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 2005. 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

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. 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: .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$9,266 and above), upper middle (annual per capita income $2,996-$9,265), lower middle (annual per capita income $756-$2,995) and low (annual per capita income less than $755) according to the World Bank definitions. The figures below show the disaster characteristics by income level, both globally and regionally.

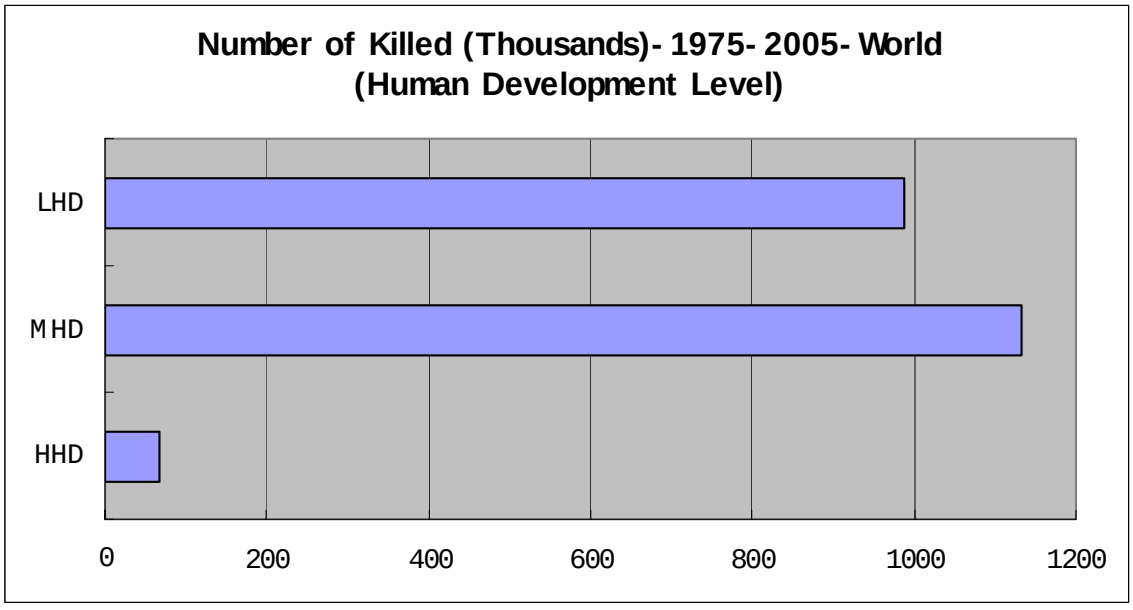
Figures 12, 13A, 13B, 14, 15A, 15B, 16, 17A, and 17B show the relationship between the HDL and the impacts that disaster-related human suffering and economic losses have on societies and economies. Figures 12, 14, and 16 show the number of people killed, the number of total affected people, and the amount of damage, respectively, by HDL for the period 1975 to 2005. 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 2005 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.

In 2003, however, a major shift occurred around the world. An unexpected heat wave caused tremendous human suffering in the HHD countries of Europe in 2003. The 2004 disaster trends once

again stressed the importance of disaster reduction in the developing countries. The trends in 2005 further indicate that countries with low and medium human development levels tend to suffer more serious human and economic losses. The figures for the year 2005, 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 least 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.

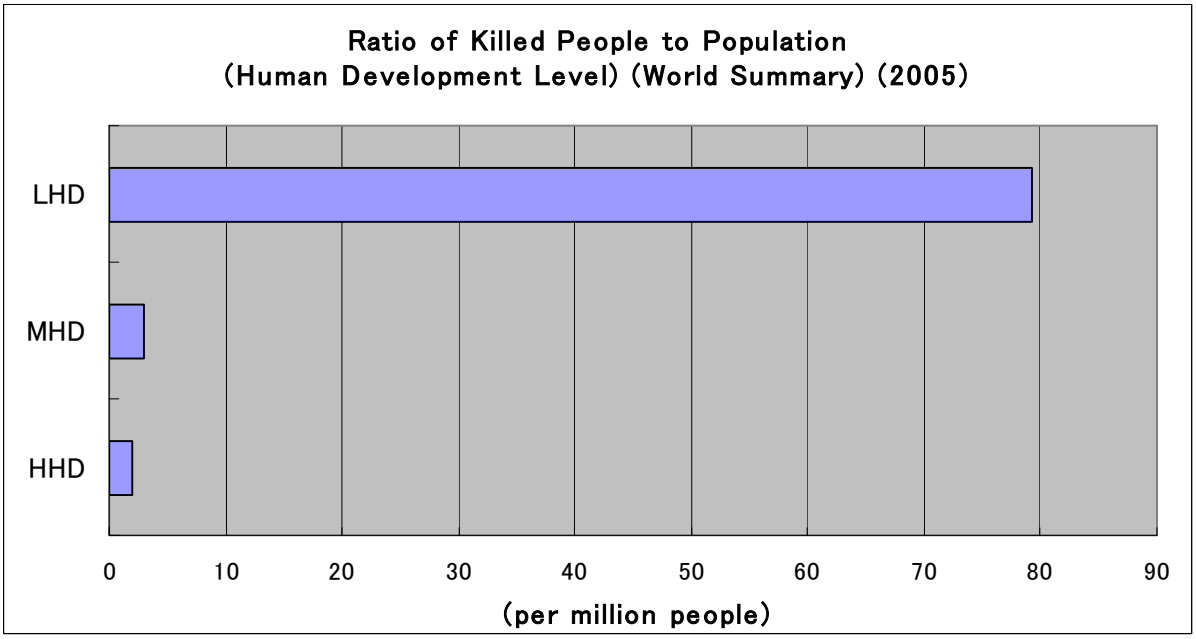
It is also quite evident from the following figures that the ratios of people killed and total affected people to the total population are high in the LHD and MHD countries, stressing the importance of incorporating disaster reduction approaches into mainstream national policies. Although the real value 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 Number of People Killed (Thousands) by Human Development Level, 1975-2005 (World)



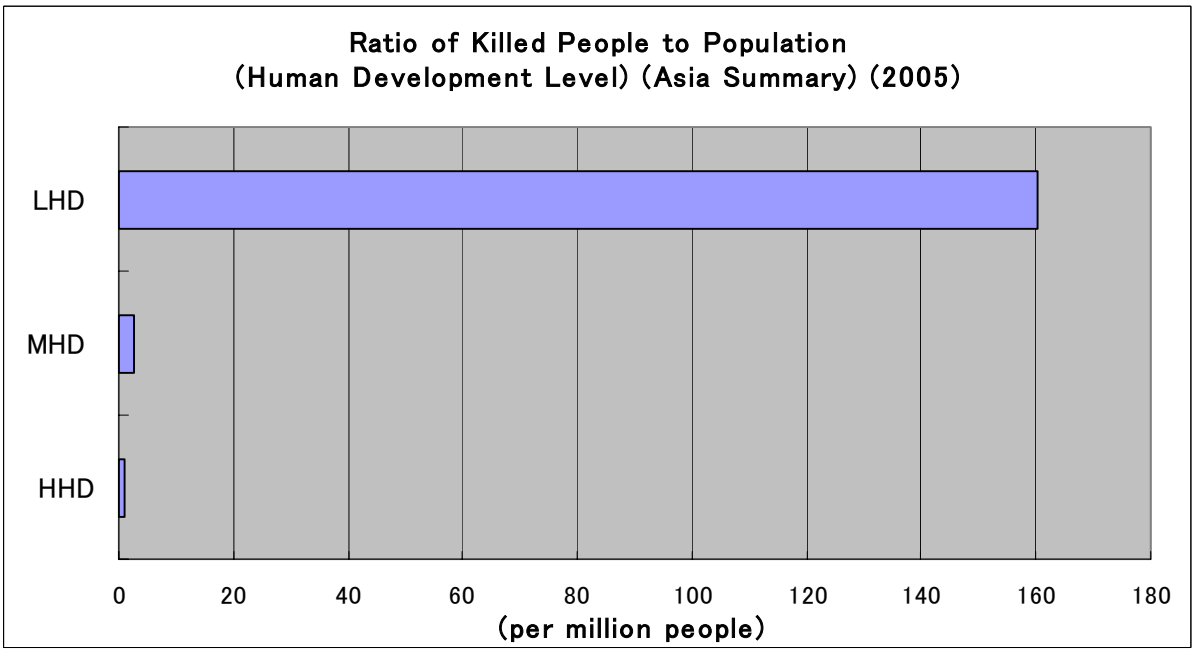
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2005

Figure 13A Ratio of People Killed to Population by Human Development Level, 2005 (World)



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2005

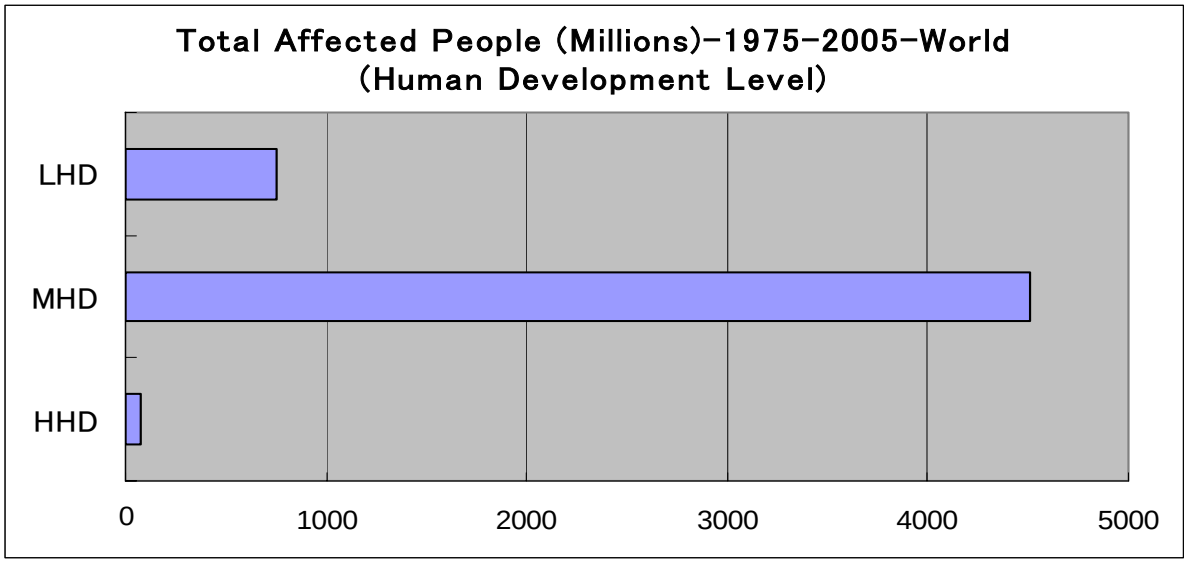
Figure 13B Ratio of People Killed to Population by Human Development Level, 2005 (Asia)



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2005

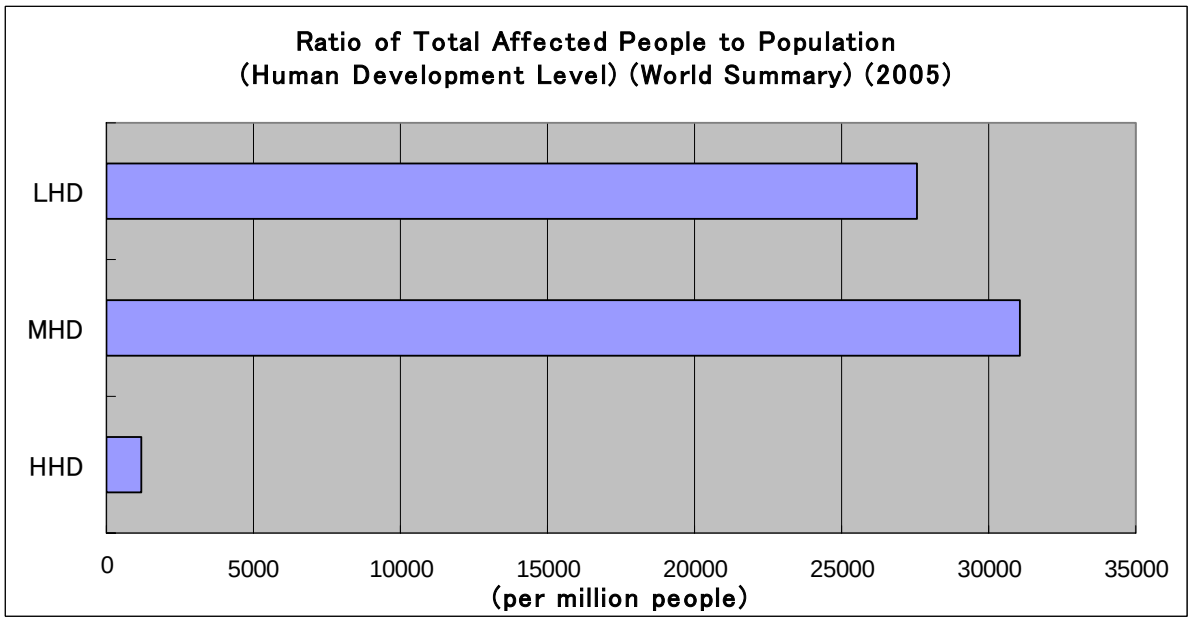
These figures clearly show that the majority of human losses were reported in countries with a low level of human development (due to the South Asian Earthquake). This is consistent for figures both in Asia and worldwide.

Figure 14 Total Affected People (Millions) by Human Development Level, 1975-2005 (World)



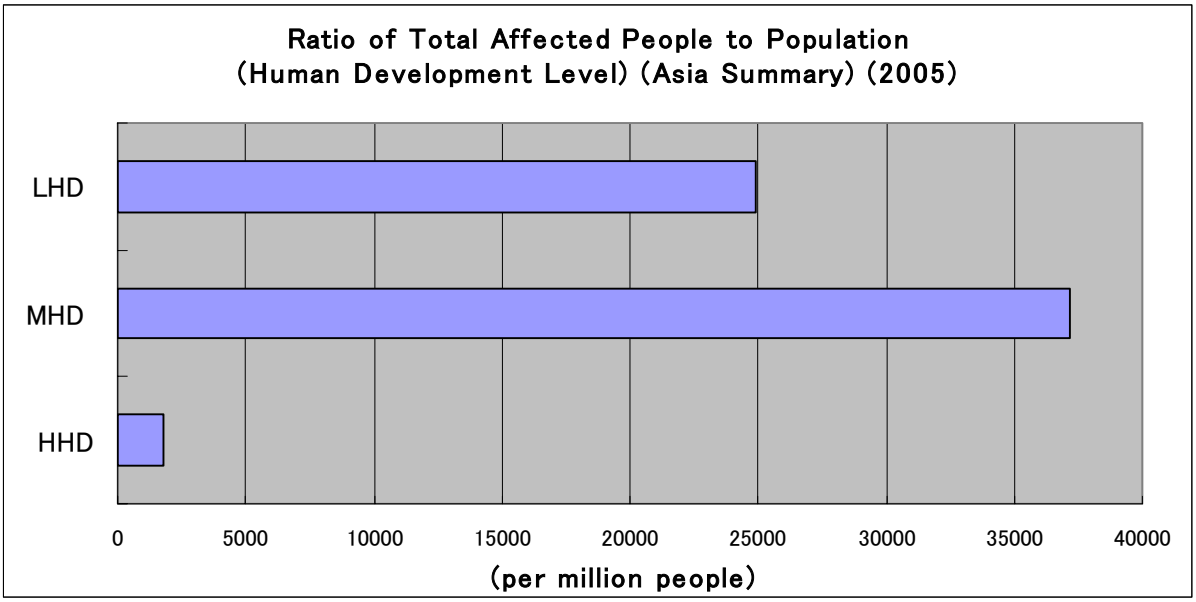
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2005

Figure 15A Total Affected People Per Million Population by Human Development Level, 2005 (World)



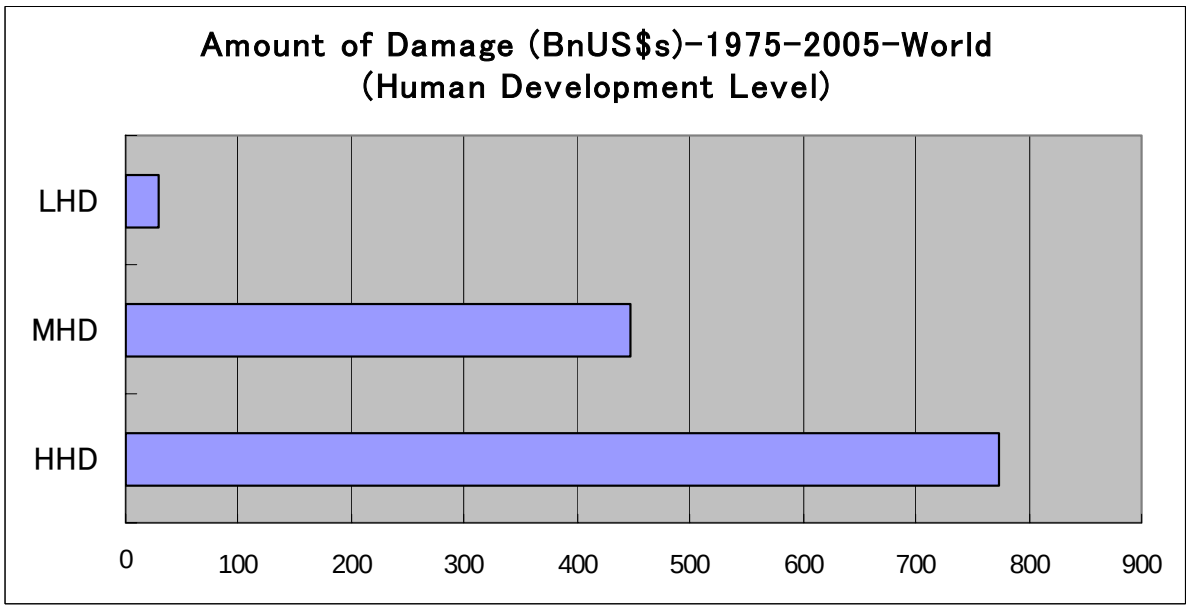
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2005

Figure 15B Total Affected People Per Million Population by Human Development Level, 2005 (Asia)



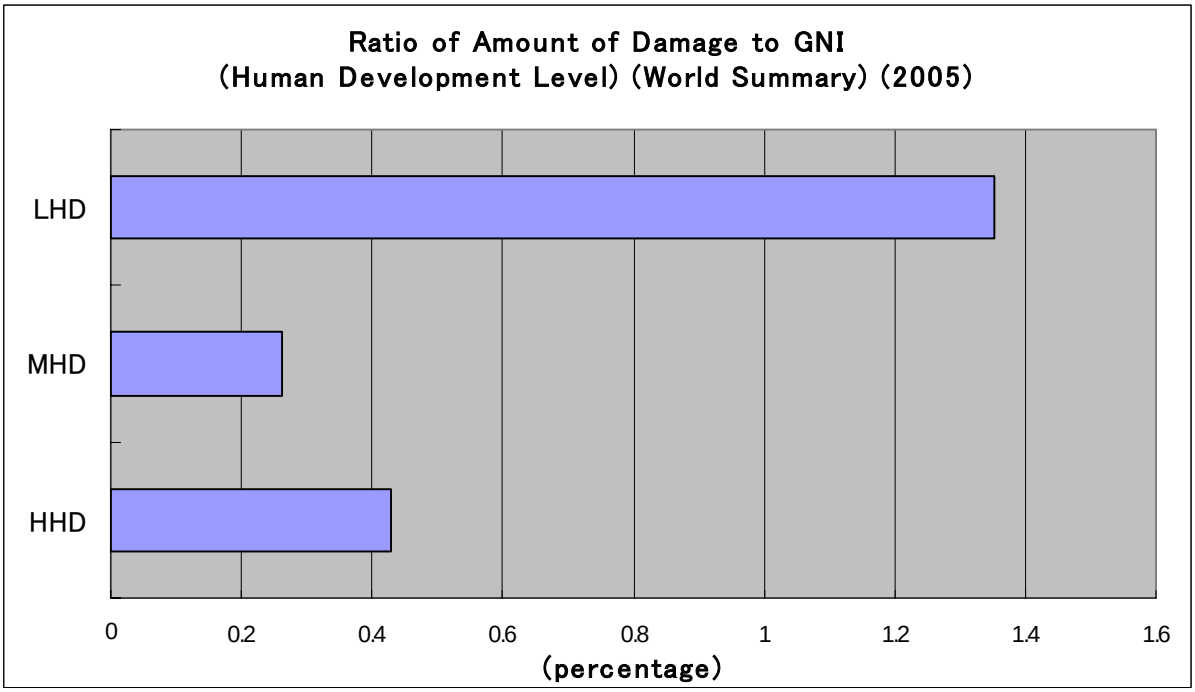
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2005

Figure 16 Amount of Damage (US$ Billions) by Human Development Level, 1975-2005 (World)



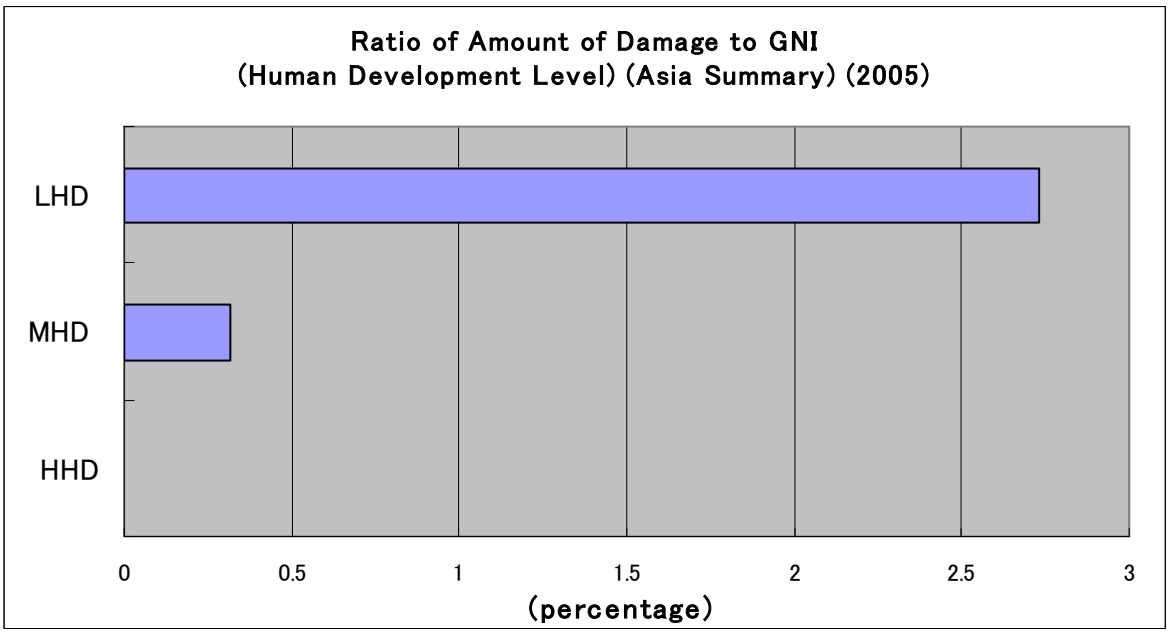
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2005

Figure 17A Ratio of Damage to GNI (%) by Human Development Level, 2005 (World)



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2005

Figure 17B Ratio of Damage to GNI (%) by Human Development Level, 2005 (Asia)



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2005

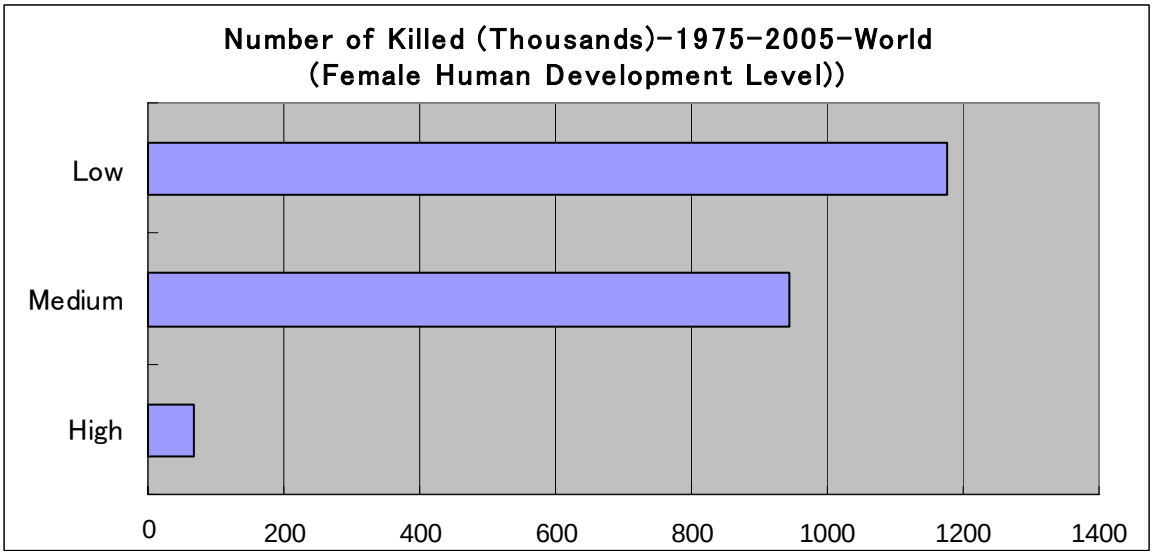
2.2 Gender Issues and Natural Disaster Impacts

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 natural disasters. Here we examine the Female Human Development Index, which was extracted from the general Human Development Index, in relation to disasters. Generally speaking, countries with lower female human development (LFHD) report the most human suffering, and 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, in 2005, both the ratios of the people killed and total affected people 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 South Asian Earthquake, and floods in China, India, and Bangladesh (Figures 18, 19A, and 19B). Moreover, the ratio of total affected people to the total population was high in countries with low 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 low and medium female human development levels.

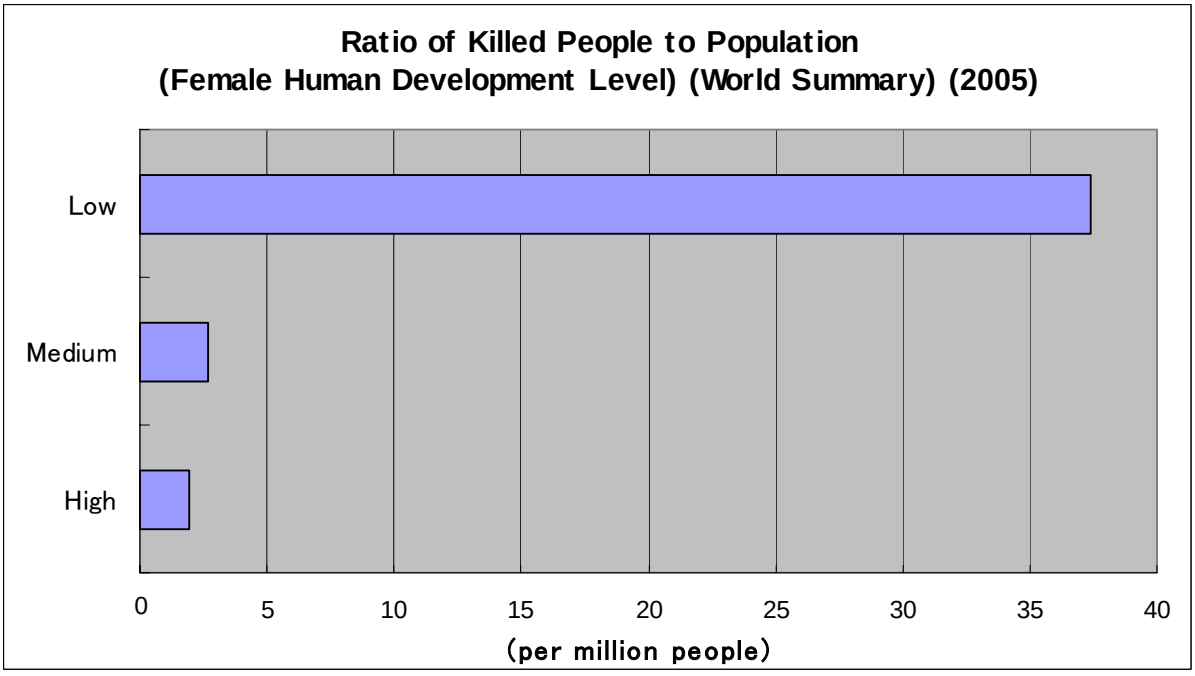
Gender powerfully shapes the human response to disasters, both directly and indirectly. Studies have shown that women are hit hard by the social impacts of disasters, suggesting that women should play a major role in post-disaster activities if proper integration of gender issues and disaster management 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.

Figure 18 Number of People Killed (Thousands) by Female Human Development Level, 1975-2005 (World)



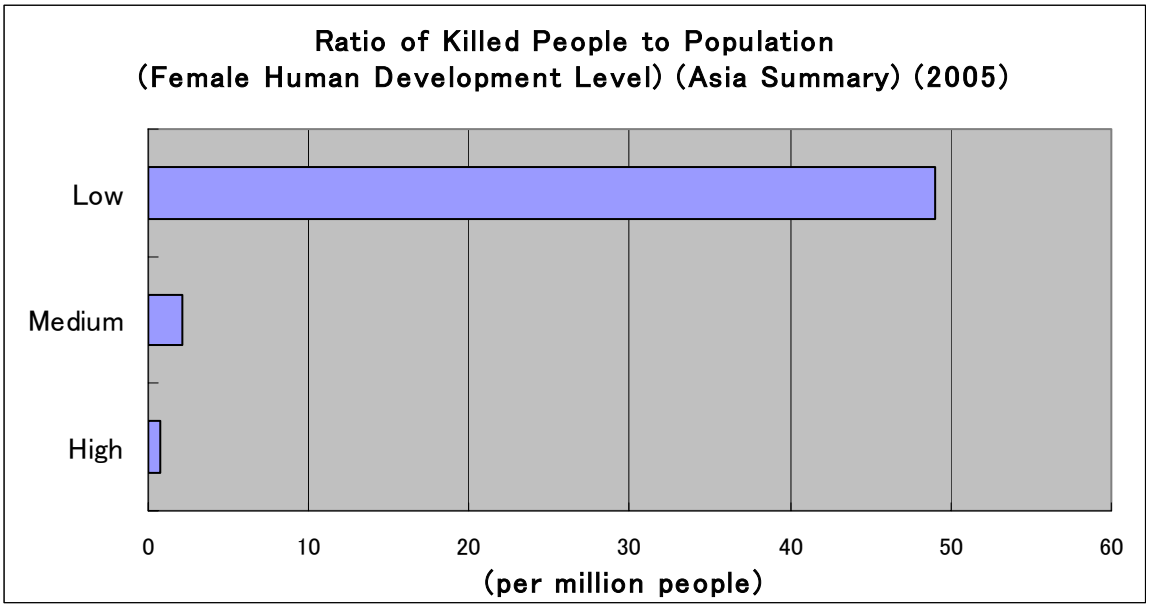
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2005

Figure 19A Ratio of People Killed to Population by Female Human Development Level, 2005 (World)



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2005

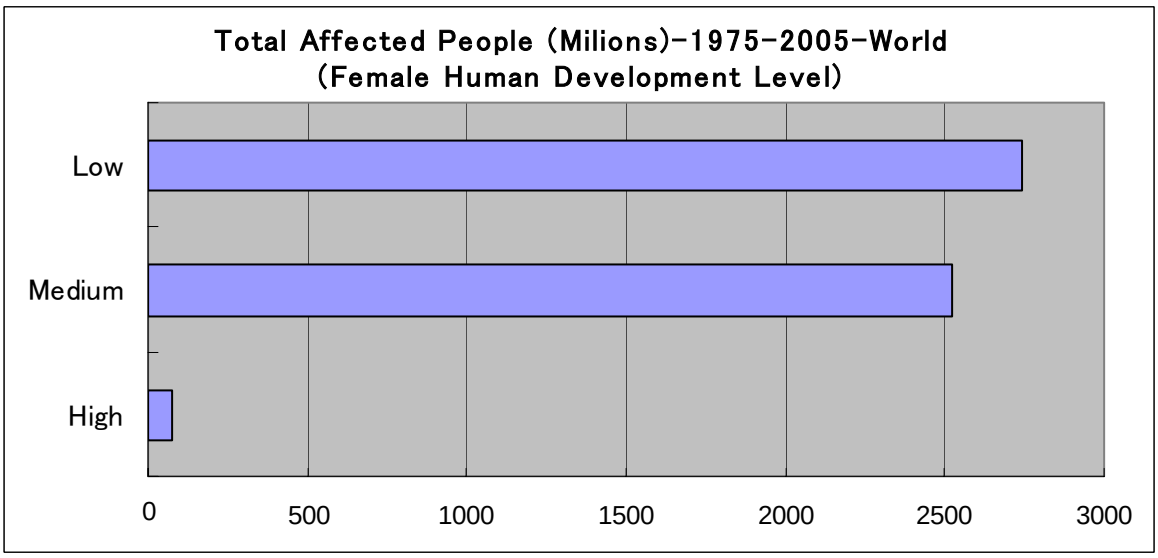
Figure 19B Ratio of People Killed to Population by Female Human Development Level, 2005 (Asia)



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2005

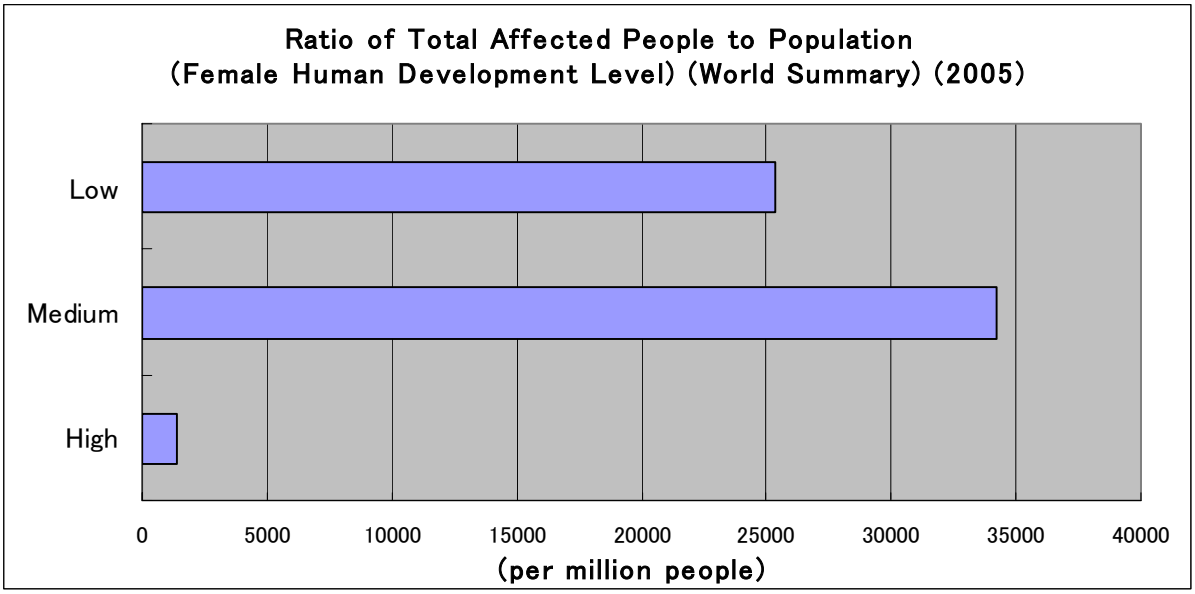
The above figures also indicate that the majority of human losses, both on a global and regional level, were sustained in countries with low and medium levels of female human development. This is attributed to the impact of the South Asian Earthquake.

Figure 20 Total Affected People (Millions) by Female Human Development Level, 1975-2005 (World)



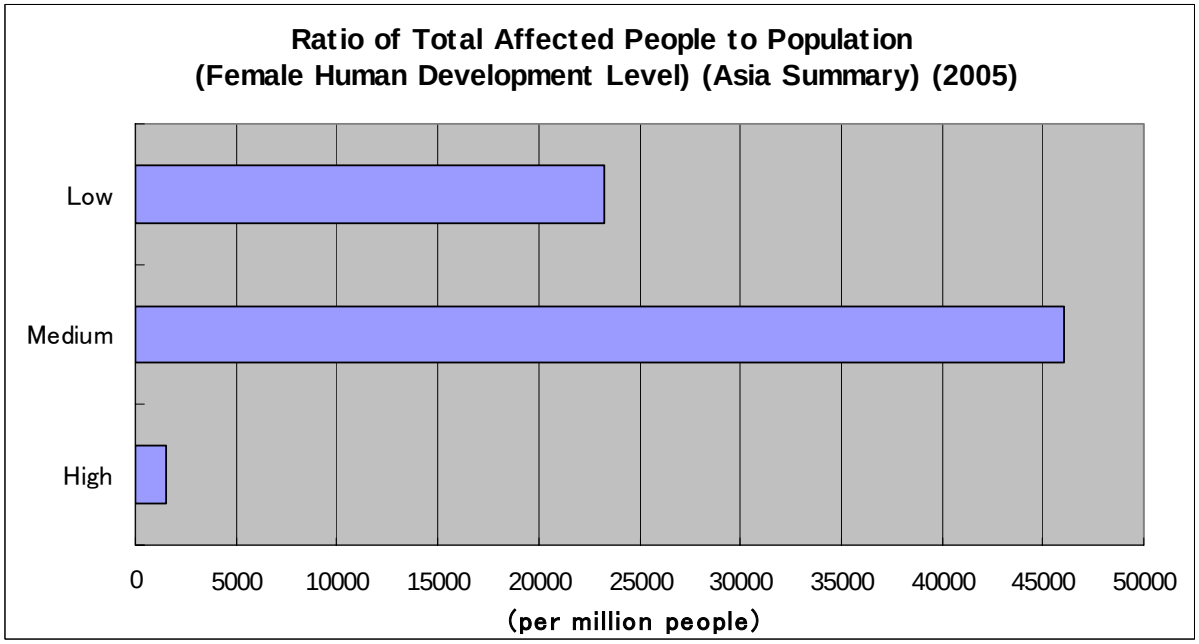
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2005

Figure 21A Total Affected People Per Million Population by Female Human Development Level, 2005 (World)



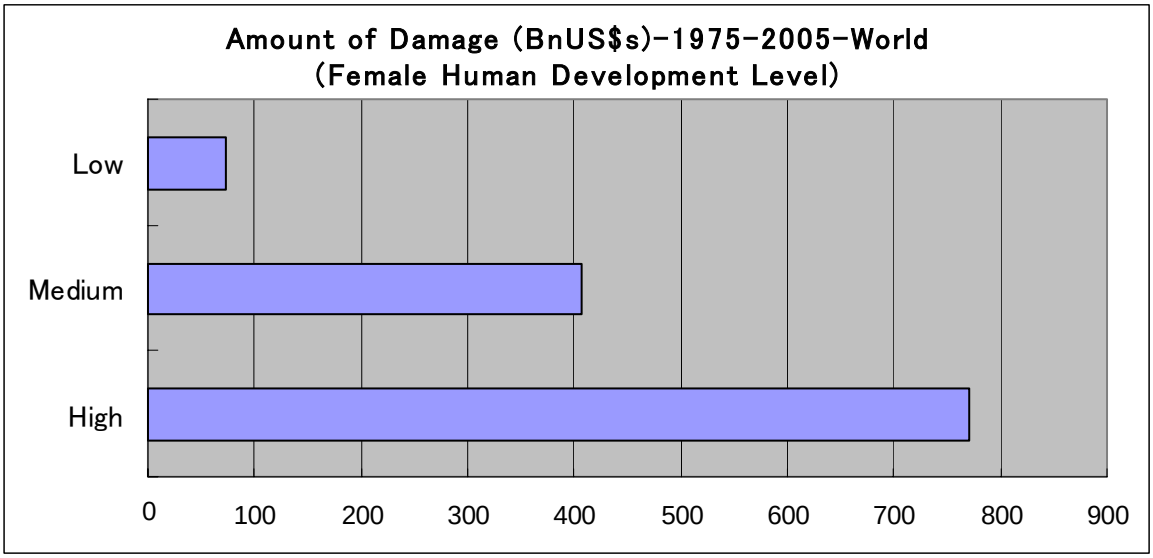
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2005

Figure 21B Total Affected People Per Million Population by Female Human Development Level, 2005 (Asia)



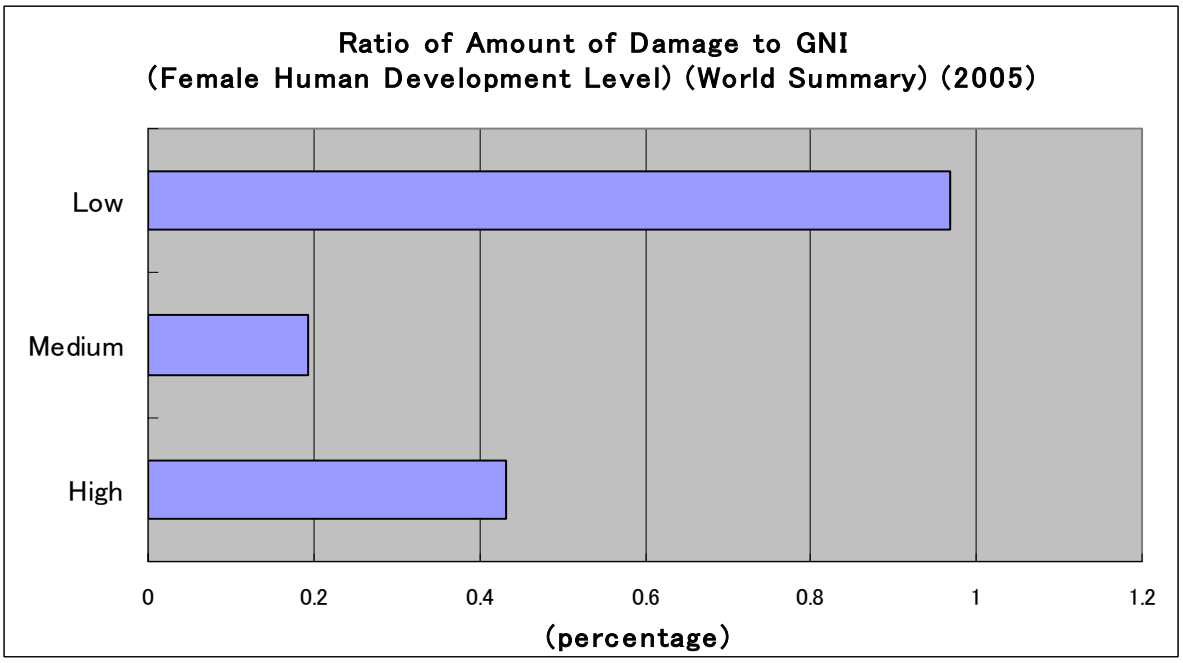
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2005

Figure 22 Amount of Damage (US$ Billions) by Female Human Development Level, 1975-2005 (World)



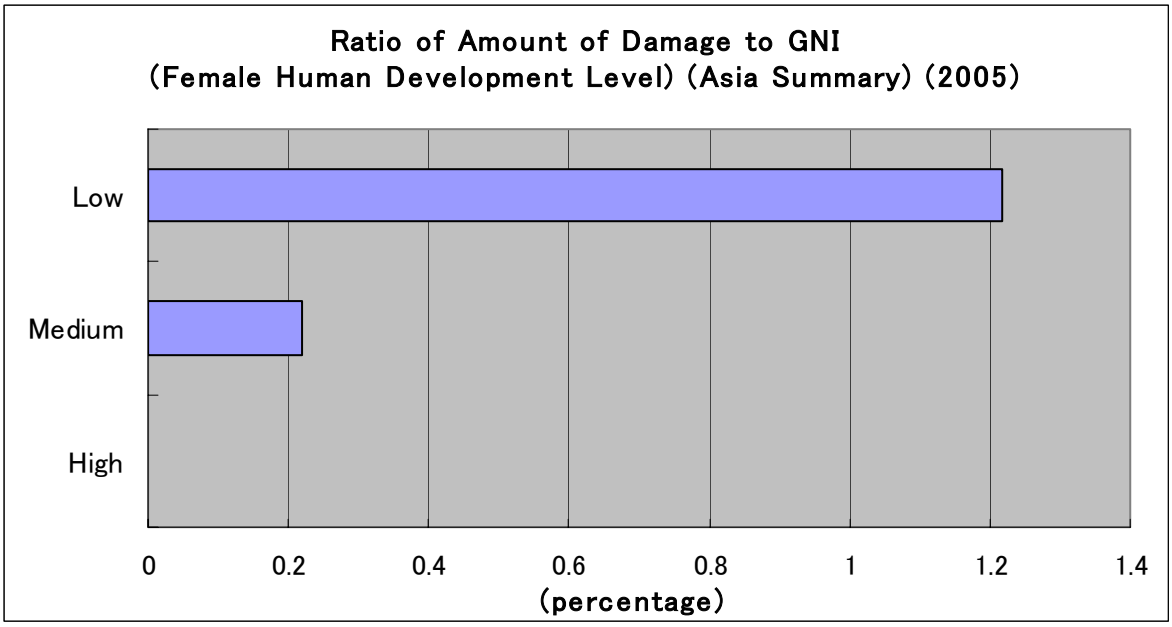
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2005

Figure 23A Ratio of Damage to GNI (%) by Female Human Development Level, 2005 (World)



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2005

Figure 23B Ratio of Damage to GNI (%) by Female Human Development Level, 2005 (Asia)



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and UNDP, 2005

2.3 The Economics of Natural Disasters

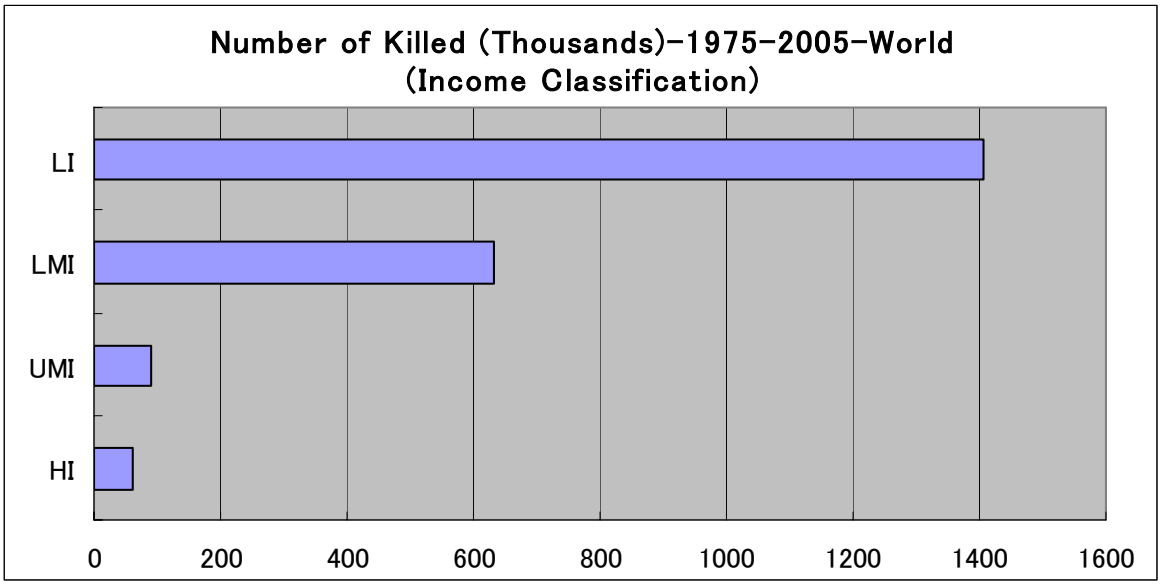
This section focuses on income levels as they relate to disaster impacts, based on the disaster trends in 2005. A country's income level is determined by its per capita GNI and is analyzed here in relation to the disaster statistics. The figures below (24 to 29B) show this relationship and once again 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 the South Asian Earthquake and flooding in the low-income and least developed Asian countries in 2005, 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 1975-2005. Further, figures marked A and B show the ratio of these characteristics to the total population for the world (A) and Asia (B) in 2005.

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, Pakistan, Bangladesh, and China, and in some countries in Africa, have contributed significantly to this trend. The disasters that occurred in the US (hurricanes) and the extreme temperatures experienced in 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.

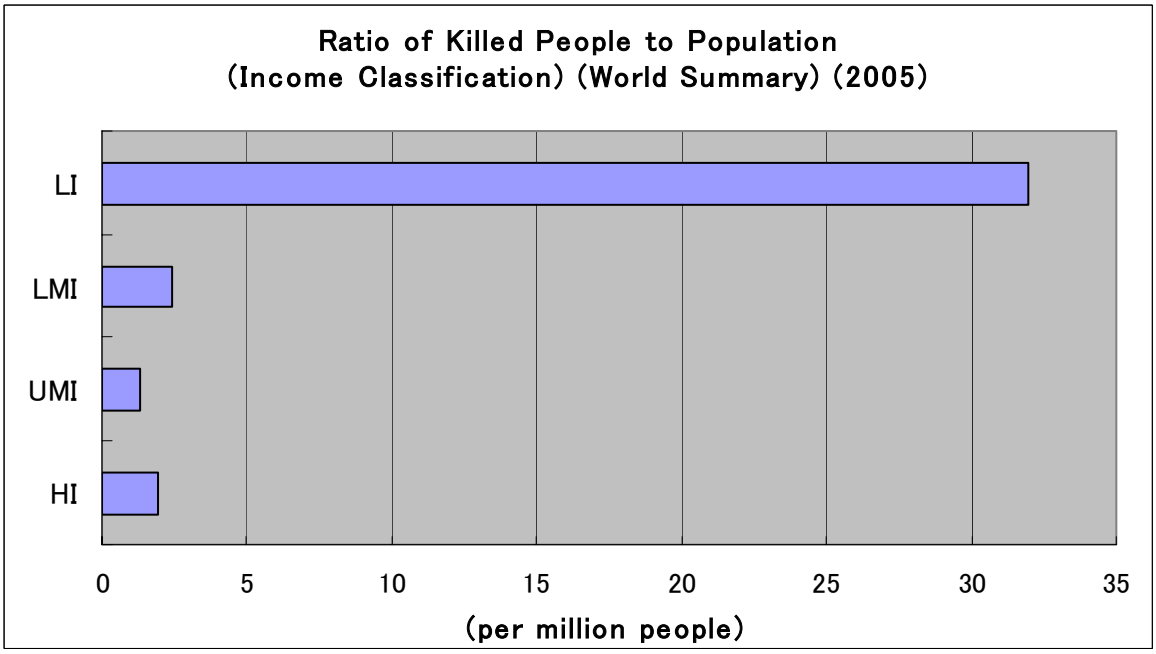
Note: LI: Lower Income, LMI: Lower Middle Income, UMI: Upper Middle Income and UI: Upper Income.

Figure 24 Number of People Killed (Thousands) by Income Classification, 1975-2005 (World)



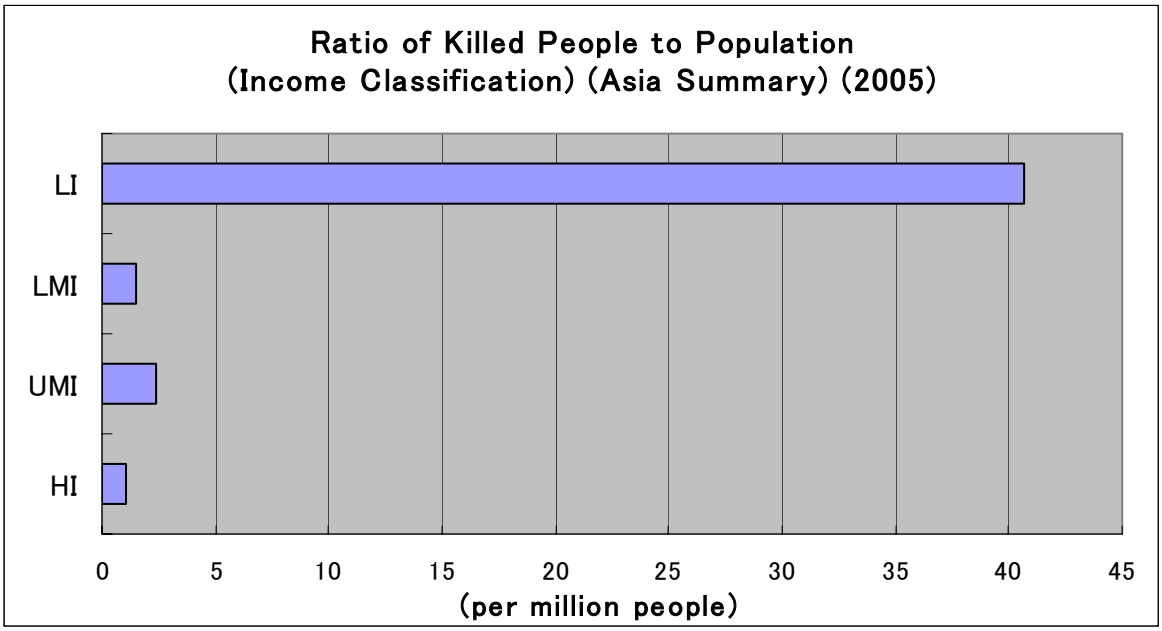
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and World Bank, 2005

Figure 25A Ratio of People Killed to Population by Income Level, 2005 (World)



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and World Bank, 2005

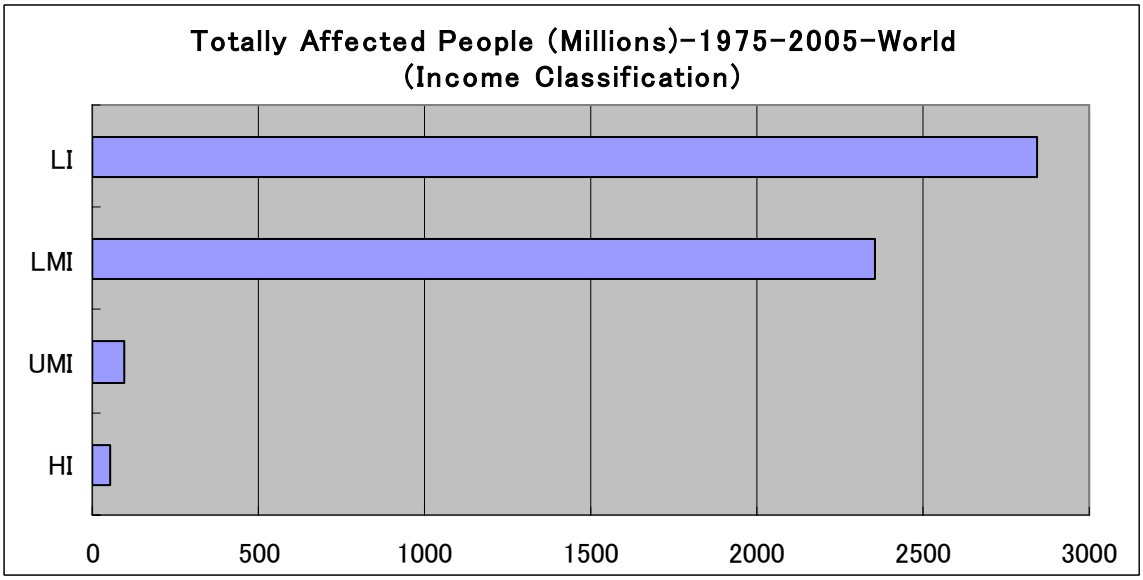
Figure 25B Ratio of People Killed to Population by Income Level, 2005 (Asia)



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and World Bank, 2005

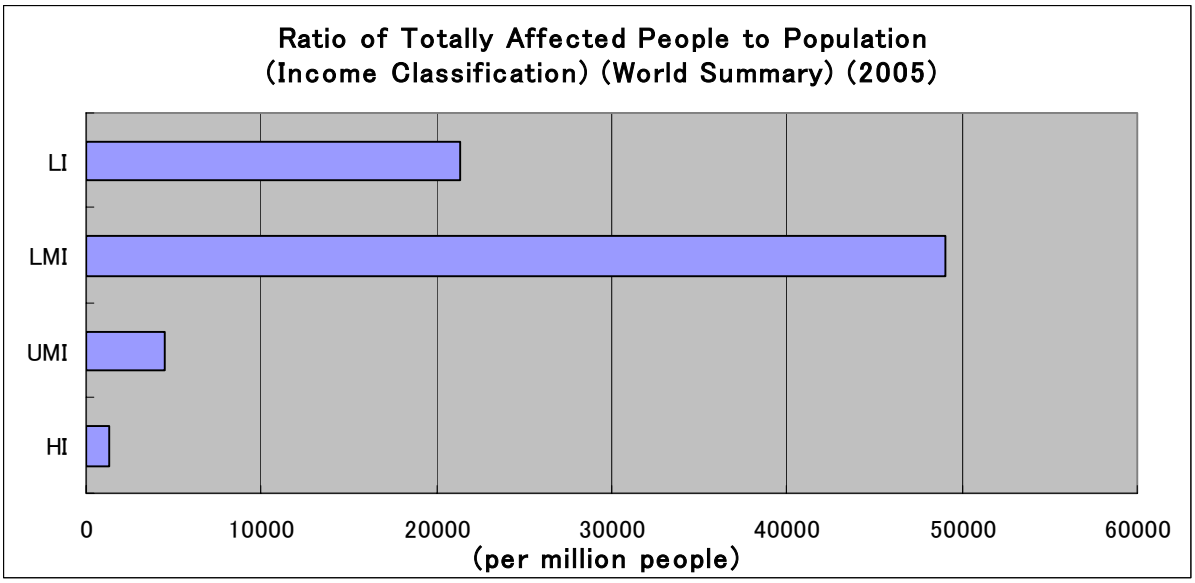
It is clearly known from above Figures that the majority of the human loss was in the low and lower middle income countries in the World as well as in Asia and these are due to the Souh Asian earthquake disaster.

Figure 26 Total Affected People (Millions) by Income Level, 1975-2005 (World)



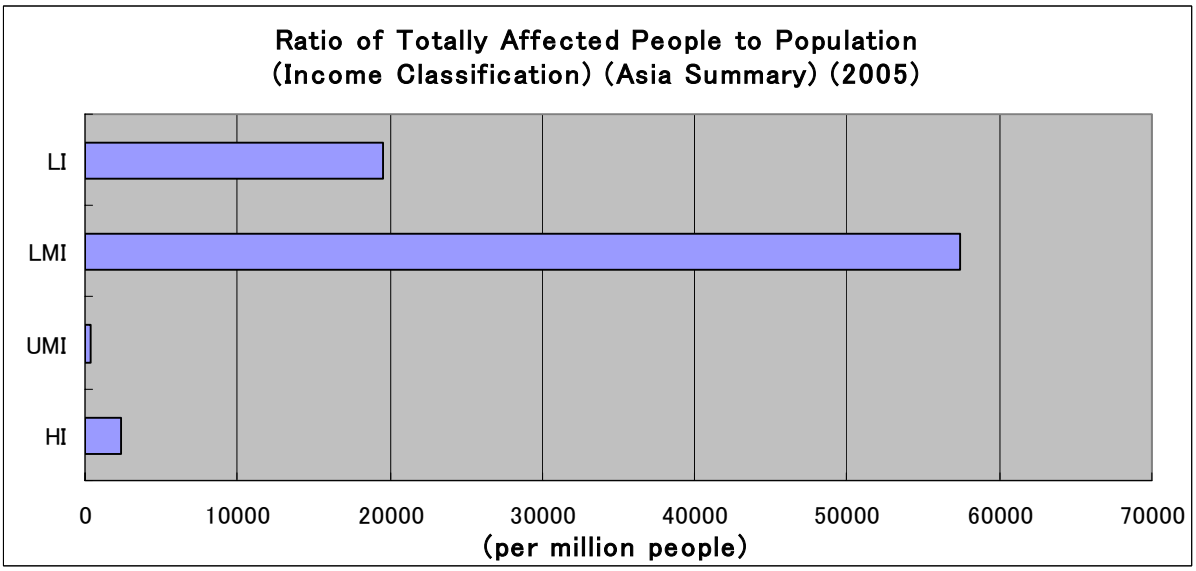
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and World Bank, 2005

Figure 27A Total Affected People Per Million Population by Income Level, 2005 (World)



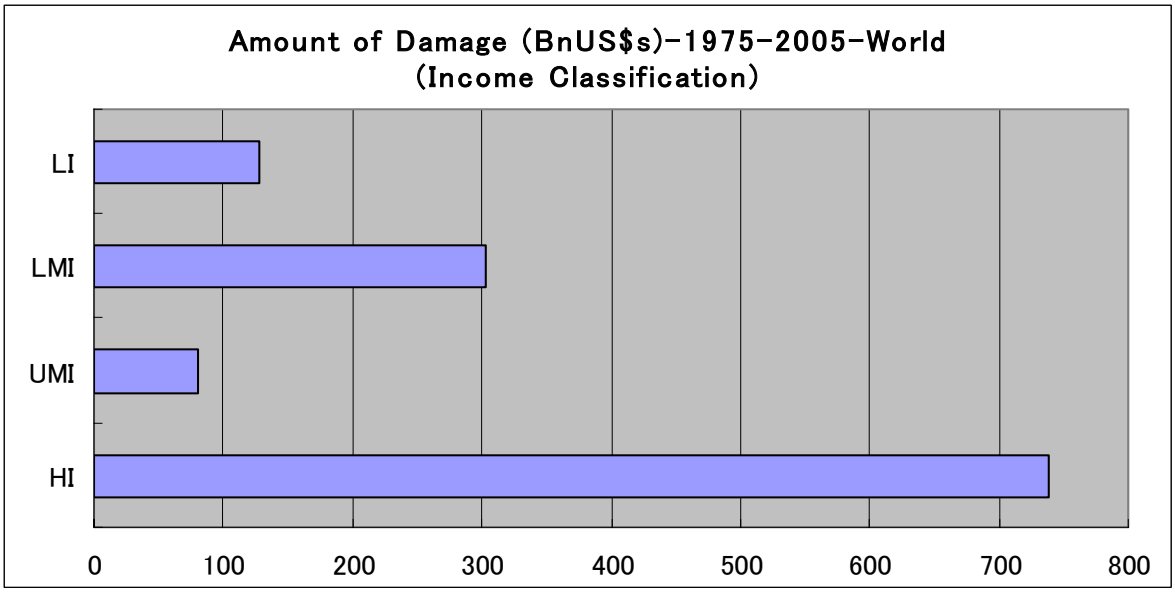
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and World Bank, 2005

Figure 27B Total Affected People Per Million Population by Income Level, 2005 (Asia)



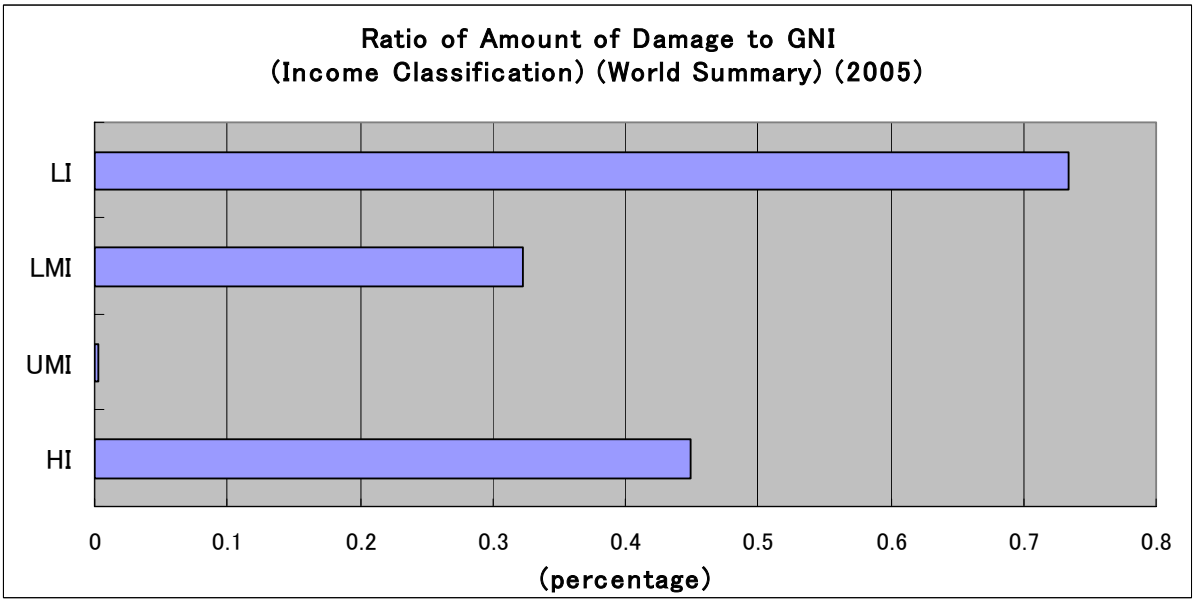
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and World Bank, 2005

Figure 28 Amount of Damage (US$ Billions) by Income Level, 1975-2005 (World)



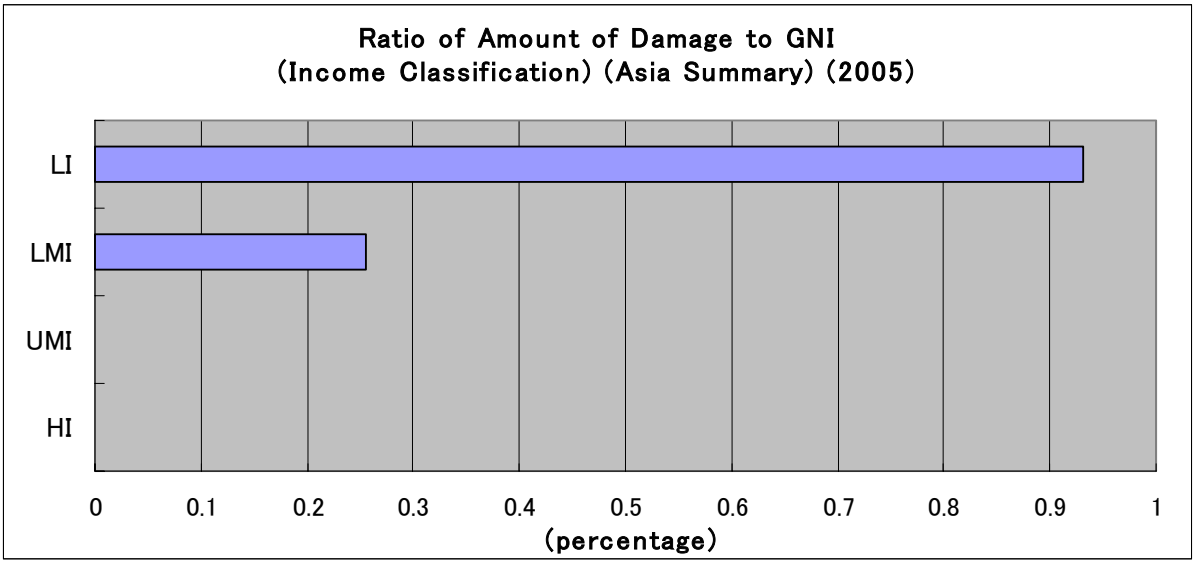
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and World Bank, 2005

Figure 29A Ratio of Damage to GNI (%) by Income Level, 2005 (World)



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and World Bank, 2005

Figure 29B Ratio of Damage to GNI (%) by Income Level, 2005 (Asia)



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium and World Bank, 2005

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 income countries, primarily due to the earthquakes, typhoons, and floods experienced by India, Pakistan, China, and Bangladesh.

2.4 Disaster Classifications and the Impact of Development Characteristics

We have classified disasters into geo-physical, hydro-meteorological, and other disasters. 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 1975-2005. 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, and Europe sustain most of their economic damage from hydro-meteorological disasters, with high-income countries like the US, Japan, and the EU countries facing heavy losses caused by wind storms, floods, and extreme temperatures. The heaviest damage in Asia was caused by Japan’s 1995 Great Hanshin-Awaji Earthquake and the 2004 Indian Ocean Tsunami.

Similarly, 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. 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: 1975-2005 Disasters and Impacts by Disaster Classification and Region

Disaster Classification	Continent	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of DamageUS ('000s)
Geo Phy Dis	Africa	69	9,175	2,085,894	8,755,608
	Americas	205	66,590	12,949,330	58,526,032
	Asia	464	784,521	75,158,386	256,459,233
	Europe	173	8,724	2,836,768	34,369,376
	Oceania	100	2,976	317,655	2,907,400
Geo Phy Dis Total		**1,011**	**871,986**	**93,348,033**	**361,017,649**
Hyd Met Dis	Africa	944	578,751	342,482,272	9,931,189
	Americas	1,551	99,515	141,399,236	385,185,187
	Asia	2,337	421,307	4,654,039,361	274,930,538
	Europe	832	41,472	23,974,358	170,036,326
	Oceania	404	1,524	19,480,782	20,434,267
Hyd Met Dis Total		**6,068**	**1,142,569**	**5,181,376,009**	**860,517,507**
Others	Africa	618	112,812	42,372,907	102,430
	Americas	169	14,496	2,989,617	5,670,700
	Asia	306	46,083	18,627,876	19,240,824
	Europe	109	768	3,528,539	3,118,249
	Oceania	38	402	80,799	1,162,006
Others Total		**1,240**	**174,561**	**67,599,738**	**29,294,209**
Grand Total		**8,319**	**2,189,116**	**5,342,323,780**	**1,250,829,365**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2005

Table 10B: 1975-2005 Disasters and Impacts by Disaster Classification and Region (Percentages)

Disaster Classification	Continent	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of DamageUS ('000s)
Geo Phy Dis	Africa	0.83%	0.42%	0.04%	0.70%
	Americas	2.46%	3.04%	0.24%	4.68%
	Asia	5.58%	35.84%	1.41%	20.50%
	Europe	2.08%	0.40%	0.05%	2.75%
	Oceania	1.20%	0.14%	0.01%	0.23%
Geo Phy Dis Total		**12.15%**	**39.83%**	**1.75%**	**28.86%**
Hyd Met Dis	Africa	11.35%	26.44%	6.41%	0.79%
	Americas	18.64%	4.55%	2.65%	30.79%
	Asia	28.09%	19.25%	87.12%	21.98%
	Europe	10.00%	1.89%	0.45%	13.59%
	Oceania	4.86%	0.07%	0.36%	1.63%
Hyd Met Dis Total		**72.94%**	**52.19%**	**96.99%**	**68.80%**
Others	Africa	7.43%	5.15%	0.79%	0.01%
	Americas	2.03%	0.66%	0.06%	0.45%
	Asia	3.68%	2.11%	0.35%	1.54%
	Europe	1.31%	0.04%	0.07%	0.25%
	Oceania	0.46%	0.02%	0.00%	0.09%
Others Total		**14.91%**	**7.97%**	**1.27%**	**2.34%**
Grand Total		**100.00%**	**100.00%**	**100.00%**	**100.00%**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2005

Table 11A: 1975-2005 Disasters and Impacts by Region and Disaster Classification

Continent	Dis Classification	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of DamageUS ('000s)
Africa	Geo Phy Dis	69	9,175	2,085,894	8,755,608
	Hyd Met Dis	944	578,751	342,482,272	9,931,189
	Others	618	112,812	42,372,907	102,430
Africa Total		**1,631**	**700,738**	**386,941,073**	**18,789,227**
Americas	Geo Phy Dis	205	66,590	12,949,330	58,526,032
	Hyd Met Dis	1,551	99,515	141,399,236	385,185,187
	Others	169	14,496	2,989,617	5,670,700
Americas Total		**1,925**	**180,601**	**157,338,183**	**449,381,919**
Asia	Geo Phy Dis	464	784,521	75,158,386	256,459,233
	Hyd Met Dis	2,337	421,307	4,654,039,361	274,930,538
	Others	306	46,083	18,627,876	19,240,824
Asia Total		**3,107**	**1,251,911**	**4,747,825,623**	**550,630,595**
Europe	Geo Phy Dis	173	8,724	2,836,768	34,369,376
	Hyd Met Dis	832	41,472	23,974,358	170,036,326
	Others	109	768	3,528,539	3,118,249
Europe Total		**1,114**	**50,964**	**30,339,665**	**207,523,951**
Oceania	Geo Phy Dis	100	2,976	317,655	2,907,400
	Hyd Met Dis	404	1,524	19,480,782	20,434,267
	Others	38	402	80,799	1,162,006
Oceania Total		**542**	**4,902**	**19,879,236**	**24,503,673**
Grand Total		**8,319**	**2,189,116**	**5,342,323,780**	**1,250,829,365**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2005

Table 11B: 1975-2005 Disasters and Impacts by Region and Disaster Classification (Percentages)

Continent	Dis Classification	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of DamageUS ('000s)
Africa	Geo Phy Dis	0.83%	0.42%	0.04%	0.70%
	Hyd Met Dis	11.35%	26.44%	6.41%	0.79%
	Others	7.43%	5.15%	0.79%	0.01%
Africa Total		**19.61%**	**32.01%**	**7.24%**	**1.50%**
Americas	Geo Phy Dis	2.46%	3.04%	0.24%	4.68%
	Hyd Met Dis	18.64%	4.55%	2.65%	30.79%
	Others	2.03%	0.66%	0.06%	0.45%
Americas Total		**23.14%**	**8.25%**	**2.95%**	**35.93%**
Asia	Geo Phy Dis	5.58%	35.84%	1.41%	20.50%
	Hyd Met Dis	28.09%	19.25%	87.12%	21.98%
	Others	3.68%	2.11%	0.35%	1.54%
Asia Total		**37.35%**	**57.19%**	**88.87%**	**44.02%**
Europe	Geo Phy Dis	2.08%	0.40%	0.05%	2.75%
	Hyd Met Dis	10.00%	1.89%	0.45%	13.59%
	Others	1.31%	0.04%	0.07%	0.25%
Europe Total		**13.39%**	**2.33%**	**0.57%**	**16.59%**
Oceania	Geo Phy Dis	1.20%	0.14%	0.01%	0.23%
	Hyd Met Dis	4.86%	0.07%	0.36%	1.63%
	Others	0.46%	0.02%	0.00%	0.09%
Oceania Total		**6.52%**	**0.22%**	**0.37%**	**1.96%**
Grand Total		**100.00%**	**100.00%**	**100.00%**	**100.00%**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2005

Table 12A: 1975-2005 Disasters and Impacts by Disaster Classification and Income Level

Disaster Classification	Income class	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of DamageUS ('000s)
Geo Phy Dis	HI	173	10,604	6,052,601	247,796,421
	LI	268	340,791	51,180,173	41,360,509
	LMI	440	484,486	31,263,278	46,641,159
	UMI	130	36,105	4,851,981	25,219,560
Geo Phy Dis Total		**1,011**	**871,986**	**93,348,033**	**361,017,649**
Hyd Met Dis	HI	1,464	48,824	44,754,726	482,092,329
	LI	1,941	910,485	2,731,168,032	67,715,267
	LMI	1,883	130,152	2,317,587,367	255,310,850
	UMI	780	53,108	87,865,884	55,399,061
Hyd Met Dis Total		**6,068**	**1,142,569**	**5,181,376,009**	**860,517,507**
Others	HI	154	604	2,685,217	8,795,056
	LI	791	155,225	58,459,222	19,263,829
	LMI	211	16,860	5,530,802	618,074
	UMI	84	1,872	924,497	617,250
Others Total		**1,240**	**174,561**	**67,599,738**	**29,294,209**
Grand Total		**8,319**	**2,189,116**	**5,342,323,780**	**1,250,829,365**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2005

Table 12B: 1975-2005 Disasters and Impacts by Disaster Classification and Income Level (Percentages)

Disaster Classification	Income class	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of DamageUS ('000s)
Geo Phy Dis	HI	2.08%	0.48%	0.11%	19.81%
	LI	3.22%	15.57%	0.96%	3.31%
	LMI	5.29%	22.13%	0.59%	3.73%
	UMI	1.56%	1.65%	0.09%	2.02%
Geo Phy Dis Total		**12.15%**	**39.83%**	**1.75%**	**28.86%**
Hyd Met Dis	HI	17.60%	2.23%	0.84%	38.54%
	LI	23.33%	41.59%	51.12%	5.41%
	LMI	22.63%	5.95%	43.38%	20.41%
	UMI	9.38%	2.43%	1.64%	4.43%
Hyd Met Dis Total		**72.94%**	**52.19%**	**96.99%**	**68.80%**
Others	HI	1.85%	0.03%	0.05%	0.70%
	LI	9.51%	7.09%	1.09%	1.54%
	LMI	2.54%	0.77%	0.10%	0.05%
	UMI	1.01%	0.09%	0.02%	0.05%
Others Total		**14.91%**	**7.97%**	**1.27%**	**2.34%**
Grand Total		**100.00%**	**100.00%**	**100.00%**	**100.00%**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2005

Table 13A: 1975-2005 Disasters and Impacts by Income Level and Disaster Classification

Income class	Disaster Classification	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of DamageUS ('000s)
HI	Geo Phy Dis	173	10,604	6,052,601	247,796,421
	Hyd Met Dis	1,464	48,824	44,754,726	482,092,329
	Others	154	604	2,685,217	8,795,056
HI Total		**1,791**	**60,032**	**53,492,544**	**738,683,806**
LI	Geo Phy Dis	268	340,791	51,180,173	41,360,509
	Hyd Met Dis	1,941	910,485	2,731,168,032	67,715,267
	Others	791	155,225	58,459,222	19,263,829
LI Total		**3,000**	**1,406,501**	**2,840,807,427**	**128,339,605**
LMI	Geo Phy Dis	440	484,486	31,263,278	46,641,159
	Hyd Met Dis	1,883	130,152	2,317,587,367	255,310,850
	Others	211	16,860	5,530,802	618,074
LMI Total		**2,534**	**631,498**	**2,354,381,447**	**302,570,083**
UMI	Geo Phy Dis	130	36,105	4,851,981	25,219,560
	Hyd Met Dis	780	53,108	87,865,884	55,399,061
	Others	84	1,872	924,497	617,250
UMI Total		**994**	**91,085**	**93,642,362**	**81,235,871**
Grand Total		**8,319**	**2,189,116**	**5,342,323,780**	**1,250,829,365**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2005

Table 13B: 1975-2005 Disasters and Impacts by Income Level and Disaster Classification (Percentages)

Income class	Disaster Classification	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of DamageUS ('000s)
HI	Geo Phy Dis	2.08%	0.48%	0.11%	19.81%
	Hyd Met Dis	17.60%	2.23%	0.84%	38.54%
	Others	1.85%	0.03%	0.05%	0.70%
HI Total		**21.53%**	**2.74%**	**1.00%**	**59.06%**
LI	Geo Phy Dis	3.22%	15.57%	0.96%	3.31%
	Hyd Met Dis	23.33%	41.59%	51.12%	5.41%
	Others	9.51%	7.09%	1.09%	1.54%
LI Total		**36.06%**	**64.25%**	**53.18%**	**10.26%**
LMI	Geo Phy Dis	5.29%	22.13%	0.59%	3.73%
	Hyd Met Dis	22.63%	5.95%	43.38%	20.41%
	Others	2.54%	0.77%	0.10%	0.05%
LMI Total		**30.46%**	**28.85%**	**44.07%**	**24.19%**
UMI	Geo Phy Dis	1.56%	1.65%	0.09%	2.02%
	Hyd Met Dis	9.38%	2.43%	1.64%	4.43%
	Others	1.01%	0.09%	0.02%	0.05%
UMI Total		**11.95%**	**4.16%**	**1.75%**	**6.49%**
Grand Total		**100.00%**	**100.00%**	**100.00%**	**100.00%**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2005

Table 14A: 1975-2005 World Disaster Classification and Impact Characteristics by Disaster Classification and Human Development Level

Disaster Classification	Human development	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of DamageUS ('000s)
Geo Phy Dis	HHD	213	10,962	7,944,521	249,983,581
	LHD	79	88,433	6,737,499	5,564,000
	MHD	719	772,591	78,666,013	105,470,068
Geo Phy Dis Total		**1,011**	**871,986**	**93,348,033**	**361,017,649**
Hyd Met Dis	HHD	1,748	55,890	64,130,864	513,439,004
	LHD	1,113	781,851	709,221,031	24,383,318
	MHD	3,207	304,828	4,408,024,114	322,695,185
Hyd Met Dis Total		**6,068**	**1,142,569**	**5,181,376,009**	**860,517,507**
Others	HHD	181	875	2,892,354	9,372,806
	LHD	569	117,524	37,884,934	106,930
	MHD	490	56,162	26,822,450	19,814,473
Others Total		**1,240**	**174,561**	**67,599,738**	**29,294,209**
Grand Total		**8,319**	**2,189,116**	**5,342,323,780**	**1,250,829,365**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2005

Table 14B: 1975-2005 Disasters and Impacts by Disaster Classification and Human Development Level (Percentages)

Disaster Classification	Human development	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of DamageUS ('000s)
Geo Phy Dis	HHD	2.56%	0.50%	0.15%	19.99%
	LHD	0.95%	4.04%	0.13%	0.44%
	MHD	8.64%	35.29%	1.47%	8.43%
Geo Phy Dis Total		**12.15%**	**39.83%**	**1.75%**	**28.86%**
Hyd Met Dis	HHD	21.01%	2.55%	1.20%	41.05%
	LHD	13.38%	35.72%	13.28%	1.95%
	MHD	38.55%	13.92%	82.51%	25.80%
Hyd Met Dis Total		**72.94%**	**52.19%**	**96.99%**	**68.80%**
Others	HHD	2.18%	0.04%	0.05%	0.75%
	LHD	6.84%	5.37%	0.71%	0.01%
	MHD	5.89%	2.57%	0.50%	1.58%
Others Total		**14.91%**	**7.97%**	**1.27%**	**2.34%**
Grand Total		**100.00%**	**100.00%**	**100.00%**	**100.00%**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2005

Table 15A: 1975-2005 Disasters and Impacts by Human Development Level and Disaster Classification

Human development	Disaster Classification	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of DamageUS ('000s)
HHD	Geo Phy Dis	213	10,962	7,944,521	249,983,581
	Hyd Met Dis	1,748	55,890	64,130,864	513,439,004
	Others	181	875	2,892,354	9,372,806
HHD Total		**2,142**	**67,727**	**74,967,739**	**772,795,391**
LHD	Geo Phy Dis	79	88,433	6,737,499	5,564,000
	Hyd Met Dis	1,113	781,851	709,221,031	24,383,318
	Others	569	117,524	37,884,934	106,930
LHD Total		**1,761**	**987,808**	**753,843,464**	**30,054,248**
MHD	Geo Phy Dis	719	772,591	78,666,013	105,470,068
	Hyd Met Dis	3,207	304,828	4,408,024,114	322,695,185
	Others	490	56,162	26,822,450	19,814,473
MHD Total		**4,416**	**1,133,581**	**4,513,512,577**	**447,979,726**
Grand Total		**8,319**	**2,189,116**	**5,342,323,780**	**1,250,829,365**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2005

Table 15B: 1975-2005 Disasters and Impacts by Human Development Level and Disaster Classification (Percentages)

Human development	Disaster Classification	Count of DisNo	Sum of Killed	Sum of TotAff	Sum of DamageUS ('000s)
HHD	Geo Phy Dis	2.56%	0.50%	0.15%	19.99%
	Hyd Met Dis	21.01%	2.55%	1.20%	41.05%
	Others	2.18%	0.04%	0.05%	0.75%
HHD Total		**25.75%**	**3.09%**	**1.40%**	**61.78%**
LHD	Geo Phy Dis	0.95%	4.04%	0.13%	0.44%
	Hyd Met Dis	13.38%	35.72%	13.28%	1.95%
	Others	6.84%	5.37%	0.71%	0.01%
LHD Total		**21.17%**	**45.12%**	**14.11%**	**2.40%**
MHD	Geo Phy Dis	8.64%	35.29%	1.47%	8.43%
	Hyd Met Dis	38.55%	13.92%	82.51%	25.80%
	Others	5.89%	2.57%	0.50%	1.58%
MHD Total		**53.08%**	**51.78%**	**84.49%**	**35.81%**
Grand Total		**100.00%**	**100.00%**	**100.00%**	**100.00%**

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2005

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 2005 show that disaster management and post-disaster activities are crucial to sustainable development. In 2005, 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. Hence, disaster mitigation and management strategies must incorporate these components to create a holistic disaster management approach that includes strategies for sustainable development.