Chapter 2: Natural Disasters and Sustainable Development

This chapter addresses the importance of the link between disaster reduction frameworks and development initiatives, based on the disaster trends in 2007 as well as the trends from 1975 to 2007. As we know, various UN agencies, international institutions, and governments have placed high priority on natural disasters and sustainable development. Hence, it is of paramount importance that efforts be made to analyze disaster trends in relation to variables of sustainable development, primarily the Human Development Index and other economic factors, especially in countries that are affected by disasters. These trends are discussed below.

2.1 Human Development and Natural Disasters

As we are all aware that the human development level (HDL) is a measure of factors that express a country's level of development, including its literacy rate, gross school enrollment rate, per capita income, and life expectancy. Consequently, these variables are significant in terms of disaster mitigation, preparedness planning, and disaster reduction and management strategies. Higher HDLs will make planning and management strategies and follow-up activities easier in post-disaster periods. A country's HDL is categorized as high (HHD: 0.8 or higher), medium (MHD: 0.5 to 0.79) or low (LHD: lower than 0.5), in accordance with UNDP specifications. This section presents disaster data according to the HDL.

Income levels are also categorized as high (annual per capita income US$11,456 and above), upper middle (annual per capita income $3,706-$11,455), lower middle (annual per capita income $936-$3,705) and low (annual per capita income less than $935) according to the World Bank definitions. The figures below show the disaster characteristics by income level, both globally and regionally.

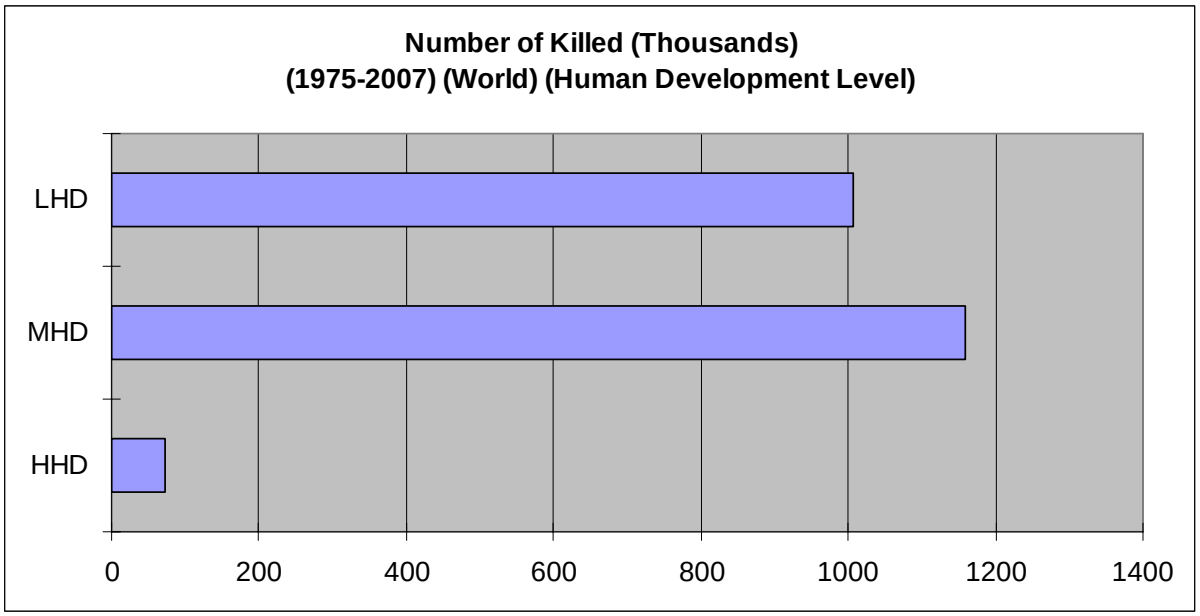
Figures 12, 13A, 13B, 14, 15A, 15B, 16, 17A, and 17B show the relationship between the HDL and the impacts that disaster-related human suffering and economic losses have on societies and economies. Figures 12, 14, and 16 show the number of people killed, the number of total affected people, and the amount of damage, respectively, by HDL for the period 1975 to 2007. Figures marked as A and B show the ratio of people killed to population, total affected people per million population, and the ratio of damage to GNI for the world (A) and for Asia (B). Disaster trends for 2007, as in the previous years, clearly show that human loss and suffering were considerably higher in countries with low human development (LHD), as the ratios of people killed and people affected to the total population were considerably higher in LHD countries than in medium human development (MHD) or high human development (HHD) countries.

As in the previous years, year 2007 trends indicate that countries with low and medium human development levels tend to suffer more serious human and economic losses. In the previous years such as in 2004, 2005 and 2006 disaster trends stressed the importance of disaster reduction in the developing countries.

The figures for the year 2007, as shown below, clearly illustrate this important point. Since the human development index reflects a country's literacy rate, life expectancy, and per capita income, improving these variables could contribute immensely to reducing the impact of natural disasters. Although considerable disaster damage was sustained in the HHD countries, the impact of disasters, in terms of human and economic losses, were more severe in the MHD and LHD countries. Since developing and less developed countries (LDCs) tend to have low and medium HDLs, and thus tend to have elevated levels of human and economic losses, their development efforts and ability to compete within a scenario of global development are limited. Better disaster management approaches are therefore needed in these regions.

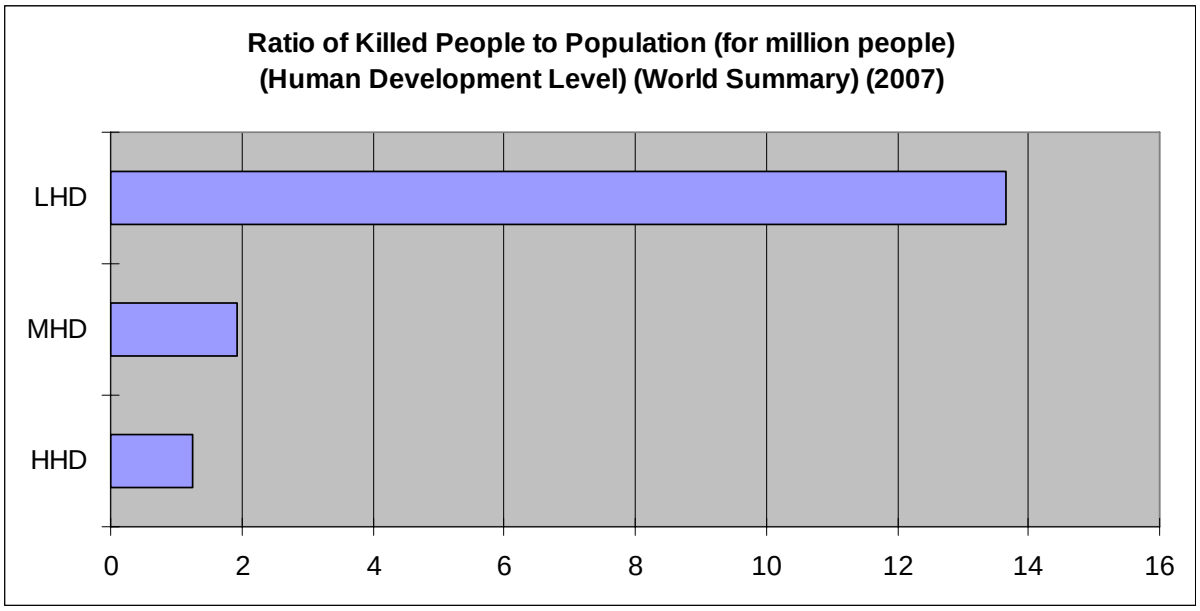
It is also quite evident from the following figures that the ratios of people killed and total affected people to the total population are high in the LHD and MHD countries, stressing the importance of incorporating disaster reduction approaches into mainstream national policies. Although the real value of damage is high in higher income countries, the ratio of damage to GNI is higher in the low and middle income countries. Likewise, although the actual human losses are higher in the MHD countries, the LHD countries are shown to suffer more when the human loss and suffering are expressed as the ratio to the total population.

Figure 12:



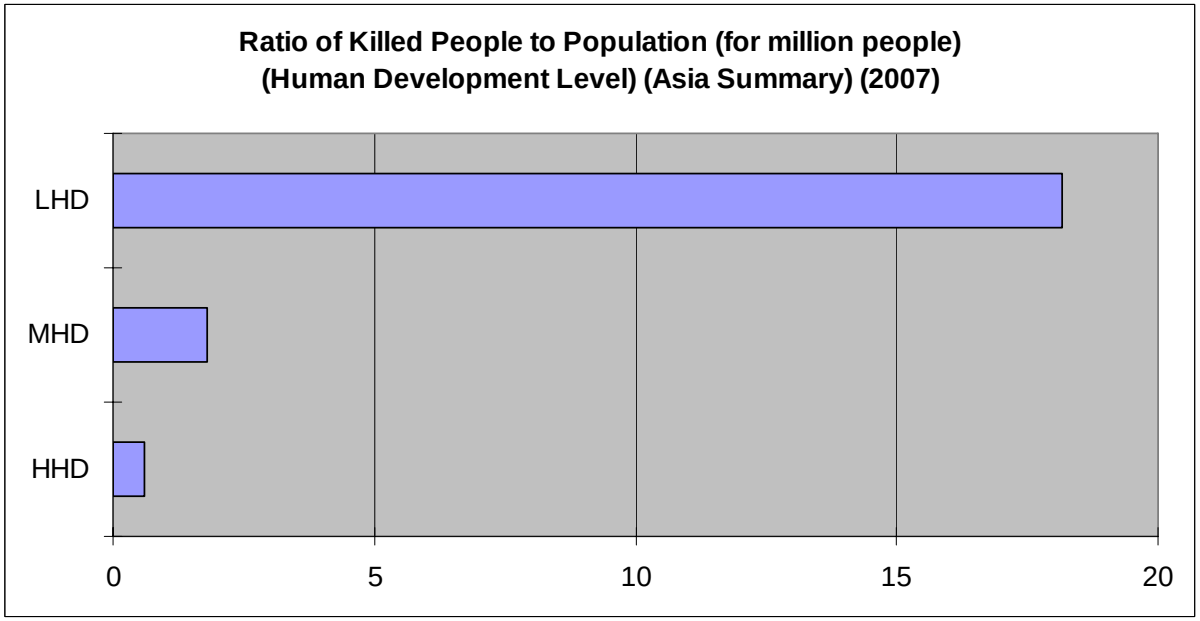
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2007

Figure 13A:



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2007

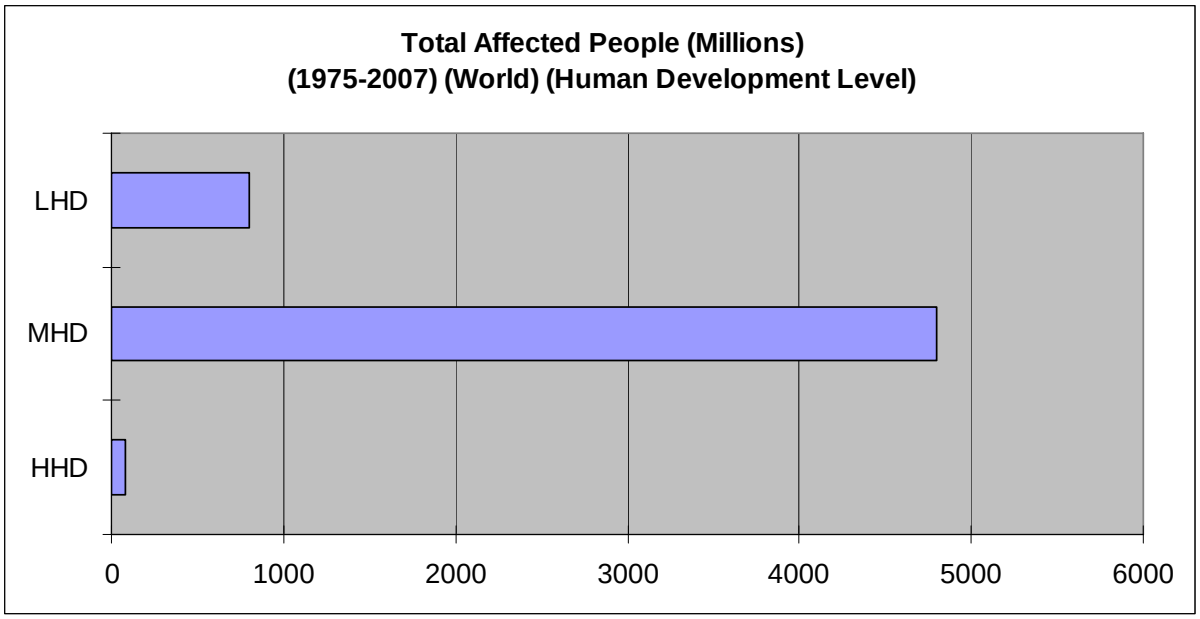
Figure 13B:



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2007

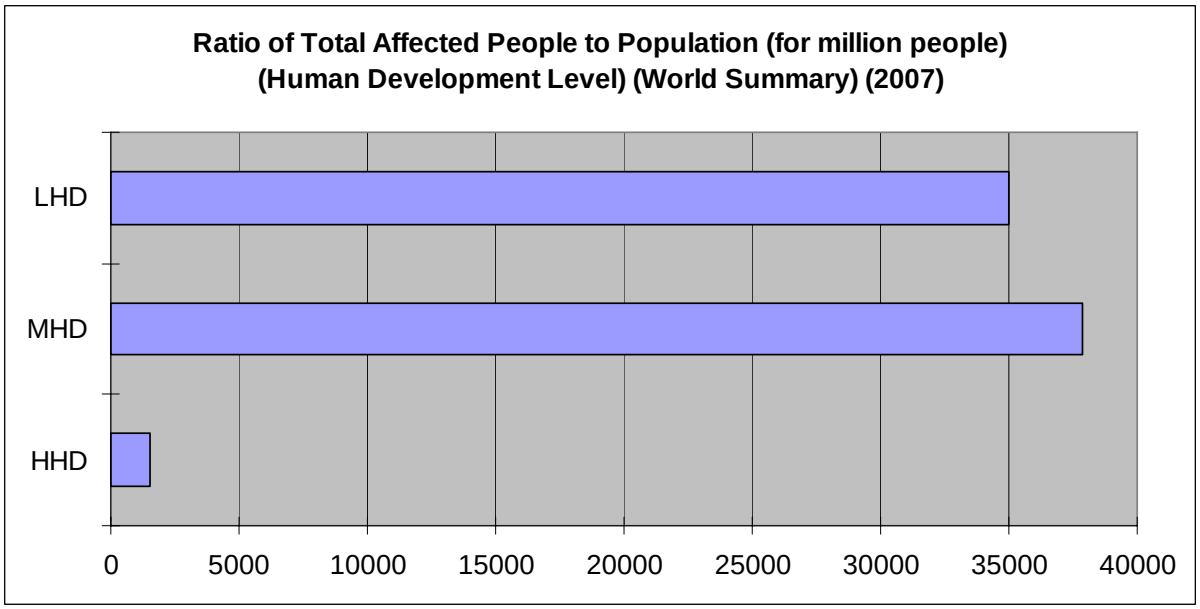
These figures clearly show that the majority of human losses were reported in countries with a low level of human development (due to the disasters in the vulnerable Asian region). This is consistent for figures worldwide.

Figure 14:



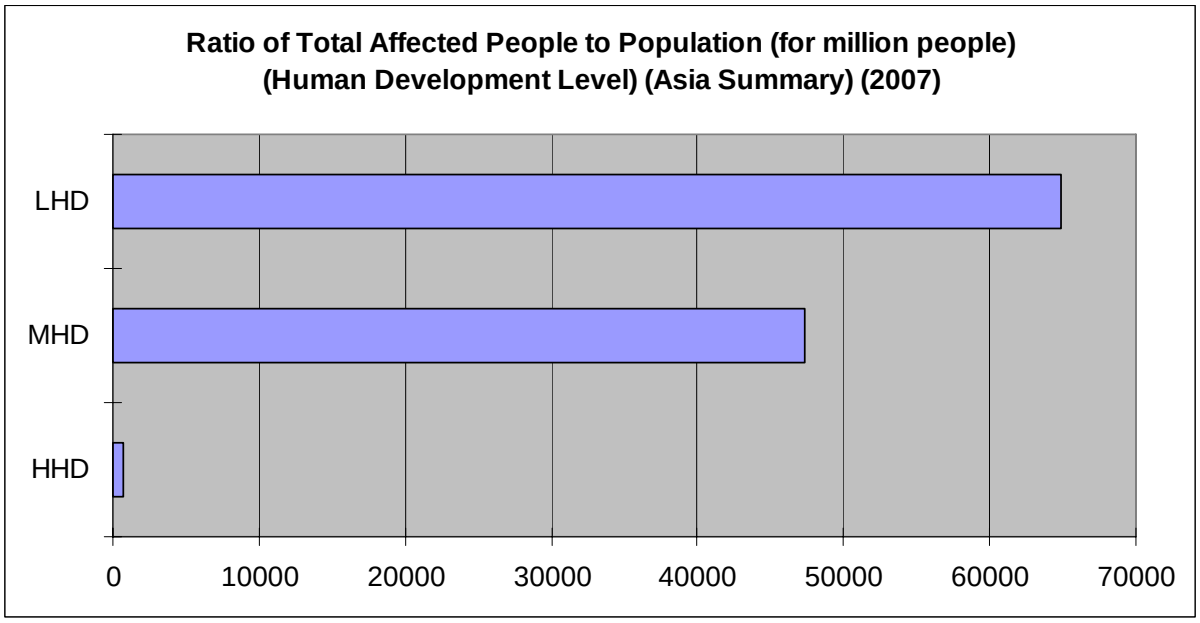
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2007

Figure 15A:



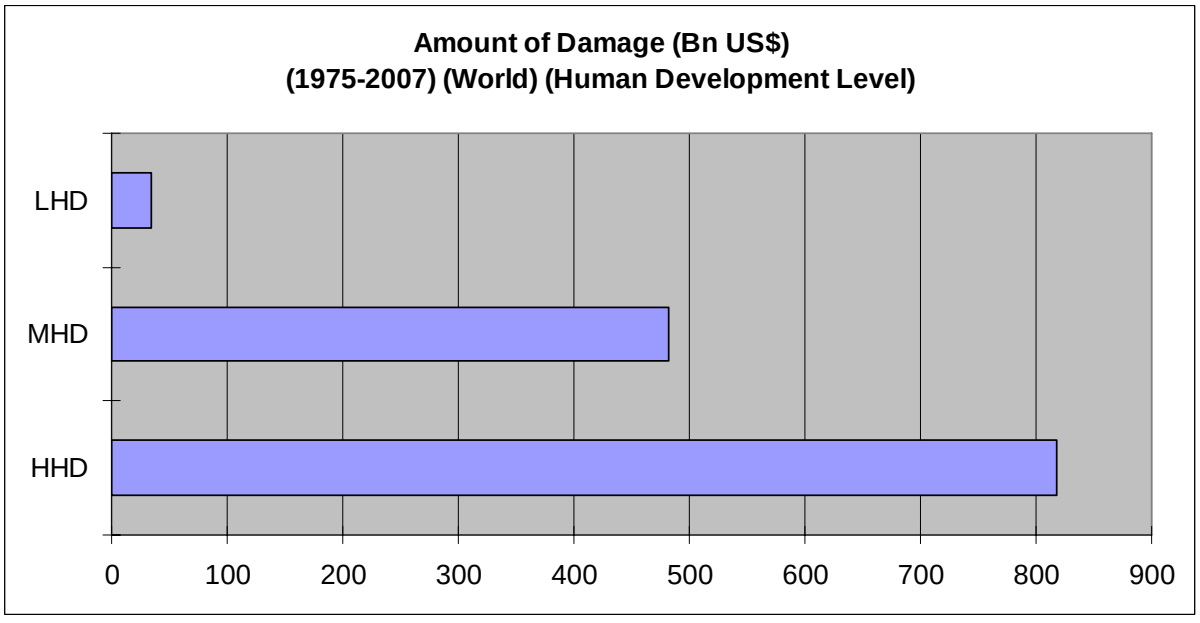
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2007

Figure 15B:



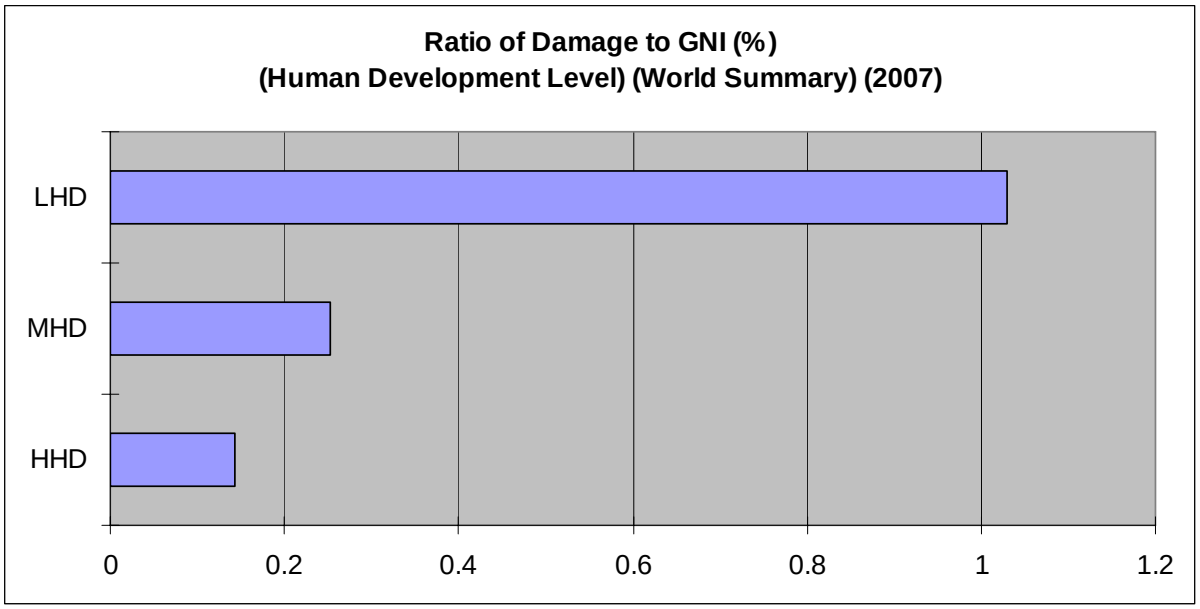
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2007

Figure 16:



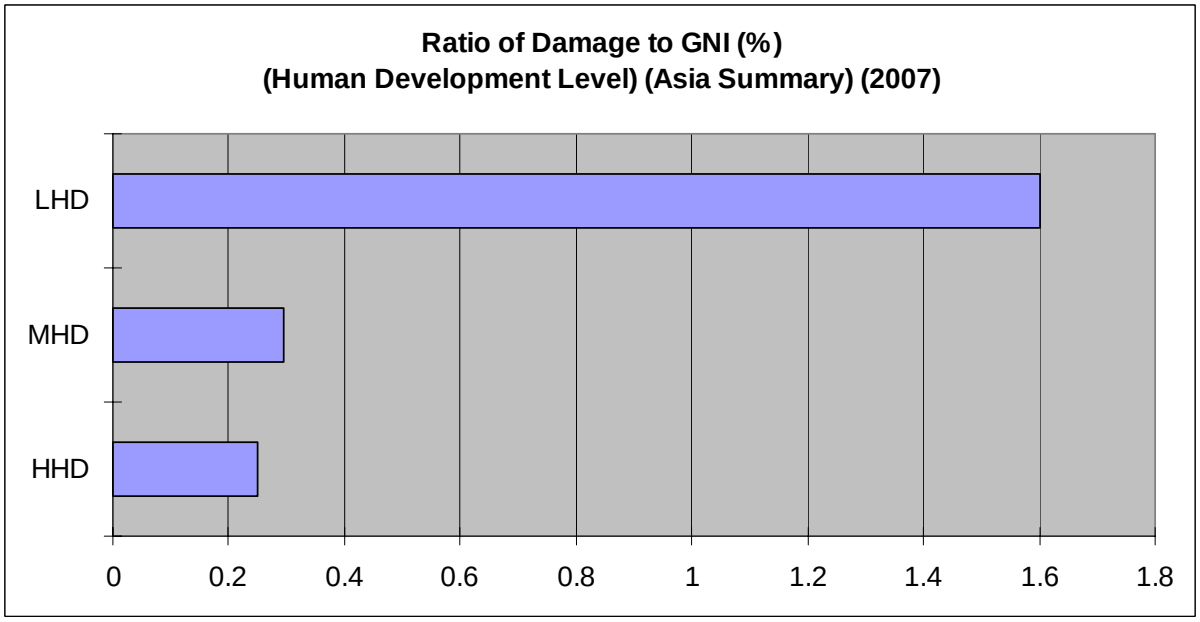
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2007

Figure 17A:



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2007

Figure 17B:



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2007

2.2 Gender Issues and Natural Disaster Impacts

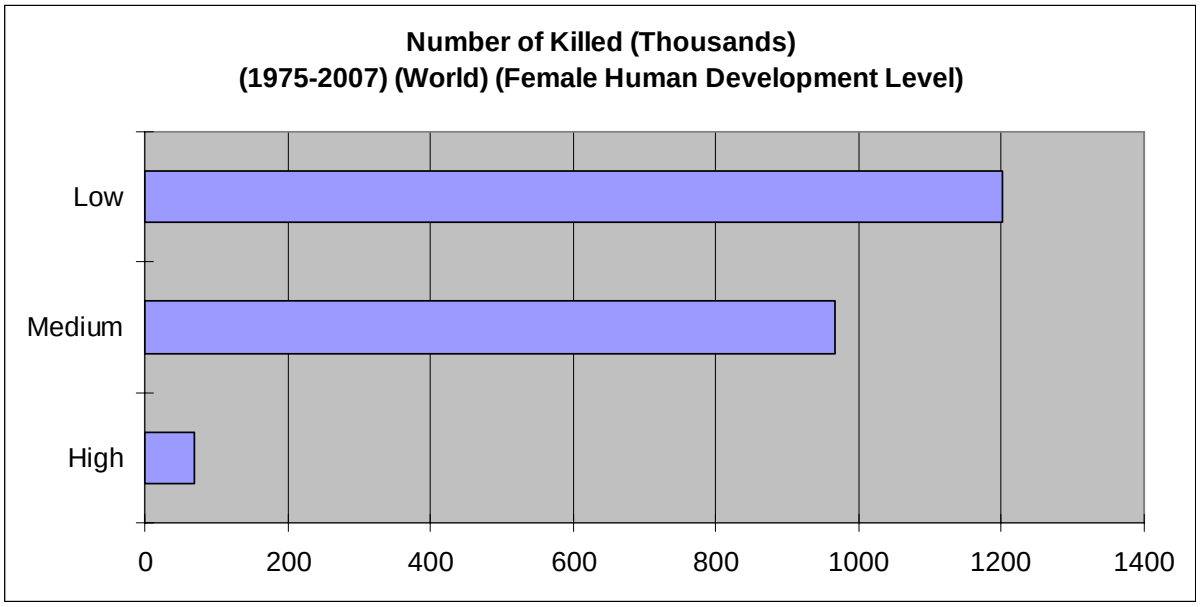
In addition to what we have seen above with respect to overall human development and the impact of natural disasters, it is also of paramount importance that efforts be made to examine the relationship between gender and impacts of natural disasters. Here we examine the influence of the gender factor in disaster damages through customized Female Human Development Index[1], which was extracted from the general Human Development Index, in relation to impacts of disasters. Generally speaking, countries with lower female human development (LFHD) tend to have higher ratios of people killed and total affected people to the total population than countries with higher female human development levels (HFHD). The trend is very similar to the trend in general human development.

Accordingly, as in the previous years, in 2007 both the ratio of the people killed to the total population were high in countries with low and medium Female Human Development indicators due to the earthquakes, floods, and wind storms that struck many countries in Asia, especially the earthquake in Indonesia, floods in China, windstorms and slides in Philippines and flood in India (Figures 18, 19A, and 19B). Moreover, the ratio of total affected people to the total population was high in countries with low and medium female human development, as shown in Figures 20, 21A, and 21B. Further, Figures 22, 23A, and 23B indicate that damage as a proportion of GNI is also relatively high in the low and medium female human development countries, although the amounts of actual damage are higher in high female human development countries. These figures highlight the importance of gender-related planning and mitigation strategies and approaches in the field of disaster management, especially in countries with relatively low human development levels.

Gender powerfully shapes the human response to disasters, both directly and indirectly. Studies have shown that women are hit hard by the social impacts of disasters, suggesting that women should play a major role in post-disaster activities if proper integration of gender issues and disaster management is achieved. The reality is that women are always identified as active and resourceful disaster respondents, but are often regarded as helpless victims. Since disaster mitigation and risk management activities should be incorporated into development strategies, it is imperative to prevent gender bias and ensure women's participation in the field of development.

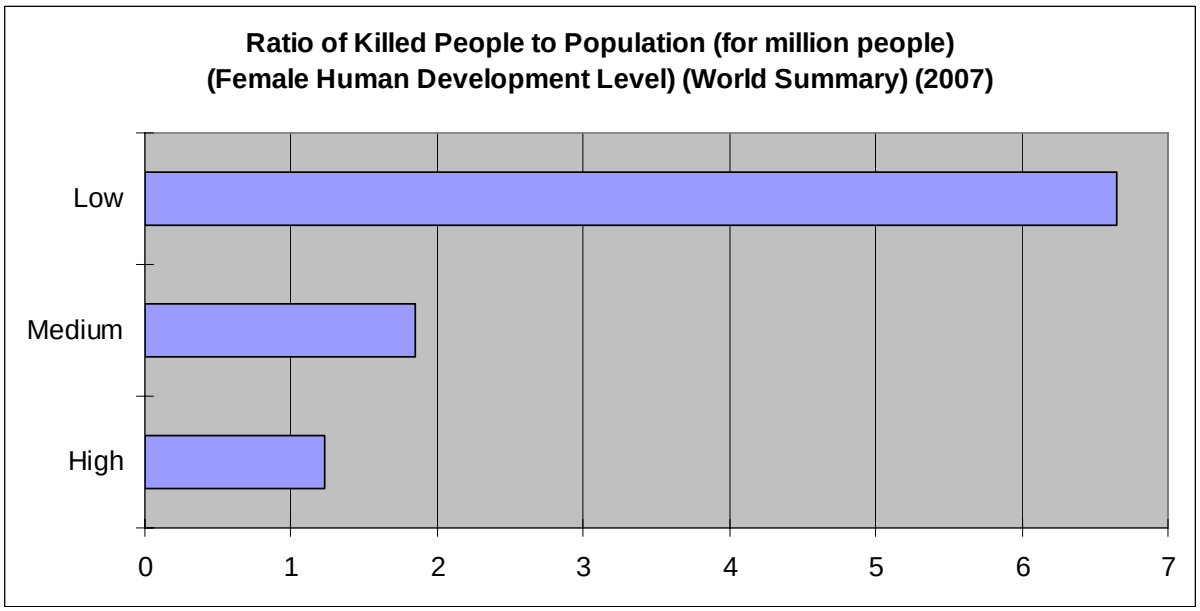
[1] The name Female Human Development Index purely suggests the importance of the gender factor in disaster damages. This term is used only for this explanation purpose and we are not contradicting any other terms used by other agencies in this regard.

Figure 18:



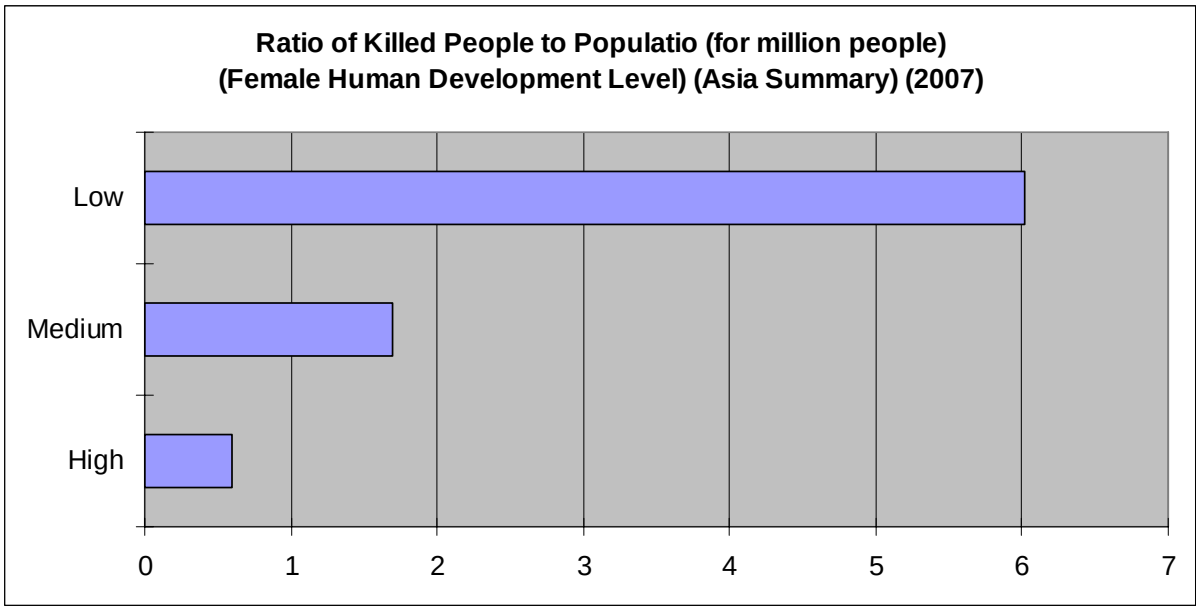
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2007

Figure 19A:



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2007

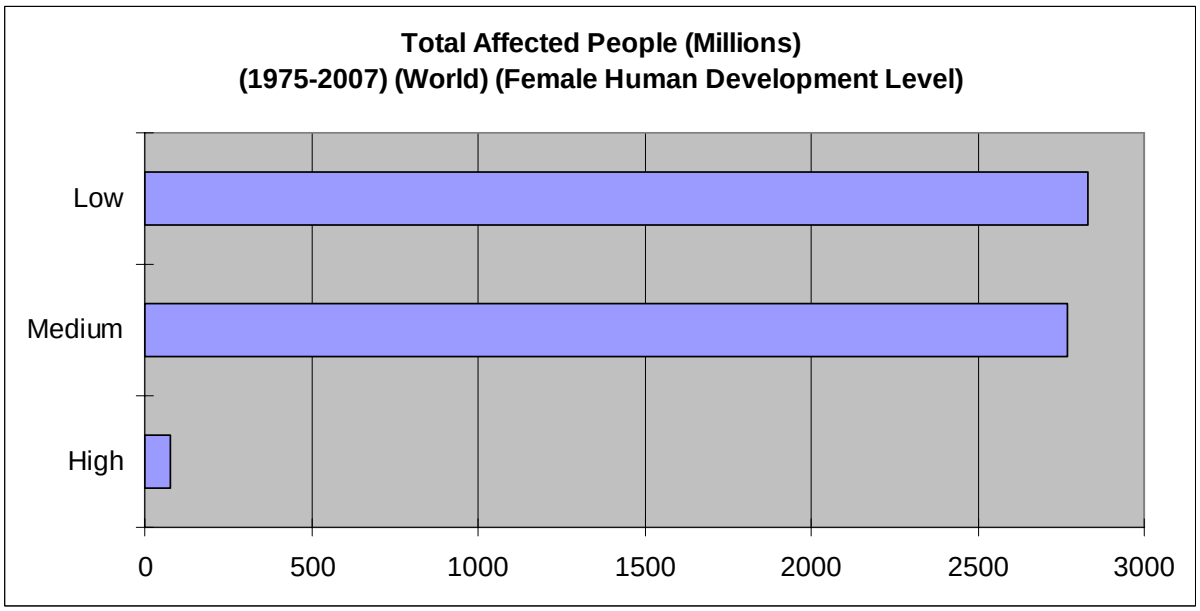
Figure 19B:



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2007

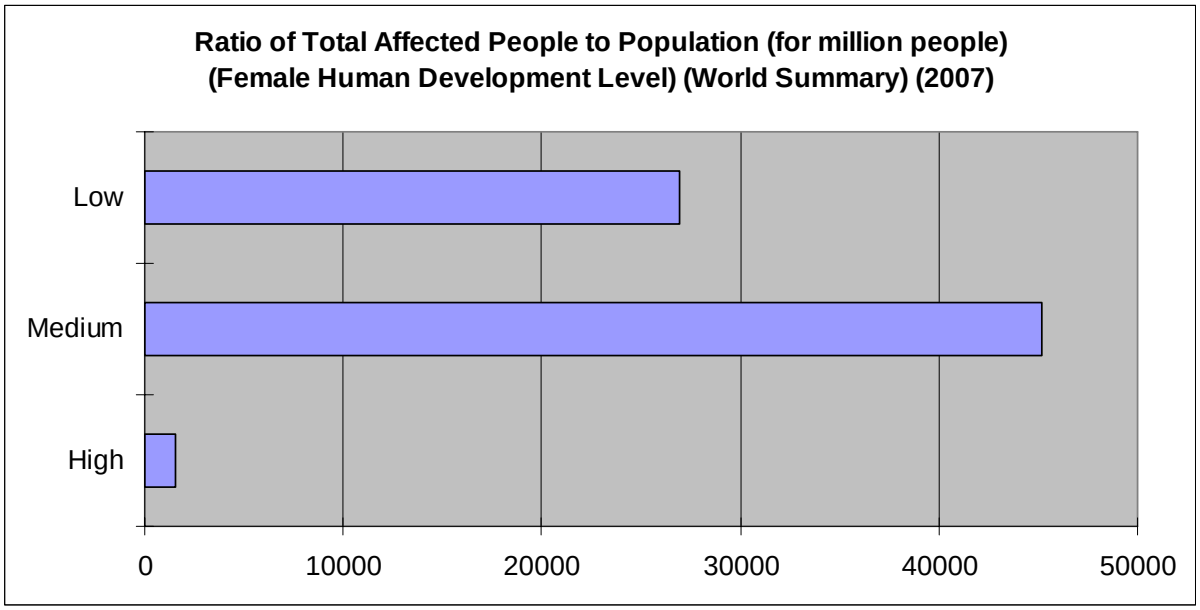
The above figures also indicate that the majority of human losses, both on a global and regional level, were sustained in countries with low and medium levels of female human development. This is attributed to the impact of disasters in vulnerable regions of Asia-Pacific and Africa.

Figure 20:



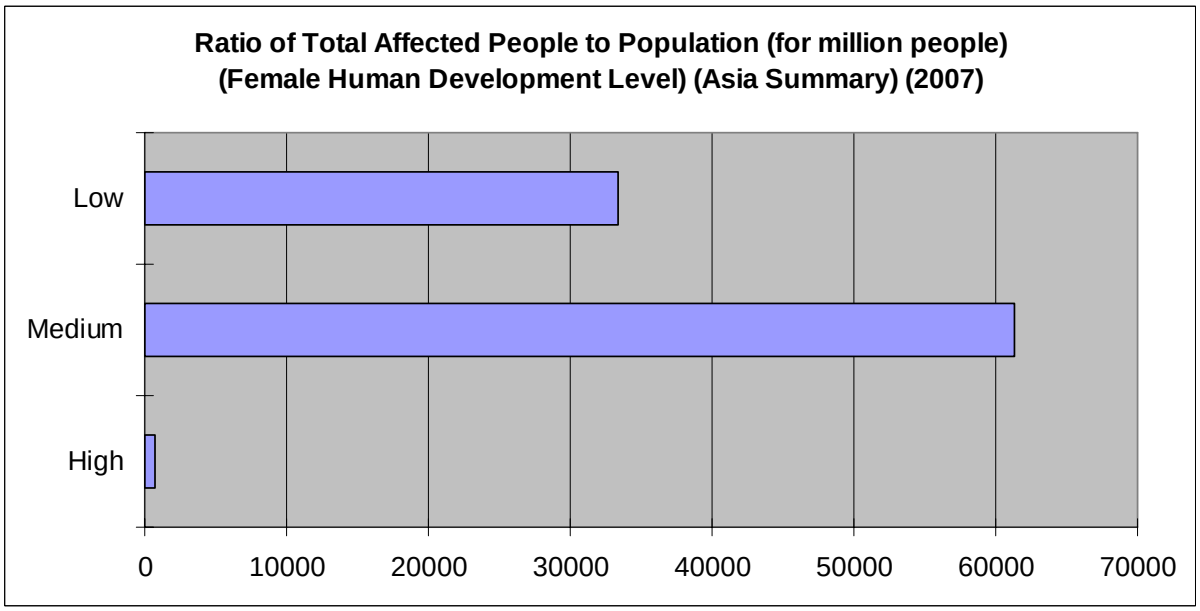
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2007

Figure 21A:



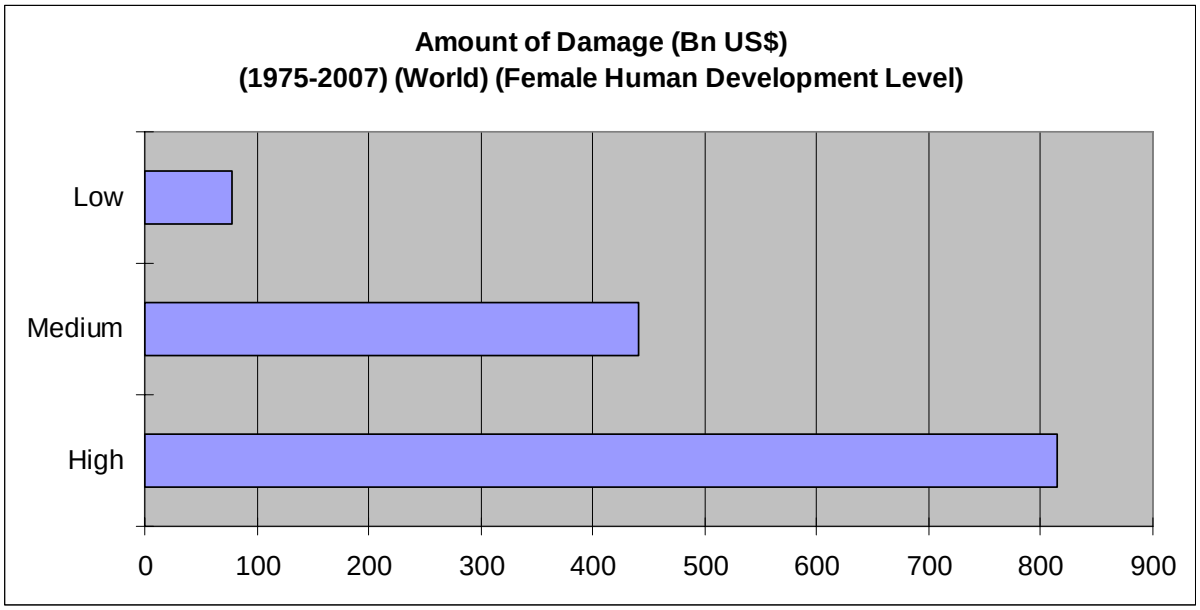
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2007

Figure 21B:



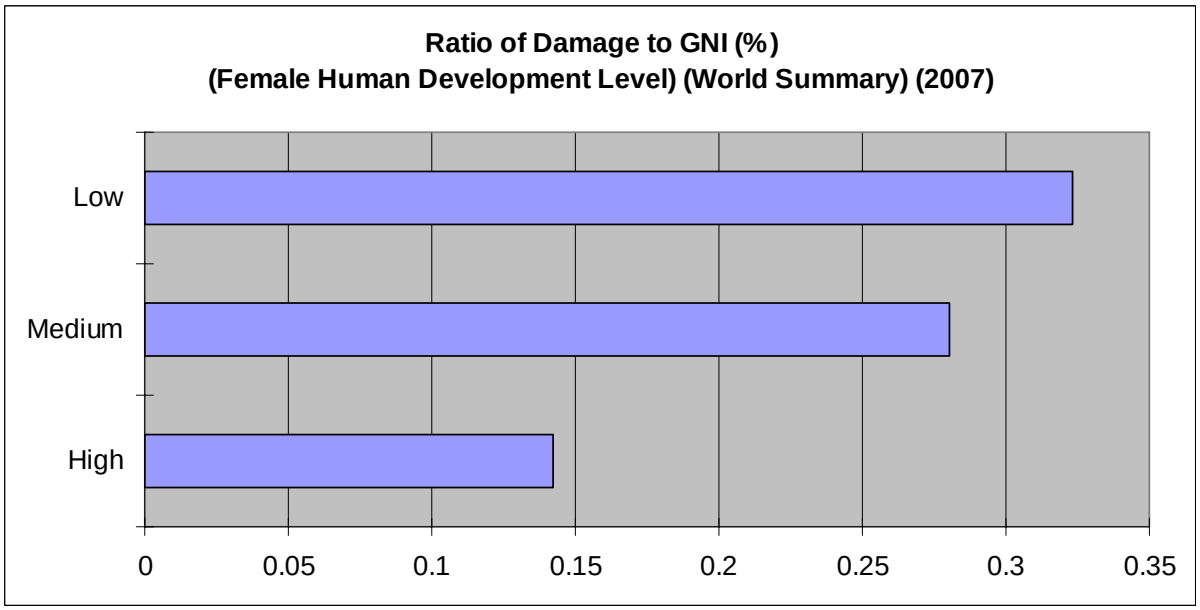
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2007

Figure 22:



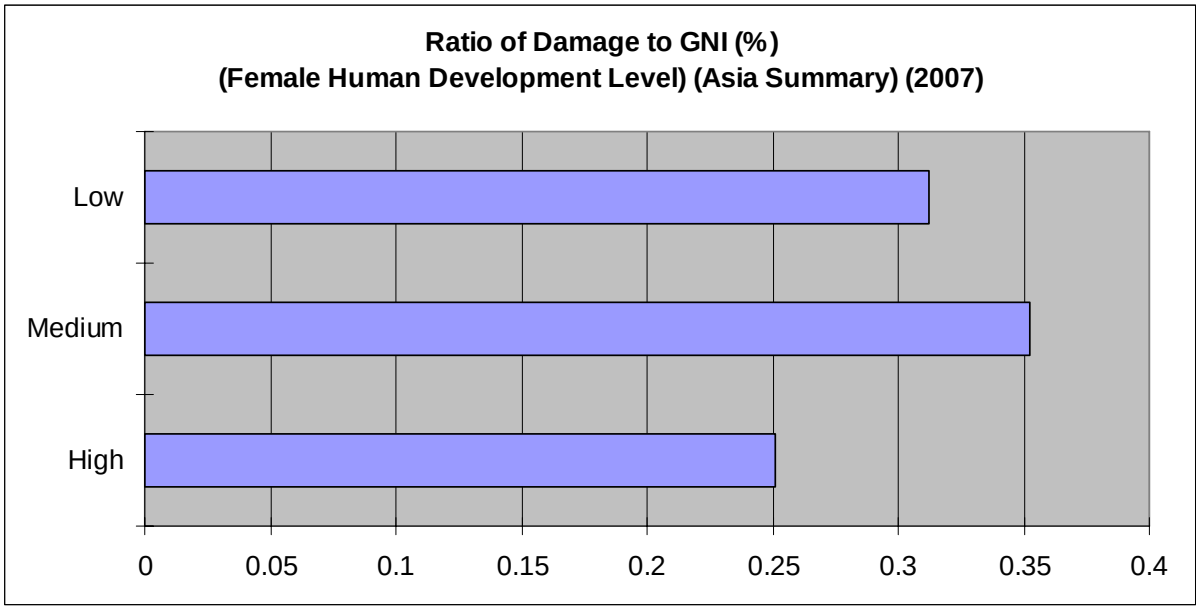
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2007

Figure 23A:



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2007

Figure 23B:



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2007

2.3 The Economics of Natural Disasters

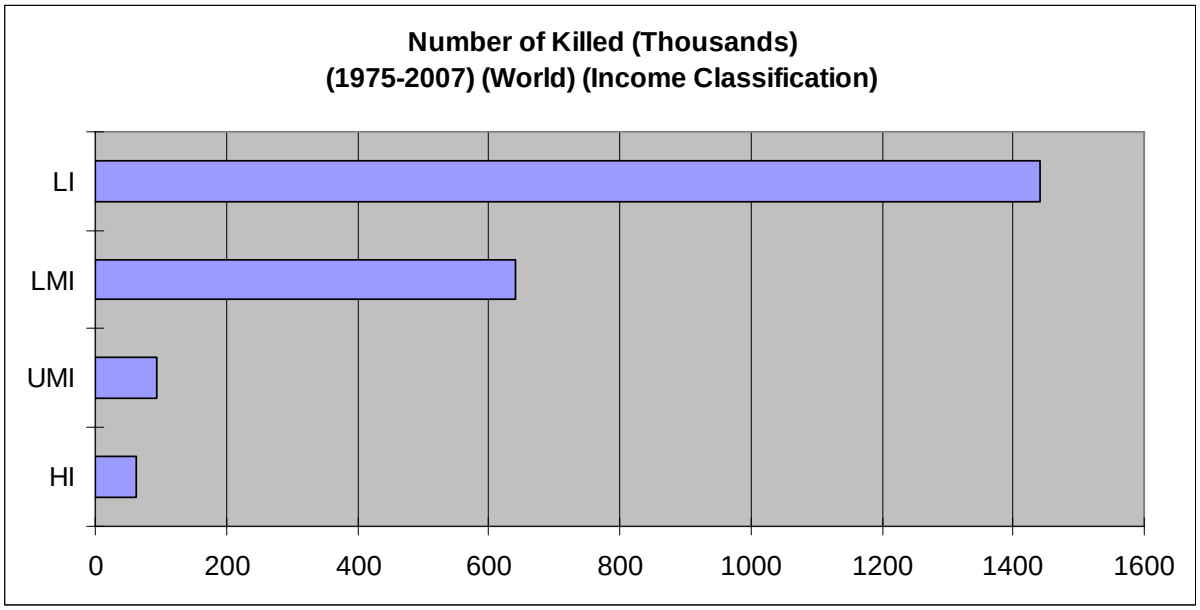
This section focuses on income levels as they relate to disaster impacts, based on the disaster trends in 2007. A country's income level is determined by its per capita GNI and is analyzed here in relation to the disaster statistics. The figures below (24 to 29B) show this relationship and once again indicate that the majority of human losses and affected people are reported in low and lower middle income countries. Although this could be attributed to the impacts of earthquake, windstorms and slides and flooding in the low-income and less developed Asian countries in 2007, the statistics are consistent with the longer-term trends. Figures 24, 26, and 28 show the global trends in the number of people killed, the total affected, and the amount of damage sustained, respectively, by income level for the period 1975-2007. Further, figures marked A and B show the ratio of these characteristics to the total population for the world (A) and Asia (B) in 2007.

Generally, though the real economic losses from disasters are higher in high-income countries due to their developed infrastructural framework and economic establishments that have accumulated social capital, disaster-related losses are more substantial in developing and lower-income countries, especially when viewed as a proportion of the GNIs of those countries. When human losses and suffering are considered, the low and lower middle income countries suffer greatly, as is further shown in the figures below. This firmly emphasizes the need for a holistic disaster management approach that gives due consideration to a country's disaster vulnerability, the impact and extent of disaster-related damage, and the impact of disasters on human development and the economy. This is clearly shown in Figures 28, 29A, and 29B.

The socio-economic impacts of disasters vary by the type of disaster, the disaster period (length), and the post-disaster recovery period. A country's income level plays a crucial role in determining how long it will take for a community to recover from a disaster. In addition, the national income level and magnitude of the socio-economic impacts of a disaster are proportionally related, and the ratio of such impacts to the country's GNI demonstrates the negative effects of disasters upon low and lower middle income countries. This explains the shapes of Figures 24 to 29B, as the ratio of human and economic losses to the total population and income level (GNI) is high in the low-income countries and low in the high-income countries. The disasters that have occurred in the Asian countries of India, Bangladesh, and China, and in some countries in Africa, have contributed significantly to this trend. The disasters that occurred in the USA, Japan, Australia and Europe contributed to the heavy damage sustained in the high-income countries, in proportion to their high GNIs. The figures below show these trends for the world and the Asian region.

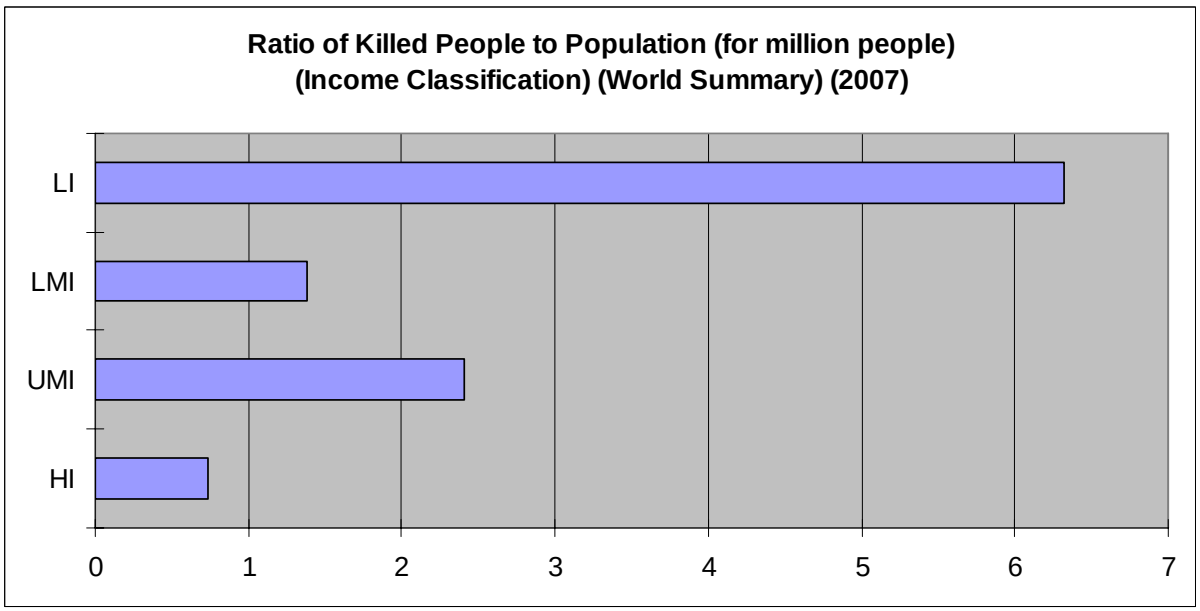
Note: **LI:** Lower Income, **LMI:** Lower Middle Income, **UMI:** Upper Middle Income and **HI:** High Income. Please see the Note 3 in the page (ii) for further details of this classification.

Figure 24:



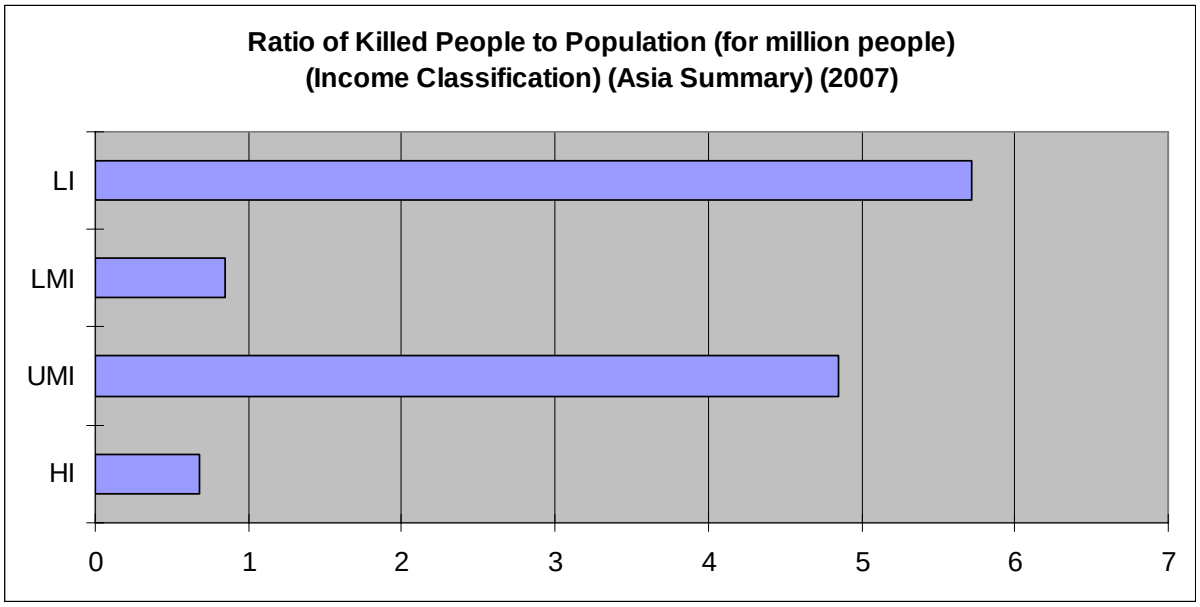
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and World Bank, 2007

Figure 25A:



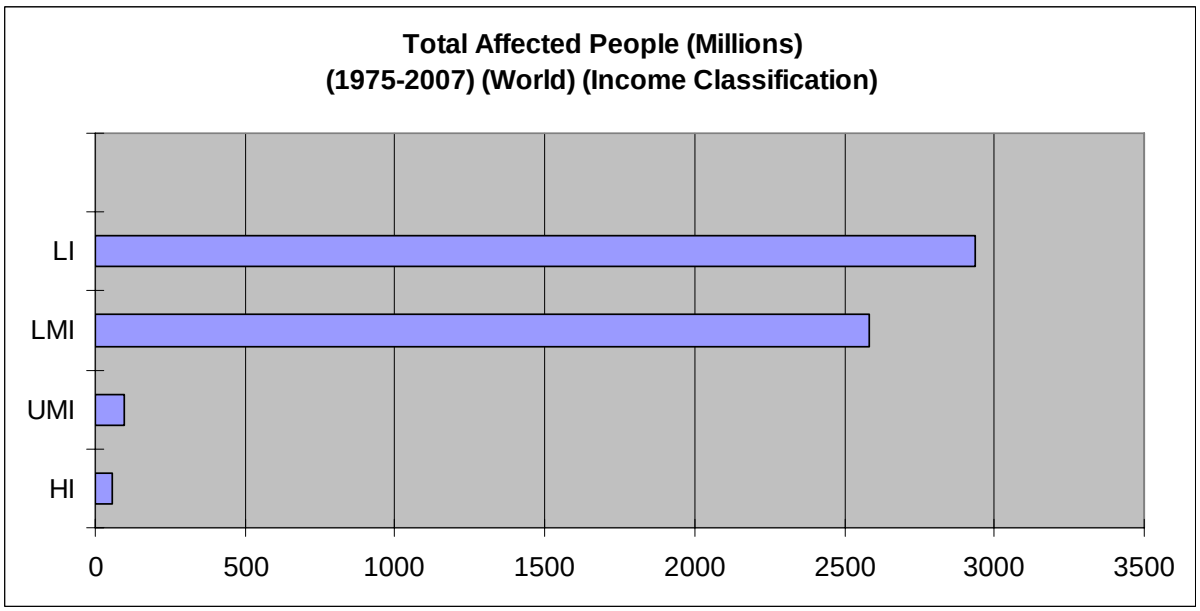
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and World Bank, 2007

Figure 25B:



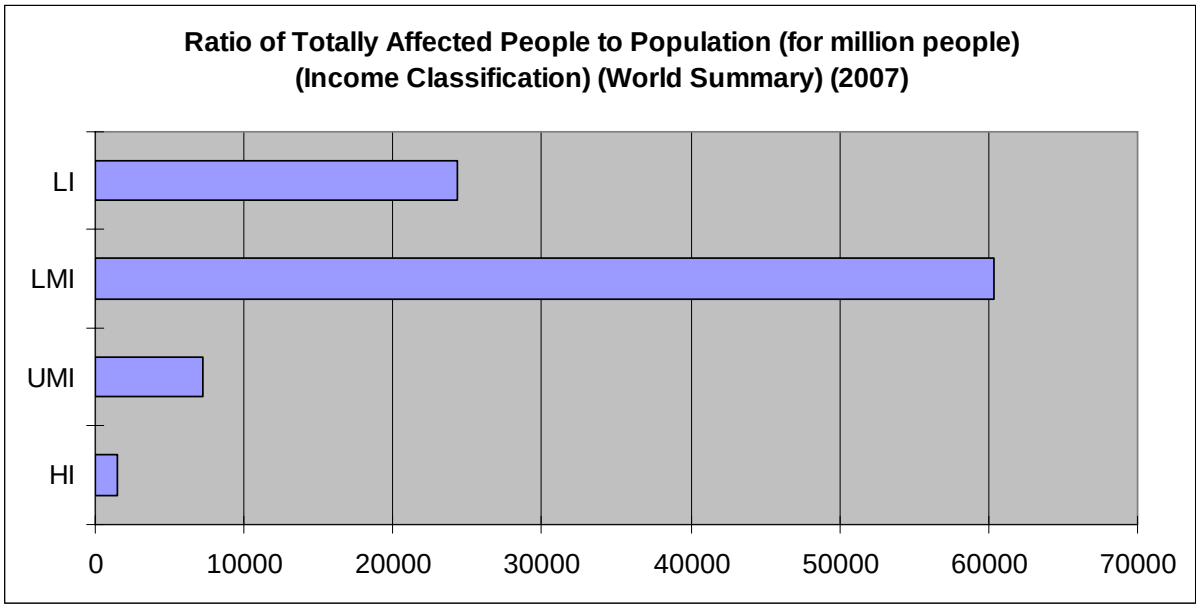
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and World Bank, 2007

Figure 26:



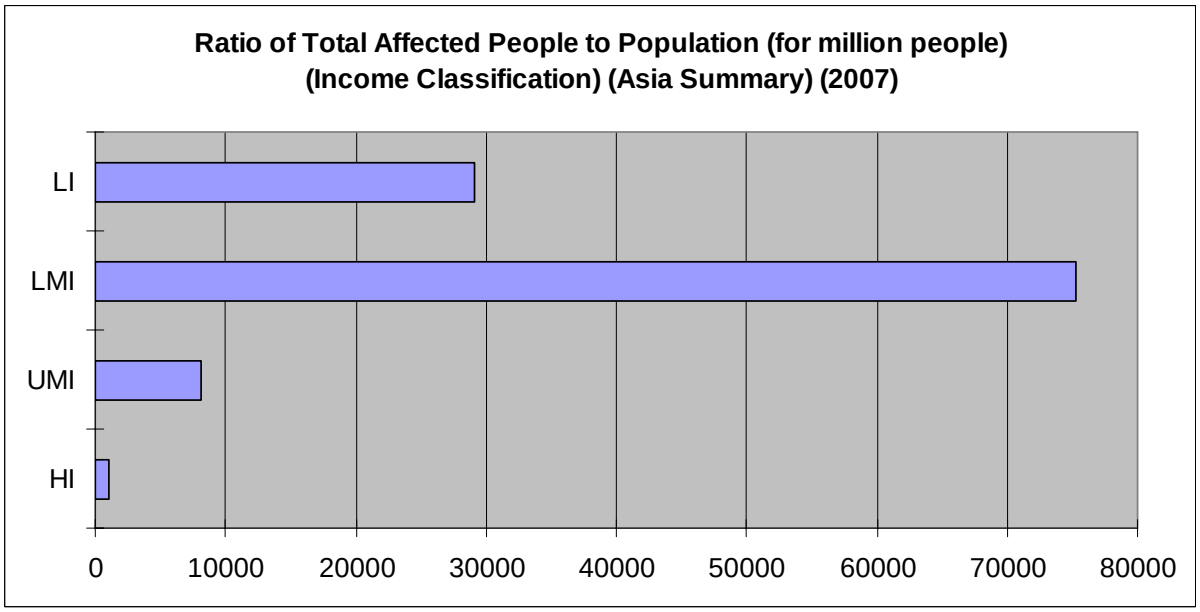
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and World Bank, 2007

Figure 27A:



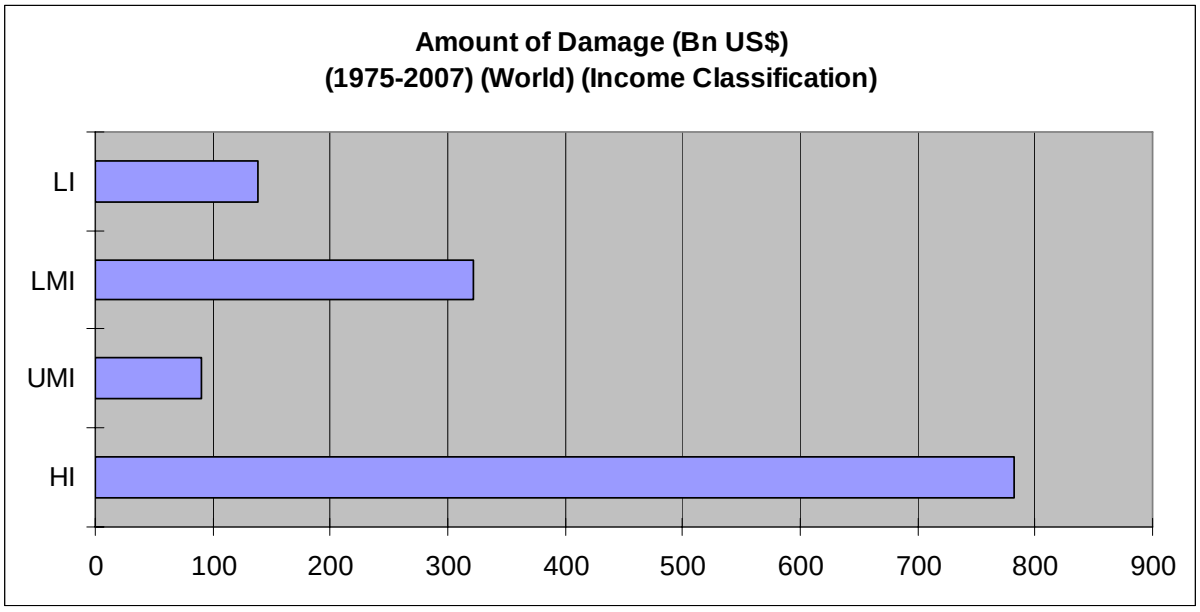
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and World Bank, 2007

Figure 27B:



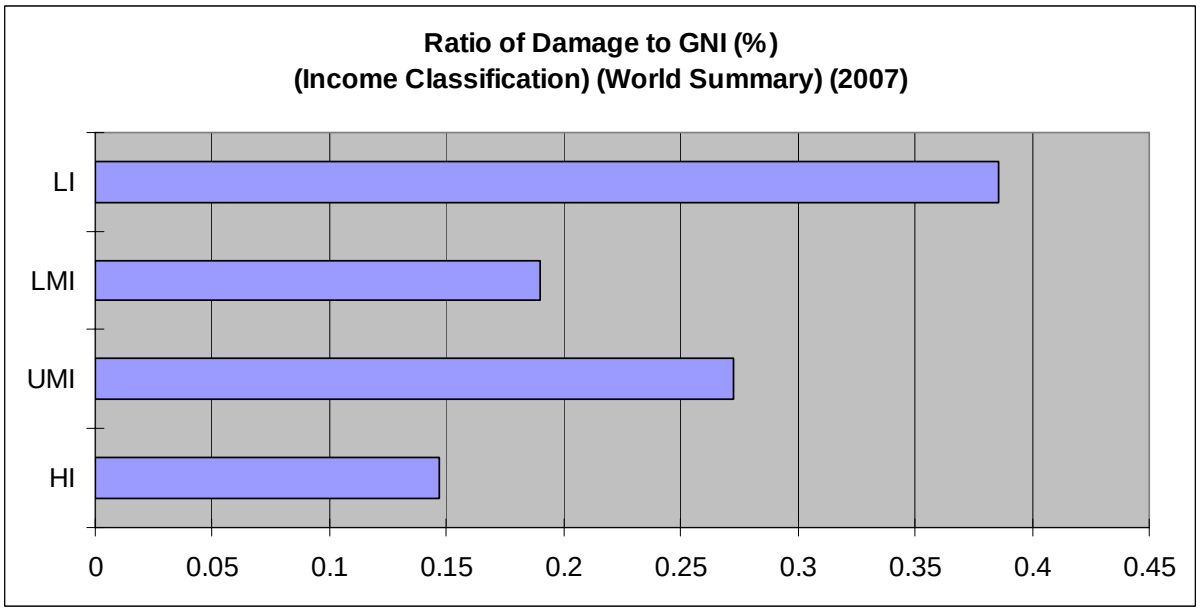
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and World Bank, 2007

Figure 28:



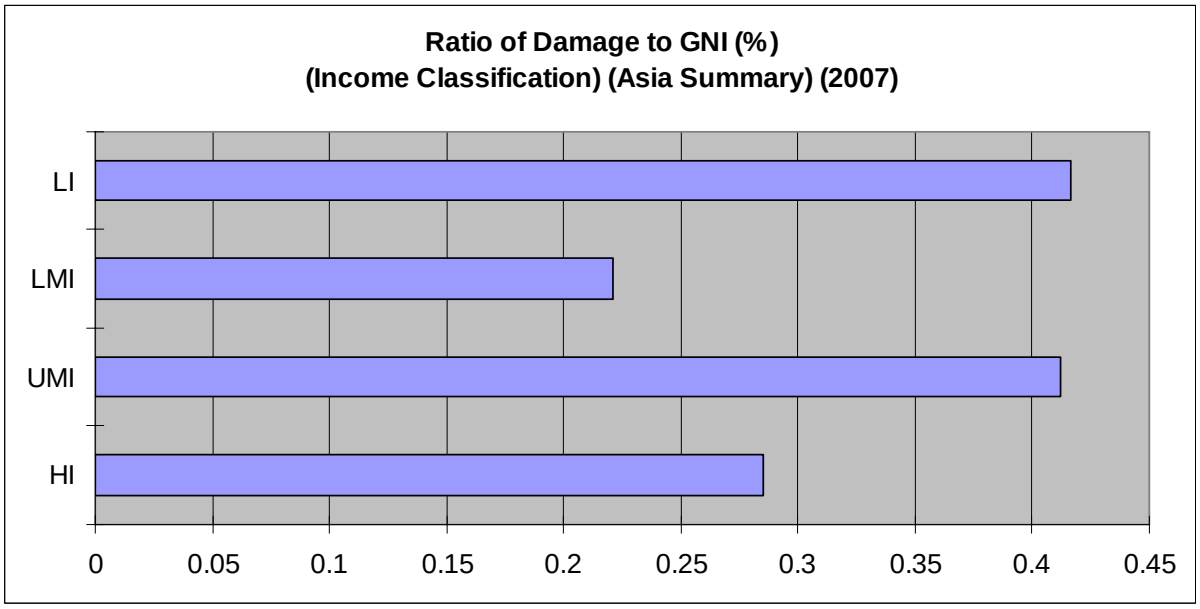
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and World Bank, 2007

Figure 29A:



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and World Bank, 2007

Figure 29B:



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and World Bank, 2007

Figure 28 shows the actual amount of damage sustained by countries with different income levels. Figures 29A and 29B depict the ratio of damage to GNI by income level. Clearly, the ratio of damage to GNI is high in the low income countries, mainly due to the various disasters that have occurred in the most vulnerable countries. In Asia, this ratio is high in the low and lower middle income countries, primarily due to the earthquakes, typhoons, and floods experienced by India, Bangladesh, Sri Lanka, and China and Indonesia respectively. These trends are in consistent with long-term trends and those in previous years.

2.4 Disaster Classifications and the Impact of Development Characteristics

In this section, we have classified disasters into geo-physical, hydro-meteorological, and other disasters for the meaningful analytical purpose. Earthquakes, volcanic eruptions, earthquake-induced tsunamis, and landslides are categorized as geo-physical disasters, while wind storms, floods, extreme temperatures, droughts, and heavy rain-induced landslides are categorized as hydro-meteorological disasters. All other disasters, including famines and epidemics, are included in the "other" category. The tables below show the disaster classifications and their impact on development for the period 1975-2007. Tables 10A, 10B, 11A, and 11B show the disaster classifications by region and vice versa. Similarly, Tables 12A, 12B, 13A, and 13B show the disaster classification by income classification and vice versa. Finally, Tables 14A, 14B, 15A, and 15B show the disaster patterns by human development level.

These tables make it clear that hydro-meteorological disasters produce the largest numbers of total affected people in Asia, while geo-physical disasters produce the largest numbers of people killed. The region is vulnerable to both types of disasters due to its geographical position and socio-economic characteristics. Africa is more vulnerable to hydro-meteorological disasters, as it is prone to prolonged droughts. The Americas, Asia, Oceania and Europe regions sustain most of their economic damage from hydro-meteorological disasters, with high-income countries like the US, Japan, and the EU countries and Australia in Oceania facing heavy losses caused by wind storms, floods, and extreme temperatures.

So far the heaviest damage in Asia was caused by Japan’s 1995 Great Hanshin-Awaji Earthquake and the 2004 Indian Ocean Tsunami. Last year (2006), the economic damages and human sufferings were also from floods in China and earthquake in Indonesia. But this year (2007) the economic damages are from Japan Niigata earthquake and floods in Europe and China, and the human sufferings are mainly from windstorms and floods from China, India and Bangladesh.

Low income and lower middle income countries tend to be most vulnerable to hydro-meteorological disasters, but also moderately vulnerable to geo-physical disasters. Low and medium human development countries follow the same trend. Since hydro-meteorological disasters tend to be annual events, they cause much more damage to the low and medium human development countries than geo-physical disasters. This year’s (2007) trend is consistent with previous years’ and long-term trend, thus indicating the vulnerability of the regions to both geo-physical and hydro-meteorological disasters. The following tables clearly show these trends by region, human development level, and income level. Once again, the facts underscore the need to integrate disaster reduction strategies and human development efforts, and the need for governments to take note of this important concept and ensure its inclusion in their policy frameworks.

Table 10A: 1975-2007 Disasters and Impacts by Disaster Classification and Region

Dis Classification	Continent	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of Damage US$ ('000s)
Geo Phy Dis	Africa	74	9,200	2,089,689	8,755,608
	Americas	220	67,127	13,783,567	58,749,032
	Asia	498	791,330	79,818,281	272,606,686
	Europe	176	8,726	2,849,502	34,424,376
	Oceania	104	3,029	321,360	2,907,400
Geo Phy Dis Total		**1,072**	**879,412**	**98,862,399**	**377,443,102**
Hyd Met Dis	Africa	1,091	581,422	364,750,233	10,673,391
	Americas	1,697	101,599	148,757,154	397,486,695
	Asia	2,615	442,921	4,948,700,533	302,486,834
	Europe	951	45,624	24,550,146	188,816,576
	Oceania	428	1,729	19,654,846	23,677,773
Hyd Met Dis Total		**6,782**	**1,173,295**	**5,506,412,912**	**923,141,269**
Others	Africa	695	122,721	42,816,468	102,430
	Americas	175	14,514	3,774,604	8,200,700
	Asia	325	46,938	19,114,137	19,240,824
	Europe	120	1,037	4,534,464	4,066,853
	Oceania	38	402	80,799	1,162,006
Others Total		**1,353**	**185,612**	**70,320,472**	**32,772,813**
Grand Total		**9,207**	**2,238,319**	**5,675,595,783**	**1,333,357,184**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2007

Table 10B: 1975-2007 Disasters and Impacts by Disaster Classification and Region (Percentages)

Dis Classification	Continent	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of Damage US$ ('000s)
Geo Phy Dis	Africa	0.80%	0.41%	0.04%	0.66%
	Americas	2.39%	3.00%	0.24%	4.41%
	Asia	5.41%	35.35%	1.41%	20.45%
	Europe	1.91%	0.39%	0.05%	2.58%
	Oceania	1.13%	0.14%	0.01%	0.22%
Geo Phy Dis Total		**11.64%**	**39.29%**	**1.74%**	**28.31%**
Hyd Met Dis	Africa	11.85%	25.98%	6.43%	0.80%
	Americas	18.43%	4.54%	2.62%	29.81%
	Asia	28.40%	19.79%	87.19%	22.69%
	Europe	10.33%	2.04%	0.43%	14.16%
	Oceania	4.65%	0.08%	0.35%	1.78%
Hyd Met Dis Total		**73.66%**	**52.42%**	**97.02%**	**69.23%**
Others	Africa	7.55%	5.48%	0.75%	0.01%
	Americas	1.90%	0.65%	0.07%	0.62%
	Asia	3.53%	2.10%	0.34%	1.44%
	Europe	1.30%	0.05%	0.08%	0.31%
	Oceania	0.41%	0.02%	0.00%	0.09%
Others Total		**14.70%**	**8.29%**	**1.24%**	**2.46%**
Grand Total		**100.00%**	**100.00%**	**100.00%**	**100.00%**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2007

Table 11A: 1975-2007 Disasters and Impacts by Region and Disaster Classification

Continent	Dis Classification	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of Damage US$ ('000s)
Africa	Geo Phy Dis	74	9,200	2,089,689	8,755,608
	Hyd Met Dis	1,091	581,422	364,750,233	10,673,391
	Others	695	122,721	42,816,468	102,430
Africa Total		**1,860**	**713,343**	**409,656,390**	**19,531,429**
Americas	Geo Phy Dis	220	67,127	13,783,567	58,749,032
	Hyd Met Dis	1,697	101,599	148,757,154	397,486,695
	Others	175	14,514	3,774,604	8,200,700
Americas Total		**2,092**	**183,240**	**166,315,325**	**464,436,427**
Asia	Geo Phy Dis	498	791,330	79,818,281	272,606,686
	Hyd Met Dis	2,615	442,921	4,948,700,533	302,486,834
	Others	325	46,938	19,114,137	19,240,824
Asia Total		**3,438**	**1,281,189**	**5,047,632,951**	**594,334,344**
Europe	Geo Phy Dis	176	8,726	2,849,502	34,424,376
	Hyd Met Dis	951	45,624	24,550,146	188,816,576
	Others	120	1,037	4,534,464	4,066,853
Europe Total		**1,247**	**55,387**	**31,934,112**	**227,307,805**
Oceania	Geo Phy Dis	104	3,029	321,360	2,907,400
	Hyd Met Dis	428	1,729	19,654,846	23,677,773
	Others	38	402	80,799	1,162,006
Oceania Total		**570**	**5,160**	**20,057,005**	**27,747,179**
Grand Total		**9,207**	**2,238,319**	**5,675,595,783**	**1,333,357,184**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2007

Table 11B: 1975-2007 Disasters and Impacts by Region and Disaster Classification (Percentages)

Continent	Dis Classification	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of Damage US$ ('000s)
Africa	Geo Phy Dis	0.80%	0.41%	0.04%	0.66%
	Hyd Met Dis	11.85%	25.98%	6.43%	0.80%
	Others	7.55%	5.48%	0.75%	0.01%
Africa Total		**20.20%**	**31.87%**	**7.22%**	**1.46%**
Americas	Geo Phy Dis	2.39%	3.00%	0.24%	4.41%
	Hyd Met Dis	18.43%	4.54%	2.62%	29.81%
	Others	1.90%	0.65%	0.07%	0.62%
Americas Total		**22.72%**	**8.19%**	**2.93%**	**34.83%**
Asia	Geo Phy Dis	5.41%	35.35%	1.41%	20.45%
	Hyd Met Dis	28.40%	19.79%	87.19%	22.69%
	Others	3.53%	2.10%	0.34%	1.44%
Asia Total		**37.34%**	**57.24%**	**88.94%**	**44.57%**
Europe	Geo Phy Dis	1.91%	0.39%	0.05%	2.58%
	Hyd Met Dis	10.33%	2.04%	0.43%	14.16%
	Others	1.30%	0.05%	0.08%	0.31%
Europe Total		**13.54%**	**2.47%**	**0.56%**	**17.05%**
Oceania	Geo Phy Dis	1.13%	0.14%	0.01%	0.22%
	Hyd Met Dis	4.65%	0.08%	0.35%	1.78%
	Others	0.41%	0.02%	0.00%	0.09%
Oceania Total		**6.19%**	**0.23%**	**0.35%**	**2.08%**
Grand Total		**100.00%**	**100.00%**	**100.00%**	**100.00%**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2007

Table 12A: 1975-2007 Disasters and Impacts by Disaster Classification and Income Level

Dis Classification	Income class	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of Damage US$ ('000s)
Geo Phy Dis	HI	178	10,614	6,130,349	260,369,421
	LI	290	347,561	55,099,931	44,648,509
	LMI	470	485,119	32,754,697	47,205,612
	UMI	134	36,118	4,877,422	25,219,560
Geo Phy Dis Total		**1,072**	**879,412**	**98,862,399**	**377,443,102**
Hyd Met Dis	HI	1,591	51,801	45,354,123	509,725,203
	LI	2,237	927,905	2,823,455,317	74,566,865
	LMI	2,092	138,276	2,544,175,538	274,238,872
	UMI	862	55,313	93,427,934	64,610,329
Hyd Met Dis Total		**6,782**	**1,173,295**	**5,506,412,912**	**923,141,269**
Others	HI	161	694	3,341,777	12,241,206
	LI	870	165,542	59,150,208	19,263,829
	LMI	228	16,919	6,871,814	650,528
	UMI	94	2,457	956,673	617,250
Others Total		**1,353**	**185,612**	**70,320,472**	**32,772,813**
Grand Total		**9,207**	**2,238,319**	**5,675,595,783**	**1,333,357,184**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2007

Table 12B: 1975-2007 Disasters and Impacts by Disaster Classification and Income Level (Percentages)

Dis Classification	Income class	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of Damage US$ ('000s)
Geo Phy Dis	HI	1.93%	0.47%	0.11%	19.53%
	LI	3.15%	15.53%	0.97%	3.35%
	LMI	5.10%	21.67%	0.58%	3.54%
	UMI	1.46%	1.61%	0.09%	1.89%
Geo Phy Dis Total		**11.64%**	**39.29%**	**1.74%**	**28.31%**
Hyd Met Dis	HI	17.28%	2.31%	0.80%	38.23%
	LI	24.30%	41.46%	49.75%	5.59%
	LMI	22.72%	6.18%	44.83%	20.57%
	UMI	9.36%	2.47%	1.65%	4.85%
Hyd Met Dis Total		**73.66%**	**52.42%**	**97.02%**	**69.23%**
Others	HI	1.75%	0.03%	0.06%	0.92%
	LI	9.45%	7.40%	1.04%	1.44%
	LMI	2.48%	0.76%	0.12%	0.05%
	UMI	1.02%	0.11%	0.02%	0.05%
Others Total		**14.70%**	**8.29%**	**1.24%**	**2.46%**
Grand Total		**100.00%**	**100.00%**	**100.00%**	**100.00%**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2007

Table 13A: 1975-2007 Disasters and Impacts by Income Level and Disaster Classification

Income class	Dis Classification	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of Damage US$ ('000s)
HI	Geo Phy Dis	178	10,614	6,130,349	260,369,421
	Hyd Met Dis	1,591	51,801	45,354,123	509,725,203
	Others	161	694	3,341,777	12,241,206
HI Total		**1,930**	**63,109**	**54,826,249**	**782,335,830**
LI	Geo Phy Dis	290	347,561	55,099,931	44,648,509
	Hyd Met Dis	2,237	927,905	2,823,455,317	74,566,865
	Others	870	165,542	59,150,208	19,263,829
LI Total		**3,397**	**1,441,008**	**2,937,705,456**	**138,479,203**
LMI	Geo Phy Dis	470	485,119	32,754,697	47,205,612
	Hyd Met Dis	2,092	138,276	2,544,175,538	274,238,872
	Others	228	16,919	6,871,814	650,528
LMI Total		**2,790**	**640,314**	**2,583,802,049**	**322,095,012**
UMI	Geo Phy Dis	134	36,118	4,877,422	25,219,560
	Hyd Met Dis	862	55,313	93,427,934	64,610,329
	Others	94	2,457	956,673	617,250
UMI Total		**1,090**	**93,888**	**99,262,029**	**90,447,139**
Grand Total		**9,207**	**2,238,319**	**5,675,595,783**	**1,333,357,184**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2007

Table 13B: 1975-2007 Disasters and Impacts by Income Level and Disaster Classification (Percentages)

Income class	Dis Classification	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of Damage US$ ('000s)
HI	Geo Phy Dis	1.93%	0.47%	0.11%	19.53%
	Hyd Met Dis	17.28%	2.31%	0.80%	38.23%
	Others	1.75%	0.03%	0.06%	0.92%
HI Total		**20.96%**	**2.82%**	**0.97%**	**58.67%**
LI	Geo Phy Dis	3.15%	15.53%	0.97%	3.35%
	Hyd Met Dis	24.30%	41.46%	49.75%	5.59%
	Others	9.45%	7.40%	1.04%	1.44%
LI Total		**36.90%**	**64.38%**	**51.76%**	**10.39%**
LMI	Geo Phy Dis	5.10%	21.67%	0.58%	3.54%
	Hyd Met Dis	22.72%	6.18%	44.83%	20.57%
	Others	2.48%	0.76%	0.12%	0.05%
LMI Total		**30.30%**	**28.61%**	**45.52%**	**24.16%**
UMI	Geo Phy Dis	1.46%	1.61%	0.09%	1.89%
	Hyd Met Dis	9.36%	2.47%	1.65%	4.85%
	Others	1.02%	0.11%	0.02%	0.05%
UMI Total		**11.84%**	**4.19%**	**1.75%**	**6.78%**
Grand Total		**100.00%**	**100.00%**	**100.00%**	**100.00%**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2007

Table 14A: 1975-2007 World Disaster Classification and Impact Characteristics by Disaster Classification and Human Development Level

Dis Classification	Human development	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of Damage US$ ('000s)
Geo Phy Dis	HHD	220	10,984	8,047,424	262,556,581
	LHD	84	88,450	6,742,025	5,564,000
	MHD	768	779,978	84,072,950	109,322,521
Geo Phy Dis Total		**1,072**	**879,412**	**98,862,399**	**377,443,102**
Hyd Met Dis	HHD	1,907	59,740	65,135,177	541,988,451
	LHD	1,285	792,242	751,647,597	28,033,816
	MHD	3,590	321,313	4,689,630,138	353,119,002
Hyd Met Dis Total		**6,782**	**1,173,295**	**5,506,412,912**	**923,141,269**
Others	HHD	189	977	3,548,535	12,818,956
	LHD	619	126,461	38,550,399	106,930
	MHD	545	58,174	28,221,538	19,846,927
Others Total		**1,353**	**185,612**	**70,320,472**	**32,772,813**
Grand Total		**9,207**	**2,238,319**	**5,675,595,783**	**1,333,357,184**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2007

Table 14B: 1975-2007 Disasters and Impacts by Disaster Classification and Human Development Level (Percentages)

Dis Classification	Human development	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of Damage US$ ('000s)
Geo Phy Dis	HHD	2.39%	0.49%	0.14%	19.69%
	LHD	0.91%	3.95%	0.12%	0.42%
	MHD	8.34%	34.85%	1.48%	8.20%
Geo Phy Dis Total		**11.64%**	**39.29%**	**1.74%**	**28.31%**
Hyd Met Dis	HHD	20.71%	2.67%	1.15%	40.65%
	LHD	13.96%	35.39%	13.24%	2.10%
	MHD	38.99%	14.36%	82.63%	26.48%
Hyd Met Dis Total		**73.66%**	**52.42%**	**97.02%**	**69.23%**
Others	HHD	2.05%	0.04%	0.06%	0.96%
	LHD	6.72%	5.65%	0.68%	0.01%
	MHD	5.92%	2.60%	0.50%	1.49%
Others Total		**14.70%**	**8.29%**	**1.24%**	**2.46%**
Grand Total		**100.00%**	**100.00%**	**100.00%**	**100.00%**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2007

Table 15A: 1975-2007 Disasters and Impacts by Human Development Level and Disaster Classification

Human development	Dis Classification	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of Damage US$ ('000s)
HHD	Geo Phy Dis	220	10,984	8,047,424	262,556,581
	Hyd Met Dis	1,907	59,740	65,135,177	541,988,451
	Others	189	977	3,548,535	12,818,956
HHD Total		**2,316**	**71,701**	**76,731,136**	**817,363,988**
LHD	Geo Phy Dis	84	88,450	6,742,025	5,564,000
	Hyd Met Dis	1,285	792,242	751,647,597	28,033,816
	Others	619	126,461	38,550,399	106,930
LHD Total		**1,988**	**1,007,153**	**796,940,021**	**33,704,746**
MHD	Geo Phy Dis	768	779,978	84,072,950	109,322,521
	Hyd Met Dis	3,590	321,313	4,689,630,138	353,119,002
	Others	545	58,174	28,221,538	19,846,927
MHD Total		**4,903**	**1,159,465**	**4,801,924,626**	**482,288,450**
Grand Total		**9,207**	**2,238,319**	**5,675,595,783**	**1,333,357,184**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2007

Table 15B: 1975-2007 Disasters and Impacts by Human Development Level and Disaster Classification (Percentages)

Human development	Dis Classification	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of Damage US$ ('000s)
HHD	Geo Phy Dis	2.39%	0.49%	0.14%	19.69%
	Hyd Met Dis	20.71%	2.67%	1.15%	40.65%
	Others	2.05%	0.04%	0.06%	0.96%
HHD Total		**25.15%**	**3.20%**	**1.35%**	**61.30%**
LHD	Geo Phy Dis	0.91%	3.95%	0.12%	0.42%
	Hyd Met Dis	13.96%	35.39%	13.24%	2.10%
	Others	6.72%	5.65%	0.68%	0.01%
LHD Total		**21.59%**	**45.00%**	**14.04%**	**2.53%**
MHD	Geo Phy Dis	8.34%	34.85%	1.48%	8.20%
	Hyd Met Dis	38.99%	14.36%	82.63%	26.48%
	Others	5.92%	2.60%	0.50%	1.49%
MHD Total		**53.25%**	**51.80%**	**84.61%**	**36.17%**
Grand Total		**100.00%**	**100.00%**	**100.00%**	**100.00%**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2007

The extent of damage caused by natural disasters is clearly connected to a country's socio-economic level. As in previous years, the disaster statistics and trends for 2007 show that disaster management and post-disaster activities are crucial to sustainable development. In 2007, as in many previous years, the impacts of natural disasters were closely related to poverty, education, quality of health, gender related issues, and changing policy scenarios in relation to global socio-economic characteristics and stakeholder partnerships. Hence, disaster mitigation and management strategies must incorporate these components to create a holistic disaster management approach that includes strategies for sustainable development.