systems

Attributes	**Japan**	**New Zealand**	**The U.S.A**
Overall Approach	• Centralized / Directive • Fragmented • Reactive	• Decentralized / Cooperative • Inclusive • Proactive	• Centralized / Regulatory • Comprehensive • Proactive
Supporting Platform	• Incremental	• Green-fields approach	• Pressure from National Governors' Association
Legislation Characteristics	• 1961 Disaster Countermeasures Act • 15 generic Acts • 28 hazard-specific Acts • Reactive	• 2002 Civil Defense Emergency Management Act • Risk-based • Proactive • Empowering	• 2000 Disaster Mitigation Act • 2 disaster mitigation grant program • Proactive
Disaster Management Approach	• Product-focus • Impact-based • Technical research / response	• Process-focus • Consequence-based • Mitigation / response	• Process-focus • Impact-based • Technical research / mitigation /response
Decision-making Style	• Reactive	• Proactive	• Proactive
Level of Specificity	• Hazard specific • Structural mitigation dominates	• All-hazard • Integrated mitigation • Promote risk reduction	• All-hazard • Integrated mitigation • Promote security oriented issues
Focal Agency Attributes	• Cabinet Office • Non-military head • Policy-advice • Operational advice	• MCDEM • Non-military head • Policy-advice • Operational control	• FEMA • Non-military head • Policy-advice • Operational control

3.9. The Scope of Disaster Mitigation in the New Global Approach

In the international community, there is a growing recognition that the focus of disaster management must shift from the previously entrenched emphasis on (post-disaster) emergency management, toward (pre-disaster) risk management. Following this idea, a series of declarations of interest and determination to reduce risks have taken place at the international context. In common, the landmarks of this trend express that:

"a culture of disaster prevention and resilience, and associated pre-disaster strategies…must be fostered at all levels… and (represent) sound investments" (UNISDR, 2005).

Accordingly, mitigation of disaster risks, 'risk assessments, proactive, integrated, multi-sectoral approaches and concrete actions' are necessary. The need to stress the disaster risk reduction dimension in a wide range of policies is stressed throughout, and is associated with the need to invest considerably in advocacy to get policy-makers to take the message seriously. The five high-level priorities for the Framework and the Kobe Conference are thus to:

- ensure that disaster risk reduction is a national and local priority with a strong institutional basis for implementation;
- identify, assess and monitor disaster risks and enhance early warning;
- use knowledge, innovation and education to build a culture of safety and resilience at all levels;
- reduce the underlying risk factors; and
- strengthen disaster preparedness for effective response at all levels.

The scope of disaster mitigation in the new approach is best expressed perhaps in these priorities and questions directed during Conference activities, to the national representatives (See Table 3.3).

Table 3.3 Five Broad Thematic Areas Addressed in the Kobe Conference

(Source: UNISDR, 2004)

Thematic Areas	Components	Characteristics
Political Commitment and Institutional Development	*Policy and planning*	-Risk reduction as a policy priority and integration of risk reduction in development planning;
	Legal and regulatory framework	-Laws, acts and regulations; -Compliance and enforcement;
	Resources	-Resource mobilization and allocation, innovative and alternative funding, taxes, incentives;
	Organizational structures	-Multidisciplinary, multisectoral approaches; -Implementing and coordinating mechanisms;
Risk Identification and Assessment	*Risk assessment and data quality*	-Hazard analysis; -Vulnerability and capacity assessment; -Risk monitoring capabilities, risk maps, risk scenarios;
	Early warning systems	-Forecast and prediction; -Warning processing;
Knowledge Management	*Information management*	-Information and dissemination programmes;
	Education and training	-Community training programmes;
	Public awareness	-Public awareness policy, programmes and materials;
	Research	-Research programs and institutions for risk reduction;
Risk Management Applications and Instruments	*Environmental management and risk reduction practices*	-Linking environmental management and risk reduction practices
	Financial instruments	-Financial instruments utilized in your country as a measure to reduce the impact of disasters
	Technical measures or programs	-Technical measures or programs on disaster risk reduction
Preparedness and Contingency Planning	*Disaster contingency plans*	-Disaster contingency plans in place, at national and community levels
	Resources	-Emergency funds

Lastly, the Hyogo Framework for Action 2005-2015 has been announced which gave greater emphasis on disaster mitigation and also in section four of the declaration, it calls on governments to:

"*mainstream disaster risk considerations into planning procedures..*" and "*develop, upgrade and encourage the use of guidelines and monitoring tools for the reduction of disaster risk in the context of land-use policy and planning*" (UNISDR, 2005).

In response to these challenges, many governments around the world have changed, or are in the process of changing their disaster management policies to explicitly emphasize 'disaster mitigation' and 'local commitment'. In Japan, New Zealand and the U.S.A., 'disaster mitigation' has been promoted as a national policy priority since the last decade.

There are various efforts in these countries to understand how the natural and built environments produce risk, how to keep the environment out of the way of hazards in a way that supports economic and social development on the one hand, and reduces social and economic risk on the other, and how to strengthen disaster mitigation especially at the settlement level. These efforts that supporting platform is 'greenfield approach' in New Zealand since 1990s, incremental in Japan since 1960s and pressure from National Governors' Association in the U.S.A since 1980s can be summarized as follows:

- A set of principles have been approved as the basis for an overarching disaster management framework based on a new global policy;
- There has been an application of risk management principles, and the recent legislations often explicitly called for risk management applications;
- Significant financial resources have been invested in disaster mitigation and there have been funds available at national context for which cities compete to receive assistance for the preparation and implementation of mitigation plans.

- Disaster risk management has been taken into consideration in the preparation of regional and local development plans;
- Central government responsibility has been redefined to include establishing the disaster management framework and identifying distinct technical and administrative tasks at the different levels of administration with new laws that recognize the importance of local administrations in reducing disaster risks and contain extensive new provisions relating to planning, decision making and accountability;
- Responsibility for disaster risk management has been driven down to the community level and held by local administrations with obligatory consultation with and participation by the community;
- The local disaster management consortia have been approved based on the framework principles; and
- There has been a little tendency of incorporating disaster risk assessments into urban planning and the structure of national organizations seldom favour a multidimensional and holistic approach, impeding cooperation and the creation of integrated risk reduction projects.

These efforts are all designed to modernize the disaster management approach based on the global trend, and in particular to improve the capability of the emergency services and the communities they serve to understand and hence deal with risk more effectively; and to promote community continuity and resilience by institutionalizing risk management practices and processes. They have further called for a refocusing of attention and action onto the management of risk and the options available for reducing or managing different levels of potential impact.

The next step will be an analysis of the Turkish environment within the context of disaster risk management. The five criteria of the Kobe Conference can provide a common basis for observations and identifications of a number of issues about Turkish disaster management system. These issues are then to cover:

- the fundamental components (laws, acts and regulations) of a general policy of disasters dealing with the (pre-disaster) risk management;
- an institutional basis for disaster mitigation;
- funds that are available at the national context for which cities compete to receive assistance for the preparation and implementation of disaster mitigation;
- recent legislative and organizational actions in the form of new provisions, new laws and new bodies dealing with disaster risk management and local administrations; and
- regional and local development plans, major national reports and projects considering disaster risk management in Turkey.

CHAPTER IV

4. DISASTER MANAGEMENT SYSTEM IN TURKEY

Turkey is among countries that have long been affected by many natural disasters, in particular earthquakes, floods, erosion, rock falls and fires. The 'Marmara' Earthquake struck on 17 August 1999 with a magnitude of M=7.4 and on 12 November 1999, a second major earthquake with a magnitude of M=7.2 occurred near 'Düzce' in 'Bolu' province. The death toll from these two events reached 18,000 lives and caused 50,000 casualties (JICA, 2004). The 1999 Earthquakes also created an enormous financial burden on the economy, government, industry, insurance sector and public. The estimated losses were around 5 billion US$, or around 2.5 percent of GNP (The World Bank, 1999). The unsupportable economic and human impacts of these disasters led the Government of Turkey to rethink about the disaster management system and initiate a legal revision to explore a natural disaster risk management strategy.

Table 4.1 Earthquake Losses in Turkey 1992-2004

(Source: Gulkan, 2001)

Earthquake (Date)	Lives Lost	Housing Units Damaged	Housing Units Collapsed or Razed	Number of Persons Left Homeless	Estimated Total Economic Loss, in $B
Erzincan (1992)	645	8,000	1,450	8,000	0.75
Dinar (1995)	100	6,500	2,043		0.25
Adana-Ceyhan (1998)	150	21,000	2,000	24,000	0.5
Kocaeli (1999)	>18,000	320,000	26,000	600,000	>5
Duzce (1999)	812	10,100	800		1
Bingol (2004)	177	6,956	3,005	-	-

4.1. The Conventional Disaster Policy

Disaster management is one of the major responsibilities of government at both the central and local levels (Keles, 2004). In 1958, the Ministry of Public Works and Settlement (MPWS) charged the newly established ministry (Article 2) with taking *"all the necessary measures before and after the disasters"*. In 1983, the Decree 180 that reorganized the bureaucracy charged the new Ministry of Public Works and Settlement (Article 1) with managing *"the execution of the disaster services in an efficient, orderly and swift manner"* (Keles, 2004). More specifically, the basic duties of the General Directorate of Disasters (Article 11) include:

- *identification of disaster regions and provision of technical assistance for reconstruction;*

- *introduction and implementation of measures to reduce the loss of life and damage to property;*
- *prevention of likely disasters;*
- *provision of immediate assistance and coordination of rescue during and after disasters;*
- *provision of basic services in collaboration with the State Planning Organization and other public agencies; and*
- *responsibility for all preparations, implementation, management and control functions for reconstruction and resettlement in areas affected by natural disasters* (Keles 2000).

In addition, laws of several ministries including those dealing with the interior, national defense, health and social welfare, transportation, forestry, energy and natural resources, industry and trade also have responsibilities at different stages of the disaster management process (Keles, 2004). Such a broad distribution of powers and responsibilities among the ministries, the central administration and the departmental authorities causes serious coordination problems in practice (Keles, 2004).

The fundamental components of a general policy of disasters in Turkey are the Development Law (3194) and the Disasters Law (7269) with their respective attendant regulations (Balamir, 2001a). Although there are many potential links between the two bodies of law, it is observed that there is a lack of coherence between the two systems (Balamir, 2001a). The Development Law has almost no reference to natural disasters, whereas the main focus of the Disasters Law deals with the post-disaster operations and relief organizations (Balamir, 2001a). These two bodies of law are detailed below.

4.1.1. The Disasters Law (7269)

The main scope of this Law (1959) is to *"provide a formal capacity for post-disaster interventions and to organize the relief operations*" (Balamir, 2001a). The Law provides extraordinary powers for provincial governors (Balamir, 2001a). *"When disasters occur, the governor has a sole authority with powers of commanding all public and private and even military resources, property and all vehicles"* (Balamir, 2001a). Therefore, each governor is responsible for drawing an 'action plan' of relief operations to become effective immediately after a disaster (Severn, 1995). These local action plans, as described by the Disasters Law and by the recent mandates of the Ministry of the Interior, are currently prepared with greater attention since 1999 (Balamir 2001a). However, *"there is a preparation for 'tents and blankets operations' rather than any form of a risk analysis, estimations of losses and a contingency plan for pre-disaster monitoring of forms of mitigation"* (Balamir, 2001a).

Of the 68 articles in the main body of the Law, only a few contain provisions for pre-disaster activities and in practice disaster mitigation requirements are hardly fulfilled (Balamir, 2001a). The local administrations only have the role of providing the logistic support to the central organs whereas the disaster risk management responsibilities must lie here. Besides its confinement to post-disaster operations and its content disparate from the Development Law, the Disasters Law and its regulations fall short of constituting a cotemporary disaster management system (Balamir, 2001a).

4.1.2. The Development Law (3194)

The Development Law (1985) is only *"a physical regulation instrument for development"* (Gulkan, 2002). This mission of monitoring only the construction stage in development and aiming to achieve this only in physical terms on singular

buildings is of a very narrow scope (Balamir, 2001a). It has little power to manipulate or physically rearrange properties, to maintain the public good and to monitor building activity in disaster areas. It ignores the finance, organization, protection, and management issues of development (Gulkan, 2002) and avoids being involved in the procuring of investments, land assembly, provision of infrastructure and urban services (Balamir, 2001a). The Law neither has provisions to cope with natural disasters, nor has an interrelation with the Disasters Law (Gulkan, 2002). Furthermore, it is *"deficient in the technical means of control during the construction stage itself, neglects property management approaches, and has a blind eye in the vital need of protection of various categories of (historical, natural, riparian, etc.) environment"* (Balamir, 2001a).

As clarified in the Law, municipal and provincial administrations are obliged to prepare urban plans (Balamir, 2001a). In their urban Master Plan making functions, local authorities are practically free of guidance and inspection (Balamir, 2001a). In addition Master Plans for urban areas represent only an intermediate step in the hierarchy of physical plans (Balamir, 2001a). The higher and lower level plans and their relation to urban plans are the missing parts of the overall system (Balamir, 2001a). In the Law regional strategy plans, environmental plans and contingency plans are almost totally neglected (Balamir, 2001a).

The Law assigns full responsibility for the plan making and their ratification to local administrations (Balamir, 2001a). However, local administrations lack the financial and technical skills to meet this obligation (Balamir, 2001a). The traditional singular authority of the MPWS has been distributed in the mid-1980s (Balamir, 2001a). Since then, municipalities and provincial governments have been responsible in themselves, from plan making and development control functions (Balamir, 2001a). Dispersion of such prerogatives causes arbitrariness in ensuring environmental standards and quality (Balamir, 2001a). The planning system today, with its

numerous regulatory mechanisms and actors, is far from a unified body or authority in monitoring physical development (Balamir, 2001a).

Since the overall planning control is diffused, it is often difficult to follow the principles of reducing risks (Balamir, 2001a). There are almost a dozen of public authorities and ministries other than the MPWS proper (Balamir, 2001a). Therefore it is difficult to decide which authority has the ultimate powers at a specific location (Balamir, 2001a). This obstructs the possibility of uniformity in the contents and procedures of plan making, particularly for disaster mitigation purposes (Balamir, 2001a).

Specially standardized geological and micozonation maps, as well as integrated information related to other disasters are not considered as a prior condition in the development system (Balamir, 2001a). Geological evaluation reports for individual buildings as required by some municipalities are piecemeal and can not be impartial because they are prepared by the investing party (Balamir, 2001a). If more comprehensive geological/seismic etc. information and recommendations exist, there would have been no formal method of taking these into account in the practices of land-use planning.

The conventional system of the Development Law does not include disaster mitigation methods in land-use planning and building construction (Balamir, 2001a). Avoidance of disaster risks is an obvious omission in such a way that these concerns can not be confined to the construction of buildings alone (Balamir, 2001a). As described by Balamir (2001a), *"The practice of land-use planning and zoning, transportation and infrastructure planning, procedures for density assignment, planning the open spaces, participation processes, strengthening and devising new methods of monitoring building-use control, etc., all of these are distinct aspects of disaster concerns that naturally need to be covered in the Development Law"*.

There are no effective land rearrangement tools in the Law except the Article 18 which is applicable only at urban fringes subject to development for the first time (Balamir, 2001a). In a system of disaster management, it is necessary to protect areas efficiently subject to disasters from development, to improve the environmental standards and resistance capacities of existing built-up areas, to avoid disaster chains by strict land-use control, etc. (Balamir, 2001a). These are all requiring greater efficiency and more powerful tools (Balamir, 2001a). Disaster management is one such area of activity that needs more intensive planning control powers.

Due to the inadequacies mentioned above and the lack of coherence with the Disasters Law, the current Development Law fails to prop up the disaster management system. These fundamental components of a general policy of disasters have significant gaps and deficiencies with respect to disaster risk management and reduction, and they are far from a unified and singular body. The disaster management environment with these acts is a traditional focus on response and relief operations. Furthermore, these acts do not give power to local administrations to reduce the disaster risks although the responsibilities of all planning and building supervision are part of the tasks of the local administrations according to the Development Law.

The drafts replacement for Development Law (3194) and Disasters Law (7269) have been issued by the Ministry of Public Works and Settlement; however they are not transmitted to the parliament for action. When these drafts examined carefully, it is stood out that there have been no major changes in their contents which are still disparate from each other and they did not differentiate risk management from emergency management as distinct technical and administrative tasks at the different levels of administration. The draft law of 'Urban Regeneration' has also been issued by the Ministry of Public Works and Settlement. This draft law neither has a content that covers disaster risk reduction issues comprehensively nor ensures a development responsibility and regeneration of the cities into safe living spaces.

Furthermore, there is a recent legislative action in the form of new laws taken by the Grand National Assembly of Turkey. These are 'Provincial Special Administrations' (5302), 'Municipalities' (5393), and 'Metropolitan Municipal Governments' (5216) Laws. In these laws, there are given increased tasks and privileges (5216/7, 5293/53, 5293/73) to local administrations about disaster management. However, there are no references and detailed definitions/directives for city-scale mitigation planning. (See Chapter 5 for the evaluation and criticism of these recent laws' articles related to disaster risk management). Although preparedness, mitigation, intervention and rehabilitation works have been transferred almost to the municipal and special provincial administrations (5216/7, 5293/53, 5293/73), how political support, financial resources or technical expertise would be provided to local administrations to meet these tasks have not been specified in these laws. To date, these bodies have not played a significant role in these new platforms as mitigation, so it is at the present time not known how they will assess their natural hazards and risks, prepare strategic plans and programs for disaster reduction (JICA, 2004).

4.2. Recent Changes in Disaster Management after the 1999 Earthquakes

Following the 1999 Marmara Earthquake, three important steps were taken by the Government (Keles, 2004; Balamir, 2001a). These are the introduction of institutions of 'obligatory earthquake insurance', 'construction inspection' functions, and provisions for the improvements in 'professional competence' (Keles, 2004; Balamir, 2001a). In organizational terms, apart from extensions made in the responsibilities of the local authorities in disaster mitigation, three complementary organizations were introduced (Keles, 2004; Balamir, 2001a). Ministry of the Interior set up regional centres for relief and emergency operations, a General Directorate of Emergency Management was established attached to the Prime Ministry, and an independent National Earthquake Council was formed by a Prime Ministry mandate (Keles, 2004; Balamir, 2001a). These new provisions (See Figure 4.1) are reviewed in detail below.

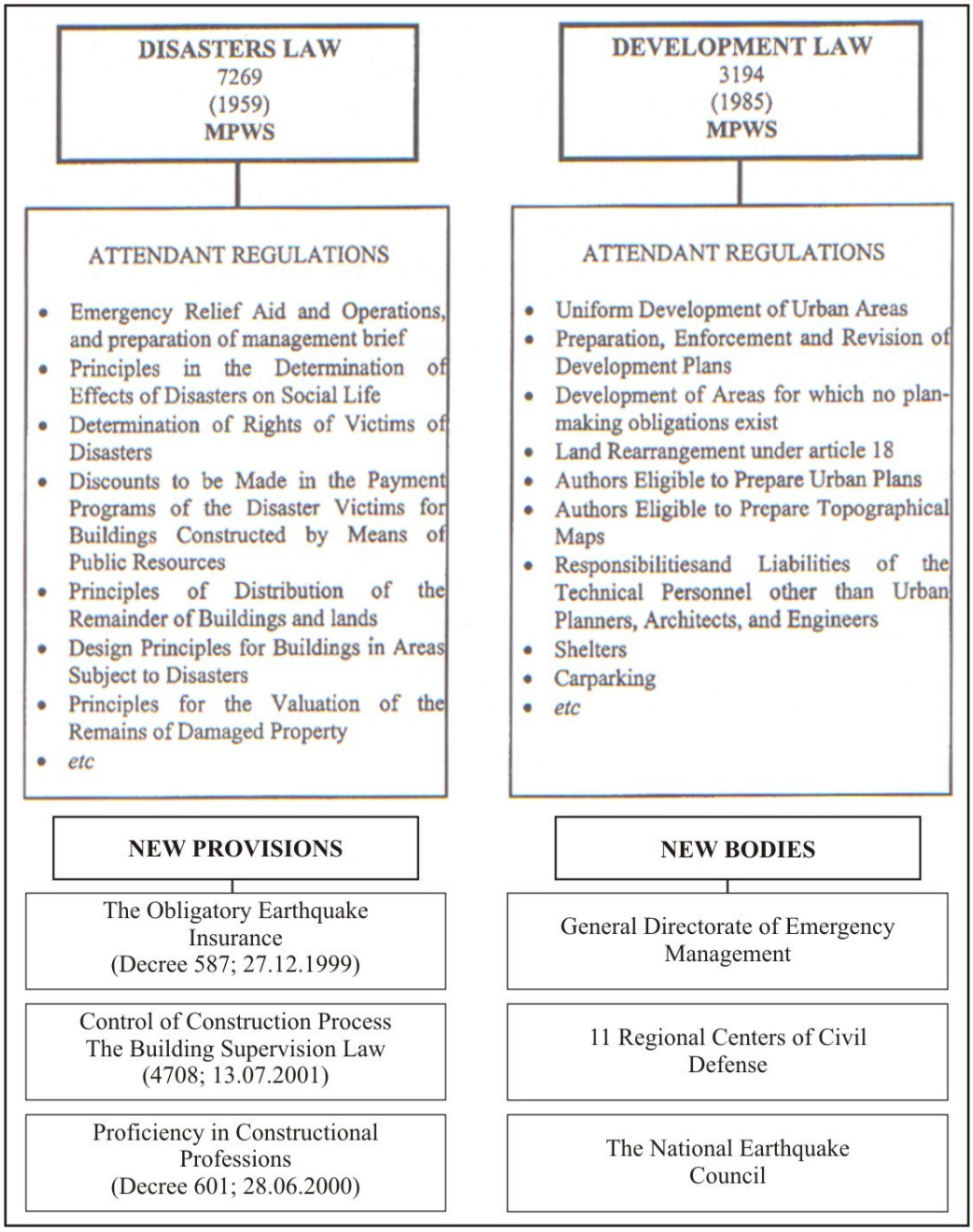

Figure 4.1 The Conventional System and New Provisions in Disasters Policy
(Source: Balamir, 2001a)

4.2.1. The Obligatory Earthquake Insurance (Decree 587; 29.12.1999)

The first measure taken in 1999 was the adoption of the Decree 587 on Obligatory Earthquake Insurance (Keles, 2004; Balamir, 2001a). By the same ordinance, a Natural Disaster Insurance Administration was established under the auspices of the Treasury (Keles, 2004; Balamir, 2001a). Beginning in year 2000, all residential buildings and independent sub-units of these buildings are to be covered by obligatory earthquake insurance (Balamir, 2001a). Only the official, industrial and public buildings, as well as buildings in villages are exempt from this compulsory system (Balamir, 2001a). Buildings and flats subject to this system are obliged to pay annual premiums determined according to earthquake zones, local risk levels, structural modifications made in the building without permission, quality of construction, etc. punishing the more risky conditions in rates of assessed values for insurance as in Figure 4.2 (Balamir, 2001a).

Building Type	**Earthquake Risk Zones**				
	I	**II**	**III**	**IV**	**V**
Steel or Reinforced Concrete					
Framed Structures	2.00	1.40	0.75	0.50	0.40
Load-Bearing Structures	3.50	2.50	1.30	0.50	0.40
Other Structures	5.00	3.20	1.60	0.70	0.50

Figure 4.2 Tariffs (%) for the Obligatory Earthquake Insurance for Buildings
(Source: Official Gazette no.24164, 08.09.2000, page 14)

A large financial pool is to be generated with the premiums collected (Balamir, 2001a). Estimations that are a flow of 40-50 US$ per dwelling per year, could reach

an accumulation of sufficient scale in ten years so as to refund a volume of losses similar to the total damage experienced in the 1999 Earthquakes (Balamir, 2001a). Whatever the size, disbursements from the Compulsory Insurance Fund could only cover the following:

- *compensations for the damaged and eligible buildings;*
- *manager's commissions;*
- *administration's own running costs;*
- *costs of research and scientific studies;*
- *fees for consultants' services;*
- *commissions for eligible insurance companies;*
- *repayment of funds advanced by the State;*
- *costs of damage assessment services; and*
- *public relations and campaigns* (Balamir, 2001a).

There are two affirmative aspects of this move. The first one is a voluntary dismissal of the prerogatives of spending public resources for political purposes and submitting of such privileges to a relatively autonomous insurance administration itself (Balamir, 2001a). However, *"it still remains to be proved that the populist trends could be resisted and the political bodies restrain themselves provides donations to the owners of unauthorized buildings in the face of a disaster"* (Balamir, 2001a). In this context, provisions of the Disasters Law that oblige governments to give aid and accommodation to all victim households will have to be disposed of (Balamir, 2001a). A second affirmative aspect of this move is the formation of a very large pool that is independent of the national budget (Balamir, 2001a).

Beside these two affirmative aspects, the insurance system has also deficiencies. The most obvious one is *"the unnecessary obstruction of flow of funds to mitigation investments"* (Balamir, 2001a). A modest part of the annual incomes of the Insurance Fund could be dedicated to risk avoidance and minimization projects, revisions in land-use planning, and retrofitting efforts in public and private buildings (Balamir,

2001a). As mentioned in the second Chapter, the basic principles of disaster risk management adopted by the World Bank (Kreimer et al 1999) and other authors (Burby, 1999; Balamir, 2001a) demand that risk avoidance and risk minimization provisions should have priority over risk sharing (Figure 1.2).

The second one is the exclusion of technical professionals related to mitigation work (like urban planners, engineers, architects, etc.) from the Executive Board of the Insurance Administration (Balamir, 2001a). According to Balamir (2001a) *"employment of the technical professionals by the finance sector is likely to give rise to inverse relations in the sense that planning and design functions will become subservient to the purposes of the finance sector"* (Balamir, 2001a).

4.2.2. Construction Supervision (Law 4708; 13.07.2001)

The second step was the adoption of the Decree 595 put into force in 2000 (Keles, 2004; Balamir, 2001a). It aims: *"ensuring life and property safety in buildings; preventing unplanned, uncontrolled and low-quality construction that wastes resources; ensuring proper construction; protecting the rights of those whose property is damaged; and compensating loss"* (Keles, 2004).

The Decree introduced private Building Inspection Firms (BIFs) entitled to control all projects and constructional activity and report to the local authority responsible for the permissions of construction and that of occupation of buildings (Balamir, 2001a). They keep records of progress and submit their reports to the local authority providing the permissions (Balamir, 2001a). There are three categories of such firms entitled according to the size of establishment, composition of personnel, and eligible to inspect projects and building activities of different scales (Balamir, 2001a). Only upon the positive reporting of a BIF, the local authority is to ratify a project and issue the construction or occupation permit (Balamir, 2001a).

This decree has been criticized for several reasons. It focuses on individual buildings but neglects widespread abuses in the construction industry (Keles, 2004). The possibility of public bodies for instance, establishing their own inspection units has been dismissed (Balamir, 2001a). The decree also delegates municipal building regulation development to private firms, fails to link construction regulation to macro-economic policies, and does not involve professional organizations in construction control (Keles, 2004). Another criticism is that *"the determination of a BIF by the free choice of the property owner could be curbed by the local authority and/or the professional Chambers"* (Balamir, 2001a). Lastly, the structural safety concerns have brought the engineer into foreground and promoted the role of engineering tasks in the construction sector (Balamir, 2001a). According to Balamir (2001a), this overemphasis tends to challenge the relative status of the related professions like the designer-architect in the orchestration of the building activity.

The Decree 595 was invalidated by a Constitutional Law in 2001 (Keles, 2004). This was followed by the enactment of a new Building Supervision Law (4708) in the same year. There were no major changes in the aims of the law (Keles, 2004). However, provisions concerning the establishment and functioning of building inspection firms were reformulated (Keles, 2004). Building inspection firms were defined as private firms to be established by eligible architects and engineers with the aim of supervising projects and construction activities and reporting to local authority responsible for issuing construction and occupation permits (Keles, 2004). The Building Supervision Law modified the respective provision of the Development Law (3194) and authorized the building inspection firms to take over, from the administration, the task of technical liability mentioned in the Development Law (Keles 2004). However, without appropriate means and tools of land-use planning that take into account seismic risks, individual building safety may have only little meaning (Balamir, 2001a). After all, as mentioned before, the principles of disaster risk management give higher priority to the avoidance of risks than risk minimization efforts.

4.2.3. Proficiency in Constructional Professions (Decree 601; 28.06.2000)

The third was the Decree 601 adopted in 2000 (Keles, 2004; Balamir, 2001a). This Decree changed a number of points in the existing 'Law concerning Engineering and Architecture' and the 'Law of Union of Chambers of Engineers and Architects' (Balamir, 2001a). The amendments describe the requirements for improved professional competence in the fields of engineering and architecture (Keles, 2004; Balamir, 2001a). A minimum of five years of professional experience, attendance at training courses, and passing written exams organized by both concerned Chambers are the required conditions (Balamir, 2001a). Persons in demand of services of engineers and architects may require qualified professionals in the production of safer buildings to resist hazards and earthquakes.

According to the Decree, the qualifications identified are necessary only for those services that require competence (Balamir, 2001a). These services are not, however, clarified in the Decree itself. According to Balamir (2001a), the non-obligatory terms used for the description of employment of competent professionals may be considered as a major weakness. However, the provisions have significant implications on professional performance in general and high potential in the improvement of professional education (Balamir, 2001a).

4.2.4. The New Bodies

Organizational establishment of new bodies was inevitably taken into the agenda of the government during the 2000 (Balamir, 2001a). The 1999 Earthquakes gave great urge to the existing organizations, in their reviewing of capabilities, and devising more efficient methods of work (Balamir, 2001a). Besides the General Directory of Disasters of the MPWS, the Observatory attached to the Prime Ministry and operating as a branch of the Bogazici University several steps were taken. In the first place, responsibilities of the local authorities were extended by new Local

Administrations Laws and Governmental Decrees to cover disaster mitigation efforts. Following sections highlight the other moves for organizational reforms (See Figure 4.3).

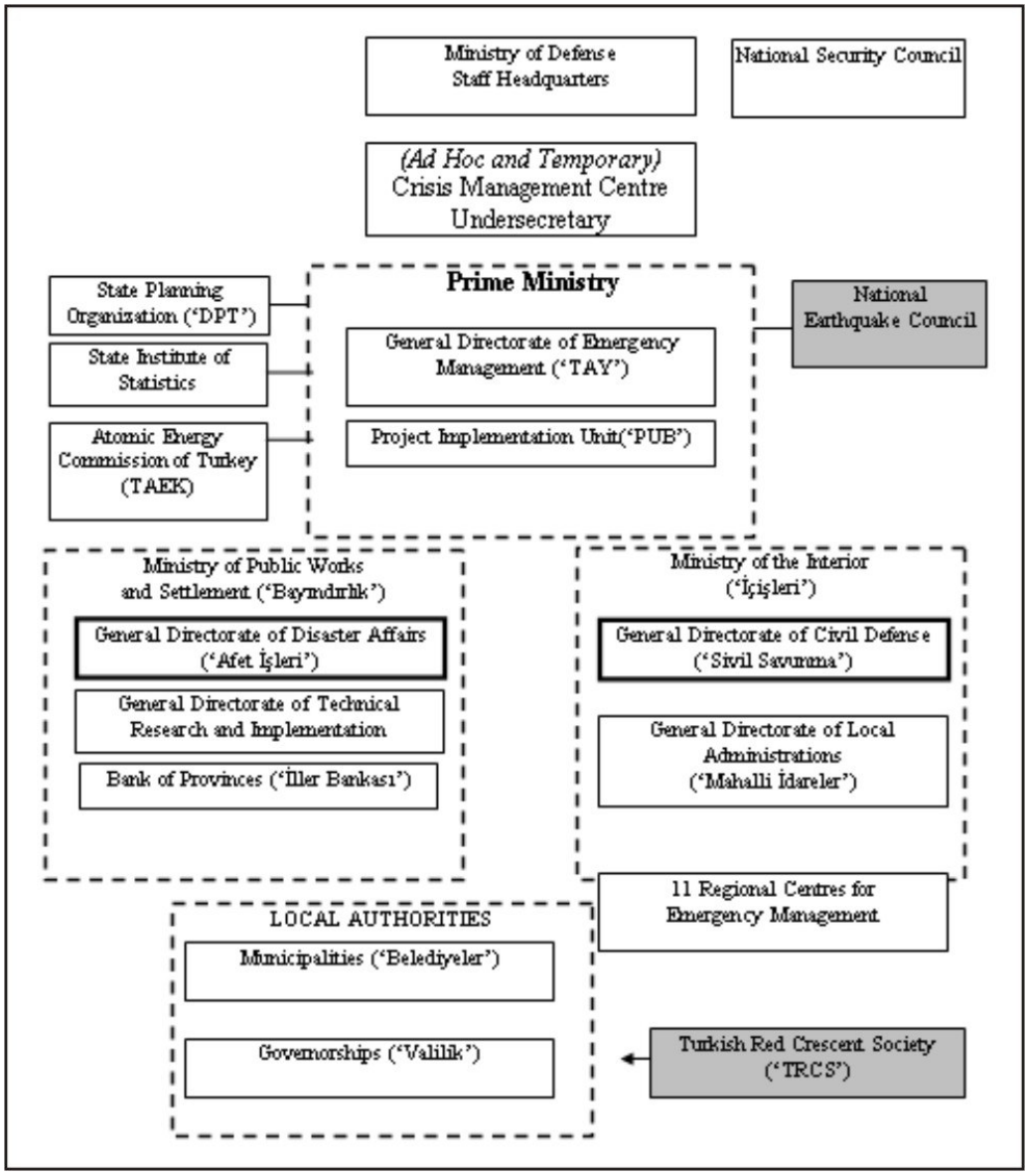

Figure 4.3 Bodies Involved in Disasters Policy

(Source: Balamir, 2004a)

4.2.4.1. Regional Centers of Civil Defense for Rescue and Emergency Attached to the Ministry of the Interior (Decree 586 and 596; 27.12.1999 and 28.04.2000)

The main aim of these decrees is to enhance search and rescue capacity of the General Directorate of Civil Defense (GDCD) including new regional search and rescue groups in 11 provinces: 'Adana', 'Afyon', 'Ankara', 'Bursa', 'Diyarbakır', 'Erzurum', 'İstanbul', 'İzmir', 'Sakarya', 'Samsun', and 'Van' (JICA, 2004). Each of these groups consists of 100-120 personnel, and are equipped and trained by the Civil Defence College of the GDCD (JICA, 2004). These regional centres are expected to prepare detailed local plans for their activities, training and occasional drills (Balamir, 2001a). Also, these are to reinforce the provincial 'rescue and aid committees' and local relief forces with more professional and alert reserves at strategically stationed regional centres (Balamir, 2001a).

At present, the total number of rescue personnel is around 853 and are ready to operate (JICA, 2004). Additionally, each province has its search and rescue units consisting of 10-20 staff. On the civilian side, many Search and Rescue (SAR) Groups have been formed as volunteer organizations (JICA, 2004). The TRCS also established a team for light search and rescue operations after the 1999 Earthquakes, but it is not active now due to lack of qualified personnel (JICA, 2004).

4.2.4.2. General Directorate of Emergency Management Attached to the Prime Ministry (Decree 583; 22.11.1999)

The unit first established with a staff of 16 persons as a directorate (Balamir, 2001a). Soon after this establishment, the directorate was promoted to a General Directorate responsible for high level coordination. The functions of the General Directorate are as follows:

- *coordination of post-disaster activities;*

- *formation of emergency management units in public organization;*
- *taking of disaster mitigation measures;*
- *short-term and long-term planning of related tasks;*
- *formation and management of data-banks;*
- *coordination of relief equipment and motor vehicles; and*
- *formation of scientific, technical and administrative committees* (Balamir, 2001a).

At present, the General Directorate of Emergency Management has taken part in these projects:

- 'Emergency Management and Response System' Project which is the sub-component of Marmara Earthquake Emergency Reconstruction (MEER) Project;
- 'Istanbul Seismic Mitigation and Emergency Preparedness' (ISMEP) Project.

4.2.4.3. The Independent National Earthquake Council (Prime Ministry Mandate 2000/9; 21.03.2000)

This Council of 20 scientists has been instituted by the Prime Ministry because of the chaotic environment created by the contradictory claims of earth scientists in particular and exploited by the media industry during the 1999 and 2000 (Balamir, 2001a). An authority was considered necessary which could make the final assessment of events in relation to earthquakes, and point to the necessary lines of action. Members were identified by universities and related institutions, each nominating individuals other than their own. The 20 scientists of the Council are distributed according to the related disciplines of 8 earth scientists, 8 structural and earthquake engineers, 4 other fields (currently composed of an architect, a planner, a social psychologist, and an environmental engineer) (Balamir, 2001a). The tasks of the council are identified as:

- *assessing seismic risk and informing the public;*
- *identifying priority research areas concerning mitigation;*

- *advising public bodies and developing policies and strategies; and*
- *evaluating petitions related to ethical matters of seismic risk predictions* (Keles, 2004; Balamir, 2001a).

The Council has determined its method of operation, made numerous public announcements, responded to various demands and questions of official bodies, especially from provincial administrations and municipalities, and in April 2002 published a white booklet entitled 'The National Earthquake Mitigation Strategy', reporting comprehensively on the tasks to be undertaken and indicating the responsible parties (JICA, 2004). This white book was distributed extensively to official bodies, universities, provincial and local authorities, members of the Parliament, etc. This strategy report is a comprehensive outline of actions that need to be taken for national earthquake loss mitigation (JICA, 2004). The chapters are listed as follows: Introduction, Earthquake Information Systems, Earthquake Safety of Urban Settlements, Earthquake Safety of Buildings and Facilities, Societal Education and Organization, Financial Resources Available for Earthquake Loss Mitigation, Legal Steps Necessary for Earthquake Loss Mitigation, The Role of Scientific and Technical Research in Earthquake Loss Mitigation (JICA, 2004).

The Council has no powers for enforcement, yet has programmed to hold workshops on the various aspects of the 'Strategy Report', inviting responsible agents and official bodies, professional chambers, universities, non-governmental organizations, etc. to review issues stated in the 'National Strategy' and build up national consensus on several issues (JICA, 2004). After the results of recent changes that have been made by the Government in TUBITAK, the council became unable to conduct its duties as expected, and effectively ceased to exist (JICA, 2004).

4.3. The Major Mitigation and Preparedness Projects

Following the losses suffered during the two major earthquakes that struck Turkey in 1999, there has been a broad recognition among Turkey's governmental, non-governmental and academic organizations of need for extensive mitigation and preparedness projects and reports based on developing strategies devoted to the reduction of disaster risks and detailed risk analyses of likely seismic hazards in Turkey general and, Istanbul, in particular.

In response to these needs, three national reports have been prepared during the past few years in Turkey, which contain recommendations and directives for disaster mitigation planning. These national reports are:

- The report of the 'National Strategy of the Reduction of Earthquake Losses' that is published by the National Earthquake Council in April 2002;
- The report of the 'Earthquake Management Study Group' in the 4th Economics Conference of Turkey organized by State Planning Organization in June 2004; and
- The reports of the 'Earthquake Convention' organized by the Ministry of Public Works and Resettlement in September 2004.

In addition to these conferences and reports, there were a number of mitigation and preparedness projects undertaken by the Government of Turkey (GOT). The major ones are 'The Study on A Disaster Prevention / Mitigation Basic Plan in Istanbul including Seismic Microzonation', 'Earthquake Master Plan for Istanbul' (EMPI), 'Marmara Earthquake Emergency Reconstruction' (MEER), and 'Istanbul Seismic Mitigation and Emergency Preparedness' (ISMEP) Projects. These projects are detailed below.

4.3.1. Earthquake Master Plan for Istanbul

The Metropolitan Municipality of Istanbul (MMI) cooperated with Japanese Jica teams in an analysis of hazard probability distribution in the region, and the preparation of microzonation maps in 2001. The Study on a Disaster Prevention / Mitigation Basic Plan in Istanbul including Seismic Microzonation identified the extent of potential damages throughout the metropolitan area. The Study took approximately 19 months up to the official submission of the Final Report in December 2002.

Having obtained a 'diagnosis' of the hazard, the following step for the MMI was to obtain a 'prescription' for action to avoid the impacts of the earthquake (Balamir, 2004c). For this purpose, in the aftermath of this study, the Istanbul Metropolitan Municipality signed a protocol with four universities to prepare an Earthquake Master Plan for Istanbul (EMPI) in late 2002 (Fernandez and others, 2004). Public funds were being spent to put the master plan together wherein a 'road map' wherein roles and commitment of stakeholders are described (Fernandez and others, 2004). This plan, with projects of implementation, a program or a 'road map' characterized as a social agreement, the proposal of gathering together different stakeholders prepared for different risk sectors; and the appropriation of the risk management undertakings and activities in transparency through common responsibilities by broad groups (Balamir, 2004c). EMPI was drafted and submitted by the end of July 2003 (Balamir, 2004c).

The Earthquake Master Plan of Istanbul, with its action oriented formation, contains three basic activities in its structure (See Figure 4.4). The first of these is the 'Mitigation Plan', which has to be prepared for the whole city and which maintains the coordination of the different sectoral preventive measures (The Report of Earthquake Master Plan of Istanbul, 2003). Mitigation Plan is the main program, in which the projects of management of the risks that caused by earthquakes and other

hazards in all systems and the sectors of the city, are integrated (The Report of Earthquake Master Plan of Istanbul, 2003). Second is the Local Action Plan, which defines the preparation and the going into action of the sub-projects and the implementation packets, aiming at the starting up of the collective regeneration processes in areas defined as of high risk (The Report of Earthquake Master Plan of Istanbul, 2003). Local Action Plan studies aim at the stimulation of the participation and the contribution of the local society, and an altogether physical and social development (The Report of Earthquake Master Plan of Istanbul, 2003). Thirdly, 'Programs of Research and Activity' are determined, in order to maintain and sustain the environmental conditions required for the realization of the first two activities (The Report of Earthquake Master Plan of Istanbul, 2003).

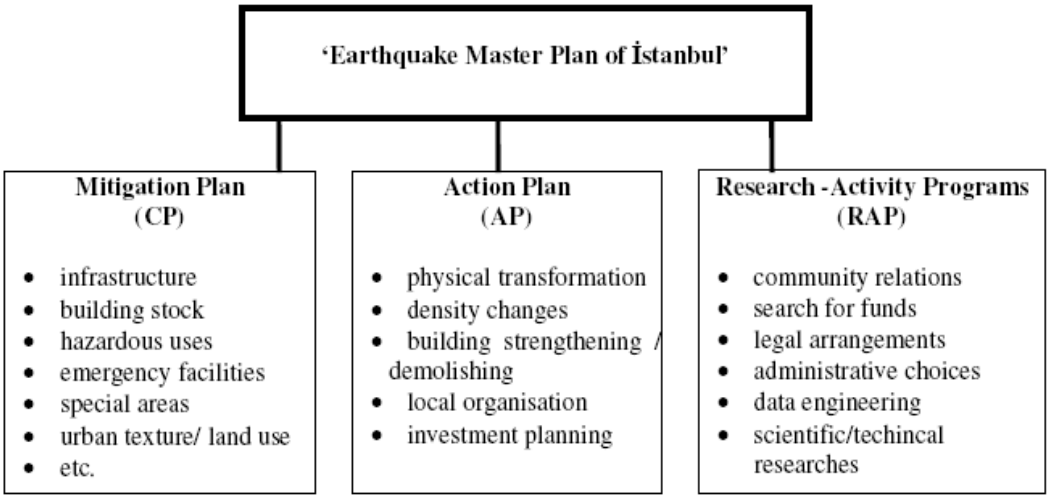

Figure 4.4 Istanbul Earthquake Master Plan Schema

(Source: The Report of Earthquake Master Plan of Istanbul, 2003)

It was the METU-ITU approach that based on an 'Urban Risk Analysis' methodology in which the natural hazard risks distribution together with the conceptualizations of 'urban risk-sectors' led to the structuring of a comprehensive line of action (Balamir, 2004c). The purpose of the study was to bring together and activate related components of public administration, business and industry, NGOs and local community representation in the long-term management of urban risks, to draw mutual agreements of conduct and control, and to run various sub-project packages (Balamir, 2004c).

In EMPI, 13 distinct risk sectors were identified, followed by the formulation of procedures and methods of risk mitigation (Balamir, 2004c). The thirteen risk sectors were; 'macro-form risks', 'risks in urban texture', 'risks related to incompatible uses', 'risks of productivity loss', 'risks in special areas', 'open space scarcity risks', 'risks related to hazardous materials and uses', 'risks in lifelines', 'vulnerabilities in historical and cultural heritage', 'risks in buildings', 'risks related to emergency facilities', 'external risks', and 'risks of incapacitated city administrations'.

According to EMPI, each risk sector demands distinct socio-spatial analyses, and methods of disaster mitigation. These imply the cooperation of different sets of authorities and stake-holders (Balamir, 2006). A reassessment of existing city administration procedures, new powers of implementation and tools for physical planning, encouragement of partnerships and private investments in comprehensive rehabilitation complemented the EMPI approach (Balamir, 2004c). Therefore a comprehensive technical methodology for risk management and complementary line of social action are simultaneously recommended (Balamir, 2004c). This plan further has constituted an example in Turkey and attracted special attention from all over the world.

4.3.2. Marmara Earthquake Emergency Reconstruction Project

At the request of the Government of Turkey (GOT), the World Bank has prepared a two stage program. The immediate response was to approve amendments to eight existing loans to the Republic of Turkey (Turkey Emergency Flood and Earthquake Recovery Project, Loan No. 4388-TU; Road Improvement and Safety Project, Loan No. 4048-TU; TEK Restructuring Project, Loan No. 3345-1-TU; National Transmission Grid Project, Loan No. 4344-TU; Employment and Training Project, Loan No. 3541-TU; Basic Education Project, Loan No. 4355-TU; Primary Health Care Services Project, Loan No. 4201-TU; and Health II Project, Loan No. 3802-TU). The purpose of the amendments was to reallocate funds in the amount of US$267 to provide immediate assistance for the restoration of housing, infrastructure, health, employment, training and educational services in the Marmara region (The World Bank, 1999).

As a second stage of its assistance program, the Bank has prepared two operations: an Emergency Earthquake Recovery Loan (EERL, US$252 million) that aims to assist Turkey to respond quickly to the earthquake through financing of private sector import requirements and budgetary support for priority actions under the Government's recovery program, and a Marmara Earthquake Emergency Reconstruction project (MEER, total cost US$737.11 million, of which US$505 million is Bank financed) for the reconstruction of the areas affected by the earthquake (The World Bank, 1999).

The MEER is a large operation focused on aimed at financing housing and physical infrastructure reconstruction as well as interventions that will contain damages in the case of a similar event (The World Bank, 1999). This project is part of the comprehensive Framework Program that has been prepared by the Bank in cooperation with UNDP, the European Union, other IFIs and other donors (The World Bank, 1999). All co-financiers and the GOT have requested that the

components supported by non-Bank sources be implemented in accordance with the procedures identified by the Bank for procurement, disbursement and financial management (The World Bank, 1999). They also requested that the Bank-financed Project Implementation Unit (PIU) be the central agency responsible for the realization of the overall Framework Program (The World Bank, 1999). Each financing partner is responsible for the outcome, monitoring and supervision of the respective sub-components, as outlined in Table 4.2.

The main objectives of the Framework Program are to help restore the living conditions in the region of Turkey that was affected by the August 17, 1999 Marmara Earthquake, support economic recovery and resumption of growth, and develop an institutional framework for disaster risk management and mitigation (The World Bank, 1999). To achieve this objective, the Framework Program helps the Government: *"(i) upgrade the disaster response systems, (ii) rehabilitate the damaged business sector and reduce the social effects of the earthquake, and (iii) reconstruct and repair affected housing and municipal infrastructure"* (The World Bank, 1999). In the context of this Program, the Bank finances specific components, which constitute the MEER project, and mainly focuses on building a sustainable national disaster response and risk mitigation system as a way to reduce the impact of future earthquakes on the country, in part by establishing a disaster insurance scheme, improving land use management and enforcement of building codes, and developing a cadastre system in the region, and on reestablishing normal living conditions in the areas hit the earthquake by supporting a trauma program for adults and constructing new permanent houses.

Table 4.2 Cost Breakdown of World Bank's Framework Program

(Source: MEER Project Information Document, the World Bank)

	Component		Cost (US$ million)	Source of funding
A	Disaster Response System and Risk Reduction Strategy	A1 National Emergency Management System	110.17	World Bank, Government of Turkey
		A2 Disaster Insurance Scheme	273.00	World Bank, Government of Turkey
		A3 Land Use Planning and Enforcement of Construction Codes	11.78	World Bank, Government of Turkey
		A4 Cadastre Renovation and Land Management	24.21	World Bank, Government of Turkey
		Subtotal	419.16	World Bank, Government of Turkey
B	Trauma Program for adults		6.89	World Bank, Government of Turkey
C	Construction of Permanent Housing in Bolu, Kocaeli and Yalova		293.32	World Bank, Government of Turkey
D	Project Management		12.69	World Bank, Government of Turkey
E	Business Rehabilitation		109.72	European Investment Bank
F	Construction of Permanent Housing in Bolu, Sakarya, Yalova, Istanbul, Bursa and Eskisehir		177.07	European Investment Bank
G	Repair of Existing Housing Stock and Healthcare Facilities		632.12	European Investment Bank
H	Rebuilding and Repair of Roads, Water Supply Systems, Wastewater Systems and Power Distribution Networks		139.73	European Investment Bank
	Front-end Fee		5.05	
	Total Program Cost		1,795.75	Of which US$505 million to be loaned by the World Bank

The project is under implementation and, to date, about 12,000 urban housing units have been completed and distributed to beneficiaries (JICA, 2004). Approximately 800 rural houses have been constructed in the project area (JICA, 2004). Furthermore, over 2 million earthquake insurance policies were issued through the Turkish Catastrophic Insurance Pool (TCIP).

4.3.3. Istanbul Seismic Mitigation and Emergency Preparedness Project

The Government of Turkey and the World Bank are working together to prepare a proposed Istanbul Seismic Risk Mitigation and Emergency Preparedness (ISMEP) Project. The objective of the project is assisting the Government in mitigating seismic risks in the municipality of Istanbul and further strengthening the capacity for emergency preparedness in order to reduce the social, economic and financial impacts of potential future earthquakes (The World Bank, 2005).

The Feasibility Study tests approaches to the structural retro-fitting (strengthening) of residential buildings in order to reduce their vulnerability to seismic forces and the consequent risks to occupants (The World Bank, 2005).

The Bakirkoy Municipality has undertaken preliminary surveys of its residential building stock, including soil condition and rapid structural performance assessments of each building individually (The World Bank, 2005). This survey has enabled the authorities to identify approximately 3500 buildings, or one third of its total stock, categorized on the basis of structural and soil conditions as at 'high' or 'very high' earthquake risk (The World Bank, 2005). Three hundred and sixty-nine of these buildings, in which the majority of owners accepted to be part of a detailed assessment, will be the subject of this Study (The World Bank, 2005). Project implementation has been placed under the responsibility of the Governor of Istanbul and Istanbul Project Coordination Unit (IPCU) has been established under the Governor's Office.

The project consists of the following components and activities:

- *Component A - Enhancing Emergency Preparedness: The objective of this component is to enhance the effectiveness and capacity of the provincial and municipal public safety organizations in Istanbul to prepare for, respond to and recover from significant emergencies, especially those arising from earthquakes.*
- *Component B - Seismic Risk Mitigation for Public Facilities: The objective of this component is to reduce the risk of future earthquake damage to critical facilities and lifelines in order to save lives and ensure their continued functioning in the event of an earthquake.*
- *Component C - Enforcement of Building Codes: The objective of this component is to support innovative approaches to better enforcement of building codes and compliance with land use plans.*
- *Component D - Project Management: The objective of this component to support project management and build sustainable capacity in the provincial and municipal government institutions to undertake such programs on a sustainable basis* (The World Bank 2005).

It was claimed that the design of ISMEP project will take into account international and national experience (The World Bank, 2005). However, ISMEP has no references with the new international understanding of mitigation (Balamir, 2006:7). ISMEP neither has any emphasis in spatial analysis of risks (Balamir, 2006:7). This is inconsistent with the intentions declared at the beginning of the project that ISMEP *"aims at transforming Istanbul in the next 10-20 years into a city resilient to major earthquake"*, and that seeks *"improvements in compliance with building codes and land-use plans"* (The World Bank, 2005; Balamir, 2006:7)

Together with the experience of EMPI, *"Turkey has generated considerable know-how in the area"* (Balamir, 2006:5). However, ISMEP and MEER projects seem to far away from the new international understanding of disaster mitigation, and avoid

consultations with the National Earthquake Council and academia in different disciplines (Balamir, 2006:5).

4.4. Turkey's Disaster Management System in terms of the Kobe Criteria

As mentioned in the previous chapters, there are five broad thematic areas addressed in the World Conference (2005). The elements of these thematic areas have provided a common basis for consolidated observations and national reports. The scope of disaster mitigation in the new approach is best expressed perhaps in questions directed during Conference activities, to the national representatives:

- *Political and Institutional Commitment*: as revealed by legislation addressing disaster risk reduction, incorporation of risk reduction concepts, annual budget allocated for disaster risk reduction, and encouragement and active participation in disaster risk reduction efforts by the private sector, civil society, NGOs, academia and media;
- *Risk Identification Efforts*: as evident in hazard mapping, vulnerability and capacity assessments, mechanisms for risk monitoring and risk mapping, socio-economic and environmental impact analyses;
- *Knowledge Management*: as practiced in risk information management systems, academic and research communities dealing with disaster reduction, educational programs related to disaster risk reduction, training programs, indigenous knowledge and wisdom, and public awareness programs;
- *Risk Management Applications and Instruments*: as implemented through environmental management and risk reduction practices, financial instruments to reduce the impact of disasters, and technical measures or programs on disaster risk reduction; and
- *Preparedness and Contingency Planning*: as revealed by strengthening disaster preparedness for effective response at all levels and implemented through disaster contingency plans at national and community levels.

Based on these elements of broad thematic areas addressed in the Kobe Conference, Turkey's disaster management system was highlighted in this chapter with the identification of a number of issues to be tested (See Table 4.3).

Table 4.3 Issues of Broad Thematic Areas Addressed in the Kobe Conference (Source: UNISDR, 2004)

Thematic Areas	Components of the Areas	Characteristics of the Areas	Issues to be Tested
Political Commitment and Institutional Development	*Policy and planning*	-Risk reduction as a policy priority -Integration of risk reduction in development planning;	-The fundamental components (laws, acts and regulations)of a general policy of disasters dealing with the (pre-disaster) risk management; -An institutional basis for disaster mitigation; -Funds that are available at the national context for which cities compete to receive assistance for the preparation and implementation of disaster mitigation; -Recent legislative and organizational actions in the form of new provisions, new laws and new bodies dealing with disaster risk management and local administrations; and -Regional and local development plans, major national reports and projects considering disaster risk management.
	Legal and regulatory framework	-Laws, acts and regulations; -Compliance and enforcement;	
	Resources	-Resource mobilization and allocation, innovative and alternative funding, taxes, incentives;	
	Organizational structures	-Multidisciplinar and multisectoral approaches; -Implementing and coordinating mechanisms;	

These issues were the fundamental components of a general policy of disasters dealing with the (pre-disaster) risk management; an institutional basis for disaster mitigation; funds that are available at the national context for which cities compete to receive assistance for the preparation and implementation of disaster mitigation; recent legislative and organizational actions in the form of new provisions, new laws and new bodies dealing with disaster risk management and local administrations; and regional and local development plans, major national reports and projects considering disaster risk management in Turkey. The observations can be summarized as follows.

Turkey's natural legislation addressing disaster management is the Disasters Law No.7269, adopted in 1959. In a general manner, the fundamental components of a general policy of disasters in Turkey have been mostly dealing with the post-disaster operations and in practice, disaster mitigation requirements are hardly fulfilled. There has also been a lack of coherence between the disaster management system and development system in Turkey.

Currently, the Turkish Emergency Management General Directorate (TEMAD) of the Prime Ministry, the General Directorate of Disaster Affairs (GDDA) of the Ministry of Public Works and Settlement and the General Directorates of Civil Defense (GDCD) of the Ministry of Interior are in overall responsibilities with respect to disaster management duties in Turkey. Decree No.600 has established TEMAD and given some authority and responsibilities to TEMAD especially in terms of coordination of post-disaster activities as well as mitigation efforts. However, in practice, there were some difficulties to coordinate the disaster management activities and investments. Besides the local administrations only have the role of providing the logistic support to the central organs whereas the disaster risk management responsibilities must lie here. Although the new laws of local administrations contain increased tasks and privileges to local administrations about

disaster management, a confusion of pre-disaster and post-disaster responsibilities, and therefore of authorities are still observed.

The source of finances for meeting the costs of disasters in Turkey had conventionally been the Disasters Fund as described in the 'Disasters Law'. The Fund was supplemented with annual allocations from the national budget. More than a decade ago, the Fund was transferred into a central pool of funds by the Government and was practically dissolved. Since then, allocations for disasters have been made either by the Board of Ministers, Prime Ministry, or the Ministry of Public Works and Settlement. The fund allocated from national budget is being used for emergency management studies, in-service training, organized education and the awareness of the personnel and voluntaries. Therefore, the fund allocated for disasters does not encourage and facilitate mitigation work.

Following the 1999 Marmara Earthquake, important steps were taken by the Government. These are the introduction of institutions of 'obligatory earthquake insurance', 'construction inspection' functions, and provisions for the improvements in 'professional competence'. Organizational establishment of new bodies such as 'Regional Centers of Civil Defense for Rescue and Emergency', 'General Directorate of Emergency Management', and 'The Independent National Earthquake Council' were further taken into the agenda of the government. Besides, three national reports have been prepared during the past few years in Turkey and in addition to that, there were a number of mitigation and preparedness projects undertaken. The national reports contain recommendations and directives for disaster mitigation planning projects. However the projects undertaken are mostly seem to far away from the new international understanding of disaster mitigation, and avoid consultations with the three national reports and academia in different disciplines. Although it is clear that a new perspective was introduced with these important steps due to the 1999 events, Turkey has not fully recognized the need for a powerful disaster risk management. The conventional disaster management system still ignores the nature of new policy

based on the global trend and there have been no political commitment for disaster mitigation in Turkey. Therefore, Turkey in its disaster policy is still far from a comprehensive mitigation approach in terms of the Kobe criteria. Consequently, risk management at every level in Turkey is yet far from being at a satisfactory state.

To ascertain the reasons underlying the resistance of the conventional system to the new policy, and analyze the effectiveness of mitigation policies in the central and local levels in Turkey, the structure of administration and its performance will be evaluated in the next chapter. An evaluation of the interviews with different sources are employed, a comparison of Turkey's disaster management system with three other countries' system is made and lastly new laws enacted by the Grand National Assembly of Turkey concerning disasters and local administrations are reviewed in the next chapter to build a more effective basis for this assessment and to conclude the study.

CHAPTER V

5. EVALUATION OF TURKEY'S DISASTER MANAGEMENT SYSTEM

In the previous chapters, a background study on the development of the disaster risk management in the international as well as national Turkish environment has been provided and the theoretical frameworks for evaluating the main attributes of disaster management systems have been reviewed. This background study further provided the foundation on the interview questions, and the comparative analysis to evaluate Turkey's disaster management system and local administrations' role in reducing disaster risks.

In this chapter, Turkey's disaster management system and local administration's role in reducing risks have been evaluated through reports on the interviews and a comparative study of disaster-related policies in four countries.

5.1. Reports on the Interviews

In the analysis of effectiveness of mitigation policies in the central and local levels in Turkey, the structure of administration and its performance is evaluated. To build a more effective basis for this assessment, a number of interviews were organized. A selected set of specialists in the field of disaster management in Turkey were accessed and considered a focus group for interviews.

The first interview group is from the General Directorate of Disasters attached to the Ministry of Public Works and Settlement, the second group is from General Directorate of Emergency Management attached to the Prime Ministry, and last

group is from the Directorate of Civil Defense attached to the Ministry of the Interior. In addition to these, interviews with the vice-chairman of the National Earthquake Council and the legal advisor of the Ministry of the Interior were accomplished. In the focus group interviews, their following observations about:

- the World Conference on Disaster Risk Reduction (WCDR);
- Turkey's National Report submitted to the WCDR;
- recent changes and developments in disaster risk management in the international as well as Turkish environment;
- the draft Law of Disasters; and
- role of local administrations in reducing disaster risks were highlighted.

Under these titles, 15 questions have been asked to the specialists in the field of disaster management (See Appendix C for questions and answers of the interviews). These specialists are Sabahattin Özçelik from General Directorate of Civil Defense, Orhan Topçu from General Directorate of Emergency Management, Turan Erkoç, Bülent Özmen, Demir Akın and Hayriye Şengün from General Directorate of Disasters, Oktay Ergünay, the vice-chairman of the National Earthquake Council, and Mehmet Yılmaz, the legal advisor of the Ministry of the Interior (See Table 5.1). Their observations are to provide an assessment of the disaster policy performance in Turkey. Reports on the interviews under determined titles are given below.

Table 5.1 List of Specialists of the Interview Groups

Selected Specialists	Organization	Position	Profession
Sabahattin Özçelik	General Directorate of Civil Defense	Head of Warning and Alarm Department	Flag Officer
Orhan Topçu	General Directorate of Emergency Management	Specialist in General Directorate of Emergency Management	Counselor
Turan Erkoç	General Directorate of Disasters	Chief of Emergency Relief and Coordination Department	Civil Engineer
Bülent Özmen	General Directorate of Disasters	Specialist in Earthquake Research Department	Geological Engineer
Demir Akın	General Directorate of Disasters	Specialist in Earthquake Research Department	Geophysical Engineer
Hayriye Şengün	General Directorate of Disasters	Specialist in Earthquake Research Department	Statistician
Oktay Ergünay	National Earthquake Council	Vice-chairman of the National Earthquake Council	Geophysical Engineer
Mehmet Yılmaz	Ministry of the Interior	Legal advisor of the Ministry of the Interior	Counselor at Law

5.1.1. The World Conference on Disaster Reduction and Turkey's National Report Submitted to the Conference

From the specialists in the field of disaster management interviewed, Orhan Topçu, Bülent Özmen and Mehmet Yılmaz have attended to the World Conference on Disaster Reduction in Kobe. According to their observations, 16 persons took part in the Conference (2005) to represent Turkey (See Appendix D for list of participants of the Conference). There were approximately 1500 delegations from more than 160

Member States in the Conference. A large number of events took place under the thematic segment, which provided the substantive part of the Conference, in all areas related to disaster risk reduction. The panels were led by government representatives with the support of agencies. Furthermore, with approximately 40,000 general participants and visitors, the Public Forum provided opportunities to promote organizations' own activities through presentations, posters and a public exhibition, engaging in open debates, seminars and a variety of events.

Turkey's National Report submitted to the Conference was prepared by Ministry of Foreign Affairs. According to Demir Akın and Hayriye Şengün, the report was huddled over. Also all specialists interviewed are in the opinion of that the report did not reflect the overall developments in disaster risk reduction in Turkey. Bülent Özmen and Mehmet Yılmaz maintain that Turkey's power point presentation in the Conference is more comprehensive and a better study. Furthermore Oktay Ergünay claims that Turkey's national report prepared in 1990s and submitted to IDNDR was more comprehensive. Orhan Topçu emphasizes that the reason for submitting a perfunctory report was the lack of coordination between the bodies involved in disasters policy.

5.1.2. The Constant Evolution and Developments in Disaster Risk Management in the International Arena

Orhan Topçu, Demir Akın and Hayriye Şengün agree that in the international arena, a shift gradually occurred where the emphasis is mitigating risk and hazards with a more proactive approach. Other countries like Japan, the United States and Australia have promoted mitigation as a national policy priority over the last decade. In addition, they all have adopted disaster risk management strategies, reviewed their laws and regulations, and implemented disaster risk reduction projects. According to them, disaster mitigation has not yet been fully integrated into Turkey's disaster management system and the process of shifting emphasis to disaster risk reduction

has not completed. They all have the same opinion that Turkey has the capacity to be successful in disaster mitigation, but a strong, long-term political commitment will be required to shift the orientation of Turkish disaster management toward the reduction of disaster impacts.

5.1.3. Recent Changes and Developments in Turkey's Disaster Management System after the 1999 Earthquakes

All the specialists have the same opinion that after the 1999 Earthquakes important steps were taken, however there are still duplication and overlapping of authorities in Turkey's existing disaster management system. They all highlight that the important shortcoming of Turkey's disaster management system is the lack of a national disaster management strategy. Oktay Ergünay mentions that the conspicuous steps taken by the Government after the 1999 Earthquakes are the Obligatory Insurance System and National Earthquake Council. On the other hand, Ergünay emphasizes that insurance system has not cover some of the other common disasters such as flooding and besides the government has not greatly benefited from the National Earthquake Council. According to Demir Akın and Hayriye Şengün, the government has not carried on the mitigation studies and projects in the same acceleration at present, the laws have not been revised coherently, and the policy of 'healing the wounds' was still the basic principle in response to disasters.

Sabahattin Özçelik indicates that disaster risk reduction is a long-term action and therefore there should be determined priorities, financial resources allocated to mitigation, and it should be organized carefully. Orhan Topçu emphasizes that Turkey's disaster management system should be fundamentally centered in the community and driven down to individuals and their families through education that informs people they are responsible for their own welfare. Turan Erkoç and Bülent Özmen underline that the findings of the conferences and the reports made after the 1999 Earthquakes should be taken into consideration and implemented.

5.1.4. The Draft Law Replacement for Disasters Law (7269)

All of the specialists interviewed agree that the draft law replacement for Disasters Law falls short of constituting a cotemporary disaster management system. Turan Erkoç, Bülent Özmen, Demir Akın and Hayriye Şengün indicates that the draft law was prepared by political specialists rather than technical ones. Sabahattin Özçelik and Orhan Topçu emphasizes that were no major changes in the draft law, it still deals with the post-disaster operations and relief organizations rather that disaster risk reduction operations, and the mentality behind the draft law is same with Disasters Law. Therefore, they are all in the same opinion that the draft law has not changed the Disasters Law's post-disaster approach to a pre-disaster mitigation approach and it has not brought in responsibilities and structures to improve Turkey's disaster management system.

5.1.5. Role of Local Administrations in Reducing Disaster Risks

There are given increased tasks to local administrations about disaster management with recent legislative action in the form of new local government acts. Sabahattin Özçelik, Turan Erkoç, Demir Akın and Hayriye Şengün agree that local administrations should have responsibility to do disaster management including specific disaster mitigation activities. However, they emphasize that these tasks have not been accompanied by an increased attention to risk management frameworks within the public sector yet. They furthermore add that there is a lack of the political support, financial resources or technical expertise in local administrations to meet these tasks.

5.2. Comparison of Turkey's Disaster Management System

As mentioned in the previous chapters, there are five broad thematic areas addressed in the World Conference (2005). The elements of these thematic areas have provided

a common basis for consolidated observations and national reports. The scope of disaster mitigation in the new approach is best expressed perhaps in questions directed during Conference activities, to the national representatives:

- *Political and Institutional Commitment*: as revealed by legislation addressing disaster risk reduction, incorporation of risk reduction concepts, annual budget allocated for disaster risk reduction, and encouragement and active participation in disaster risk reduction efforts by the private sector, civil society, NGOs, academia and media;
- *Risk Identification Efforts*: as evident in hazard mapping, vulnerability and capacity assessments, mechanisms for risk monitoring and risk mapping, socio-economic and environmental impact analyses;
- *Knowledge Management*: as practiced in risk information management systems, academic and research communities dealing with disaster reduction, educational programs related to disaster risk reduction, training programs, indigenous knowledge and wisdom, and public awareness programs;
- *Risk Management Applications and Instruments*: as implemented through environmental management and risk reduction practices, financial instruments to reduce the impact of disasters, and technical measures or programs on disaster risk reduction; and
- *Preparedness and Contingency Planning*: as revealed by strengthening disaster preparedness for effective response at all levels and implemented through disaster contingency plans at national and community levels.

Based on these elements of broad thematic areas addressed in the World Conference, Turkey's disaster risk management system and local administrations' role in reducing disaster risks have been evaluated and compared with other three national systems below.

As highlighted in Chapter 3, Japans have developed a centralized, coercive, impact-based and hazard-specific disaster management approach. Beside Japan, New Zealand runs a decentralized, cooperative, consequence-based and comprehensive system of disaster management, and the U.S. has a centralized, regulatory, impact-based and comprehensive disaster management approach. Although the structural configurations between these nations' disaster management systems differ; the relationship between central and local governments are not the same; and the power and authority relations are different, they have a number of shared points. First of all they all have effective disaster management systems and there has been a struggle to promote 'mitigation' as a national policy priority over the last decade. In addition, they all have adopted disaster risk management strategies, reviewed their laws and regulations, and implemented disaster risk reduction projects.

In comparison with these three national systems, disaster management system of Turkey is highly centralized, hierarchical and reactive (JICA 2004). In Turkey, the policy of 'healing the wounds' is still the basic principle in response to disasters. Even though Turkey has moved forward in this field after the 1999 Earthquakes, the experiences still have clearly shown the shortcomings and weaknesses of the disaster risk management strategies and systems that exist in Turkey. These weaknesses are discussed and compared with three national systems under determined titles indicated in Chapter 3.

5.2.1. Natural Legislation and Strategy Addressing Disaster Risk Management

Turkey's natural legislation addressing disaster management is the Disasters Law no. 7269, adopted in 1959. In 2000, the United States adopted the Disaster Mitigation Act, replacing the 1988 Robert T. Stafford Disaster Relief and Emergency Assistance Act, and also in 2002 New Zealand adopted the Civil Defense Emergency Management (CDEM) Act, replacing the 1983 Civil Defense Act. They both renewed their natural disaster laws following the international progresses in disaster

management. Their laws both address and emphasize the risk management and mitigation issues. Japan's natural disaster law, the Disaster Countermeasures Basic Act, was adopted in 1961. Although it was adopted in earlier times, it has been periodically revised with following a major disaster. The last revision of the Disaster Countermeasures Basic Act was under consideration following the 2005 Fukuoka-ken Seiho-oki earthquake.

Turkey's Disasters Law is old fashioned in comparison with the three national disaster laws. Furthermore it only contains a few provisions for pre-disaster activities and in practice disaster mitigation requirements are hardly fulfilled. The local administrations only have the role of providing the logistic support to the central organs whereas the disaster risk management responsibilities must lie here. Besides its confinement to post-disaster operations and its content disparate from the Development Law, the Disasters Law and its regulations fall short of constituting a cotemporary disaster management system.

The draft replacement for Disasters Law (7269) has been issued by the Ministry of Public Works and Settlement; however it is not transmitted to the parliament for action. When the draft law examined carefully, it is stood out that there were no major changes in its contents which is still disparate from the Development Law and it still has not address and emphasize the risk management and mitigation issues and has not differentiate risk management from emergency management as distinct technical and administrative tasks at the different levels of administration.

In addition to revisions made in their natural legislations addressing disaster risk management, Japan, New Zealand and the U.S.A have developed national disaster management strategy and basic plans setting out comprehensive and long-term actions for disaster risk reduction. However, Turkey does not have a national disaster management strategy which includes all types of disasters, determines priorities and sets out long-term actions for disaster risk reduction in Turkey.

5.2.2. National Body for Coordination in Disaster Risk Management

Although in Japan the overall policy development and coordination of disasters lies with the Cabinet Office and in the U.S.A. the central coordinating agency is Federal Emergency Management Agency (FEMA), New Zealand does not have a national body that combines all sector coordination and collaboration in disaster risk reduction. However, in all three countries disaster risk reduction is done effectively through different structures.

Currently, the Turkish Emergency Management General Directorate (TEMAD) of the Prime Ministry, the General Directorate of Disaster Affairs (GDDA) of the Ministry of Public Works and Settlement and the General Directorates of Civil Defense (GDCD) of the Ministry of Interior are in overall responsibilities with respect to disaster management duties in Turkey (JICA, 2004). Decree No.600 has established TEMAD and given some authority and responsibilities to TEMAD especially in terms of coordination of post-disaster activities as well as mitigation efforts. However, in practice there were some difficulties to coordinate the disaster management activities and investments (JICA, 2004). There are duplication and overlapping of authorities in Turkey's existing disaster management system.

Municipalities and governorships are also responsible for mitigation activities. The provincial governorships and the municipalities have had an incongruous relationship. Provincial administrations are fully responsible and liable for all activities and losses after a disaster, but have no powers to intervene in the development processes in normal times (Balamir, 2001a; JICA, 2004). Municipalities ordinarily have all the powers of monitoring, planning and constructional activities, but can ignore technical requirements and are not held accountable (Balamir, 2001a; JICA, 2004). Even though responsibilities of local administrations have now been extended to be more explicit about disaster preparation and mitigation duties by new Local Administrations Laws, local

administrations lack the financial and technical skills to meet these obligations (JICA, 2004).

5.2.3. Financing Mechanisms for Disaster Risk Management Initiatives

In Japan, disaster risk management is covered in the state budget. In fiscal year 2003, the budget for disaster risk reduction was approximately 2.7 trillion yen, which is about 5% of the total general-account budget. In New Zealand, risk reduction initiatives are funded through annual local government budgeting processes. Occasional special case specific funding is approved from central government for projects where the costs of reducing likely risk are beyond the ability of the community to pay for it. Post disaster, central government funding is also available through a formula process of shared funding, but government policy emphasizes the responsibility of regional and local authorities making a significant effort to invest in risk mitigation work before central government funding is available.

In addition, there are 'Funds' that are available at the national context for which cities compete to receive assistance for the preparation and implementation of 'Mitigation Plans'. One example of this approach has been that of the U.S.A. Disaster Mitigation Act of 2000 (Public Law 106-390). This has been an impressive move to indicate the greater emphasis given to pre-disaster measures, and raised confidence (Balamir, 2005). The Act introduced various concepts and mechanisms: 'Pre-Disaster Mitigation Fund', 'Multi-Hazard Advisory Maps', 'Community Mitigation Plans', 'Public-Private Hazard Mitigation Partnerships', 'Safe Land-Use and Construction Practices'. Accordingly, assistance could be given to repair/ restore/ reconstruct/ replace facilities be it critical services, public, or private non-profit facilities, individuals and households in need (Balamir, 2005). It is the President's prerogative to allocate a minimum of 500 000$ to local authorities if and when they prepare and submit 'cost-effective mitigation plans' and the method of producing evidence of compliance to the plan (Balamir, 2005). The funds could be

used for many kinds of mitigation measures, as well as property acquisition (Balamir, 2005).

The source of finances for meeting the costs of disasters in Turkey had conventionally been the Disasters Fund as described in the 'Disasters Law'. The Fund was supplemented with annual allocations from the national budget, and there was always the possibility of producing governmental decisions in the case of a major event. Expenditures made for individuals from the Fund were in the form of credits with very low interest, to be paid back in 15-30 years. The Fund was used for post-disaster relief and compensatory operations only, rather than for disaster mitigation activities. Yet extension of the eligible groups, and frequent 'erasing' of the debts as part of habitual populist policies, together with high inflation rates have rapidly depleted the potential power of the Fund as envisaged in the Law (Balamir 2001a). More than a decade ago, the Fund was transferred into a central pool of funds by the Government and was practically dissolved. Since then, allocations for disasters have been made either by the Board of Ministers, Prime Ministry, or the Ministry of Public Works and Settlement. The fund allocated from national budget is being used for emergency management studies, in-service training, organized education and the awareness of the personnel and voluntaries (Turkey's National Report, 2005). The setting up of the Insurance Fund is an achievement that can not be exaggerated (Balamir, 2001a). In terms of its sources, pace of accumulation and size, it will prove of global significance. Yet the current scope envisaged for its use is too narrow. Any fund allocated for disasters has to encourage and facilitate mitigation work rather than be kept solely as a reserve for compensations or be used for relief operations.

5.2.4. Integrating Disaster Risk Management into the Development Process

There is a comprehensive plan setting out Japan's policy on development, based on the Comprehensive National Development Act. The National Development Plan,

drafted in 1998, identifies *"making Japan a safe and comfortable place to live"* as one of the five fundamental objectives of national development, and defines its aim as improving the country's safety with regard to large-scale earthquakes and other natural disasters. *"Disaster mitigation counter risk reduction measures"* based on the principle of minimizing the damage caused by disasters is prioritized as the main task. In New Zealand, disaster risk management is taken into consideration in the preparation of regional and local development plans. It is also a fundamental driver for utility planning. Regional and territorial local authorities are required to do risk management under the Local Government Act, 2002. Developmental Plans such as Regional Policy Statements, Regional Plans, District Plans, Coastal Management Plans, Water Plans, etc. link development and disaster risk management including community safety goals.

In Turkey there are five-year plans which are the principal instruments of the Turkish development. However the policies that should be applied in order to reduce the disaster risks were not classified and mentioned in separate chapters in these development plans. In the First Development Plan to the Seventh, the parts of the development plans related to natural disasters, precautions and applications to reduce disaster risks were neglected and were not applied in priority. State Planning Organization (SPO) have created a special commission, on Natural Disasters after the 1999 earthquakes for the preparations of Eighth five year development plan, and made some concrete recommendations considering four main aspects which are: Legislative issues, Staff and financial infrastructure, Training and technical infrastructure, Long term actions. However, in the most recent development plan, The Ninth Five-Year Development Plan (2006-2010), precautions and applications to reduce disaster risks were not classified in separate chapters and neglected again. Briefly the linkage between disaster risk management and development has not been established lastingly within the context of national development in Turkey.

5.2.5. Role of Local Administrations in Reducing Disaster Risks

In Japan, New Zealand and the U.S.A, local administrations have responsibility to do disaster risk management including specific disaster mitigation activities. They also manage land use for the purpose of reducing disaster risks. In many cases however, local governments have not established mitigation programs yet, lacking the political support, financial resources or technical expertise required to create and sustain them.

The dual organization of local administration in Turkey, with appointed governors and elected municipal officials, establishes the basis for their distinguished role in disaster management (Balamir, 2004a). Provincial governors are agents of the central authority, therefore they perform in–line, coercive functions when managing emergency situations province-wide (Balamir, 2004a). This is achieved through powers provided in the 'Disasters Law' (7269). Accordingly, the governor assumes every conceivable prerogative to act in extraordinary situations (Balamir, 2004a). The mayor and municipal bodies fall under the authority of the governor under these circumstances (Balamir, 2004a). It should be expected that reciprocal powers could be assumed by municipalities as agents of city administrations in ordinary times (Balamir, 2004a). This is far from reality since risk considerations are not required in land-use planning and building construction according to Development Law (3194). Yet as experience has shown, negligence in development has resulted in massive losses in financial and human terms (Balamir, 2004a). A reassessment and reorganization of this system is an essential step for any improvement in disaster risk management in Turkey (Balamir, 2004a). Most requirements for disaster risk management also point to the need to empower local administrations (Balamir, 2004a).

Recent legislative action in the form of new laws taken by the Grand National Assembly of Turkey has targeted restructuring of central and local administrations.

Most importantly, in 'Provincial Special Administrations' (5302), 'Municipalities' (5393), and 'Metropolitan Municipal Governments' (5216), there are given increased tasks and privileges to local administrations about disaster management. Preparedness, mitigation, intervention and rehabilitation works have been transferred almost to the municipal and special provincial administrations (JICA, 2004). To date, these bodies have not played a significant role in these new platforms, so it is at the present time not known how they will assess their natural hazards and risks, prepare strategic plans and programs for disaster reduction (JICA, 2004). This makes it an essential prioritized task that mayors, their deputies and municipal council and assembly members should be urgently educated and supported in terms of organizational structure and financial resources to meet these obligations.

Table 5.2 Comparison of Three National Disaster Management Systems with Turkey

Attributes	**Japan**	**New Zealand**	**The U.S.A**	**Turkey**
Overall Approach	Centralized / Directive Fragmented Reactive	Decentralized / Cooperative Inclusive Proactive	Centralized / Regulatory Comprehensive Proactive	Centralized / Regulatory Fragmented Reactive
Supporting Platform	Incremental	Green-fields approach	Pressure from National Governors' Association	Ministry of Public Works and Settlement
Legislation Characteristic	1961 Disaster Countermeasures Act 15 generic Acts 28 hazard-specific Acts Reactive	2002 Civil Defense Emergency Management Act Risk-based Proactive Empowering	2000 Disaster Mitigation Act 2 disaster mitigation grant program Proactive	1959 Disasters Law 1985 Development Law Hazard-based Reactive
Disaster Management Approach	Product-focus Impact-based Technical research / response	Process-focus Consequence-based Mitigation / response	Process-focus Impact-based Technical research / mitigation /response	Product-focus Impact-based Technical research / response
Decision-making Style	Reactive	Proactive	Proactive	Reactive
Level of Specificity	Hazard specific Structural mitigation dominates	All-hazard Integrated mitigation Promote risk reduction	All-hazard Integrated mitigation Promote security oriented issues	Hazard specific Structural mitigation and retrofitting dominates
Focal Agency Attributes	Cabinet Office Non-military head Policy-advice Operational advice	MCDEM Non-military head Policy-advice Operational control	FEMA Non-military head Policy-advice Operational control	General Directorate of Disasters, TEMAD, GDCD Policy-advice Enforcement

5.3. Evaluation of the Recent Laws

New laws have been enacted by the Grand National Assembly of Turkey concerning disasters. These are the 'Provincial Special Administrations' (5302), 'Municipalities' (5393), 'Metropolitan Municipal Governments' (5216) Laws, and the draft law of 'Urban Regeneration'. Powers and responsibilities are given (5216/7, 5293/53, 5293/73) to local administrations concerning disaster management. However, there are no valid terminologies, references and detailed definitions/directives for disaster risk management and city-scale mitigation planning. These provisions related to disaster risk management are evaluated below.

5.3.1. Metropolitan Municipal Governments Law (5216; 10.07.2004)

In the 'Metropolitan Municipal Governments' Law, Article 7 is directly related to natural disasters.

"The Authority, Responsibility, and Duties of Metropolitan Municipalities

Article 7

u) (to) ***prepare plans for natural disasters that is coherent with the city-scale development plans*** *and undertake the other* ***metropolitan-scale preparations****; (to)* ***provide tools and equipment for other disaster regions*** *when necessary; (to) organize fire brigades and emergency relief operation groups; (to) allocate places of production and storage of hazardous materials; (to)* ***control the measures taken for the fire and other disasters*** *in dwelling units, offices, entertainment places, factories and industrial establishments, and also public institutions, and grant permissions and license referring to the relevant laws.*
z) (to) evacuate and demolish ***buildings that contain disaster risks*** *and do not provide means for securing life and property".*

In this article, there are terminological mistakes, undefined and undetermined processes/stages, and contradictions with 'Disasters' Law. First of all, it is indicated that metropolitan municipalities are responsible for drawing plans for natural disasters in this article. However, it is not clarified in the Law what kind of plans or planning processes can be designed for natural disasters. Furthermore, there is a conflict of authority with the 'Disasters' Law which provides ultimate powers for emergency management to the provincial governors. The governor has the sole authority with powers of commanding all resources and therefore, is responsible for drawing an 'action plan' or 'emergency plan' for relief operations. On the other hand, almost the same responsibility is given to the metropolitan municipalities in this more recent 'Metropolitan Municipal Governments' Law. Instead of differentiating risk management from emergency management as distinct technical and administrative tasks at the different levels of administration, this provision is in conflict with 'Disasters' Law.

5.3.2. Municipalities Law (5393; 03.07.2005)

In the 'Municipalities' Law, there are two articles (Article 53 and 73) related to disaster management or disaster risk mitigation.

"Municipal Police, Fire Departments, and Emergency Planning

Article 53

- Municipalities considering local characteristics of the city, ***prepare the necessary disaster and emergency plans****, and provide technical experts and equipments aiming* ***to avoid from and reduce losses of the fire, industrial accidents, earthquakes and other natural disasters****.*

- The emergency plans should be coordinated with other city-scale emergency plans and should be prepared ***in accordance with related ministerial office, public institutions, professional organizations, universities and other local authorities' consultations****.*

- Municipalities can make ***collaborative programs with administrations, institutions and organizations*** *mentioned in the second paragraph to* ***take measures for public education*** *in accordance with emergency plans.*

- Municipality can provide aid and logistical support for other regions which are out of the municipal borders".

"Urban Regeneration and Development Areas

Article 73

- Municipality can ***implement urban regeneration and development projects*** *for the purposes of reconstructing and restoring obsolescent areas of the city in accordance with the city development; designating residential areas, industrial and commercial areas, social areas and techno-parks;* ***taking preventive measures for earthquake risks*** *or protecting historical and cultural texture of the city".*

These articles fall short of using valid terminology of basic terms related to disaster management. In addition, the processes and stages of disaster planning is not clarified, and there are conflicting statements with the 'Disasters' Law. First, there is a section of 'municipal police, fire department, and emergency planning', in the 'Municipalities' Law, however, there is no 'mitigation planning' part. Instead of using the term 'emergency management', 'disaster planning' should be used here and should be branched off either 'mitigation planning' or 'emergency planning'. As mentioned before, preparation of 'emergency plans' is explained in 'Disasters' Law

and it is under provincial governor's responsibility. However, in the 'Municipalities' Law, it is also under municipalities responsibility. This gives rise to serious confusion.

The design process and criteria for 'disaster and emergency plans' also remain unattended. Furthermore, the term 'risk' should be used beside 'loss' in the first paragraph of Article 53.

*"…to avoid from and reduce **losses** of the fire…"*

In respect of 'Municipalities' Law, these disaster and emergency plans should be implemented through the related ministerial office, public institutions, professional organizations, universities and other local authorities consultations. The implemented projects related to disaster management by the municipalities or other organizations yet, seem to far away from the understanding of disaster mitigation, and avoid consultations with the academia in different disciplines.

In practice, if the sincere reason under implementing urban regeneration projects was to take preventive measures for disaster risks, it should have been an affirmative move. To date, there have been no implemented urban regeneration project based on this article, so it is at the present time not known how municipalities will assess their disaster risks, take preventive measures for earthquake or other disaster risks through urban regeneration projects. Furthermore, it is not clarified in the Law what kind of measures could be taken for earthquake risks. Also taking preventive measures for earthquake risks refers to urban risks and city-scale mitigation planning but there is neither a reference about these concepts nor a clarification in this Law.

5.3.3. Provincial Special Administrations Law (5302; 22.02.2005)

"The Responsibilities and Duties of Provincial Special Administrations

Article 6

b) Out of the municipal borders, the provincial special administration is responsible for making development, road, water, drainage and solid waste systems, afforestation, serving in environment, culture, tourism, youth and sport areas, and open spaces; doing ***emergency relief and rescue operations****, and supporting forest villagers".*

"Emergency Planning

Article 69

- The provincial special administration ***prepares required disaster and emergency plans****, and provides technical experts and equipments aiming* ***to avoid and reduce fire, industrial accidents, and losses from earthquakes and other natural disasters*** *and considering characteristics of the city.*

- The emergency plans should be coordinated with other city-scale emergency plans and should be prepared ***in accordance with related ministerial office, public institutions, professional organizations, universities and other local authorities' consultations****.*

- The provincial special administration can make ***collaborative programs with administrations, institutions and organizations*** *mentioned in the second paragraph* ***to take precautions for public education*** *in accordance with emergency plans.*

- The provincial special administration can provide aid and logistical support for other regions which are out of the city borders".

There is a section of 'emergency planning' in the 'Provincial Special Administrations' Law. However, disaster planning efforts are not differentiated as mitigation planning or emergency planning which should have been distinct technical and administrative tasks at the different levels of administration. The tasks given in Article 69 to provincial administrations are further same as the tasks of municipalities in Article 53 and there is no differentiation.

5.3.4. The Draft Law of Urban Regeneration

The draft law of 'Urban Regeneration' has been issued by the Ministry of Public Works and Settlement. This draft law does not manifest the goals of urban regeneration planning and falls short of constituting a cotemporary regenerated urban areas. Furthermore, the draft law of 'Urban Regeneration' neither has a content that covers disaster risk reduction issues comprehensively nor ensures a development responsibility and regeneration of the cities into safe living spaces. Although one of the reasons of this draft law is to take preventive measures for disaster risks, it is not known that it is a sincere reason. It is at the present time not known that how municipalities will assess their disaster risks, take preventive measures for earthquake or other disaster risks through urban regeneration projects.

5.4. Current Status of Disaster Risk Management in Turkey

Recently, several international organizations and researchers have focused their interest in developing standardized tools to assist governments and related stakeholders in understanding, guiding, monitoring and setting some kind of indicators and benchmarks for disaster risk reduction, among them Cardona (2004) and Mitchell (2003) and other organizations such as the UNISDR, UNDP and the

World Bank. The World Conference on Disaster Reduction held in 2005 adopted a "Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters" known as the Hyogo Framework for Action. This framework stresses mitigation of disaster risks, risk assessments, proactive, integrated, multi-sectoral approaches and concrete actions; and incorporates five thematic areas that set an initial core of principles and goals, each one of them comprising several key components that need to be looked at. The five priorities for action are:

1. Political Commitment and Institutional Development to ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.

2. Risk Identification to identify, assess and monitor disaster risks and enhance early warning.

3. Knowledge Management including use of knowledge, innovation and education to build a culture of safety and resilience at all levels.

4. Risk Management Applications to reduce the underlying risk factors.

5. Preparedness and Emergency Management to strengthen disaster preparedness for effective response at all levels.

Three priorities for action out of the five proposed as relevant for evaluating Turkish disaster risk management process and implementation were considered in this study. Table to describe the characteristics of the three priority areas for action included in this study and its respective key components have been reproduced from the UNISDR 2004 publication, *Living with Risk* and are used as a basis in the question form of interviews, the comparative study and evaluation of Turkey's disaster management system.

Good governance is seen in the ISDR framework as a key area to promote sustained risk reduction efforts. If local administrations can count on appropriate legal frameworks that embrace options for prevention and mitigation; if a strong

organizational structure is set with appropriate staff and resources for risk management delivery; and if the integration of all the stakeholders in the cities, such as the scientific and the private sector, the civil society and other sectors of the economy is promoted, then prospects for a greater capacity to handle risks are increased.

Hazards, vulnerabilities and risk identification are the starting point for any disaster risk reduction process. This is an area that has been extensively developed by multi-disciplinary teams that include both the so called hard sciences and those more linked to the social and economic aspects. The possibility of monitoring and forecasting is also considered under this thematic area. By assessing losses in a systematic manner and keeping track of the social and economic impact of disasters, it will be easier to understand where changes for improvement are needed.

Improving and managing communication for risk reduction through capacity building at different levels and raising awareness or incorporating the community in information and dissemination campaigns can certainly impact the way people face an emergency, get prepared or better take a proactive role towards risk reduction. Formal education for professionals and capacity building or training for other target groups are explored here as a means for disaster risk reduction. Current mechanisms of knowledge transfer between researchers and end-users are too inefficient to adequately disseminate knowledge to policy-makers and practitioners and have kept knowledge limited to a few connoisseurs. Political will, community involvement and good technical capabilities to understand hazards and risk mitigation seem to be a better approach to reducing the impacts of natural disasters in the long term. A strong participation of the community, NGO's and the private sector is a challenge still to be addressed. Table 5.3 includes a suggested list of key activities to progressively ensure that disaster risk reduction is a priority that counts on strong institutional bases for implementation and shows the characteristics and criteria linked to the identification of risk and knowledge management.

Table 5.3 Characteristics of the Three Priority Areas for Action

(Source: UNISDR, 2004)

Components	**Characteristics**	**Criteria**
Policy and planning	-Risk reduction as a policy priority and integration of risk reduction in planning;	-Comprehensive national legislation and strategy addressing risk reduction -Participation in activities, programmes, and structures
Legal and regulatory framework	-Laws, acts and regulations; -Compliance and enforcement;	-Requirement of compliance by law -Systems ensures compliance and enforcement
Resources	-Resource allocation, innovative and alternative funding, taxes, incentives;	-Evidence of budget allocation -Funds encouraging mitigation work
Organizational structures	-Multi-disciplinary and multi-sectoral approaches; -Implementing and coordinating mechanisms;	-An administrative structure responsible for disaster reduction -Consultation with and role for civil society, NGOs, private sector and communities
Risk assessment and data quality	-Hazard analysis; -Vulnerability and capacity assessment; -Risk monitoring capabilities, risk maps, risk scenarios;	-Vulnerability and capacity indicators developed and systematically mapped -Risk scenarios developed and used systematic assessment of disaster risks in development programming
Early warning systems	-Forecast and prediction; -Warning processing;	-Use effectiveness indicators developed by IATF WG2
Information management	-Information and dissemination programmes;	-Documentation and databases on disasters -Resource centers and networks, in particular education facilities
Education and training	-Community training programmes;	-Educational material and references on disasters and risk reduction -Specialized course and institutions
Public awareness	-Public awareness policy, programmes and materials;	- Public aware and informed
Research	-Research programs and institutions for risk reduction;	-Existence of a link between science and policy -Indicators, standards and methodologies established for risk identification

A comparative analysis of the organizational structures of a number of selected countries and on a survey of recent local performance, based on the framework developed by the Kobe Conference for an assessment of the proactive nature of disaster policies, verifies that Turkey has not fully recognized the need for a powerful disaster risk management. The conventional disaster management system still ignores the nature of new policy based on the global trend and there have been no political commitment for disaster mitigation in Turkey. Therefore, Turkey in its disaster policy is still far from a comprehensive mitigation approach in terms of the Kobe criteria (See Table 5.4).

The barriers in Turkey that impede progress in disaster risk management could be summarized as:

- Political commitment to shift the emphasis in emergency management towards risk reduction is totally missing;
- A comprehensive national legislation and strategy addressing disaster risk reduction does not exist;
- Multiplicity of authorities blurs the responsibilities in mitigation at the different levels of administration;
- The fund allocated for disasters does not encourage and facilitate mitigation work;
- Linkages between disaster risk management, development and urban planning have not been established in a sustainable manner;
- There are tendencies of discouraging local initiatives and undermining the role of local administrations in disaster risks reduction; and
- Very little research and implementation efforts are observed for mitigation especially at the settlement level.

Table 5.4 Current Status of Disaster Risk Management in Turkey

Issues	Components	Turkey
Political Commitment and Institutional Development	*Policy and planning*	-There is a lack of a comprehensive national legislation and strategy addressing disaster risk reduction. -EMPI designed under the leadership of the IMM with the support of 4 universities.
	Legal and regulatory framework	-Disaster Law, Development Law, Law of Municipalities, Building supervision Law, Compulsory Eq. Insurance PD, lack of coherence between the laws is noticeable.
	Resources	-Not clear if calamity funds or annual budgets for DRR are available. There is a fund allocated from the national budget. There is also Compulsory Earthquake insurance for risk transfer adopted at the national and city levels; however, the fund allocated for disasters does not encourage and facilitate mitigation work.
	Organizational structures	-The Ministry of Public Works and Settlements, the Directorate of Civil Defense under the Ministry of Internal Affairs and the Turkish Emergency Management Directorate integrate a highly complicated structure at the national level and there are some difficulties to coordinate the disaster management activities and investments.
Risk Identification and Assessment	*Risk assessment and data quality*	-Some studies on vulnerability and risk assessment including loss estimates for each one of the districts based on different earthquake scenarios are available. -Special interest has been given to detailed vulnerability studies of the building stock to prioritize intervention; however incorporating disaster risk assessments into urban planning is missing.
	Early warning systems	-There is a lack of a comprehensive national legislation and strategy addressing disaster risk reduction. -EMPI designed under the leadership of the IMM with the support of 4 universities.
Knowledge Management	*Information management*	-Disaster Law, Civil Defense Law, Development Law, Law of Municipalities, Building supervision Law, Compulsory Eq. Insurance PD, lack of coherence between the laws and deficiencies in the control and code enforcement are noticeable.
	Education and training	-Not clear if calamity funds or annual budgets for DRR are available. There is a fund allocated from the national budget. There is also Compulsory Earthquake insurance for risk transfer adopted at the national and city levels; however, the fund allocated for disasters does not encourage and facilitate mitigation work.
	Public awareness	-The Ministry of Public Works and Settlements, the Directorate of Civil Defense under the Ministry of Internal Affairs and the Turkish Emergency Management Directorate integrate a highly complicated structure at the national level and there are some difficulties to coordinate the disaster management activities and investments.
	Research	-Some studies on vulnerability and risk assessment including loss estimates; however incorporating disaster risk assessments into urban planning is missing.

CHAPTER VI

6. CONCLUSION

Since the 1990s, a significant progress has been made in the common understanding of international disaster management. There has been a growing consensus that a 'shift' is required to move from reactive disaster management to a more proactive effort aimed at disaster risk management. A series of international declarations further expressed the determination to reduce risks at every level, which was recently followed by legal and organizational revisions of many national governments. Not necessarily based on awareness of the global trends, but due to the severe impacts of the 1999 Earthquakes, important steps were further taken in Turkey. Passing laws and regulations, establishing new bodies for natural disaster management, undertaking a number of major mitigation projects are by themselves, however, not sufficient to bring about the desired results in Turkey. Based on awareness of the global trends, comparative analysis and survey of recent local performance, the experiences have clearly shown that Turkey has not fully recognized the need for a powerful disaster risk management and there are still shortcomings of the disaster management system. The deficiencies about Turkey's current disaster management system and recommendations are highlighted as follows:

- *A major deficiency is* ***the lack of a comprehensive national legislation and strategy addressing disaster risk reduction****.*

Turkey's current Disasters Law is old fashioned and furthermore it only contains a few provisions for pre-disaster activities, and in practice disaster mitigation requirements are hardly fulfilled. The local administrations only have the role of

providing the logistic support to the central organs whereas the disaster risk management responsibilities must lie here. Although Disasters Law and associated legislations charge the relevant organizations, provinces and districts to prepare disaster plans, it does explain neither the policies and strategies nor the necessities for coordination and integration. The interviewees also confirmed that although there are many potential links between the draft laws of 'Disasters' and 'Development' Laws, there is a lack of coherence between these two systems and they are both fall short of constituting a cotemporary disaster management system. Besides, other countries which have effective disaster management systems renewed their natural disaster laws which hereby, address and emphasize the risk management and mitigation issues following the international progresses.

Therefore, it is necessary to review the existing legislative system in light of the international progresses in disaster management. It should improve Turkey's resilience to natural disasters through promoting a comprehensive, all-hazards approach to managing risks. It should establish a framework for disaster management and 'The National Disaster Management Strategy' should be a part of that framework. Within this framework, the general principles must be clearly identified and the issues related to implementation must be employed together with the regulations to be prepared. It is better that all disaster related legislations are compiled, issued, and enforced in not more than one "Basic Disaster Law". In order to develop an effective disaster management system and determine priorities, Turkey needs to **renew its national legislation** and **develop a basic National Disaster Management Strategy**.

- *There is* ***the duplication of authorities and a lack of effort in clarifying mitigation methods at the different levels of administration*** *in existing disaster management system.*

In practice, there is an inadequate effort in determining disaster management responsibilities and clarifying disaster mitigation methods at the different levels of administration. Furthermore, according to the interviewees, there is a lack of coordination between the agencies involved in disaster management.

Turkey also has to urgently **rectify the duplication and overlapping of authorities in its existing disaster management system**. It should therefore rethink on how to re-organize the different major players and create a strong coordination office or body that will be responsible for disaster management. The bodies involved in disaster management must be accorded with the necessary financial means to fulfill their mandates. Besides, as components of disaster management system, **'risk management' and 'emergency management' should be differentiated as distinct technical and administrative tasks at the different levels of administration**.

- *The other deficiency is that **the linkage between disaster risk management and development has not been established lastingly** within the context of national development in Turkey.*

International and national good policy statements refer to the importance of disaster risk reduction in achieving sustainable development. Disaster risk management is taken into consideration in the preparation of regional and local development plans in other countries that have effective disaster management systems. However, in the Ninth Five-Year Development Plan (2006-2010), precautions and applications to reduce disaster risks were not classified in separate chapters and neglected in Turkey. In addition to that, the parts of the development plans related to natural disasters, precautions and applications to reduce disaster risks were not implemented in priority.

Therefore, the disaster policy in Turkey should **refer to the disaster risk reduction in achieving sustainable development** and **set out the broad goals and strategic**

objectives for reducing disaster vulnerability and risks, as well as for strengthening key capacities. Furthermore, the parts of the development plans related to natural disasters, precautions and applications to reduce disaster risks should be applied in priority.

- *There is* ***significant incompatibility between the various professional disciplines*** *in Turkey's disaster management system and* ***a lack of strong linkage between disaster risk management and urban planning***.

Due to distinct tradition, education, and experiences of these disciplines; different working priorities, different concepts and terminologies, as well as separate legal-institutional structures and financial resources they operate within, there are various perspectives focusing on disaster management and there is an incompatibility between them. Besides, they often neglect planning as being vitally important risk reduction measures.

Hyogo Framework for Action 2005-2015 calls on governments to mainstream disaster risk considerations into planning procedures. However, little research has been done on how risk reduction can be effectively mainstreamed in the developmental sectors of urban planning in Turkey. Cases that directly confront the disaster mitigation, and intend to develop methods in comprehensive urban planning are very few and recent.

This gap between urban planning and disaster risk management should be demonstrated by national initiatives. It is necessary to **mainstream risk reduction in the developmental sectors of urban planning** and **create new institutional and organizational structures at all levels, which favor integrated risk reduction in urban planning**.

- ***The changes necessary in land-use management and development planning**, the primary agent of mitigation **were overlooked** and **the issue of mitigation is still omitted**.*

After the 1999 earthquakes, concerns were shifted to issues of preparedness, and a decisive turn almost took place towards pre-disaster efforts of mitigation in Turkey. This was achieved with new regulatory devices concerning building control and insurance functions, as well as professional proficiency measures, all introduced by means of separate Decrees of the Ministerial Board. For the first time, the post-disaster emergency bias was challenged, and attention focused on obligations to be carried out prior to a disaster. However, the issue of mitigation is still omitted in the recent draft law. Development Law conventionally aims to regulate the formation of singular buildings rather than production of cities in their collectivity and totality, and exclude the problems of existing and inherited stock of buildings, let alone the unauthorized forms of development. No method of retrofitting and upgrading the existing districts of cities is envisaged, and no provision for the supervision of plan-making and implementation is proposed. The conventional development regulation and urban planning in affect, totally ignores therefore the issue of disaster risk management in Turkey.

A **reassessment and reorganization of the development system** is an essential step for any improvement in disaster risk management in Turkey. Furthermore, Insurance/Development/Disasters draft laws prepared by the government, must be withdrawn and restructured in coordination for improved risk management, to build up a comprehensive and integrated mitigation policy in coordination with building and local administrations acts.

- *The other deficiency is that the risk **sharing mechanisms in Turkey have a limited scope**.*

With its current version, the Compulsory Earthquake Insurance that came into effect with a Decree Law provides earthquake insurance for only the domicile type buildings within the boundaries of municipalities and is valid only for the insurance policy holders. Interviewees stated that some of the areas that require refinement within this system are that it should at least cover some of the other common disasters such as flooding, require different premiums for buildings prone to different levels of risk so as to contribute to the building inspection system, and contribute to and encourage risk reduction activities. In addition, the setting up of the Insurance Fund is an achievement that can not be exaggerated, however the current scope envisaged for its use is too narrow.

The Compulsory Earthquake Insurance system should at least **cover some of the other common disasters** such as flooding, require different premiums for buildings prone to different levels of risk so as to contribute to the building inspection system, and **contribute to and encourage risk reduction activities**. Besides, fund allocated for disasters has to **encourage and facilitate mitigation work** rather than be kept solely as a reserve for compensations or be used for relief operations. More successful mitigation practice does not constitute of one-shot investments or efforts but are continuous and incremental activities. This requires a sustainable flow of funds. In the current context, the 'Turkish Catastrophe Insurance Pool' (TCIP) flows as triggering contributions to efficient mitigation projects is the mechanism to fulfill this kind of a function. This flow could be **used as a primary source for the preparation of microzonation maps and mitigation plans**, as well as credits for retrofitting buildings.

- *Two deficiencies that need to be addressed* ***are the lack of overall land-use management system and accurate microzonation maps***.

These are one of the basic requirements for reasons of environmental safety and evaluation/mitigation of disaster risks. Local administrations have tended to overlook

this component when making land-use decisions within their jurisdictions in Turkey. Engineers and planners have long complained that urban vulnerability and environmental degradation have reached alarming proportions because land-use policies have not been put into effect by municipalities.

The practice of **land-use management should be revitalized** through introduction of community participation in local decisions, coordination of enforcement powers, incorporation of tools for the near future trends in urban development, synchronization of mechanisms available in various laws, effective means for pro-active planning, new financial devices, models of public and private cooperation, and etc. This in turn should enhance the overall environment in which mitigation efforts and microzonation practice will more effectively achieve results.

- *There is* ***a tendency of discouraging local initiative and undermining the role of local administrations in reducing disaster risks****.*

In the international arena, there is a common understanding that disaster risk efforts have to be created at the local government level initially. However, the report of interviews and the comparison study made in the previous chapter clearly show that there is a tendency of discouraging local initiative and undermining the role of local administrations in reducing disaster risks in Turkey.

Most requirements for risk management point to the need to empower local administrations. The disaster risk efforts hereby have to be created at the local government level. While political and policy support at the central government levels are important, it is only here at the local level where the development and legal tools required to implement such an effort exists, particularly the planning-development process. Therefore **local administrations in Turkey should take responsibility to implement disaster mitigation tools** and to this end they **should be supported in terms of organizational structure, financial resources, education and training**.

- *Turkey, unfortunately,* ***has not formed the necessary mechanism for public participation and integration in the disaster management system*** *so far.*

However, it is a fact that without active participation and support from the public, it is almost impossible to take necessary action for mitigation and preparedness. Effective preparedness, relief and response efforts require **the support and the active participation of the public and the NGOs sector**.

- *One of the impediments against improving Turkey's disaster management structure is* ***the lack of training at literally every level****.*

It should be self evident that through legal and institutional reforms only, a true environment for loss mitigation can not be achieved unless the public is educated toward developing a partnership attitude to loss reduction, and unless policy and decision makers are thoroughly brought into the knowledge of why it is essential that mitigation measures must be institutionalized. **Training disaster managers and technical manpower in disaster mitigation and loss reduction procedures are essential items** for policies to take root.

The former review indicated that despite the new institutional developments like 'construction supervision' and 'obligatory insurance' after 1999, Turkey in its disaster policy is still far from a comprehensive mitigation approach in terms of the Kobe criteria. This deficiency is particularly critical at the settlement level as Turkey has large 'urban risk pools'. Therefore, it is essential to determine what kind of pre-disaster initiatives can help to mitigate disaster risk, especially at settlement level (See Table 6.1).

Table 6.1 Pre-disaster Initiatives at Settlement Level Based on the Kobe Criteria

Thematic Areas	Components	National Level	Settlement Level
Political Commitment and Institutional Development	*Policy and planning*	-Comprehensive national legislation and strategy addressing risk reduction; -Participation in activities, programmes, and structures;	-Preparing a mitigation plan and establishing short/ medium/ long-term objectives, and action in terms of series of projects;
	Legal and regulatory framework	-Requirement of compliance by law; -Systems ensure compliance and enforcement;	-Surveying by visual inspection; -Formation of a follow-up Committee;
	Resources	-Funds encouraging mitigation work;	-Making investments for mitigation purposes;
	Organizational structures	-An administrative structure responsible for disaster reduction -Consultation with and role for civil society, NGOs, private sector and communities;	-Formation of special commissions and risk management team to prepare mitigation plans; -Collaborating with other local administrations and academia;
Risk Identification and Assessment	*Risk assessment and data quality*	-Hazard, vulnerability and capacity indicators developed and systematically mapped;	-Demanding research in potential natural hazards, vulnerability and preparing a hazard map;
Knowledge Management	*Information management*	-Documentation and databases on disasters; -Resource centers and networks, in particular education facilities;	-Development of an integrated data-base and building up a detailed spatial data-base for the building stock for multiple purposes;
	Education and training	-Educational material and references on disasters and risk reduction;	-Training of personnel for risk management, and use of consultants;
	Public awareness	-Public aware and informed;	-Demanding and supporting sustainable public education and training mechanisms at local levels; and
	Research	-Indicators, standards and methodologies established for risk identification.	-Instituting a permits and inspection system in line with EU standards and procedural constraints.

Based on the Kobe criteria, and in relation to the hazard map of Turkey, each municipality and local administration is required to follow issues and steps of disaster mitigation as follows:

Political and Institutional Commitment:

- Preparing a mitigation plan and establishing short/ medium/ long-term objectives, and action in terms of series of projects;
- Surveying by visual inspection and scanning of the total stock of buildings in stages;
- Formation of a follow-up Committee formed by the representatives of responsible bodies, universities, professional chambers, NGOs, etc.;
- Channeling investments and allocating resources for mitigation purposes;
- Formation of special commissions and risk management teams to prepare mitigation plans and other implementation plans for open space, emergency facilities, etc. at the city level;
- Formation of inter-municipality working committees functioning with improved powers of municipalities in development, supervision of construction, differential property taxation, municipal assessment in the determination of obligatory insurance;
- Drawing of a protocol for cooperation with the Governorate, municipalities, other institutions and NGOs;

Risk Identification Efforts:

- Development of hazard, vulnerability and capacity indicators and preparing multi-hazard maps;
- Preparing microzonation maps;

Knowledge Management:

- Development of an integrated data-base at the city level;

- Building up a detailed spatial data-base for the building stock for multiple purposes;
- Training of personnel for risk management, and use of consultants; and
- Inter-operability of personnel, equipment, data-bases and information;
- Capacity building for employing volunteer groups, and challenging work against time.
- Instituting a permits and inspection system in line with EU standards and procedural constraints;

Although the laws of local administrations now contain new tasks of city-level disaster management, a confusion of pre-disaster and post-disaster responsibilities, and therefore of authorities are observed. More seriously, the laws have not explained the modus operandi in the fulfillment these responsibilities. There are further, no valid terminologies, references and detailed definitions/directives for disaster risk management and city-scale mitigation planning. These provisions related to disaster risk management are redrawed below according to the Kobe criteria and evaluation of the provisions of Local Administrations Laws related to disaster risk management employed in Chapter 5.

In the 'Municipalities' Law, Articles 53 related to disaster management or disaster risk mitigation should be revised as follows:

"Municipal Police, Fire Departments, and ***Disaster*** *Planning*

Article 53

- Municipalities considering local characteristics of the city and ***microzonation and hazard maps****, will prepare* ***mitigation plans*** *and emergency plans, and provide technical experts and equipments aiming to* ***identify and assess the risks from natural hazards; implement effective disaster mitigation measures to reduce***

disaster risks to allowable limits; and consult and communicate about disaster risks.

*- The **mitigation** and emergency plans will be coordinated with other city-scale **mitigation** and emergency plans **and decisions, and prepared in accordance with the related regulation as issued by the Ministry and its instructions, and in consultation with** public institutions, professional organizations, universities and other local authorities.*

*- Municipalities can **formulate inter-municipality working committees** and make collaborative programs with administrations, institutions and organizations mentioned in the second paragraph to **take measures** that **reduce disaster risks** and for public education for **disaster mitigation** and emergency plans.*

*- **Municipalities can develop, in consultation with the relevant persons and organisations, any guidelines, codes, or technical standards about disaster risk management**.*

- Municipality can provide aid and logistical support for other regions which are out of the municipal borders".

In the 'Metropolitan Municipal Governments' Law, Article 7, related to disaster management or disaster risk mitigation should be revised as follows:

"The Authority, Responsibility, and Duties of Metropolitan Municipalities

Article 7

*u) (to) prepare **city-scale multi-hazard maps and mitigation** plans for natural disasters that is coherent with the city-scale development plans and undertake the other metropolitan-scale preparations; (to) **develop investment programs for***

mitigation, *(to)* ***consult and communicate about disaster risks*** *(to) provide tools and equipment for other disaster regions when necessary; (to) organize* ***risk management teams***, *fire brigades, emergency relief operation groups, and* ***special commissions***; *(to) allocate places of production and storage of hazardous materials; (to)* ***monitor the performance of municipalities in relation to disaster risk management***; *(to) control the measures taken that* ***reduce disaster risks*** *in dwelling units, offices, entertainment places, factories and industrial establishments, and also public institutions, and grant permissions and license referring to the relevant laws.*

z) (to) evacuate and demolish buildings that contain disaster risks and do not provide means for securing life and property.

- ***The hazard maps and mitigation plans will be prepared in accordance with the related regulation as issued by the Ministry and its instructions, and in consultation with public institutions, professional organizations, universities and other local authorities****".*

Each mitigation plan developed by municipalities should:
(1) describe actions to mitigate hazards, risks, and vulnerabilities identified under the plan; and
(2) establish a strategy to implement those actions.

The central administration level process of development of a mitigation plan should:
(1) identify the natural hazards, risks, and vulnerabilities of regional areas;
(2) support development of local mitigation plans;
(3) provide technical assistance to municipalities for mitigation planning; and
(4) identify and prioritize mitigation actions that will be supported, as resources become available.

Therefore there is a need for legal arrangements and analytical studies and a model for the formation of mitigation plans. This technical specification should be defined in regulation on "Plan Making Basis" issued by the Ministry of Ministry of Public Works and Settlement. In the purpose of this regulation (Article 1), (to) reduce disaster risks; in the key terminologies of the regulation (Article 3), mitigation plan; and in the second section of the regulation, procedures of mitigation plans and mitigation standards should be added.

To regulate the disaster mitigation issues amendments to existing laws may be necessary on the lines described below:

- Making **legal changes and revisions** in:
  - *Disasters Law*

    - Preparing risk analysis, estimations of losses and a mitigation plan for pre-disaster monitoring;

    - Preparing microzonation maps;

    - Fulfilling provisions for pre-disaster activities and in practice disaster mitigation requirements; and

    - Giving disaster risk management responsibilities to local administrations.
  - *Development Law*

    - Preparing mitigation plans;

    - Developing new land rearrangement tools and broadening Article 18 in the high-risk areas; and

    - Transfer of development rights.

- Making **revisions and modifications** are necessary also in the Environment Law; Property Taxation Law, Flat Ownership Law, and National Health, Education, and Civil Defense Laws, and in the Urban Regeneration Draft Law and Obligatory Earthquake Insurance Draft Law (dedicating some part of the

annual incomes of the Insurance Fund to risk avoidance and minimization projects and retrofitting efforts in public buildings).

To create a local commitment, the community processes that identify, prioritize and focus on urban disaster risk must be supported by municipalities. The instigation of discussion at the community level is crucial in order to initiate a bottom-up process, with the population demanding their right to a safe urban environment, thus bringing their voices into policymaking, and, consequently, improving themselves and the settlement in which they live. Therefore, special programs are needed to enhance local capacity to carry out risk reduction actions by the municipal administrations. The different types of risk reduction programs should be assessed for their comparative strengths and weaknesses in building local commitment to state goals, and local capacity to implement land use, mitigation and construction practices that incorporate risk reduction.

Little research exists on how risk reduction can be effectively mainstreamed in the developmental sectors of urban planning. Cases that directly confront the disaster mitigation, and intend to develop methods in comprehensive urban planning (rather than that of land-use planning alone) are very few and recent. This gap between urban planning and disaster risk management should be demonstrated by the literature, planning history, discourses, and international/national initiatives. Urban planners do not usually associate with disaster risk reduction, because the subject of risk reduction is not properly integrated into their curricula. Thus, risk reduction is often not well developed in urban planning practice. New institutional and organizational structures at all levels, which favor integrated risk reduction in urban planning therefore should be created and an entirely new generation of urban planners need to be trained, improvement of expertise on disaster risk management. Therefore, planning schools are supposed to develop education systems that will enable the improvement of the competences of disaster risk management. Local research has to be undertaken to understand urban risk-accumulation processes, identifying the key stakeholders and the causal processes particular to each area,

including analyses of their inter-correlation with environmental aspects and urban planning, and the active integration of urban planning and construction agencies.

Further studies are necessary for designing effective tools for how local administrations and planning could actively be involved in this process in Turkey. Based on the outcomes of the study, mainstreaming disaster risk reduction in urban planning is a necessary step towards:

- Linking legal frameworks and agendas related to urban planning and disaster risk management;
- Adaptation of planning regulations based on mitigation-specific characteristics;
- Improved enforcement of integrated legal planning frameworks through better education and payment of building control officers, and vigilance by local groups;
- Establishment of risk maps combined with databases related to urban risk pools and settlement development;
- Supporting for local studies, providing data on the inter-connection between local risk-accumulation processes and urban planning at the city, settlement, community level;
- Supporting for bottom-up processes focusing on urban disaster risk and the promotion of safe urban environments; and
- Supporting for more integrated institutional and organizational structures, and focal points for disaster risk management within planning units.

REFERENCES

ADPC

2000, Standard Operation Procedures of Urban Disaster Management in the Municipality of Bandung, Indonesian Urban Disaster Mitigation Project.

2002, Community Based Disaster Management (CBDM): Trainer's Guide, Asian Disaster Preparedness Center, Bangkok, Thailand.

2004, Environmental Degradation and Disaster Risk, Prepared for the Embassy of Sweden/SIDA Bangkok by Glenn Dolcemascolo, Asian Disaster Preparedness Center.

Alexander D.

2000, Towards the development of a standard in emergency planning, *Disaster Prevention and Management*, 14(2), 158-175.

Anderson M. B.

1990, Analyzing the costs and benefits of natural disaster responses in the context of development, Washington: The World Bank.

Balamir M.

2001a, Recent Changes in Turkish Disaster Policy: A Strategic Reorientation?, in Kleindorfer, *Mitigation and Financing of Seismic Risks: Turkish and International Perspectives*, Paul and Sertel (eds.), Dordrecht: Kluwer Academic Publishers.

2001b, Shaky Grounds for Architecture in Oblivion: Whose Agenda is Earthquake Anyway?, *Proceedings of the ACSA International Conference*, Istanbul, 15-19 June.

2004a, Local Administration and Risk Management, *The Role of Local Governments in Reducing the Risk of Disasters*, Demeter K., Guner A., Erkan N. E. (eds.), Center of Local Government Studies and Training, Marmara University, Istanbul.

2004b, Legal Aspects of Disaster Management, *Architects and Disasters*, Komut E. M. (ed.), UIA, Ankara.

2004c, Restructuring Urban Society for Mitigation: Risk Sectors in "The Earthquake Master Plan" of Metropolitan Istanbul, *Disasters and Society – From Hazard Assessment to Risk Reduction*, Germany, 26-27 July.

2005, Challenges and Methodology for Preventing Major Urban Risks: Designing a Prevention Policy, *EUROPE-MENA Urban Network the Cities Meetings Preventing Major Urban Risks*, Amman, 2-4 July.

2006, Seismic Mitigation Efforts in Istanbul: ISMEP Projects Shprt of Mitigation Planning, iiasa-dpri meeting, Istanbul, 13-17 August.

Banba M., H. Hayashi, N. Maki, T. Kondo, K. Hasegawa, and K. Tamura

2004, Analysis of Land Use Management Policies for Earthquake Disaster Reduction Through Marikina Case Study, *Proceedings of an International Symposium on City Planning*, 473-482, City Planning Institute of Japan, University of Hokkaido.

Bates F.L., Dynes R.R., and Quarantelli E.L.

1991, The Importance of the Social Sciences to the International Decade of Natural Disaster Reduction, *Disasters*, 15(3), 288-289.

Beck U.

1992, Risk Society: Towards a New Modernity; London: Sage Publications.

2001, World Risk Society, Blackwell Publishers: Massachusetts.

Berke P.R.

1998, Reducing Natural Hazard Risks through State Growth Management, *Journal of the American Planning Association*, Vol. 64.

Berke P.R., and Roenigk D.J.

1996, Enhancing Plan Quality: Evaluating the Role of State Planning Mandates for Natural Hazard, *Journal of Environmental Planning and Management*, Vol. 39.

Blaikie P.

1994, At Risk: Natural hazards, people's vulnerability, and disasters, New York, Routledge.

Blanchard B. W.

1999, Appendix: Hazard and Disaster Definitions, this study is available online at: http://166.112.200.141/emi/hazards, last accessed at 10.05.2004.

Blowers A.

2000, Ecological and Political Modernisation: The challenge for planning in Town Planning Review; 71(4), 371-393.

Bosner L.

2001, Disaster Management in Japan, Mike Mansfield Fellowship study report, Washington, DC, FEMA.

2002, Disaster Preparedness: how Japan and the United States compare, *Asia Perspectives*, 4(2), 17-20.

Britton N.R.

1998, Managing Community Risks, Emergency Management Policy and Establishment Unit, Ministry of Civil Defense, Wellington, New Zealand.

2004, Higher Education in Emergency Management: What is Happening Elsewhere, *7th Annual By-Invitation Emergency Management Higher Education Conference*, Emmitsburgh, Maryland, 8-10 June.

2005, National Planning and Response: National Systems, *Handbook of Disaster Research*, Havidan Rodriguez, Quarantelli and Russell R. Dynes (Eds.), Kluwer Academic/Plenum Publishers, New York.

Britton N.R., and G.J. Clark

1999a, Progressing Emergency Management Reform in New Zealand Ministry for Emergency Management, Asian Disaster Reduction Centre, *2nd International Meeting*, Kobe, Japan.

1999b, Emergency Management and Insurance: Toward a Collaborative Approach, proceedings of a Conference sponsored by Aon Group Australia Limited.

2000a, Non-Regulatory Approaches to Earthquake Risk Reduction: The New Zealand Experience, In Proceedings of, the Twelfth World Congress on Earthquake Engineering, Auckland, New Zealand.

2000b, From Response to Resilience: Emergency Management Reform in New Zealand, *Natural Hazards Review*, 1(3), 145-150.

Building Industry Authority

1997, The Building Act: How it Works, Building Industry Authority, Wellington.

Burby R.J.

1999, Unleashing the Power of Planning to Create Disaster-Resistant Communities, *APA Journal*, Summer, 249-258.

Burby R.J. and May P.J. with Berke P.R., Dalton L.C., French S.P., and Kaiser E.J.

1997, Making Governments Plan: State Experiments in Managing Land Use, Johns, Hopkins University Press, Baltimore, MD.

Burby R.J., May P.J., and Paterson R.B.

1998, Improving compliance with regulations: choices and outcomes for local government, *Journal of the American Planning Association*, 64 (3), 324-334.

Burby R.J., and May P.J.

1998, Intergovernmental Environmental Planning: Addressing the Commitment Conundrum, *Journal of Environmental Planning and Management*, Vol. 41.

Burby R.J., Deyle R.E., Godschalk D.R., and Olshansky R.B.

2000, Creating Hazard Resilient Communities through Land-use Planning, *Natural Hazards Review*, 1, 99-106.

Cabinet Office

2005, Disaster Management in Japan, Tokyo, Government of Japan.

CAE

1991, Lifelines in earthquakes, Wellington case study project report, Centre for Advanced Engineering, University of Canterbury, Christchurch.

1995, Wellington after the 'quake: The challenge of rebuilding cities, Earthquake Commission, Centre for Advanced Engineering, University of Canterbury, Christchurch.

Cameron P.R.

1992, A Constructive Guide to the New Zealand Building Act, Department of Internal Affairs, Wellington.

Campbell J.L.

1998, Institutional Analysis and the Role of Ideas in Political Economy, *Theory and Society*, 27(3), 377-409.

Caplan P. (ed)

2000, Risk revisited, London : Pluto Press.

Carter Nick

1991, Disaster Management: A Disaster Manager's Handbook. Asian Development Bank, Manila Philippines.

Civil Defense Review Panel

1992, Report on the Emergency Services Review Task Force, Department of Internal Affairs, Wellington.

Coburn A.W., R.J.S. Spence, and A. Pomonis

1994, Vulnerability and Risk Assessment *2nd Edition*, United Nations Development Programme in collaboration with the Office of the United Nations Disaster Relief Coordinator for the Disaster Management Training Programme (DMTP) in association with the University of Wisconsin Disaster Management Center.

1991, Vulnerability and Risk Assessment Disaster Management Training Programme, Geneva, UNDRO.

Dedeurwaerdere Ann

1998, Cost-benefit Analysis for Natural Disaster Management - A Case-study in the Philippines, CRED Working Paper 143, Center for Research on the Epidemiology of Disaster.

Department for International Development

2004, Disaster Risk Reduction: a development concern, a scoping study on links between disaster risk reduction, poverty and development, United Kingdom.

Department of Internal Affairs

1994, The Separation of Regulatory Function from Other Local Authority Functions: A Survey of Implementation, Department of Internal Affairs, Government of New Zealand, Wellington.

Douglas M.

1994, Risk and Blame: Essays in cultural theory, London : Routledge.

Drabek T.

1997, Multi Hazard Identification and Risk Assessment, Washington, D.C.: FEMA.

Deyle R.E., and Smith R.A.

1999, Funding local disaster services through a risk-based assessment on real property, Department of Urban and Regional Planning, Florida State University, Tallahassee, FL.

ECLAC

1994, The impacts of natural disasters on developing economies: implications for the international development and disaster community, Mexico.

Eisentadt S.

1996, Japanese Civilization: A Comparative View, Chicago, University of Chicago Press.

Eisner R.

2000, Initial Response, The Great Hanshin-Awaji Earthquake, *Assessment reports of the global assessment of earthquake countermeasures*, Volume 1, Kobe, Hyogo Prefectural Government.

Ericksen N., Dixon J., and Berke P.

2000, Managing natural hazards under the Resource Management Act 1991, *Environmental Planning and Management in New Zealand*, eds. Ali Memon P. and Perkins H., pp. 123–132.

FEMA

1997, Multi Hazard Identification and Assessment, Washington, DC.

1999, Business and Industry Crisis Management, by Greg Shaw for the Higher Education Project, Emmitsburg, MD.

2001, The Disaster Dictionary, Common Terms and Definitions Used in Disaster Operations (9071.1-JA Job Aid), Washington, DC.

2002a, Mitigation Grant Programs, Washington, DC, online at: http://www.fema.gov/fima/mitgrant.shtm, last accessed at 23.10.2005.

2002b, Just the Facts, Washington, DC, online at: http://www.fema.gov/library/fff02.shtm, last accessed at 23.10.2005.

2002c, FEMA Organizational Chart, Washington, DC, online at: http://www.fema.gov/about/femaorg.shtm, last accessed at 23.10.2005.

2005a, Mitigation Grant Programs, Hazards Mitigation Grant Program, Washington, DC, online at: http://www.fema.gov/fima/mitgrant.shtm, last accessed at 12.02.2006.

2005b, Mitigation Grant Programs, Pre-Disaster Mitigation Program, Washington, DC, online at: http://www.fema.gov/fima/mitgrant.shtm, last accessed at 12.02.2006.

Fernandez A.L.

2005, A comparative study of disaster-related science and technology policies in five countries: A discussion paper, *EDM Technical Report #20*, Kobe, Earthquake Disaster Mitigation Research Centre.

Fernandez A.L., and Britton N.R.

2004, Dealing with disasters from the risk perspective: Practices from India, Japan and New Zealand, Paper delivered at the *International Joint Conference on Risk Assessment and Management*, Seoul, Korea, 4-6 November.

Fernandez A.L., Britton N.R. Fernandez J.C., and Pooyan Z.

2004, Comparative Study of Institutional Arrangements in Urban Disaster Reduction Management, *First Beijing Haidian International Forum for Earthquake Preparedness and Disaster Mitigation*, Beijing, 1-3 November.

Fire and Emergency Management Agency

2005, Actual conditions and prospects of fire and emergency management administration, Ministry of Internal Affairs and emergency management administration, Ministry of Internal Affairs and Communications, Japan.

FAO

2001, East Timor: Vulnerability Assessment Report: Food and Agriculture Organization of the United Nations.

Foundation for Research, Science and Technology (FRST)

2003, Requests for Proposals for Research in Natural Physical Hazards, Wellington.

Germen A.

1980, Town Planning as a Response to Earthquake, *Proceedings of the 7th World Conference on Earthquake Engineering*, 9, 277-284, 8-13 September.

Giddens A., and W. Hutton

2000, Fighting Back in On the edge: Living with global capitalism, London : Jonathan Cape.

Green A.

1994, An Introduction to Health Planning in Developing Countries, Oxford University Press.

Godschalk D.R., Kaiser E.J., and Berke P.R.

1998, Integrating hazard mitigation and local land use planning, *Modernizing State Planning Statutes: The Growing Smart Working Papers*, Vol. 2, PAS Report 480-481, 57-81, *American Planning Association*, Chicago, IL.

Godschalk D.R., Timothy Beatley, Philip Berke, David J. Brower, and Edward J.

1999, Natural Hazard Mitigation, *Recasting Disaster Policy and Planning*, Washington D.C., Island Press.

Godschalk D.R.

2002, Urban Hazard Mitigation: Creating Resilient Cities, *Plenary paper presented at the Urban Hazards Forum*, John Jay College, City University of New York, January 22-24.

Government of Japan

2005, National report of Japan on disaster reduction for the World Conference on Disaster Reduction, Kobe, Japan.

Government of New Zealand

2005, National report of New Zealand on disaster reduction for the World Conference on Disaster Reduction, Kobe, Japan.

Government of the U.S.A

2005, National report of the U.S.A on disaster reduction for the World Conference on Disaster Reduction, Kobe, Japan.

Government of Turkey

2005, National report of Turkey on disaster reduction for the World Conference on Disaster Reduction, Kobe, Japan.

Granger K.

1999, Community risk in Cairns: A multi-hazard risk assessment, Australia.

Gratwa W. and Bollin C.

2002, Disaster Risk Management: Working Concept, Eschborn, GTZ.

Gulkan P.

2001, Managing Urban Risk through enhancing the resilience of building environment, *Proceedings of the 3rd Earthquakes and Megacities Workshop*, Shanghai.

2002, Setting the Stage for Urban Risk Mitigation: Seismic Risks and Compulsory Insurance Policy Issues in Turkey, *Second Annual IIASA-DPRI Meeting Integrated Disaster Risk Management: Megacity Vulnerability and Resilience*, Laxenburg, Austria, July 29-31.

Hardoy J., Mitlin D., Satterthwaite D.

2001, *Environmental Problems in an Urbanizing World*, London, Earthscan.

Henstra D.

2003, Federal emergency management in Canada and the United States after 11 September 2001, Canadian Public Administration, 46(1), 103-116.

Henstra D., and A. Sancton

2002, Mitigating Catastrophic Losses: Policies and Policy-Making at Three Levels of Government in the United States and Canada, Canadian Public Administration.

Henstra D., and G. McBean

2005, Canadian Disaster Management Policy: Moving Toward a Paradigm Shift?, *Canadian Public Policy*, University of Toronto Press, 31(3):303-318.

Higashida M.

2005, Tonankai and Nankai earthquake preparedness measures: Lessons learned from the Great Hanshin-Awaji earthquake, *1st International conference on urban disaster reduction*, Kobe, 18-20 January.

Homeland Security Act

2002, H.R. 5005.

Howell R., McDermott P., and V. Forgie

1996, the Unfinished Reform in Local Government: the Legacy and the Prospect, Massey University, Palmerston North.

Housner G.W.

1989, An International Decade for Natural Disaster Reduction, 1990-2000, *Natural Hazards*, 2, 45-75.

Howlett M., and M. Ramesh

2003, Studying Public policy: Policy Cycles and Policy Subsystems, Toronto: Oxford University Press.

Jacobs M.

2001, The environment, modernity and the third way in Giddens A. (ed.), The global third way debate, Cambridge : Polity Press.

Jaeger C. et al

2001, Risk, uncertainty and rational action, London : Earthscan Publications

Japanese Standards Association

2001, Guidelines for development and implementation of risk management system, Japanese Industrial Standard JIS Q 2001, Tokyo.

Jeggle T.

2003, Senior Disaster Risk Advisor, International Strategy for Disaster Reduction, UN Terminology.

Jensen S.

1998, New Zealand's Emergency Management System and the Role of Local Government, *The Australian Journal of Emergency Management*, 13(1), 27-29.

JICA

2004, Country Strategy Paper for Natural Disasters in Turkey, Final Report, Ankara.

International Decade for Natural Disaster Reduction (IDNDR)

1999, A Safer World in the 21st Century: Disaster and Risk Reduction, online at: http://www.unisdr.org/eng/about_isdr/bd-safer -world-eng.htm, last accessed at 26.11.2005.

IFRC

2002, World Disasters Report: Focus on Reducing Risk. Geneva: International Federation Red Cross and Red Crescent Societies.

Kaiser E.J., Godschalk D.R., and Chapin F.S.,

1995, Urban Land Use Planning, University of Illinois Press, Urbana, IL.

Kates, R.W., and J.X. Kasperson.

1983, Comparative Risk Analysis of Technological Hazards (A Review), Proceedings of National Academy of Science USA 80: 7027-7038.

Keles R.

2000, Decentralization and Politics, 4th ed., Cem Yay., Istanbul.

2004, Turkish Government Structure from a Disaster Management Perspective, *The Role of Local Governments in Reducing the Risk of Disasters*, Demeter K., Guner A., Erkan N. E., (eds.), Center of Local Government Studies and Training, Marmara University, Istanbul.

Keles R., and C. Geray

1998, Disaster Vulnerability and Environmental Degradation: Gecekondus, In Informal Settlements, Environmental Degradation and Disaster Vulnerability.

Kelman I.,

2003, Defining risk, *FloodRiskNet Newsletter*, 2, Winter.

Kerr S., Claridge M., and Milicich

1998, Devolution and the New Zealand Resource Management Act, *Treasury Working Paper*, 98/7, Wellington.

Kramer R.A.

1994, Advantages and limitations of Benefit-Cost Analysis for Evaluating Investments in Natural Disaster Mitigation, IDNDR/World Bank, Washington.

Kreimer A. et al

1999, Managing Disaster Risk in Mexico: Market Incentives for Mitigation Investment, The World Bank, Washington D.C.

Law Commission

1991, Final report on emergencies, Report No: 22, New Zealand Law Commission, Wellington.

Lechat M.F.

1990, The International Decade for Natural Disaster Reduction: Background and Objectives, *Disasters*, 14(1), 1-6.

Lewis J.

1999, Development in Disaster-prone places: Studies of vulnerability, Trowbridge, Cromwell.

Lupton D.

1999, Risk, Routledge, London.

Mansor S., Shariah M.A., Billa L., Setiawan I., and F. Jabar

2004, Spatial Technology for Risk Management, Institute of Advanced Technology (ITMA), University Putra Malaysia (UPM).

May P., Burby R., Ericksen N., Handmer J., Dixon J., Michaels S., and Smith D.
1996, Environmental Management and Governance: Intergovernmental Approaches to Hazards and Sustainability, Routledge, London.

MCDEM
2004, Resilient New Zealand, National Civil Defence Emergency Management Strategy/2003-2006, Wellington.

2005, New Zealand's Response to the 1994 Yokohama Strategy and Plan of Action for a Safer World, National Information Report of New Zealand on disaster reduction for the World Conference on Disaster Reduction, Kobe, Japan.

McGranahan G., Jacobi P., Songsore J., Surjadi C., Kjellén M.
2001, *The Citizens at Risk*, London, Earthscan.

METU, ITU, BU, and YTU
2003, The Report of Earthquake Master Plan of Istanbul, The Metropolitan Municipality of Istanbul, Istanbul.

Mileti D.S., Hutton J., and Sorenson J.
1981, Earthquake Prediction Response and Options for Public Policy. Boulder, Institute of Behavioral Science, University of Colorado.

Mileti D., and Nigg J. M.
2002, Natural Hazards and Disasters, In R.E. Dunlap, and W. Michelson (Eds.), Hanbook of Environmental Sociology. 272-294.

Ministry for the Environment

1995, Implementing the Resource Management Act: Key Messages for Councilors, Ministry for the Environment, Wellington.

1999, Your Guide to the Resource Management Act: An essential reference for people affected by or interested in the Act, Ministry for the Environment, Wellington.

Ministry of Finance

1996, Review of Disaster Recovery Preparedness: First Report, Ministry of Finance, Government of New Zealand, Wellington.

1997, Review of Disaster Recovery Preparedness: Second Report, Ministry of Finance, Government of New Zealand, Wellington.

Morgan Stanley

2005, Deutsche Bank, Tokyo offices on quake unease, 14 March, this article is online at: http://bloomberg.com, last accessed at 13.07.2006.

Nakamura A.

2000, The need and development of crisis management in Japan's public administration: Lessons from the Kobe earthquake, *Journal of Contingencies and Crisis Management*, 8(1), 23-29.

2001, Preparing for the inevitable: Japan's ongoing search for best crisis management practices, *Managing crises: threats, dilemmas, opportunities*, (pp.3-7-315), Springfield, Illinois.

Narain A.

2003, Disaster management system: An integrated approach using satellite communication, education and remote sensing, this study is available online at: home.iitk.ac.in/~ramesh/narain.doc, last accessed at 24.11.2005.

Office of Homeland Security

2002a, National Strategy for Homeland Security, Washington D.C., online at: http://www.whitehouse.gov/homeland/book/index.html, last accessed at 28.04.2005.

2002b, The Department of Homeland Security: Emergency Preparedness and Response, Washington D.C., online at: http://www.whitehouse.gov/deptofhomeland/sect4.html, last accessed at 28.04.2005.

Olshansky R.B.

1999, Natural Hazard Mitigation: Recasting Disaster Policy and Planning, *Journal of the American Planning Association*, Vol. 65.

Olshansky R.B., and Kartez J.D.

1998, Managing land use to build resilience, *Cooperating with Nature: Confronting Natural Hazards with Land-Use Planning for Sustainable Communities*, R. Burby, ed., Joseph Henry Press/National Academy Press, Washington, D.C.

Ottichilo W. K.

2003, Use of Space Technology in Disaster Risk Assessment And Monitoring, this study is available online at: www.ewc2.org/upload/downloads/Ottichilo2003AbstractEWC2.doc, last accessed at 05.03.2006.

Palm R.

1998, Urban earthquake hazards: the impacts of culture on perceived risk and response in the USA and Japan, *Applied Geography*, 18(1), 35-46.

Palm R., and Carroll J.

1998, Illusions of safety: Culture and earthquake hazard response in California and Japan, Boulder, Westview Press.

Pelling M.

2003, *The vulnerability of cities*, London, Earthscan.

Review Task Force

1995, Report of the Emergency Services Review Task Force, Wellington, Department of Internal Affairs, Government of New Zealand, Wellington.

Robert T. Stafford Disaster Relief and Emergency Assistance Act

1988, 42 U.S.C. 5121, P.L. 93-288, c. 68.

Rosenthal U., Comfort L., and Boin A.

2001, Managing Crisis: A Global Perspective, USA, C.C. Thomas Publishers.

Sadohara S., Shigekawa K., H. Hayashi, and Chinoi T.

2005, A study on the creation of a human resources development system for risk management in Japan, *1st International conference on urban disaster reduction*, Kobe, 18-20 January.

Sai Global

2003, Risk Management, this study is online at: http://www.riskmanagement.com.au/, last accessed at 08.01.2006.

Sayers P.B.

2002, Risk, performance and uncertainty in flood and coastal defence (A review),R&D Technical Report FD2302/TR1, London.

Severn R.T.

1995, Disaster Preparedness in Turkey and Recent Earthquakes, in Erzincan, D. Key ed., *Stuctures to Withstand Disaster*, The Institution of Civil Engineers, Thomas Telford, London.

Schneider S.K.

1998, Reinventing public administration: a case study of the Federal Emergency Management Agency, *Public Administration Quarterly*, 22(1), 35-57.

Schoff J.L.

2004, (Ed.), Crisis management in Japan & the United States: Creating opportunities for cooperation amid dramatic change, The Institute for Foreign Policy Analysis, Inc. Dulles, Virginia.

Slovic P.

1999, Trust, emotion, sex, politics, and science: surveying the risk-assessment battlefield, *Risk analysis: International Journal of the Society of Risk Analysis*, 19(4), 689-702.

Smith K.

1996, Environmental Hazards: Assessing Risk and Reducing Disaster, 2nd Eddition, New York, Routledge.

2004, Environmental Hazards: Assessing Risk and Reducing Disaster, 4th Edition, New York, Routledge.

Standards Australia

1999, Risk Management Standard AS/NZS4360 *2nd edition*, Standards Australia and Standards New Zealand, Sydney and Wellington.

Standards New Zealand

2000, Risk Management Handbook for Local Government, SNZ HB 4360:2000, Standards New Zealand, Wellington.

Strand H., Wilhelmsen L., and Gleditsch N.P.

2003, Armed Conflict Dataset Codebook, Prio: Oslo.

Sudo K., H. Kameda, and Y. Ogawa

2000, Recent History of Japan's Disaster Mitigation and the Impact of IDNDR, *Natural Hazards Review*, 1(1): 10-17.

Tearfund

2003, Natural Disaster Risk Reduction: The policy and practice of selected institutional donors, A Tearfund Research Project.

The Daily Yomiuri

2005, Home quake measures still lax, 12 January.

The Japan Times

2005, Rules to survive by, 31 March.

The White House

2002, Analysis for the Homeland Security Act of 2002, Washington D.C., online at: http://www.whitehouse.gov/deptofhomeland/analysis/index.html, last accessed at 06.09.2005.

The World Bank

1999, MEER Project Information Document, Washington D.C.

2005, ISMEP Project Information Document, Washington D.C.

Tierney K.T.

2005, Recent developments in the US homeland security policies and their implications for the management of extreme events, *1st International conference on urban disaster reduction*, Kobe, 18-20 January.

United Nations (UN)

1987, General Assembly Resolution 42/169, The International Decade for Natural Disaster Reduction, Geneva: UN.

2000, General Assembly Resolution 54/219, International Decade for Natural Disaster Reduction Successor Arrengements, Geneva: UN.

2002, General Assembly Resolution 56/195, International Strategy for Disaster Reduction, Geneva: UN.

2003, General Assembly Resolution 58/214, World Conference on Disaster Reduction, Geneva: UN.

2005, Report on the World Conference on Disaster Reduction, Kobe, Hyogo, Japan, 18-22 January.

United Nations Department of Humanitarian Affairs (UNDHA)

1992, Internationally Agreed Glossary of Basic Terms Related to Disaster Management, IDNDR, 1990-2000 DHA-Geneva.

United National Educational, Scientfific and Cultural Organisation (UNESCO)

2000, The International Decade for Natural Disaster Reduction, online at: http://www.unesco.org/science/earthsciences/disaster/disasterIDNDR.htm, last accessed at 14.02.2005.

United Nations Inter-Agency Secretariat of the International Strategy for Disaster Reduction (UNISDR)

1994, *Yokohama Strategy and Plan of Action for a Safer World: Guidelines for Natural Disaster Prevention, Preparedness and Mitigation*, Resolution adopted by delegates of the World Conference on Natural disaster Reduction, Yokohama, Japan, 23-27 May.

2002, Living with Risk: A global review of disaster reduction initiatives, Geneva: Prepared as an inter-agency effort coordinated by the International Strategy for Disaster Reduction (ISDR) Secretariat with special support from the Government of Japan, the World Meteorological Organization and the Asian Disaster Reduction Center.

2004, Living with Risk: Turning the Tide on Disasters towards Sustainable Development, Final Version, Geneva: ISDR.

2005a, *Hyogo Declaration*, Resolution adopted by delegates of the World Conference on Disaster Reduction, Kobe, Hyogo, Japan, 18-22 January.

2005b, Governance: Institutional and Policy Frameworks for Risk Reduction, *Thematic Discussion Paper Cluster 1*, World Conference on Disaster Reduction, Kobe, Hyogo, Japan, 18-22 January.

2005c, International Workshop on Strengthening the Resilience of Local Communities in Coastal Areas to Water Related Natural Disasters

Copenhagen, 16-18 November, Arranged by the Danish Ministry of Foreign Affairs and UNISDR Background Document.

Velasquez, G., Uitto J., Wisner B., Takahashi S.

1999, A new approach to disaster mitigation and planning in mega-cities, In: Inoguchi, T. (ed.) *Cities and the environment*, pp, 161-184, Tokyo, The United Nations University Press.

Wamsler, C.

2004, 'Managing Urban Risk: Perceptions of Housing and Planning as a Tool for Reducing Disaster Risk', Global Built Environmental Review (GBER), 4(2), 11–28.

Warmingtom V.

No date, Prevention Pays: The Socio-Economic Benefits of Preventing Disaster.

World Bank

2000, *World Development Report 2000*, Oxford, Oxford University Press, Online at: www.worldbank.org/wdr/2000/pdfs/chap6.pdf , last accessed at 19.08.2004.

World Meteorological Organization (WMO)

1997, Comprehensive Risk Assessment for Natural Hazards, WMO/TD No: 955, Geneva.

Zetter R., White R. (eds.)

2002, *Planning in cities: sustainability and growth in the developing world*, Urban Management Series, London, ITDG Publishing.

Annotated References

Books

ISDR

2002, Living with Risk: A global review of disaster reduction initiatives. Geneva: Prepared as an inter-agency effort coordinated by the International Strategy for Disaster Reduction (ISDR) Secretariat with special support from the Government of Japan, the World Meteorological Organization and the Asian Disaster Reduction Center.

Living with risk: a global review of disaster reduction is the first comprehensive effort by the United Nations system to take stock of disaster reduction initiatives throughout the world. Coordinated by the secretariat of the International Strategy for Disaster Reduction (ISDR), the report discusses current disaster trends, assesses policies aimed at mitigating the impact of disasters, and offers examples of successful initiatives. It also recommends that risk reduction be integrated into sustainable development at all levels - global, national and local. Most of all, Living with risk shows that we are far from helpless in the face of natural hazards... – Kofi A. Annan, United Nations Secretary-General. The full report is available online at: http://www.unisdr.org/Globalreport.htm, last accessed at 24.11.2006.

IFRC

2002, World Disasters Report: Focus on Reducing Risk. Geneva: International Federation Red Cross and Red Crescent Societies.

The International Federation Red Cross and Red Crescent Society publishes an annual report which includes statistics on the frequency and impacts of natural and man-made hazards worldwide. In addition, each report contains substantial and substitutive articles on a different theme or issue in disaster management. In 2000,

the focus was on Public Health; in 2001, the focus was on Recovery and in 2002 the focus was on Risk Reduction.

Coburn A.W., R.J.S. Spence and A. Pomonis

1994, Vulnerability and Risk Assessment *2nd Edition*, United Nations Development Programme in collaboration with the Office of the United Nations Disaster Relief Coordinator for the Disaster Management Training Programme (DMTP) in association with the University of Wisconsin Disaster Management Center.

This training module, *Vulnerability and Risk Assessment,* is designed to introduce this aspect of disaster management to an audience of UN organization professionals who form disaster management teams, as well as to government counterpart agencies, NGOs and donors. This training is designed to increase the audience's awareness of the nature and management of disasters, leading to better performance in disaster preparedness and response. This module examines the scope for measuring the risk of future losses and for using this knowledge to assist in the selection of an appropriate disaster mitigation strategy. It considers the nature of risk, and the difference between actual and perceived risk; it discusses the techniques by which natural hazards and the accompanying risk of future losses can be estimated; and it discusses the ways in which future risk estimates can be used to assist the choice of the optimum disaster mitigation strategy.

Dedeurwaerdere Ann

1998, Cost-benefit Analysis for Natural Disaster Management - A Case-study in the Philippines, CRED Working Paper 143. Center for Research on the Epidemiology of Disaster.

The objective of the study is to examine cost/benefit evaluation models of natural disaster preparedness, mitigation and prevention measures in relation to the costs of

the relief and the rehabilitation operations. The report aims at providing a simple methodology for practical decisions on the prevention and reduction of natural disasters by international, national, regional and local authorities. The most appropriate models should define whether an investment is justified. In the first part, the study undertakes a short critical overview on the current thinking of cost/benefit evaluations for natural disaster preparedness, mitigation and prevention measures. Three approaches have been examined here, in terms of their ease of application and appropriateness for policy decisions. One of these is retained for further development and application. In the second part, the selected model is expanded and applied to a case-study in the Philippines to assess the practical applicability of the model in the field and with real data constraints. In the final part, the results, data and methodology are evaluated and recommendations are made for future applications of the model prepared. This study is available online at: http://www.cred.be/centre/publi/143e/begin.htm - Contents, last accessed at 12.08.2004.

Websites

http://www.adpc.net/

The Asian Disaster Preparedness Center (ADPC) website provides an overview of disaster management activities throughout the region, an online newsletter and links to other disaster management related web resources, last accessed at 07.07.2004.

http://www.proventionconsortium.org/

The World Bank's Provention Consortium aims to help developing countries build sustainable and successful economies and to reduce the human suffering that too often results from natural and technological catastrophes. The website hosts a

valuable risk management library with on-line articles and manuals, last accessed at 28.01.2005.

http://www.colorado.edu/hazards/o/o.html

The Natural Hazards Observer is the bimonthly periodical of the Natural Hazards Center. It covers current disaster issues; new international, national, and local disaster management, mitigation, and education programs; hazards research; political and policy developments; new information sources; upcoming conferences; and recent publications, last accessed at 17.06.2005.

http://www.ifrc.org/

The International Federation of Red Cross and Red Crescent Societies (IFRC) is the world's largest humanitarian organization, with 178 member National Societies. Its programs aim to assist the world's most vulnerable people. Activities focus on health, disaster response and disaster preparedness, last accessed at 22.11.2005.

http://www.unisdr.org/

The International Strategy for Disaster Reduction (ISDR) strives to enable all societies to become resilient to the effects of natural hazards and related technological and environmental disasters, in order to reduce human, economic and social losses. This vision will find its realization by focusing on increasing public awareness, obtaining commitment from public authorities, stimulating interdisciplinary and inter-sectoral partnership and expanding risk reduction networking at all levels and, improving further the scientific knowledge of the causes of natural disasters and the effects of natural hazards and related technological and environmental disasters on societies. In addition, the General Assembly separately mandated the ISDR to continue international cooperation to reduce the impacts of El

Niño and other climatic variables and to strengthen disaster reduction capacities through Early Warning, last accessed at 19.08.2006.

http://www.unisdr.org/wcdr/

World Conference on Disaster Reduction (WCDR) was convened by the United Nations General Assembly through its resolution A/RES/58/214, in Kobe, Hyogo, Japan, from 18 to 22 January 2005. The Conference was to take stock of progress in disaster risk reduction accomplished since the Yokohama Conference of 1994 and to make plans for the next ten years, last accessed at 23.09.2006.

http://www.unisdr.org/wcdr/preparatory-process/national-reports.htm

National authorities and platforms on disaster reduction were therefore invited to provide information to identify needs and develop future policy recommendations for consideration at the Conference. The preparation of the national information provided an opportunity to bring together stakeholders from governments, academic and other sectors dealing with disaster risk reduction. In many cases consultations were held with institutions specializing in disaster management including environmental planning and education departments, meteorological services, NGOs and other key domains, last accessed at 23.09.2006.

http://www.unisdr.org/wcdr/preparatory-process/regional-thematic-meetings.htm

Regional and thematic meetings in 2003 and 2004 will review achievements and lessons learnt on disaster risk reduction, identifying areas that need to be addressed as well as propose needs for future action. These meetings are being organized by partner organizations and the ISDR Secretariat has proposed additional discussions on disaster reduction as a contribution to WCDR. The following table lists those meetings contributing to the process, last accessed at 25.09.2006.

http://www.unisdr.org/wcdr/thematic-sessions/cluster1.htm

Thematic session clusters were formatted to complement the discussions on the programme outcome at the intergovernmental level. The Thematic segment consisted of three High-level Round Tables and a number of Thematic Sessions clustered under five Thematic Panels, as well as Regional Sessions. A large number of events took place under this segment, which provided the substantive part of the Conference, in all areas related to disaster risk reduction. The panels were led by government representatives with the support of agencies, last accessed at 25.09.2006.

http://www.unisdr.org/eng/hfa/hfa.htm

Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters, last accessed at 02.10.2006.

http://www.unisdr.org/eng/about_isdr/bd-geneva-mandate-eng.htm

The World Conference on Disaster Reduction was adopted the present Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters. The Conference provided a unique opportunity to promote a strategic and systematic approach to reducing vulnerabilities and risks to hazards. It underscored the need for, and identified ways of, building the resilience of nations and communities to disasters, last accessed at 23.09.2006.

http://www.unisdr.org/eng/about_isdr/bd-safer-world-eng.htm

A Safer World in the 21st Century: Disaster and Risk Reduction, last accessed at 23.09.2006.

http://www.unisdr.org/eng/about_isdr/bd-yokohama-strat-eng.htm

Yokohama Strategy and Plan of Action for a Safer World, last accessed at 23.09.2006.

http://www.unisdr.org/eng/about_isdr/bd-lwr-2004-eng.htm

Living with Risk: A global review of disaster reduction initiatives 2004 version, last accessed at 26.11.2006.

http://www.unisdr.org/eng/task%20force/tf-working-groups-eng.htm

Inter-Agency Task Force Working Groups, last accessed at 23.09.2006.

http://www.unisdr.org/eng/mdgs-drr/link-mdg-drr.htm

Millennium development goals and disaster risk reduction, last accessed at 23.09.2006.

http://www.ehs.unu.edu/moodle/mod/glossary/view.php?id=1

Core Terminology of Disaster Reduction, last accessed at 08.09.2006.

The Major Mitigation and Preparedness Projects and Reports

Japan International Cooperation Agency (JICA), Istanbul Metropolitan Municipality (IMM) (2002) *"The Study on a Disaster Prevention / Mitigation Basic Plan in Istanbul including Seismic Microzonation in the Republic of Turkey Final Report"* (Istanbul).

Department of Earthquake Engineering Boğaziçi University Kandilli Observatory and Earthquake Research Institute (2002) *"Earthquake Risk Assessment for Istanbul Metropolitan Area Final Report"* (Istanbul).

Middle East Technical University, Istanbul Technical University, Boğaziçi University, Yıldız University (2003)*"The Earthquake Master Plan for Istanbul"* (Istanbul).

Marmara Earthquake Emergency Reconstruction Project (MEER)

APPENDICES

A: Directory of International, Regional, National and Specialized Organizations

Asian Disaster Preparedness Center (ADPC), Bangkok, Thailand

ADPC is a regional resource center established in 1986 dedicated to disaster reduction for safer communities and sustainable development in Asia and the Pacific. It is recognized as an important focal point for promoting disaster awareness and developing capabilities to foster institutionalized disaster management and mitigation policies.

Bandung Institute of Technology (BIT), Indonesia

In 1959, the present Institut Teknologi Bandung was founded by the Indonesian Government as an institution of higher learning of science, technology, and fine arts, with a mission of education, research, and service to the community.

Central European Disaster Prevention Forum (CEUDIP)

This Forum has been established in 1999 by decision of the Central European Committees for the International Decade for Natural Disaster Reduction of the United Nations (IDNDR). This was done in order to continue the efforts initiated during the Decade by the countries of Central Europe (Czech Republic, Germany, Hungary, Poland and Slovakia) in activities requiring collaboration of neighbouring countries in all types of disasters, in particular in floods on rivers which are shared by these countries. The main focus was on early warning, but other important issues

are being mutually considered, including the media's role, disaster prevention and mitigation and legislation on states of emergency.

Centre for Disaster Management (CENDIM), Bogazici University, Istanbul, Turkey

CENDIM was established in January 2001 as an interdisciplinary research centre for disaster management. The centre is in strategic partnership with many national and international organizations to develop disaster, engineering and risk management plans and to facilitate information sharing with governmental, non-governmental and community based organizations. CENDIM also aims to deploy the synergy of multi-disciplinary collaboration by national and international organizations.

Disaster Management Research and Implementation Center (DMC), Middle East Technical University, Ankara, Turkey

DMC was created in November 1997 under the UNDP cost-sharing project "Improvement of Turkey's Disaster Management System". The objectives of this center are to provide consultancy and project support to domestic and international institutions with a multidisciplinary approach for mitigation of natural and manmade disasters, organise seminars, training courses, in-service training to officials or to community within the framework of disaster management, arrange research, implementation and improvement activities about disaster management, organise or assist to organise scientific and professional meetings about disaster management.

Federal Insurance and Mitigation Administration, (FIMA), Federal Management Agency (FEMA), United States of America

The Mitigation Division manages the National Flood Insurance Program and oversees FEMA's mitigation programs. The overall mission is to protect lives and prevent the loss of property from natural hazards.

International Committee of the Red Cross (ICRC)

ICRC is an impartial, neutral and independent organization whose exclusively humanitarian mission is to protect the lives and dignity of victims of war and internal violence and to provide them with assistance. It directs and coordinates the international relief activities conducted by the Red Cross and Red Crescent Movement in situations of conflict. It also endeavors to prevent suffering by promoting and strengthening humanitarian law and universal humanitarian principles.

International Decade for Natural Disaster Reduction (IDNDR), 1990-1999

An International Decade for Natural Disaster Reduction, beginning on 1 January 1990, was launched by the United Nations, following the adoption of Resolution 44/236 (22 December 1989). The Decade was intended to reduce, through concerted international action, especially in developing countries, loss of life, poverty damage and social and economic disruption caused by natural disasters. To support the activities of the Decade, a Secretariat was established at the United Nations Office in Geneva, in close association with UNDRO.

International Strategy for Disaster Reduction (ISDR)

The International Decade for Natural Disaster Reduction (IDNDR) came to an end in December 1999. The General Assembly endorsed in its resolution 54/219 the proposals put forward in the report of the Secretary-General to ensure the establishment of successor arrangements for disaster reduction for the effective implementation of the international strategy for disaster reduction. An inter-agency task force and inter-agency secretariat, under the authority of the Under-Secretary-General for Humanitarian Affairs have been established.

Japan International Cooperation Agency (JICA)

JICA is responsible for the technical cooperation aspect of Japan's Official Development Assistance (ODA) programs. Technical cooperation and a variety of programs are aimed at the transfer of technology and knowledge that can serve the socio-economic development of the developing countries.

Kandilli Observatory and Earthquake Research Institute, Bogazici University, Turkey

The Institute offers graduate work leading to the degrees of Master of Science and Doctor of Philosophy in geodesy, geophysics and earthquake engineering. The primary objective of the graduate program is to train specialists and/or theoreticians (required for research and teaching) in geodesy, geophysics and earthquake engineering, capable of creative and original thinking and disseminating new ideas and concepts in related activities in Turkey.

National Emergency Management Association (NEMA), United States of America

NEMA is the professional association of Pacific and Caribbean insular state emergency management directors committed to providing national leadership and expertise in comprehensive emergency management. It serves as a vital information and assistance resource for state and territorial directors and their governors, while forging strategic partnerships to advance continuous improvements in emergency management.

Tearfund

As part of its strategy Tearfund has identified the following key areas: development and capacity building; public health, including HIV/AIDS, children at risk, disaster preparedness and mitigation.

United States Federal Emergency Management Agency (FEMA), Washington DC, United States of America

FEMA is an independent agency of the federal government, reporting to the President. Its mission is to reduce loss of life and property and to protect the nation's critical infrastructure from all types of hazards through a comprehensive, risk-based, emergency management program of mitigation, preparedness, response and recovery.

APPENDICES

B: Related Definitions

Acceptable risk: The level of loss a society or community considers acceptable given existing social, economic, political, cultural, technical and environmental conditions (UNISDR 2002).

In engineering terms, acceptable risk is also used to assess structural and non-structural measures undertaken to reduce possible damage at a level which does not harm people and property, according to codes or "accepted practice" based, among other issues, on a known probability of hazard.

Biological hazard: Processes of organic origin or those conveyed by biological vectors, including exposure to pathogenic micro-organisms, toxins and bioactive substances, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation (UNISDR 2002).

Examples of biological hazards: outbreaks of epidemic diseases, plant or animal contagion, insect plagues and extensive infestations.

Building codes: Ordinances and regulations controlling the design, construction, materials, alteration and occupancy of any structure to insure human safety and welfare. Building codes include both technical and functional standards (UNISDR 2002).

Capacity: A combination of all the strengths and resources available within a community, society or organization that can reduce the level of risk, or the effects of a disaster (UNISDR 2002).

Capacity may include physical, institutional, social or economic means as well as skilled personal or collective attributes such as leadership and management. Capacity may also be described as capability.

Coping capabilities/Capacity: The manner in which people and organizations use existing resources to achieve various beneficial ends during unusual, abnormal, and adverse conditions of a disaster event or process (UNISDR 2002).

The strengthening of coping capacities usually builds resilience to withstand the effects of natural and other hazards.

Disaster: A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community/society to cope using its own resources (UNISDR 2002).

A disaster is a function of the risk process. It results from the combination of hazards, conditions of vulnerability and insufficient capacity or measures to reduce the potential negative consequences of risk.

Disaster is a phenomenon that suddenly or continuously occur that will effect normal life cycle or damaging the ecosystem or infrastructure, and needs an extremely emergency action to save and help human life and the environment (ADPC 2000).

Disaster risk management: The systematic process of using administrative decisions, organization, operational skills and capacities to implement policies,

strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters (UNISDR 2002).

This comprises all forms of activities, including structural and non-structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards.

Disaster risk reduction: (disaster reduction) The systematic development and application of policies, strategies and practices to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) adverse impact of hazards, within the broad context of sustainable development (UNISDR 2002).

The disaster risk reduction framework is composed of the following fields of action, as described in ISDR's publication 2002 "Living with Risk: a global review of disaster reduction initiatives", page 23:

- *Risk awareness and assessment including hazard analysis and vulnerability/capacity analysis;*
- *Knowledge development including education, training, research and information;*
- *Public commitment and institutional frameworks, including organizational, policy, legislation and community action;*
- *Application of measures including environmental management, land-use and urban planning, protection of critical facilities, application of science and technology, partnership and networking, and financial instruments;*
- *Early warning systems including forecasting, dissemination of warnings, preparedness measures and reaction capacities.*

Early warning: The provision of timely and effective information, through identified institutions, that allows individuals exposed to a hazard to take action to avoid or reduce their risk and prepare for effective response (UNISDR 2002).

Early warning systems include a chain of concerns, namely: understanding and mapping the hazard; monitoring and forecasting impending events; processing and disseminating understandable warnings to political authorities and the population, and undertaking appropriate and timely actions in response to the warnings.

Emergency management: The organization and management of resources and responsibilities for dealing with all aspects of emergencies, in particularly preparedness, response and rehabilitation (UNISDR 2002).

Emergency management involves plans, structures and arrangements established to engage the normal endeavors of government, voluntary and private agencies in a comprehensive and coordinated way to respond to the whole spectrum of emergency needs.

Geological hazard: Natural earth processes or phenomena that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation (UNISDR 2002).

Geological hazard includes internal earth processes or tectonic origin, such as earthquakes, geological fault activity, tsunamis, volcanic activity and emissions as well as external processes such as mass movements: landslides, rockslides, rock falls or avalanches, surfaces collapses, expansive soils and debris or mud flows. Geological hazards can be single, sequential or combined in their origin and effects.

Geographic information systems (GIS): Analysis that combine relational databases with spatial interpretation and outputs often in form of maps. A more elaborate

definition is that of computer programmes for capturing, storing, checking, integrating, analyzing and displaying data about the earth that is spatially referenced (UNISDR 2002).

Geographical information systems are increasingly being utilized for hazard and vulnerability mapping and analysis, as well as for the application of disaster risk management measures.

Hazard: A potentially damaging physical event, phenomenon or human activity, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation (UNISDR 2002).

Hazards can include latent conditions that may represent future threats and can have different origins natural (geological, hydrometeorological and biological) and/or induced by human processes (environmental degradation and technological hazards). Hazards can be single, sequential or combined in their origin and effects. Each hazard is characterized by its location, intensity and probability.

Hazard is a natural, human or economic event that has the potential to cause harm or loss: falling rock is a hazard in steep, mountain areas (ADPC 2000).

Hazard analysis: Identification, studies and monitoring of any hazard to determine its potential, origin, characteristics and behavior (UNISDR 2002).

Hydrometeorological hazards: Natural processes or phenomena of atmospheric, hydrological or oceanographic nature, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation (UNISDR 2002).

Hydrometeorological hazards include: floods, debris and mud floods; tropical cyclones, storm surges, thunder/hailstorms, rain and wind storms, blizzards and other severe storms; drought, desertification, wildland fires, temperature extremes, sand or dust storms; permafrost and snow or ice avalanches. Hydrometeorological hazards can be single, sequential or combined in their origin and effects.

Land-use planning: Branch of physical and socio-economic planning that determines the means and assesses the values or limitations of various options in which land is to be utilized, with the corresponding effects on different segments of the population or interests of a community taken into account in resulting decisions (UNISDR 2002).

Land-use planning involves studies and mapping, analysis of environmental and hazard data, formulation of alternative land-use decisions and design of a long-range plan for different geographical and administrative scales. Land-use planning can help to mitigate disasters and reduce risks by discouraging high-density settlements and construction of key installations in hazard-prone areas, control of population density and expansion, and in the sitting of service outs for transport, power, water, sewage and other critical facilities.

Mitigation: Structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards (ISDR 2002).

Preparedness: Activities and measures taken in advance to ensure effective response to the impact of disasters, including the issuance of timely and effective early warnings and the temporary removal of people and property from a threatened location (UNISDR 2002).

The expression **'disaster risk reduction'** is now widely used as a term that encompasses the two aspects of a disaster reduction strategy: **'mitigation'** and **'preparedness'**. Tearfund defines **'mitigation'** as the measures that can be undertaken to minimize the destructive and disruptive effects of hazards and thus lessen the magnitude of a disaster (Tearfund 2003). Tearfund defines **'preparedness'** as all measures undertaken to ensure the readiness and ability of a society to forecast and take precautionary measures in advance of imminent threat, and respond and cope with the effects of a disaster by organizing and delivering timely and effective rescue, relief and other post-disaster assistance (Tearfund 2003).

Mitigation is the cornerstone of disaster management. It's the ongoing effort to lessen the impact disasters have on people's lives and property through damage prevention and flood insurance. Through measures such as, building safely within the floodplain or removing homes altogether; engineering buildings and infrastructures to withstand earthquakes: and creating and enforcing effective building codes to protect property from floods, hurricanes and other natural hazards, the impact on lives and communities is lessened.

"Mitigation is the cornerstone of emergency management. It's the ongoing effort to lesson the impact disasters have on people and property. Mitigation involves keeping homes away from floodplains, engineering bridges to withstand earthquakes, creating and enforcing effective building codes to protect property from hurricanes – and more."

Natural hazards: Natural processes or phenomena occurring in the biosphere that may constitute a damaging event (UNISDR 2002).

Natural hazards can be classified by origin namely: geological, hydrometeorological or biological. Hazardous events can vary in magnitude or intensity, frequency, duration, area of extent, speed of onset, spatial dispersion and temporal spacing.

Disasters that can be categorized as natural disaster are: epidemic, plant disease, earthquake, volcanoes eruption, landslide, high tide waves, flood, erosion, typhoon, tropic storm, aridity, and forest burning (ADPC 2000).

Prevention: Activities to provide outright avoidance of the adverse impact of hazards and related environmental, technological and biological disasters (UNISDR 2002).

Depending on social and technical feasibility and cost/benefit considerations, investing in preventive measures is justified in areas frequently affected by disaster. In the context of public awareness raising and education, prevention refers to attitude and behavior leading towards a "culture of prevention".

Public awareness: The processes of informing the general population, increasing levels of consciousness about risks and how people can act to reduce their exposure to hazards. This is particularly important for public officials in fulfilling their responsibilities to save lives and property in the event of a disaster (UNISDR 2002).

Public awareness activities foster changes in behavior leading towards a culture of risk reduction. This involves public information, dissemination, education, radio or television broadcasts, use of printed media, as well as, the establishment of information centers and networks and community and participation actions.

Recovery: Decisions and actions taken after a disaster with a view to restoring or improving the pre-disaster living conditions of the stricken community, while encouraging and facilitating necessary adjustments to reduce disaster risk (UNISDR 2002).

Recovery (rehabilitation and reconstruction) affords an opportunity to develop and apply disaster risk reduction measures.

Relief / response: The provision of assistance or intervention during or immediately after a disaster to meet the life preservation and basic subsistence needs of those people affected. It can be of an immediate, short-term, or protracted duration (UNISDR 2002).

Resilience/resilient: The capacity of a system, community or society to resist or to change in order that it may obtain an acceptable level in functioning and structure. This is determined by the degree to which the social system is capable of organizing itself, and the ability to increase its capacity for learning and adaptation, including the capacity to recover from a disaster (UNISDR 2002).

Retrofitting (or upgrading): Reinforcement of structures to become more resistant and resilient to the forces of natural hazards (UNISDR 2002).

Retrofitting involves consideration of changes in the mass, stiffness, damping, load path and ductility of materials, as well as radical changes such as the introduction of energy absorbing dampers and base isolation systems. Examples of retrofitting include the consideration of wind loading to strengthen and minimize the wind force, or in earthquake prone areas, the strengthening of structures.

Risk: The probability of harmful consequences, or expected loss (of lives, people injured, property, livelihoods, economic activity disrupted or environment damaged) resulting from interactions between natural or human induced hazards and vulnerable/capable conditions (UNISDR 2002).

Beyond expressing a probability of physical harm, it is crucial to appreciate that risks are always created or exist within social systems. It is important to consider the social contexts in which risks occur and that people therefore do not necessarily share the same perceptions of risk and their underlying causes A disaster is a function of the risk process. It results from the combination of hazards, conditions of

vulnerability and insufficient capacity or measures to reduce the potential negative consequences of risk.

Risk is the exposure to the chance of injury or loss; risk may be expressed mathematically as the product of the probability that a loss will occur times the value at risk (exposure) (ADPC 2000). Three interrelated factors combine to describe risk:

- Values at risk of potential hazard impacts (Exposure Inventory)
- Likelihood that a hazard will occur,
- Vulnerability of exposed values to the likelihood of injury, loss, or destruction.

Risk assessment/analysis: A process to determine the nature and extent of risk by analyzing potential hazards and evaluating existing conditions of vulnerability/ capacity that could pose a potential threat or harm to people, property, livelihoods and the environment on which they depend (UNISDR 2002).

The process of conducting a risk assessment is based on a review of both technical features of hazards such as their location, intensity and probability, and also the analysis of the physical, social and economic dimensions of vulnerability, while taking particular account of the coping capabilities pertinent to the risk scenarios.

The risk assessment defines the risk problem through the identification of potential risks and the analysis of the significance of those risks to the community. Risk identification includes an assessment of community exposures, hazards, and vulnerability. Risk analysis estimates the significance of identified risks on the community's capability to achieve its defined goals and objectives. Gaps in understanding the nature of the hazard and uncertainties in expected hazard impacts lead to less accurate risk assessments (ADPC 2000).

Risk evaluation: A process or method for evaluating the feasibility of possible risk control measures. Integrates risk assessment results with risk control planning goals and objectives to identify a range of risk control options (ADPC 2000).

Risk management: The systematic management of administrative decisions, organization, operational skills and responsibilities to apply policies, strategies and practices for disaster risk reduction (UNISDR 2002).

Sustainable development: Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: the concept of "needs", in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and the future needs (Brundtland Commission, 1987).

Sustainable development is based on socio-cultural development, political stability and decorum, economic growth and ecosystem protection, which all relate to disaster risk reduction.

Technological hazards: Danger originating from technological or industrial accidents, dangerous procedures, infrastructure failures or certain human activities, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation (UNISDR 2002).

Some examples: industrial pollution, nuclear activities and radioactivity, toxic wastes, dam failures; transport, industrial or technological accidents (explosions, fires, spills).

Vulnerability: A set of conditions and processes resulting from physical, social, economical and environmental factors, which increase the susceptibility of a community to the impact of hazards (UNISDR 2002).

Positive factors, that increase the ability of people and the society they live in, to cope effectively with hazards, that increase their resilience, or that otherwise reduce their susceptibility, are considered as capacities.

Vulnerability is the specific circumstances or hazardous conditions that increase the chance that a loss will occur. In this workbook, "hazard" will designate the event with the potential to cause harm. "Vulnerability" or "hazard factors" will be used to indicate adverse conditions or circumstances that increase the chance that a loss will occur (ADPC 2000).

APPENDICES

C: The Questions and Answers of Focus Group Interviews

In 2005, a second World Conference on Disaster Reduction (WCDR) was convened in Kobe. In this conference the countries as participants submitted national reports addressing issues of disaster reduction. When these reports and thematic clusters observed it is clear that especially countries like America, Japan, New Zealand and Australia explicitly review their disaster management policies emphasizing disaster risk management, disaster risk reduction and local commitment.

Did you attend to the World Conference on Disaster Reduction?

What are your impressions and observations about the World Conference?

In Turkey's National Report, the tasks of Turkey Emergency Management General Directorate, the project named Preparedness for Disasters and Emergencies, the Turkish Japanese joint project called Earthquake Disaster Prevention Research, province and district disaster emergency relief plans were mentioned. However Earthquake Master Plan for Istanbul, Marmara Earthquake Emergency Reconstruction Project, National Earthquake Council, Obligatory Earthquake Insurance System, Turkey Economics Congress Disaster Management Study Group, and Earthquake Council Studies were not adverted to in the report.

Did you observe the national report of Turkey submitted in the World Conference?

What are your impressions about the report?

Did you think that the report reflects the Turkey's disaster management agenda and developments?

Did your institution contribute in the report? If yes, in which part of the report did your institute contribute?

In the international arena, significant progress has been made in disaster management since the 1990s. With the involvement of a variety of disciplines and professional bodies, a new understanding of disaster risk is formulated. The declaration of the International Decade of Natural Disaster Reduction (1990-1999), the Yokohama Strategy and Plan of Action for a Safer World (1994), the formulation of the International Strategy for Disaster Reduction (2000) and the second World Conference on Disaster Reduction (2005) confirmed the international importance of disaster risk management and disaster risk reduction. There has been systematically transformation from a rigid, reactive model to a coordinated, proactive, multi-level, and all-hazard disaster management system. In this context a lot of countries adopt disaster risk management strategies, review their laws and regulations, and implement disaster risk reduction projects.

What are you think about the constant evolution in the common understanding of international disaster management?

In other countries, they have taken intensive measures against natural disasters to reduce the impacts of them and they have been implementing disaster risk reduction projects. Could you follow these developments and how do you evaluate these progression?

Do you think that there are major mitigation and disaster risk reduction projects undertaken in Turkey? What other measures could have been taken?

In Turkey, following the 1999 Marmara Earthquakes, important steps were taken about disaster risk management. These are the introduction of institutions of 'obligatory earthquake insurance', 'construction inspection' functions, and provisions for the improvements in 'professional competence'. Also in organizational terms, apart from extensions made in the responsibilities of the local authorities in disaster mitigation, three complementary organizations were introduced. Ministry of the Interior set up regional centers for relief and emergency operations, a General Directorate of Emergency Management was established, and an independent National Earthquake Council was formed.

Do you think that organizational structure of Turkey's disaster management system and legislation addressing disaster risk reduction is sufficient?

What are the deficiencies of this system?

In 02.02.2006 Ministry of Public Works and Settlement declared the draft law replacement for of Disasters Law (7269). There were no major changes in the draft law. However apart from the Disasters Law, the strategic disaster plans, microzonation maps, and regions exposed to disasters were mentioned in the draft law.

Did you observe the draft law of Disasters Law?

What are your observations about the draft law?

Do you think that this draft law has a capacity to cover the deficiencies of the Turkey's legislation addressing disaster risk management?

What are you thinking about the role of local administrations in reducing risks?

Bildiğiniz üzere 2005 yılında, Kobe'de 'afet zararlarının azaltılması' konulu bir Dünya Konferansı düzenlendi. Aralarında Türkiye'nin de bulunduğu, Dünya'daki pek çok ülke konferansta ulusal rapor sunmuştur. Bu raporlar incelendiğinde Amerika, Japonya, Yeni Zelanda ve Avustralya gibi ülkelerin özellikle 'risk yönetimi' ve 'afet zararlarının azaltılması' konusunda kapsamlı çalışmalar yürüttüğü gözlenmektedir.

Dünya Konferans'ında yer aldınız mı?

Yer aldıysanız konferansla ilgili izlenimleriniz neler?

Türkiye için hazırlanan raporda Türkiye Acil Durum Yönetimi Genel Müdürlüğü ve görevlerine, Türkiye ile UNICEF'in ortaklaşa gerçekleştirdiği Afet ve Acil Durumlara Hazırlık Projesine, yerel acil yardım planlarına ve Türkler ile Japonların birlikte yürüttüğü Deprem Önleme Araştırma Projesine değinilmiştir. Ancak raporda İstanbul Deprem Master Planı, Marmara Depremi Acil Yeniden Yapılandırma Projesi, Ulusal Deprem Konseyi, Zorunlu Deprem Sigortası, Türkiye İktisat Kongresi Afet Yönetimi Çalışma Grubu ve Deprem Şurası çalışmalarına yer verilmemiştir.

Konferansta Türkiye'nin sunmuş olduğu Ulusal Raporu inceleme fırsatınız buldunuz mu?

İncelediyseniz rapor hakkında ne düşünüyorsunuz?

Sizce konferansta sunulan rapor Türkiye'deki Afet Yönetim sistemi ile ilgili mevcut durumu ve güncel gelişmeleri yansıtıyor mu?

Bağlı bulunduğunuz kurumun raporun hazırlanması aşamasında katkısı oldu mu?

Kurumunuz tarafından ne tür bir katkıda bulunuldu?

Dünya'da 1990'dan bu yana afet yönetimi konusunda önemli gelişmeler gözlenmektedir. Birleşmiş Milletler 1990-1999 yıllarını 'Uluslararası Afet Zararlarının Azaltılması On Yılı' olarak ilan etmiş, 1994 yılında Yokohama'da 'afet zararlarının azaltılması' konulu ilk dünya konferansı düzenlenmiş ve 'Yokohama Stratejisi' kabul edilmiş, 1999 yılında ise 'Uluslararası Afet Zararlarının Azaltılması Stratejisi' benimsenmiştir. Son olarak 2005 yılında Kobe'de ikincisi düzenlenen dünya konferansında Hyogo Deklarasyonu ve 2005-2015 Hyogo Eylem Planı kabul edilmiştir. Tüm bu gelişmeler afet yönetiminde özellikle risk yönetiminin önemini vurgulamakta, dirençli toplumların oluşturulması için gerekli yasal ve kurumsal düzenlemelerin ve zarar azaltma çalışmalarının bir an önce uygulamaya konulmasını öngörmektedir. Bu gelişmelere paralel olarak pek çok ülke afet yönetimi ile ilgili özellikle risk yönetimi ve zarar azaltma konusunda çeşitli düzenleme ve uygulamalara gitmiştir. Yasalarını bu doğrultuda revize etmiş, ulusal afet stratejileri benimsemiş ve zarar azaltma çalışmaları yürütmeye başlamıştır.

Afet yönetimi konusunda uluslararası zihniyet dönüşümünü nasıl buluyorsunuz?

Başka ülkelerde bu anlayışa uygun yeni yasal ve kurumsal düzenlemeler yürürlüğe konulmakta ve çeşitli zarar azaltma çalışmaları yürütülmekte, bu gelişmeleri izleyebiliyor musunuz ve nasıl değerlendiriyorsunuz?

Sizce Türkiye'de bu yönde yürütülen önemli bir çalışma var mı, bu gelişmelere paralel olarak Türkiye'de neler yapılmalı?

1999 Depremlerinden sonra Türkiye'de afet zararlarının azaltılması ve acil durum yönetimi konusunda önemli gelişmeler gözlenmiştir. Zorunlu Deprem Sigortası, Yapı Denetimi ve Mesleki Yeterlilik konusunda yasal düzenlemelere gidilmiş; Türkiye Acil Durum Yönetimi Genel Müdürlüğü, Ulusal Deprem Konseyi ve 11 bölgesel sivil savunma merkezi kurulmuş; İstanbul Deprem Master Planı, Marmara Depremi Acil Yeniden Yapılandırma Projesi gibi kimi çalışmalar yürütülmüştür.

Türkiye'de afet yönetimi konusunda yapılanma ve mevzuat yeterli düzeyde mi?

Neleri yetersiz buluyorsunuz?

Bağlı bulunduğunuz kurumun afet yönetimi konusundaki çalışmalarını nasıl değerlendiriyorsunuz?

2 Şubat 2006 tarihinde Bayındırlık ve İskan Bakanlığı Afetler Kanunu Tasarısı Taslağı'nı ilan etmiştir. Taslakta mevcut yasadan farklı olarak stratejik afet planları, mikrobölgelendirme çalışmaları ve afete maruz bölge kavramlarına değinilmiştir.

Afetler Kanunu Tasarısı Taslağı'nı inceleme fırsatı buldunuz mu?

Taslak hakkında görüşleriniz neler?

Sizce afet yönetimi konusunda mevzuattaki eksiklikleri tamamlayıcı özelliğe sahip mi?

Sizce afet yönetimi konusunda yerel yönetimlerin rolü ne olmalıdır?

Oktay ERGÜNAY
UDK Başkan Yardımcısı
ODTÜ Afet Yönetimi Uygulama ve Araştırma Merkezi
01.08.2006 10:00

Türkiye IDNDR için bir Milli Rapor sunmuş (Türkiye Milli Planı IDNDR 1990-1999). Oktay Bey, bu çalışmanın 2005 yılında Dünya Konferansında sunulan rapora oranla daha kapsamlı bir çalışma olduğunu dile getiriyor. Rapor incelendiğinde, belirli afet türlerine yönelik geliştirilen ana hedefler ve çalışma programları hazırlandığı gözlenmekte.

Türkiye'de 8. Kalkınma Planı için ilk defa özel ihtisas komisyonu kuruldu. Komisyon afet yönetimi ile ilgili 700 sayfalık kapsamlı bir rapor hazırlamış. 8. Plan'da afet yönetimi konusuna önemli ölçüde yer verildiğine değiniyor Oktay Bey. Ancak 9. Kalkınma Stratejisi ve Planı'nda afetle ilgili bir çalışma yok. Afet terimi 9. Planda 2 yerde geçmekte; biri 'trafik afeti', diğeri 'köylerde afet ve terör tehlikesi'. Oktay Bey bu konuda Türkiye'de siyasi bir kararlılığın olmadığı noktasını vurguluyor.

Yeni Yerel Yönetim Yasalarıyla, İl Stratejik Planları hazırlanması gerekliliği ortaya konuldu. Bu planları yapma yetkisi il sınırları içerisinde İl Özel İdareye verildi. Çoğu İl Özel İdare'nin bu planları henüz hazırlamadığı, hazırlanan planların çoğunun ise çok kapsamlı çalışmalar olmadığı konusunun altını çiziyor. Planlarda, bölgenin tehlike, risk ve önceliklerine yer verilmediğine değiniyor. Bu konuda Bolu İl Strateji Planı, Oktay Bey için örnek gösterilebilir nitelikte. Planda stratejik amaç, hedef ve faaliyetler detaylı olarak belirlenmiş, planın hazırlanması sürecinde katılıma büyük ölçüde yer verilmiş.

Oktay Bey ayrıca, belediyelerin organizasyonel yapısında afet yönetimi biriminin de yer alması gerektiğini vurguluyor.

TAY nasıl bir görev üstlenmeli: afet yönetimi konusunda kurumlar arası koordinasyonu sağlayan, yönlendiren, destekleyen, denetleyen, ilgili kurumlara görevler veren, Stratejik Planlar hazırlayan. Bu nedenle, Oktay Beye göre TAY'ın, 9. Planın afet yönetimini kapsayacak şekilde yeniden düzenlemesi konusunda DPT'yi yönlendirmesi gerekmekte.

Oktay Bey, 11 sivil savunma bölgesel merkezi kurulmasının rasyonel olmadığını söylüyor. Müdahalede en etkin yöntemin, en kısa zamanda olay yerinde olabilecek yerel birlikler olduğunu vurguluyor. Örnek olarak Erzurum'da bulunan bölgesel birliğin Yozgat'a nasıl müdahale edeceğini sorguluyor. Bu konuda İtfaiye birimlerinin koordinasyon görevini üstlenebileceğini söylüyor.

Arama kurtarma konusunda iki başlılık söz konusu: Bölgesel arama kurtarma birliklerine valilik emir veremiyor. Sivil Savunma Genel Müdürlüğüne bağlı bu birlikler. İllere bağlı arama kurtarma birlikleri ise valiliğe bağlı. Bu iki başlılığın acil durum yönetiminde önemli bir sorun teşkil ettiği görüşünde.

TAY'ın kurulumuna yönelik tasarıların bol ve baştan savma hazırlandığı kanısında. TAY'ın oluşum ve işleyişine yönelik stratejik bir bakış açısının olmadığını vurguluyor. Oktay Bey ayrıca Türkiye'de siyasi iradenin bir bürokrasi oluşturduğu kanısında. Ayrıca, 1999'dan bu yana atılan olumlu adımların hepsinin bugün yozlaştığını düşünmekte.

UDK'ya hükümetin inanmadığını ve bu nedenle de UDK'dan gerektiği şekilde yararlanmadığını belirtiyor. Oktay Bey son olarak, DASK'ın yalnızca bir bölgede deprem yaşanması durumunda geçerli olması konusuna değiniyor. DASK'ın diğer afetleri de kapsayacak şekilde yeniden düzenlenmesi gerektiğini vurguluyor. Osmaniye'de su baskını olduğunda, hükümet tarafından yeni konutlar yapıldığını, ancak aynı bölgede bir deprem yaşandığında DASK'ın devreye girmesiyle böyle bir yardımın yapılmadığını, bir adaletsizlik doğurduğunu belirtiyor.

Sabahattin ÖZÇELİK
Sivil Savunma Genel Müdürlüğü
İkaz ve Alarm Daire Başkanlığı
01.08.2006 14:00

Sabahattin Bey öncelikle, SSGM'nin görevinin afet sırasında can ve mal güvenliğini sağlamak, arama-kurtarma çalışmaları yapmak olduğunu belirtiyor.

Afet konusunda herkesin bu işe soyunduğunu, görev ve yetki ayrımının tam olarak sağlanamadığının görüşünde.

Belediyeler yasalar aracılığıyla yeni görevler üstlendi. Belediyelerin bu görevleri yürütecek kaynak ve donanıma sahip olmadığını ve bundan dolayı henüz bu görevi üstlenmeye hazır olmadıklarını belirtiyor. İyileştirme ve zarar azaltma konusunda belediyelerin çeşitli görevler üstelenebileceklerini ancak bu konuda yeterli kaynak ve donanımın sağlanması görüşünde.

Sabahattin Bey, 1999'dan bu yana gerçekleştirilen çalışmaları olumlu buluyor. Zarar azaltma ve iyileştirme çalışmaları uzun bir süreç içerisinde gerçekleştirilmekte, arama-kurtarma çalışmaları gibi 3-5 günlük bir süreçte yapılmıyor. Bu nedenle bu sürecin iyi organize edilmesi ve iyi örgütlenmesi gerektiğini vurgulamakta.

Afet yönetimi konusunda kurumlar arası görev, yetki ve sorumlulukların iyi tanımlanması gerektiğini belirtiyor.

Afetler Yasa Taslağı Tasarısının iyi bir çalışma olmadığı kanısında. SSGM bu konuda görüş de bildirmiş. Taslağın yasalaştırılmasına gerek olmadığı, çünkü bu haliyle mevcut yasadan farklı bir çözüm getirmediği kanısında. Afet yönetimi konusunda, taslağın köklü öneriler ortaya koymadığı noktasının altını çiziyor.

Sabahattin Bey ayrıca, 7269 sayılı Afetler Yasası'nın genel anlamda iyi bir yasa olduğunu ancak yasayla ilgili yapılacak yeni bir düzenlemede yara sarma politikasından vazgeçilip zarar azaltma çalışmalarına yer verilmesi gerektiğini vurguluyor.

DASK'a gerek olmadığı kanısında çünkü mevcut sigorta sisteminin işler bir durumda olduğunu belirtiyor. Hem Sigorta Genel Müdürlüğü hem de DASK Genel Müdürlüğü'nün olmasını çok başlılık olarak nitelendiriyor. DASK'ın Sigorta Genel Müdürlüğü'nün içerisinde yer alabileceği noktasının altını çiziyor.

TAY'a Türkiye afet yönetim sisteminde kurum olarak çok da ihtiyaç olmadığı kanısında. Fiiliyatta görevi olmayan kuruluşun koordinasyon görevini de üstlenemeyeceğini belirtiyor.

Sabahattin Bey 11 Bölgesel Sivil Savunma Merkezlerinin bugünkü durumu ile ilgili kısa bir açıklama da yapıyor: Birliklerde ortalama kadro 120 kişiden oluşmakta. Modern araç-gereçlerle donatılmış durumdalar. İkisi dışında tesis binaları tamamlanmış durumda. 365 gün eğitim ve tatbikat çalışmaları devam etmekte, Acil durumlarda bu merkezler hizmet veriyor.

Son olarak, afet yönetimi ile ilgili mevcut mevzuatta görev çakışması ve boşlukların olduğunu vurguluyor ve bunların giderilmesi gerektiğini savunuyor.

Orhan TOPÇU
Türkiye Acil Durum Yönetimi Genel Müdürlüğü
02.08.2006 10:00

Orhan Bey, Kobe Konferansı'na bağlı bulunduğu kurum adına katılmış. Ülke raporunun bu durumda olmasının nedenini kurumlar arası koordinasyon eksikliğine bağlıyor. Rapor Dış İşleri Bakanlığı tarafından hazırlanmış. Afet İşleri Genel

Müdürlüğü, Sivil Savunma Genel Müdürlüğü ve Türkiye Acil Durum Yönetimi Genel Müdürlüğünden'nden görüş alınarak yazılmış.

Konferansla ilgili olumlu izlenimler edinmiş. Çalışma ortamının mükemmel olduğunu, konferansta güzel uygulamalar ve sunumlara yer verildiğini belirtiyor. Bu gelişmeleri Türkiye'ye taşımak için Türkiye'de bir zihniyet dönüşümü olması gerektiğini vurguluyor. Bu zeminin bir an önce hazırlanması, afet yönetimi ve risk yönetimi konularının da siyasi olarak sahiplenilmesi gerektiğini söylüyor.

Orhan Bey, Türkiye'de afet yönetimi ile ilgili yetki alanlarında bazı boşluk ve çakışmaların olduğuna değiniyor. Bu boşluğu dolduracak ve çakışmaları giderecek bir kurum olmadığını vurguluyor. Ayrıca afet yönetimi ile ilgili ulusal bir vizyon ve strateji belirlenmesi, ortak çalışmalar yapılması gerektiğini belirtmekte. Türkiye'nin Dünya'daki gelişmelere paralel olarak, zihniyet dönüşümünü gerçekleştirmesi gerektiğini savunuyor. Bu doğrultuda, afet yönetimi ile ilgili kurumların kendini revize etmesi, bu anlayışı kurum olarak izlemesi ve benimsemesi gerek diyor. Yokohama Stratejisi bunun çerçevesini çizmekte. Ayrıca Türkiye'de de önemli bir çalışmalar gerçekleştirildi. Türkiye bu stratejideki adımları izleyerek ve Deprem Şurası gibi çalışmaların bulgularını dikkate alıp önerilerini yerine getirirse afet yönetimi konusunda önemli bir yol alınabilir diyor.

Bayındırlık ve İskan Bakanlığı'nın çıkarmış olduğu taslağın Dünya'da gerçekleşen zihniyet dönüşümüne sahip bir anlayışla hazırlanmadığı görüşünde. 7269 sayılı yasanın çıkarıldığı dönemdeki zihniyetten çok bir farkı olmadığına değiniyor. Dünya'daki gelişme ve düzenlemelere paralel bir çalışma olmadığını belirtiyor.

Orhan Bey, Türkiye'de 1999 sonrası dönemin bir uyanış olarak nitelendirildiğini söylüyor. Hatta JICA'nın çalışması (Country Strategy Paper for Natural Disasters in Turkey) da bu dönemi 'uyanış dönemi' olarak tanımlamış. Ancak Türkiye'nin hala uyanmamış durumda olduğunu ve bu zihniyet dönüşümünü yakalayamadığına

değiniyor. Bu konuda köklü bir çözüm önerisinin de getirilmediği yargısında. Ayrıca risk yönetimi anlayışının bireye indirgenmesi gerektiğini savunuyor. Birey karşı karşıya olduğu riskleri tanımlamadığı ve sorgulamadığı sürece, bu konuda adım atılması için risk yönetiminin tetikleyici bir unsur olmaktan çıkacağını, kısıtlayıcı bir unsur haline dönüşeceği görüşünde.

TAY kurum olarak özel bir mevzuata sahip değil, Başbakanlık kanununa 4 madde eklenerek oluşturulmuş. Bağlı bulunduğu kuruma yeterli kaynak ayrılmadığı ve authorize etme yetkisi verilmediği görüşünde. Orhan Bey bağlı bulunduğu kurumun aslında yatırım planları ve stratejik planlar oluşturan, bu plan ve stratejiler doğrultusunda kurallar koyup kurumlar arası koordinasyonu sağlayan ve kurumları denetleyen bir görevi olmalı diyor. Eski FEMA benzeri bir oluşum olmalı diye ekliyor. Türkiye'de afet yönetimi ile ilgili bir koordinasyon eksikliği olduğunu belirtiyor.

TAY şu an Ulusal Acil Durum Bilgi ve Haberleşme Sistemi Projesi'ni yürütmekte. Bilgi yönetiminde standartlaşama ve interoperability kavramlarının önemini vurguluyor. Ulusal düzeyde veri formatlarının aynı olması gerektiğini ancak böyle bir çalışma ortamında, acil durum söz konusu olursa orkestra şefliğini bir kurumun yapabileceğini belirtiyor. Bu anlamda İSMEP projesinde de TAY olarak yer almaları önemli. Ortak bir bilgi sistemi kurulması için çalışmalar yürütmekte.

TAY'da zarar azaltma birimi olduğuna değiniyor. Ancak şu an aktif halde çalışmamakta, yeterli donanım ve personele sahip değil. Aslında ülke olarak acil durum yönetimi konusunda başarılı bir konuma sahip olduğumuzu belirtiyor. Acil durum yönetiminde çoklu bir yaklaşım izlemekteyiz. Sağlık ekibi, haberleşme ekibi, STK'lar ve arama-kurtarma ekipleriyle olay yerine gidiliyor. Dünya'da bu konuda örnek gösterilebilecek bir anlayışımız var. Ancak konu zarar azaltmaya gelince çok yetersiz kaldığımızı vurguluyor. Bu konuda risk tanımlarımızın eksik olduğunu söylüyor. Kurumlar dahi karşı karşıya oldukları risklerin tanımını yapamıyor. Zarar

azaltma çalışmalarıyla ilgili ortak bir kaynak havuzu da yok. Bu nedenle aynı konuda, aynı yere farklı kurumlar yatırım yapıyor. Zarar azaltma çalışmaları için ayrılan kaynakların etkin olarak kullanılmadığı görüşünde. Oysa ortak bir havuzda toplansa bu kaynaklar ve kurumlar arası kaynak kullanımına yönelik koordinasyon sağlansa, daha olumlu ve rasyonel çalışmalar hayata geçirilebilir diyor son olarak. Amerika'daki Project Impact örneğinde olduğu gibi.

Turan ERKOÇ
Bülent ÖZMEN
Bayındırlık ve İskan Bakanlığı
Afet İşleri Genel Müdürlüğü
Deprem Araştırma Dairesi Başkanlığı
02.08.2006 14:00

Bülent Özmen Dünya Konferansına bireysel olarak katılmış. Konferansla ilgili olumlu görüşe bir izlenime. Türkiye'nin konferansta sunmuş olduğu rapordan daha iyi hazırlanmış bir power point sunumu olduğuna değindi.
Turan Bey: -Türkiye'de 1999 depremleri sonrasında önemli çalışmalar yapıldı. DASK kuruldu, her yapıda zemin etüdü yapılması zorunluluğu getirildi, Deprem Şurası yapıldı, yapı yönetmeliği revize edilip güçlendirme kavramı yönetmeliğe eklendi, kurumsal olarak TAY ve UDK kuruldu, yasal anlamda Yeni Yerel Yönetimler Yasaları çıkarıldı.

Turan Bey: -Türkiye'de bir kavram karmaşası var. TAY kendi afet yönetimi tanımlarını yapıyor. Ancak 7269 sayılı yasada tarif ve tanımlar yeterli düzeyde, bu nedenle yasadaki tanımlar baz alınarak ortak bir dil olarak benimsenebilir. Ayrıca afet yönetimi çevre raporlarına indirgenmiş durumda. Afet yönetimi konusunda bir birlik yok. Tehlike ve risk kavramı yavaş yavaş DASK'la hayatımıza girmeye başladı. Riskin de ortak bir tanımı yok. Ayrıca DASK'ın sadece depremle sınırlandırılması iyi değil. Tüm afet türleri dahil edilmeli DASK'a.

Bülent Bey: -Türkiye'de afet yönetimi ile ilgili bir kaos yaşanıyor. Kurumlar arası bir dublikasyon var. Deprem Şurasında bir yol haritası çizildi. Bu çalışma dikkate alınsa Türkiye afet yönetimi konusunda önemli bir yol katedebilir. Ülke kaynaklarının kıt olduğu söyleniyor, kurumlar bu kıt kaynaklarla benzer çalışmalar yapıyor. Bu tür faaliyetleri koordine edecek, çalışmaları denetleyecek ve kaynak ayrımı yapacak bir yapılanmaya ihtiyaç var. Bu yapılanma öncelikle Ulusal bir Doğal Afet Strateji Planı hazırlamalı ve bu planda öncelikleri belirlemeli. TAY bu görevi üstlenebilecek yeterli donanım ve kadroya sahip değil. Böyle bir görevi üstlenecek kurum eski FEMA'nın konum ve niteliğinde olmalı.

Bülent Bey: -Valiliklerin hazırladığı Acil Durum Planları derme çatma hazırlanıyor. Planlarda tehlike ve risklere hiç yer verilmiyor. Bu konuda il bütününe yönelik bir araştırma yapılmıyor.

Bülent Bey: -Türkiye'de hesap sorma mekanizması yok. Afetlerle ilgili yasal düzenlemeler var ancak Türkiye'de usul ve esaslara tam olarak uyulmuyor. Genel anlamda bir yara sarma politikası egemen Deprem Şurası'nda önemli bulgu ve öneriler var. Onu bir yol haritası olarak kabul edip, öneriler hayata geçirilse afet yönetimi konusunda ilerleyebiliriz. Ancak iktidar bir şey yapmıyor. Çünkü afet ve risk yönetimi kamu gündeminde düşük önceliğe sahip. Toplum bu konuda iktidara baskı yapmıyor.

Turan Bey: -Yeni Yerel Yönetim Yasalarıyla belediyelere önemli görevler verildi. Ancak bu bir strateji ve program doğrultusunda uygulanmıyor, ayrıca belediyeler bu görevleri yerine getirecek yeterli bilgi, kaynak ve donanıma sahip değil.

Turan Bey DPT'nin özel ihtisas komisyonunda yer almış, Bülent Bey de hem İzmir İktisat Kongresinde hem de Deprem Şurasında görev almış. Turan bey 9. Beş Yıllık Kalkınma Planında afet yönetiminin 'çevre' başlığı içerisinde yer aldığını, bu konuda 8. Plan'daki gibi afet yönetimine değinilmediğini belirtiyor.

Turan Bey: -Ayrıca Türkiye'de afet yönetimi konusunda önemli deneyim ve tecrübeye sahip uzmanların var ancak bu kişilerden yeterince yararlanılmıyor.

Turan Bey: -Bayındırlık ve İskan Bakanlığı'nın çıkarmış olduğu taslak bağımsız görüşlerle hazırlanmış değil. Daha etkin bir düzenleme olsun isterdik kurum olarak ancak bu haliyle yeterli düzeyde değil. Taslağın zarar azaltma konusunda eksiklikleri var. Aslında afet yönetimi ile ilgili hem imar mevzuatı hem de afetler yasası taslakları aynı kurum tarafından hazırlanıyor. Yasal anlamda bu konu ile ilgili bakanlık içerisinde ilgili kişi ve birimler bir araya gelip yeni düzenlemeleri eşgüdümlü yapsalar daha doğru bir adım atılmış olurdu.

Demir AKIN
Hayriye ŞENGÜN
Bayındırlık ve İskan Bakanlığı
Afet İşleri Genel Müdürlüğü
Planlama, Hak Sahipliği ve Borçlandırma Dairesi Başkanlığı
16.08.2006 14:00

Hayriye Hanım ile Demir Bey 2005 yılında Kobe'de düzenlenen konferansa katılmamış. Bu nedenle konferans hakkında görüş ve izlenim bildiremiyorlar. Ancak Türkiye'nin konferansta sunmuş olduğu raporu inceleme fırsatı bumuşlar. Raporu yetersiz bulmakta ve günü kurtarmak adına hazırlandığını düşünmekteler.

Hayriye Hanım: -Gerek BM gerekse diğer uluslararası kuruluşlar 1990'dan bu yana afet yönetimi ile ilgili önemli çalışmalar yürütmekte. Türkiye de 1990'ların başında bu işe ciddi bir şekilde sarıldı. 1994 yılında Türkiye'nin Yokohoma sunumu ciddi bir çalışma ancak bu çalışmaların sonu getirilemedi ve bu çalışmalar için yeterli kaynak, kadro ve donanım ayrılmadı. Ayrıca uluslararası düzlemde bir zihniyet dönüşümü var. Toplum olarak risk toplumuna geçiş söz konusu. Türkiye bu zihniyet

dönüşümünü ve risk toplumuna geçiş sürecini tamamlamış değil. Bu dönüşüme inancı ve siyasi adanmışlığı yok.

Demir Bey: -Aslında diğer ülkeler de bu dönüşümü tam olarak tamamlamış değil. Buna verilebilecek son örneklerden biri Katrina Kasırgası. Türkiye'ye tekrar dönecek olursak, 1999 Depremleri Türkiye'nin afet yönetim sisteminde bir dönüm noktası yarattı. Ama çalışmalar aynı ivmeyle sürdürülmedi. Şu an 1999 Depremlerinde yaşananları, çıkarılan dersleri unutmuş durumdayız. Her 17 Ağustos'ta da unuttuğumuzu hatırlıyoruz sadece. Özellikle zarar azaltma çalışmaları konusunda daha çok adım atmalı, bu konuda yasal düzenlemelere gitmeli, çeşitli projeleri hayata geçirmeliyiz.

Demir Bey: -Şu an ne DASK sistemi, ne de Yapı Denetim sistemi etkin bir şekilde çalışmakta. Aslında öncelikle İmar Yasası ile Afetler Yasası ardından Yapı Denetim Sistemi ile DASK Sistemi birbirleriyle eşgüdümlü olarak çalışmalılar. Ama bir entegrasyon yok aralarında. 1999'dan bu yana bir sürü yasal düzenlemeye gidildi. Ancak afet yönetimi ile ilgili ilk başta birbirleriyle eşgüdümlü düzenlenmesi gereken 2 temel yasa hala revize edilmedi. Hala ulusal bir afet stratejimiz yok, bu konuda önceliklerimiz belirlenmemiş durumda. Bu da afet yönetimi konusunda yasal anlamda hala önemli eksikliklerimiz olduğunu göstermekte.

Demir Bey: -İdari açıdan bakıldığında, UDK'nın kurulduğu ilk günden itibaren önemli çalışmalar yaptığı gözlenmekte, ancak hükümetin değişiminden sonra bu kurum unutuldu. Bugün kurumdan ve kurumda yer alan kişilerden yeteri kadar yararlanılmıyor. Afet yönetimi ile ilgili diğer bir kuruma baktığımızda ise, TAY'ın bir vizyona sahip olmadığını, doğal afetlerle ilgili bilgi birikimi ve deneyimi olan kişilerin bu kurumda yer almadığını görmekteyiz. Gerek Afet İşleri Genel Müdürlüğü, gerekse Sivil Savunma Genel Müdürlüğü ile ilişkileri problemli. Afet yönetimi ile ilgili tüm kurumlar arasında bir yetki karmaşası, boşluklar ve dublikasyonlar var. Yeni Yerel Yönetim Yasaları ile belediyelere de afet yönetimi ile

ilgili yetkiler verildi. Zarar azaltma çalışmalarını yürütebilecek en etkin kurum belki belediyeler, yasayla da bunun önü açılmış oldu ancak bu görevi yerine getirmeleri için yeterli kaynak ve donanım onlara henüz sağlanmış değil. Genel olarak baktığımızda, Türkiye'de Afet Yönetimi ne yasal ne de kurumsal anlamda tatmin edici bir düzeye ulaşmış durumda değil.

Hayriye Hanım: -Kaderci toplum olmamız nedeniyle, bu eksiklikler karşısında bir direnç oluşturamıyoruz. Politik sistemi tetikleyici teşvik edici bir yapımız yok.

Hayriye Hanım: Bayındırlık Bakanlığı'nın çıkarmış olduğu taslak incelendiğinde politik tercihleriyle bugünkü yönetime yakın insanların taslağı hazırladığı gözlenmekte. Konusunda uzman, bir vizyona sahip teknik kişiler bu çalışmada yer almadı. Bu nedenle taslak, mevcut yasadan farklı olarak, afet zararlarının azaltılması konusunun önemini vurgulamaktan ve bu uygulamaların önünü açabilecek nitelikten yoksun. Taslak sadece günü kurtarmak adına, küçük sorunların çözümüne yönelik bir düzenleme. Afet Yönetimi ile ilgili mevcut diğer yasalarla ilişkilendirilmemiş. Uzun vadeli sorunları çözmek yerine parçalı bir yaklaşımla hazırlanmış. Öncelikle İmar sistemimizi, Dünya'daki bu yeni bakış açısı doğrultusunda iyileştirilmeli, afet yönetimini de bu sistemin içerisinde yer alacak şekilde yeniden revize etmeliyiz.

Demir Bey: -Türkiye'de afet yönetiminde hem yasal hem de idari anlamda birçok eksikliğin olduğunun altını çizdik. Bunların yanında bilimsel anlamda da ileri bir noktada değiliz. Entegre bir bilimsel politikaya sahip değiliz. Türkiye'de afetlerle ilgili bilimsel bir çerçeve ortaya konmuş değil. Akademik anlamda oluşturulmuş bir görüş birliği, bir strateji henüz yok. Vatandaş da afet yönetimi ile ilgili bir bilince sahip değil. Afet yönetim sistemi içerisinde kurumsal, yasal, bilimsel yapının dışında sosyal yapıda da eksiklikler var.

Mehmet YILMAZ
İç İşleri Bakanlığı
Hukuk Müşavirliği
17.08.2006 14:00

Mehmet Bey 2005 yılında Kobe'de düzenlenen dünya konferansına katılmış. Bu konuda izlenimlerini şöyle aktarıyor:

Mehmet Bey: -Türkiye'yi temsil etmek üzere 6'si Bakanlar Kurulundan olmak üzere toplam 16 kişi katıldı konferansa. Konferans toplam 160 ülkeden yaklaşık 1500 kişiyi misafir etti. Her cluster için ayrı konferans salonlarında düzenlenen tematik oturumlar vardı. Bu görüşmeler sürerken dışarıda afetlere karşı hazırlıklı olma ve afetten korunma ile ilgili bir fuar organize edilmişti. Ülke ve çeşitli uluslararası organizasyonlar birbirlerine bilgi aktarımında bulundu. Türkiye'nin konferansta sunmuş olduğu power point, ulusal rapordan daha kapsamlıydı.

APPENDICES

D: The List of Participants Attended to World Conference 2005

Participant's Name	Organization	Position
Sabri Özkan Erbakan	Ministry of Public Works and Settlements	Undersecretary
Hasan İpek	General Directorate of Emergency Management	General Director
Atilla Özdemir	General Directorate of Civil Defense	General Director
H. Hami Yildirim	Ministry of Interior	General Director
Mehmet Zeki Adli	General Directorate of Cadastre and Land Registry	Acting Director
Mehmet Yilmaz	General Directorate of Civil Defense	Deputy Director
Metin Serin	General Directorate of Disaster Affairs	Deputy Director
Levent Şahinkaya	Ministry of Foreign Affairs	Head of Multilateral Political Affairs Department
Mehmet Nuri Erikel	Ministry of Health	Deputy Chairman
Nusret Akça	Ministry of Public Works and Settlement	Acting Chief of Construction Planning
Murat Nurlu	General Directorate of Disaster Affairs	Acting Chief of Earthquake Research Department
Orhan Topçu	General Directorate of Emergency Management	Counselor
Selçuk Ünal	Permanent Mission Geneva	First Secretary
N. Kerem Kuterdem	General Directorate of Disaster Affairs	Geological Engineer of Earthquake Research Department
Ömer Taşli	General Directorate of the Turkish Red Crescent	Acting Director
Kaan Saner	General Directorate of the Turkish Red Crescent	Disaster Expert