Foreword

The year 2003 witnessed severe natural disasters occurred in the world. The highest death toll came from Iran Bam Earthquake, the highest affected population from the floods in China and the biggest economic damage from Korea Maemi typhoon. Africa also experienced severe earthquake in Algeria in 2003 which claimed heavy human loss and economic damages in the region. Further unexpectedly, Europe experienced severe high temperatures and heat waves which claimed heavy human loss and sufferings in the region. America also experienced severe storms affecting many people. These incidences once again drew the attention of the crisis managers and policy planners to the need of Total Disaster Risk Management Approach and reducing the vulnerabilities of these regions.

It is quite evident that the prevalence and magnitude of natural disasters have had serious consequences on human society and the global economy. The detrimental consequences of disasters on the societies in various aspects such as the economy, environment, and even adverse effects on national political agendas cannot be neglected. Also the frequency and the severity of natural disasters have notably increased worldwide. The exponentially increasing economic losses associated with natural hazards in the developing countries considerably obstruct the phase of development. This situation is further aggravated by the weak regional risk-transfer system. Hence the devastation caused by natural disasters has adverse effects on the ability of developing countries associated with economic uncertainties to compete in the global economy. When we look at the statistics for the last hundred years, it is clear that Asia is the most highly disaster afflicted region in the world, with about 90% of the totally affected people, and over 50% of the total deaths and total economic losses respectively. Hence, it is imperative to analyze past disasters, looking at annual trends from the perspective of development mechanisms.

With the aim of accelerating and strengthening global and regional socio-economic frameworks for addressing the consequences of natural disasters and designing effective disaster reduction mechanisms, we have edited this publication to analyze trends in the occurrence of natural disasters in the year 2003. We hope this publication will be of use not only to policy planners, researchers and academics but also to grass root level participants in development initiatives. We sincerely hope that this data book furthers our efforts to transform the total disaster risk management approach into an instrument for global sustainable development.

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Satoru Nishikawa
Executive Director
Asian Disaster Reduction Center

Note 1:

The disasters analyzed here are from CRED EM-DAT database. For a disaster to be entered into this database, at least one of the following criteria must be satisfied.

(i) 10 or more people reported killed

(ii) 100 or more people reported affected

(iii) declaration of a state of emergency

(iv) call for international assistance

Note 2:

DisType	= Type of Disasters
Count of DisNo	= Total Number of Disasters
Sum of Killed	= Total Number of Killed People
Sum of Injured	= Total Number of Injured People
Sum of Homeless	= Total Number of People become Homeless
Sum of Affected	= Total Number of Affected People
Sum of TotAff	= Total Number of *Totally* Affected People
	= Sum of Injured + Sum of Homeless + Sum of Affected
Sum of Damage	= Amount of Damage

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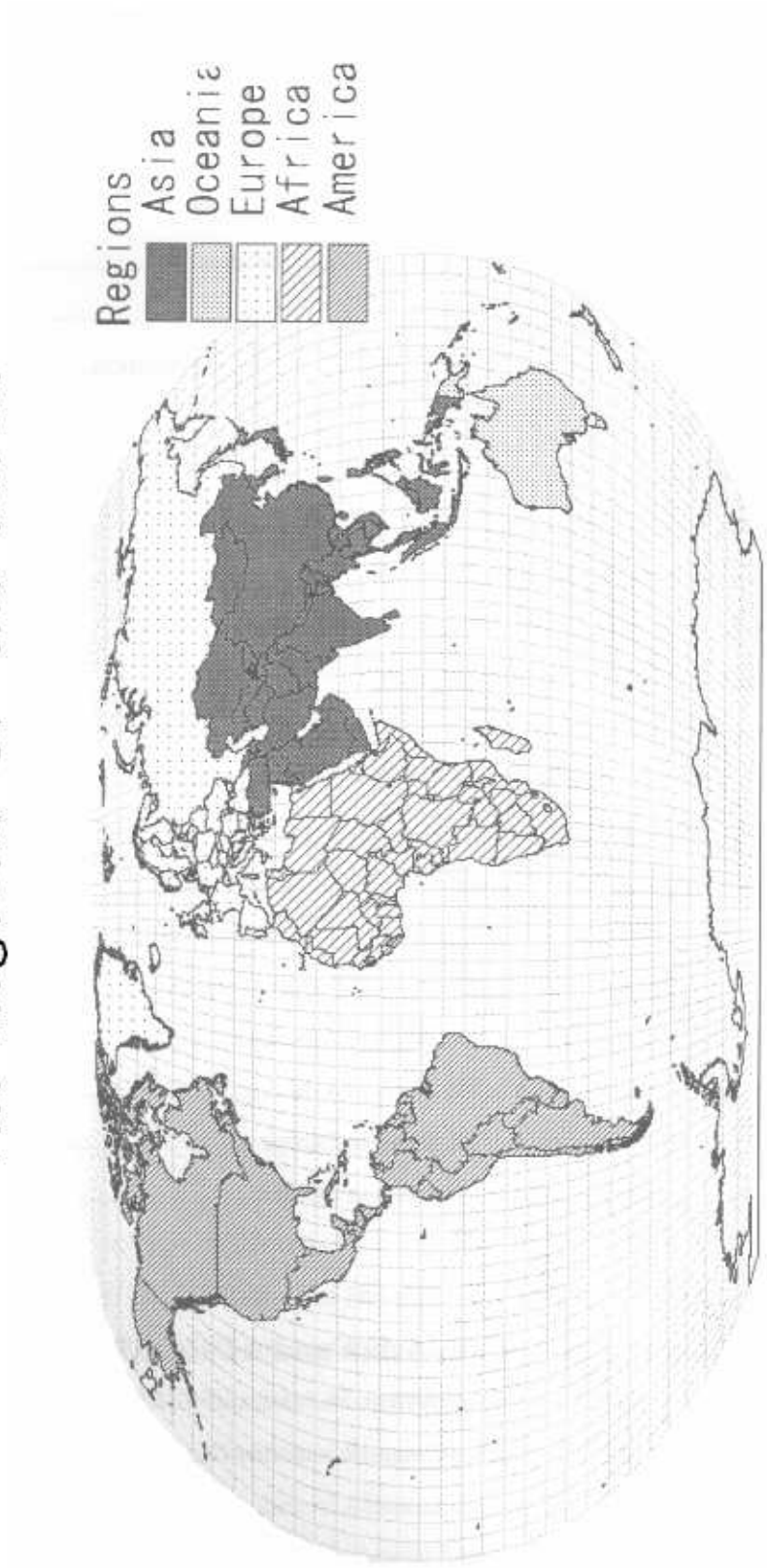


Natural Disasters in 2003: An Analytical Overview

Chapter 1: Impact of Natural Disasters

This Chapter deals with the overall trend and impact of natural disasters in the year 2003. It also addresses regional perspectives on disasters based on disaster types and discusses the vulnerability of natural disasters in the Asian region.

1.1 Trend of Natural Disaster Damage and Characteristics:

According to the following figures (Figures 1 & 2) and the summary table (Tables 1, 2 & 3), there is a trend towards increasing occurrence of natural disasters for various reasons, such as global climate changes, environmental and ecological imbalance, increasing population density, improper urbanization, deforestation and desertification. Due to the compounding effect of these factors, human suffering, loss of life, and economic losses caused by natural disasters have also been increasing. It is noteworthy to mention that the *totally*[1] affected population in the year 2003 is almost 4% of the world population and the worldwide total economic damages in the year exceeded the GDP (Purchasing Power Parity) of certain developing countries in Asia and Africa, thus underlying the importance of natural disaster mitigation strategies. For instance, the total amount of damage in the world caused by natural disasters in the year 2003 exceeds the annual GDP (2002 estimate) of Mongolia by 8 times, Laos by 4 times, Tajikistan by 5 times, Armenia by 3.5 times, Kyrgyz by 2.5

[1] According to CRED, Belgium, the *totally* affected population includes the number of people injured, number of people became homeless and number of people affected by various other means due to disasters.

times, and Papua New Guinea by 4 times respectively. In comparison to 2002 statistics, there is an increase in number of people killed and the amount of economic damage. This trend is quite alarming and a great obstacle to any development activity of affected countries within the purview of sustainable development. Human suffering and economic losses undeniably create a development-vacuum that will be hard to fill in the near future.

Table 1:

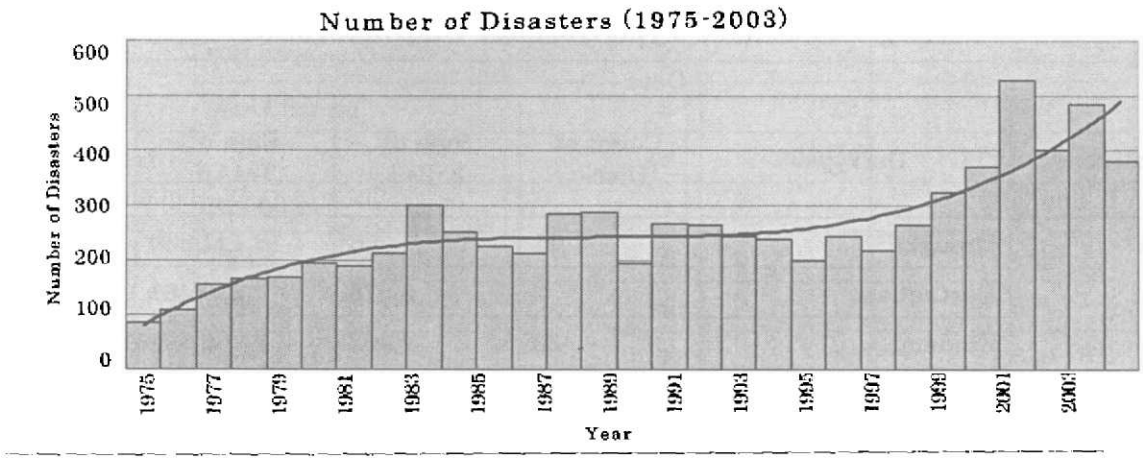
Summary of Natural Disasters (2003)

	Number of Disasters	Sum of Killed	Sum of Totally Affected	Sum of Damage US$(000's)
Asia (Share)	136 (36%)	49,779 (57%)	228,402,420 (90%)	17,283,486 (40%)
World	380	86,862	253,635,421	43,672,375

Source: ADRC, Japan and CRED-EMDAT, Universite Catholique de Louvain, Brussels, Belgium, 2003

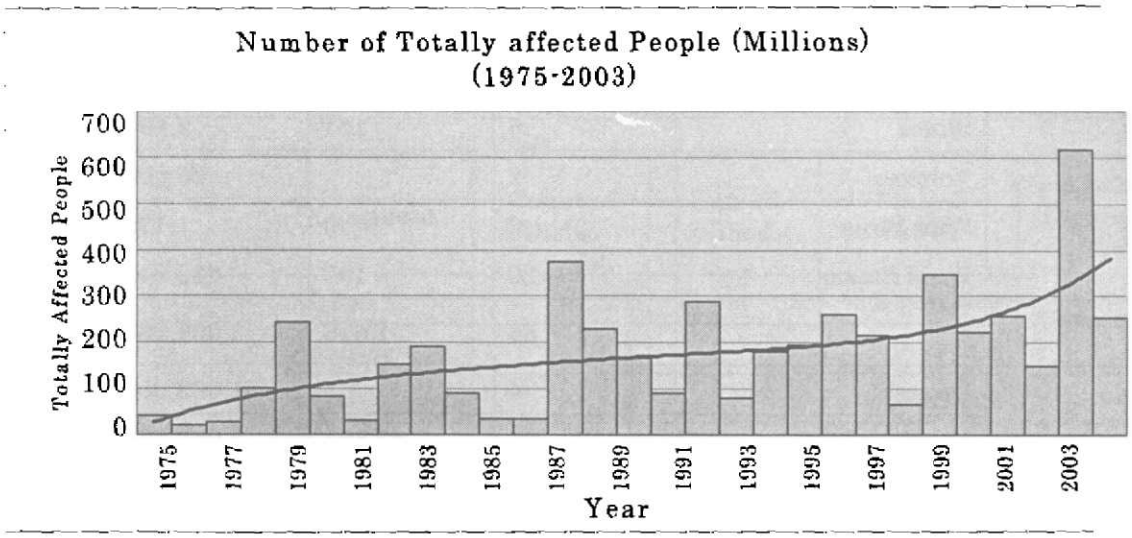
The following figures show the increasing trend in the occurrence of natural disasters and the number of totally affected people from 1975 to 2003.

Figure 1:



Source: ADRC, Japan and CRED-EMDAT, Universite Catholique de Louvain, Brussels, Belgium, 2003

Figure 2:



Source: ADRC, Japan and CRED-EMDAT, Universite Catholique de Louvain, Brussels, Belgium, 2003

The following tables show regional disaster characteristics in relation to various disaster types.

Table2:

Summary of Natural Disasters (2003) (Region/Disaster Type/Disaster Characteristics)					
		Data			
Continent	DisType	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of DamageUS$ ('000s)
Africa	Drought	11	9	18,142,539	
	Earthquake	2	2,275	210,461	5,000,000
	Epidemic	23	2,362	66,891	
	Extreme Temperature	1	40	0	
	Flood	40	439	2,367,460	536,570
	Slides	1	20	100	
	Wind Storm	11	152	217,252	
Africa Total		**89**	**5,297**	**21,004,703**	**5,536,570**
Americas	Drought	2		0	
	Earthquake	6	26	13,825	200,000
	Epidemic	2	344	50,200	
	Extreme Temperature	2	360	1,839,888	
	Flood	41	519	873,424	1,193,600
	Slides	5	151	2,196	
	Volcano	2		25,000	
	Wild Fires	6	19	1,179	545,000
	Wind Storm	20	197	263,848	10,952,600
Americas Total		**86**	**1,616**	**3,069,560**	**12,891,200**
Asia	Drought	4		51,069,000	
	Earthquake	25	43,521	3,059,832	2,717,634
	Epidemic	4	15	2,448	
	Extreme Temperature	6	2,073	0	
	Flood	55	3,052	163,549,522	8,502,148
	Slides	13	516	455,712	51,298
	Wild Fires	1		300	
	Wind Storm	28	602	10,265,606	6,012,406
Asia Total		**136**	**49,779**	**228,402,420**	**17,283,486**
Europe	Drought	4		1,062,575	710,000
	Earthquake	7	109	16,134	571 952
	Extreme Temperature	9	29,930	20	

Continent	DisType	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of DamageUS$ ('000s)
	Flood	17	33	36,406	4,325,218
	Wild Fires	6	30	4,704	1,750,000
	Wind Storm	6	22	107	2,949
Europe Total		**49**	**30,124**	**1,119,946**	**7,360,119**
Oceania	Epidemic	1		437	
	Flood	5	7	489	135,000
	Slides	2	13	621	
	Wild Fires	1	4	2,650	300,000
	Wind Storm	11	22	34,595	166,000
Oceania Total		**20**	**46**	**38,792**	**601,000**
Grand Total		**380**	**86,862**	**253,635,421**	**43,672,375**

Source: ADRC, Japan and CRED-EMDAT, Universite Catholique de Louvain, Brussels, Belgium, 2003

Table 3:

Summary of Natural Disasters (2003) (Disaster Type/Region/Disaster Characteristics)					
		Data			
DisType	Continent	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of DamageUS$ ('000s)
Drought	Africa	11	9	18,142,539	
	Americas	2		0	
	Asia	4		51,069,000	
	Europe	4		1,062,575	710,000
Drought Total		**21**	**9**	**70,274,114**	**710,000**
Earthquake	Africa	2	2,275	210,461	5,000,000
	Americas	6	26	13,825	200,000
	Asia	25	43,521	3,059,832	2,717,634
	Europe	7	109	16,134	571,952
Earthquake Total		**40**	**45,931**	**3,300,252**	**8,489,586**
Epidemic	Africa	23	2,362	66,891	
	Americas	2	344	50,200	
	Asia	4	15	2,448	

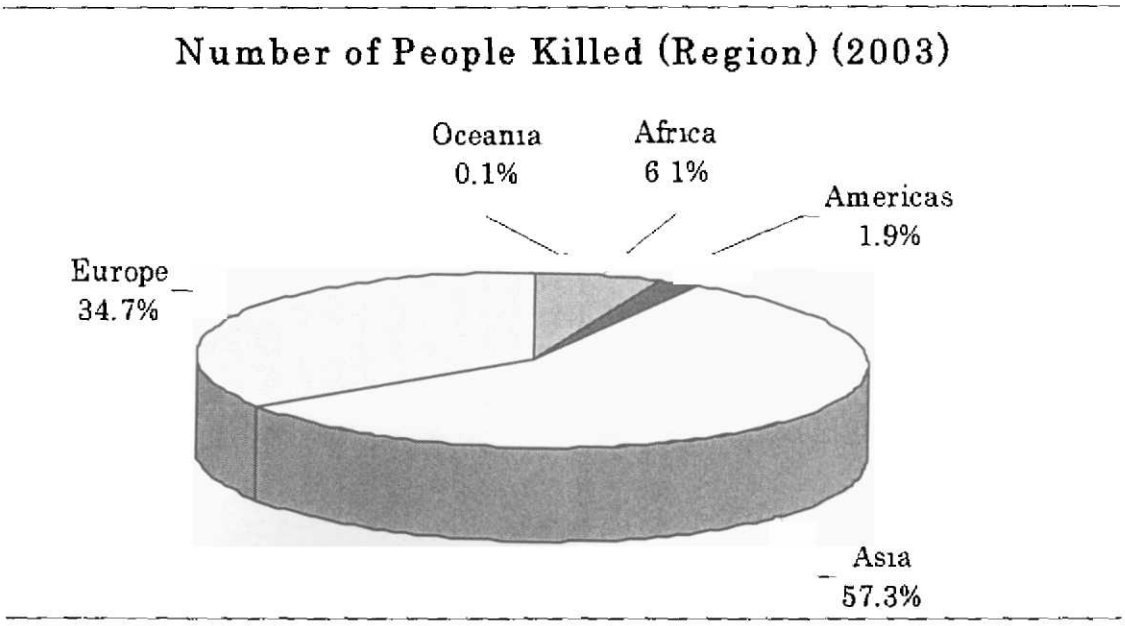
DisType	Continent	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of DamageUS$ ('000s)
	Oceania	1		437	
Epidemic Total		**30**	**2,721**	**119,976**	
Extreme Temperature	Africa	1	40	0	
	Americas	2	360	1,839,888	
	Asia	6	2,073	0	
	Europe	9	29,930	20	
Extreme Temperature Total		**18**	**32,403**	**1,839,908**	
Flood	Africa	40	439	2,367,460	536,570
	Americas	41	519	873,424	1,193,600
	Asia	55	3,052	163,549,522	8,502,148
	Europe	17	33	36,406	4,325,218
	Oceania	5	7	489	135.000
Flood Total		**158**	**4,050**	**166,827,301**	**14,692,536**
Slides	Africa	1	20	100	
	Americas	5	151	2,196	
	Asia	13	516	455,712	51 298
	Oceania	2	13	621	
Slides Total		**21**	**700**	**458,629**	**51,298**
Volcano	Americas	2		25,000	
Volcano Total		**2**		**25,000**	
Wild Fires	Americas	6	19	1,179	545.000
	Asia	1		300	
	Europe	6	30	4,704	1,750.000
	Oceania	1	4	2,650	300,000
Wild Fires Total		**14**	**53**	**8,833**	**2,595,000**
Wind Storm	Africa	11	152	217,252	
	Americas	20	197	263,848	10,952 600
	Asia	28	602	10,265,606	6,012.406
	Europe	6	22	107	2.949
	Oceania	11	22	34,595	166,000
Wind Storm Total		**76**	**995**	**10,781,408**	**17,133,955**
Grand Total		**380**	**86,862**	**253,635,421**	**43,672,375**

Source: ADRC, Japan and CRED-EMDAT, Universite Catholique de Louvain, Brussels, Belgium, 2003

1.2 Vulnerability of Asia:

As we look at the following figures in relation to the Asian region, it is quite evident that the region is extremely vulnerable to natural disasters. The majority of the human loss and suffering is reported from this region in the year 2003, as in the previous years. Specifically, nearly 90% of the totally affected people and 57% of the human loss are reported from Asia. Further, in 2003, the majority of the economic loss caused by disasters is reported from Asia, followed by America, Europe and Africa. This phenomenon is due to the natural disasters hit Korea (Typhoon Maemi), China (Flood), USA (Wind Storm) and Iran (Bam Earthquake). In contrast, other than Asia, second largest number of deaths was reported from Europe and this is due to the extreme temperature and heat wave hit the entire Europe.

Figure 3:



Source: ADRC, Japan and CRED·EMDAT, Universite Catholique de Louvain, Brussels, Belgium, 2003