Chapter 4: Overview of Natural Disasters in Asian and ADRC Member Countries

4.1 Types of Disasters and their Effects in Asian and ADRC Member Countries

This section deals with the pattern of disasters in Asian and ADRC member countries. Among ADRC's 24 member countries, 20 countries (excluding Lao PDR, Mongolia, Singapore and Uzbekistan) will be discussed according to their disaster records of 2004. The remaining five countries do not have any record of significant disasters in CRED-EM-DAT database for 2004[3]. Here, we will also be discussing the Asian countries which had recorded disasters for the year 2004. All the ADRC member countries are situated in Asia except for Papua New Guinea and Russia. Table 10 shows the disaster situation according to disaster type of each member country.

According to Table 10, **drought** seriously affected China, one of the most affected populations in the world in 2004. Beside this, droughts did not affect any other countries in Asia. This is in contrast with the situation in 2003, when droughts had badly affected the countries of Indonesia, Pakistan and Russia.

The impact of **earthquakes** has been quite strong in countries like Afghanistan, China, Indonesia, Iran, Japan, Pakistan, Russia and Tajikistan in terms of affected people and economy. Sumatra's earthquake in Indonesia, which created the historic Indian Ocean Tsunami, was the world's severest in 2004 in terms of human loss and economic damages. China and Japan also suffered severe human losses and economy damages due to earthquakes. Earthquake in Japan accounted for nearly 42% of the total economic damage among the ADRC member countries in 2004. Earthquakes have also caused considerable

effects in Iran in 2004 which was affected by the 2003 historic Bam earthquake.

Epidemics had an impact on Bangladesh, Indonesia, Pakistan, Philippines, Thailand and Vietnam in terms of *totally* affected people. Also, the number of people who died and *totally* affected due to epidemics became high in Indonesia.

Extreme temperatures inflicted human loss in China and Japan.

The most frequent disasters in member countries are **wind storms** and **floods**. But in contrast with 2003, in which more than 80% of the total human loss happened among ADRC member countries, only 2% of the human loss occurred in ADRC member countries and Asia Furthermore, about 21% of the affected population was also affected by floods and wind storms in Asia and ADRC member countries in 2004. This is the contrast situation in comparison to 2003. It can also be observed from the data that nearly 45% of the total economic loss in member countries was due to floods and windstorms. Among the member countries, the severest damage in terms of human suffering and economic loss occurred in China, Korea, India, Bangladesh, Nepal, Japan, Sri Lanka, Philippines, Malaysia, Russia, Thailand, and Vietnam, even though most member countries are affected. Moreover, **slides** caused considerable human suffering in China, Indonesia, Kyrgyz and Kazakhstan.

The most severe disaster that struck many of the ADRC member countries and Asia was the **Indian Ocean tsunami (wave/surge)** which accounted for nearly 96% of the total human loss and sufferings and about 12% of the total economic damage in Asia and ADRC member countries in 2004. Severe damages in terms of human and economic loss were recorded in Indonesia, Sri Lanka, India, Thailand, Myanmar, Maldives and Bangladesh. It is needless to say that this tsunami disaster really questioned the existing disaster

[3] See Note 1 in page ii.

countermeasures in these countries and stressed the need for better regional cooperation among these countries in terms of disaster reduction.

Table 10: Natural Disasters in Asia and ADRC Member Countries (2004 Summary)

(Disaster Type/Country/Disaster Characteristics)

DisType	Country	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of Damage US$ ('000s)
Drought	China P Rep	1		620,000	
Drought Total		**1**		**620,000**	
Earthquake	Afghanistan	1	2	1,040	
	China P Rep	5	4	349,930	124,000
	Indonesia	5	108	140,833	67,943
	Iran Islam Rep	1	35	278	59,000
	Japan	1	40	62,183	28,000,000
	Pakistan	1	24	13,148	
	Russia	1		138	
	Tajikistan	1		180	
Earthquake Total		**16**	**213**	**567,730**	**28,250,943**
Epidemic	Bangladesh	2	32	54	
	Cambodia	1	3		
	Indonesia	1	658	58,301	
	Pakistan	1	2	100	
	Philippines	1	32	98	
	Thailand	1	12	5	
	Viet Nam	1	35	25	
Epidemic Total		**8**	**774**	**58,583**	
Extreme temp	China P Rep	1	39		
	Japan	1	10	300	
Extreme temp Total		**2**	**49**	**300**	
Flood	Afghanistan	2	16	4,500	
	Armenia	1	1		
	Bangladesh	3	761	36,871,700	7,000,000
	Bhutan	1			
	Cambodia	1			
	China P Rep	9	450	42,720,339	1,984,500
	Georgia	2	1	90	2,156
	India	6	1,348	33,206,000	496,000
	Indonesia	1	5	13,000	60,000

DisType	Country	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of Damage US$ ('000s)
Flood	Iran Islam Rep	2	40	4,053	
	Iraq	1		8,000	
	Japan	2	22	28,097	1,950,000
	Korea Rep	2	10	4,691	6,595
	Malaysia	3	16	31,038	
	Nepal	1	185	800,015	
	Pakistan	2	5		
	Papua New Guinea	1		10,000	
	Philippines	2	22	21,500	
	Russia	3	18	6,520	31,759
	Saudi Arabia	1	5	430	
	Sri Lanka	1	6	200,000	
	Tajikistan	1		5,000	
	Thailand	3	13	507,000	175,000
	Viet Nam	3	96	35,044	8,300
Flood Total		**54**	**3,020**	**114,477,017**	**11,714,310**
Slide	China P Rep	2	65	453	
	Indonesia	4	119	5,018	
	Kazakhstan	1	48		
	Kyrgyzstan	3	49	98	
	Philippines	1	8	6	
	Thailand	1	3	110	
	Viet Nam	1	23		
Slide Total		**13**	**315**	**5,685**	
Volcano	Indonesia	4	2	42,933	
	Papua New Guinea	1		9,600	
Volcano Total		**5**	**2**	**52,533**	
Wave / Surge	Bangladesh	1	2		
	India	1	16,389	654,512	1,500,000
	Indonesia	1	165,708	532,898	4,450,000
	Malaysia	1	80	5,063	14,600
	Maldives	1	102	27,214	410,000
	Myanmar	1	71	12,500	
	Philippines	1	27	194	
	Sri Lanka	1	35,399	1,019,306	1,000,000
	Thailand	1	8,345	67,007	405,200

DisType	Country	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of Damage US$ ('000s)
Wave / Surge Total		**9**	**226,123**	**2,318,694**	**7,779,800**
Wild fire	Korea Rep	1		2,155	
	Russia	1	9	1,000	
Wild fire Total		**2**	**9**	**3,155**	
Wind storm	Bangladesh	4	239	18,200	
	China P Rep	7	247	9,323,865	2,212,980
	Indonesia	2	4	3,715	
	Iran Islam Rep	1		2,500	240
	Japan	8	201	330,989	16,298,000
	Korea Rep	3	14	2,922	570,000
	Malaysia	2	1	41,000	
	Myanmar	1	236	25,000	688
	Philippines	8	1,861	3,241,278	128,900
	Russia	3	9	6,062	6,000
	Syrian Arab Rep	1	5	180	
	Taiwan (China)	5	79	8,873	31,710
	Thailand	2	14	9,050	
	Viet Nam	2	70	500,905	30,500
Wind storm Total		**49**	**2,980**	**13,514,539**	**19,279,018**
Grand Total		**159**	**233,485**	**131,618,236**	**67,024,071**

Source: ADRC, Japan and CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2004

4.2 Asian and ADRC Member Countries and their Disaster Characteristics

Table 11: Natural Disasters in Asia and ADRC Member Countries (2004 Summary)

(Disaster Type/Country/Disaster Characteristics)

Country	DisType	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of Damage US$ ('000s)
Afghanistan	Earthquake	1	2	1,040	
	Flood	2	16	4,500	
Afghanistan Total		**3**	**18**	**5,540**	
Armenia	Flood	1	1		
Armenia Total		**1**	**1**		
Bangladesh	Epidemic	2	32	54	
	Flood	3	761	36,871,700	7,000,000
	Wave / Surge	1	2		
	Wind storm	4	239	18,200	
Bangladesh Total		**10**	**1,034**	**36,889,954**	**7,000,000**
Bhutan	Flood	1			
Bhutan Total		**1**			
Cambodia	Epidemic	1	3		
	Flood	1			
Cambodia Total		**2**	**3**		
China P Rep	Drought	1		620,000	
	Earthquake	5	4	349,930	124,000
	Extreme temp	1	39		
	Flood	9	450	42,720,339	1,984,500
	Slide	2	65	453	
	Wind storm	7	247	9,323,865	2,212,980
China P Rep Total		**25**	**805**	**53,014,587**	**4,321,480**
Georgia	Flood	2	1	90	2,156
Georgia Total		**2**	**1**	**90**	**2,156**
India	Flood	6	1,348	33,206,000	496,000
	Wave / Surge	1	16,389	654,512	1,500,000
India Total		**7**	**17,737**	**33,860,512**	**1,996,000**
Indonesia	Earthquake	5	108	140,833	67,943
	Epidemic	1	658	58,301	
	Flood	1	5	13,000	60,000
	Slide	4	119	5,018	
	Volcano	4	2	42,933	
	Wave / Surge	1	165,708	532,898	4,450,000
	Wind storm	2	4	3,715	
Indonesia Total		**18**	**166,604**	**796,698**	**4,577,943**

DisType	Country	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of Damage US$ ('000s)
Iran Islam Rep	Earthquake	1	35	278	59,000
	Flood	2	40	4,053	
	Wind storm	1		2,500	240
Iran Islam Rep Total		**4**	**75**	**6,831**	**59,240**
Iraq	Flood	1		8,000	
Iraq Total		**1**		**8,000**	
Japan	Earthquake	1	40	62,183	28,000,000
	Extreme temp	1	10	300	
	Flood	2	22	28,097	1,950,000
	Wind storm	8	201	330,989	16,298,000
Japan Total		**12**	**273**	**421,569**	**46,248,000**
Kazakhstan	Slide	1	48		
Kazakhstan Total		**1**	**48**		
Korea Rep	Flood	2	10	4,691	6,595
	Wild fire	1		2,155	
	Wind storm	3	14	2,922	570,000
Korea Rep Total		**6**	**24**	**9,768**	**576,595**
Kyrgyzstan	Slide	3	49	98	
Kyrgyzstan Total		**3**	**49**	**98**	
Malaysia	Flood	3	16	31,038	
	Wave / Surge	1	80	5,063	14,600
	Wind storm	2	1	41,000	
Malaysia Total		**6**	**97**	**77,101**	**14,600**
Maldives	Wave / Surge	1	102	27,214	410,000
Maldives Total		**1**	**102**	**27,214**	**410,000**
Myanmar	Wave / Surge	1	71	12,500	
	Wind storm	1	236	25,000	688
Myanmar Total		**2**	**307**	**37,500**	**688**
Nepal	Flood	1	185	800,015	
Nepal Total		**1**	**185**	**800,015**	
Pakistan	Earthquake	1	24	13,148	
	Epidemic	1	2	100	
	Flood	2	5		
Pakistan Total		**4**	**31**	**13,248**	
Papua New Guinea	Flood	1		10,000	
	Volcano	1		9,600	
Papua New Guinea Total		**2**		**19,600**	
Philippines	Epidemic	1	32	98	
	Flood	2	22	21,500	
	Slide	1	8	6	
	Wave / Surge	1	27	194	

DisType	Country	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of Damage US$ ('000s)
Philippines	Wind storm	8	1,861	3,241,278	128,900
Philippines Total		**13**	**1,950**	**3,263,076**	**128,900**
Russia	Earthquake	1		138	
	Flood	3	18	6,520	31,759
	Wild fire	1	9	1,000	
	Wind storm	3	9	6,062	6,000
Russia Total		**8**	**36**	**13,720**	**37,759**
Saudi Arabia	Flood	1	5	430	
Saudi Arabia Total		**1**	**5**	**430**	
Sri Lanka	Flood	1	6	200,000	
	Wave / Surge	1	35,399	1,019,306	1,000,000
Sri Lanka Total		**2**	**35,405**	**1,219,306**	**1,000,000**
Syrian Arab Rep	Wind storm	1	5	180	
Syrian Arab Rep Total		**1**	**5**	**180**	
Taiwan (China)	Wind storm	5	79	8,873	31,710
Taiwan (China) Total		**5**	**79**	**8,873**	**31,710**
Tajikistan	Earthquake	1		180	
	Flood	1		5,000	
Tajikistan Total		**2**		**5,180**	
Thailand	Epidemic	1	12	5	
	Flood	3	13	507,000	175,000
	Slide	1	3	110	
	Wave / Surge	1	8,345	67,007	405,200
	Wind storm	2	14	9,050	
Thailand Total		**8**	**8,387**	**583,172**	**580,200**
Viet Nam	Epidemic	1	35	25	
	Flood	3	96	35,044	8,300
	Slide	1	23		
	Wind storm	2	70	500,905	30,500
Viet Nam Total		**7**	**224**	**535,974**	**38,800**
Grand Total		**159**	**233,485**	**131,618,236**	**67,024,071**

Source: ADRC, Japan and CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2004

Table 10 shows the effect of various types of natural disasters according to the member countries and Table 11 shows the makeup of natural disasters within each Asian and ADRC member country.

In **Afghanistan,** earthquakes and floods had considerable impact on human sufferings.

In **Armenia,** floods caused death in 2004.

In **Bangladesh**, epidemics, floods, wave/surge (tsunami) and windstorms occurred and almost all of these disasters caused considerable human suffering and losses of life. The most severe disaster was the flood in 2004. It is known that Bangladesh is a path for cyclones spawned in the Bay of Bengal, making the country prone to hydro-meteorological disasters.

In **Cambodia,** three people died because of epidemics and even though flood occurred in Cambodia, no human loss or economic damage was reported.

In **China**, almost every type of disaster was recorded, as China encompasses a vast land with a large population. The most severe disasters in China in the year 2004 constituted of floods and windstorms, followed by earthquakes, even though droughts considerably affected the population. For 2004, the largest natural disaster in China in terms of affected population and economic damage was flood.

Even though the year 2004 did not bring many disasters to **India,** floods and tsunami affected more than 33 million people. The Indian Ocean Tsunami was one of the most serious disasters in the year 2004. It struck many Asian countries including India. In India, the tsunami destroyed the costal areas of Andra, Tamil Nadu and Kerala states. These disasters caused almost US$2 billion damage in India and severely disrupted the normalcy in India. India is geographically located in a natural disaster prone area that is affected by wind storms spawned in the Bay of Bengal and the Arabian Sea, earthquakes caused by active crustal movement in the Himalayan Mountains, floods brought by monsoons, and droughts happening in arid and semi arid areas. In addition, the Indian Ocean Tsunami

could strike the costal areas of India.

Tsunami, earthquakes, floods, wind storms, volcano eruptions and epidemics were the disasters that most affected **Indonesia** in the year 2004. More specifically, Sumatra earthquake and the consequent tsunami were found to be the most serious disasters in terms of affected population and economic damage. More than 85% of the affected population and 98% of the total economic damage by disasters in Indonesia in 2004 was due to earthquakes and tsunami. Furthermore, the number of people killed by this tsunami in Indonesia is the highest number of people killed by a single disaster in the world in 2004. Since there are seismic belts running through the country, Indonesia is an earthquake prone country. Moreover, there are 129 active volcanoes and volcanic eruptions happen on a regular basis. The year 2004 also recorded four disasters in relation to volcanic activity. Moreover, floods tend to occur along with wind storms in the rainy season in Indonesia.

Earthquakes, floods and wind storms were recorded in **Iran** which had a disastrous year in 2003 due to the Bam Earthquake that destroyed almost the entire historical town of Bam and claimed the highest human loss by a single disaster in the year 2003. In comparison with 2003, 2004 was a better year for Iran, even though earthquakes, floods and wind storms affected the country considerably.

In **Japan,** 2004 was not a good year as the previous one in terms of damage and human suffering. The earthquake in Niigata caused about US$28 billion damage and affected more than 62,000 people. This is the highest amount of damage caused by a single disaster in 2004. Floods and windstorms also caused considerable effect on the population. More than 350,000 people were affected by floods and windstorms in Japan that caused damage more than US$18 billion. This is due to the record number of typhoons that struck

the country in 2004. Furthermore, Typhoon *Tokage* that hit Japan mainland caused more than US$7 billion of damages. This represents the second largest damage caused by a single disaster in the year 2004.

Slides killed 48 people in **Kazakhstan** in 2004.

Most of the natural disasters that occur in **Korea** constitute of floods in the rainy season, as well as wind storms. The year 2004 also recorded wildfires, floods and wind storms in Korea, and the human suffering and economic loss caused by them were also quite high. Typhoons caused damage for more than US$500 million.

Almost 90% of the land of **Kyrgyz** is covered with mountains that are over 1,000 meters above sea level, and about 40% of the mountains are situated in alpine areas over 3,000 meters high. The distinctive natural disasters of Kyrgyz are earthquakes accompanied by active crustal deformation; floods caused by snowmelt and landslides. As it happened in 2003, Kyrgyz also recorded slide disasters causing human suffering in 2004.

In **Malaysia**, Floods and landslides caused by rainfall during the monsoon season, and rainstorms triggered by tropical low pressure were often recorded. In 2004, floods and wind storms were recorded, but the human loss and economic damage caused by these disasters was relatively small, even though the affected population by these disasters is considerably high. The Indian Ocean Tsunami also struck Malaysia and caused human sufferings and economic loss.

Maldives is the collection of many small islands in the Indian Ocean close to south India and Sri Lanka. Hence the country is always vulnerable to wind storms and floods. Moreover, sea erosion and sea level rising always hinder the country. In this context, 2004 was particularly a bad year for the Maldives as the Indian Ocean Tsunami also struck the

country and affected more than 27,000 people, causing damages for more than US$410 million. According to the damage ratio to the country's GNI, the Maldives's ratio is the highest in the world in 2004.

Wind storms and the Tsunami struck **Myanmar** in 2004 and caused considerable human sufferings and economic damage.

Nepal is located in the Himalayan region where the Indian plate is wedging under the Eurasia one. Depending upon the crustal formation, earthquakes frequently occur. Moreover, floods, slides, and extreme temperatures often pose a threat to Nepal. From the Table 11 in the year 2004, Nepal suffered significantly from floods, which caused heavy human loss and made many families *totally* affected which includes homeless, injured and affected.

Pakistan is often hit by droughts, extreme temperatures, floods, slides, earthquakes and windstorms. In the year 2004, Pakistan's earthquake had caused reasonably large amounts of human suffering with more than 13,000 affected people.

Papua New Guinea is also highly vulnerable to both kinds of natural disasters such as hydro-meteorological and geo-physical, like earthquakes, tsunamis, volcanic activities, floods, and wind storms. Flood and Volcano eruption were the two natural disasters that occurred in the year 2004 and these disasters caused reasonable numbers of *totally* affected people. Affected population from these disasters represented the 4th and 5th highest figures in the Oceania region for 2004.

The Philippines is located on the Pacific Rim of Fire, making it vulnerable to natural disasters of both kind hydro-meteorological and geo-physical type. As in the previous years, the damage caused by hydro-meteorological disasters grew in 2003, with quite large

populations affected by floods and windstorms. Economic damage by windstorms was also high in 2004. The Indian Ocean tsunami also hit the Philippines but the damage caused was not as severe as other Asian countries.

Russia has a vast area of land where disaster affected population and the economic losses are also noticeable. Earthquakes, floods, wildfires and windstorms caused considerably large affected populations in the year 2004. Moreover, floods and wind storms caused obvious economic losses.

Saudi Arabia also suffered from floods in 2004, as it happened in 2003, but the people affected by those floods were relatively small.

The year 2004 was really a disastrous year for **Sri Lanka** which is located in the Indian Ocean just south of India. The country is frequently struck by droughts in the dry seasons, as well as wind storms, floods and subsequent landslides in the rainy seasons due to cyclones from the Bay of Bengal. These natural disasters have been the prime concerns of Sri Lanka so far. In 2004, Sri Lanka was hit severely by the historical Tsunami. The human loss and the affected population were quite high. The affected population was quite consequent in the region next to Indonesia Moreover, the number of people killed by this tsunami is the second highest number of people killed by a single disaster in the world in 2004. Economic damage caused by this tsunami was also huge as it severely affected the country's economic progress. Such human and economic loss triggered massive international assistance to that country in 2004. Further to this catastrophe, Sri Lanka also suffered from floods in 2004, which affected more than 200,000 people.

Wind storms affected **Syria** in 2004, but the affected population stays relatively small.

Wind storms also affected **Taiwan (China)** in 2004 with relatively higher affected people and economic damage.

Tajikistan's prime concerns are earthquakes and floods as mountains cover a majority of the land. Natural disasters such as earthquakes and floods represent the major threats to the country. In 2004, earthquakes and floods occurred in Tajikistan causing human sufferings and economic damages.

The year 2004 was also a bad year for **Thailand,** which is the third most severely hit country by the Indian Ocean Tsunami. This tsunami killed more than 8,000 people, affected more than 67,000 people and caused damage for more than US$405 million. Most of the tourism based economy was severely affected by this tsunami. In addition, Thailand is highly prone to natural disasters because of its location and terrain. The northeastern area is prone to floods and droughts and the south has storms, floods and slides. Thailand was severely hit by these disasters in the year 2004, and population affected by hydro-meteorological disasters was quite large.

Vietnam is located in the southeast monsoon climate area and the majority of the annual rainfall happens during the rainy season, which causes heavy human and economic loss every year. Floods and wind storms caused severe human sufferings and economic loss in Vietnam in 2004. During the same year, these wind storms affected more than 500,000 people. epidemics also affected Vietnam.

According to the above tables, it can be concluded that the majority of ADRC member countries and those in the Asian region suffered from hydro-meteorological disasters and geo-physical disasters, which inflicted heavy human and economic loss on society and

hindered economic development. Furthermore, the heavy effects of disasters on the population deprived people of socio-economic advancement, thus slowing down the national and regional developments. The most severe disasters in the world in 2004 happened in the Asian region (Indonesia, China, Bangladesh, Philippines, India, Maldives, Malaysia, Sri Lanka, Thailand, Vietnam and Japan), affecting the great number of people in the region. Particularly the Indian Ocean Tsunami severely hit the Asian region and blocked the economic and development progress. Hence, it is imperative to design and implement proper disaster mitigation and preparedness plans to reduce human and economic loss and human suffering, in order to contribute positively to global sustainable development.

4.3 Conclusions

The year 2004 witnessed severe natural disasters all over the world. The highest death toll came from the Indian Ocean Tsunami, the highest affected population from the floods in Bangladesh, China, and India, and the biggest economic damage from Japan's earthquakes and typhoons. Unexpectedly, Asian region experienced the most severe disaster in many years in the world. Europe experienced floods which also claimed heavy human loss and sufferings in the region. USA was also severely hit by hurricanes that caused highest economic damages. In the long run disaster data analysis, it is evident that the low income and low human development countries were affected much in terms of shares of human loss to population and damage to GNI. The disaster figures and data in the year 2004 showed also followed the same pattern. But the damage ratio to the economy was higher in the upper middle and high income countries. This demonstrates that even developed countries cannot be complacent of their disaster reduction approaches and countermeasures. It is also pointed out that continuous review of their disaster reduction strategies is imperative. Furthermore, the Tsunami disaster once again reiterated the need of effective and pragmatic regional cooperation, and investment in terms of disaster reduction.

Even though developing countries in regions vulnerable to disasters received many development initiatives and investments, the increasing frequency and magnitude of natural catastrophes associated with economic loss and human sufferings have considerably hindered those initiatives. This book has sought to derive conclusions from empirical evidence in order to integrate disaster risk management initiatives into development objectives. It can be seen in the preceding chapters that human development and income levels of a country are crucial determinants for deciding upon how to effectively implement

risk management approaches and post disaster management initiatives. In addition, it was found that active and effective participation by women in risk management process is imperative for any meaningful disaster countermeasures, especially in the least developed countries.

These generic phenomena can be seen not only in ADRC member countries but also throughout Asia. The obvious vulnerability of this region to geo-physical and hydro-meteorological disasters in terms of demographic, socio-economic, and geo-physical factors justifies the need for prudent development policies and proactive risk management practices, and also further investment for disaster reduction. This book also advocates the urgent need for specific country and regional initiatives to be integrated into cohesive disaster management approach with on going socio-economic development activities. Since disasters impact every single socio-economic characteristics of a country, it can be concluded that designing development-oriented disaster prevention measures that incorporate the strength of human and economic resources would be an appropriate method of ensuring effective and pragmatic sustainable development.

Natural Disasters Data Book-2004
(An Analytical Overview)

March 2005

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