Chapter 2: Natural Disasters and Sustainable Development

UN organizations, various international institutions, and governments have placed importance on natural disasters and sustainable development. Hence, it is of paramount importance to analyze disaster trends in relation to variables of sustainable development, mainly human development and economic factors of the countries, especially the disaster affected ones. Following sections will discuss these trends with appropriate graphs.

2.1 Human Development and Natural Disasters:

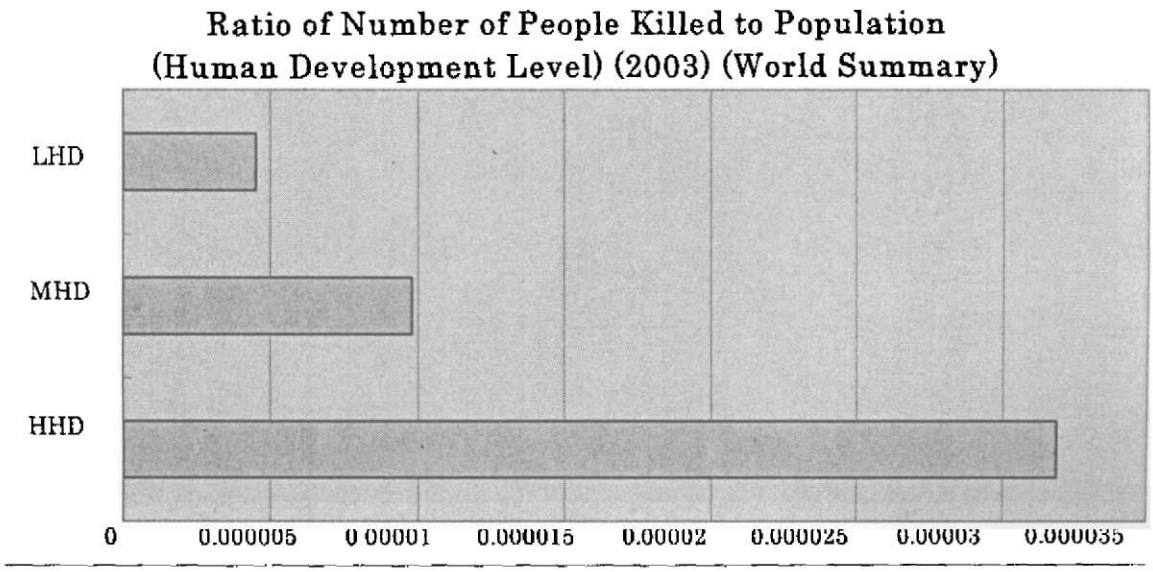
The Human Development Level of a country refers to the literacy rate and gross school enrolment rate, per capita income, and health quality of that country. These variables are significant to disaster mitigation, preparedness planning, and disaster reduction and management strategies. Higher Human Development Levels will make these planning and management strategies and follow-up activities easier even in post disaster periods. Human Development Levels are categorized as high (Human Development Index; HDI above 0.8), medium (HDI between 0.5 and 0.79) and low (HDI less than 0.5), in accordance with UNDP specifications. In this section, disaster characteristics are subsequently calculated according to these Human Development Levels.

Income levels are also categorized as high (per capita income US$ 9,266 and above), upper middle (per capita income US $2,996- US $9,265), lower middle (per capita income US $756- US $2,995) and lower (per capita income less than US $755) according to World Bank definitions Disaster characteristics are identified in accordance to these income level specifications. The following figures illustrate these factors at world and Asian regional levels

Figure 9 to 12 indicate the relationship between the Human Development Level of the country and the impact of human suffering from disasters on society Accordingly in 2002, it was quite

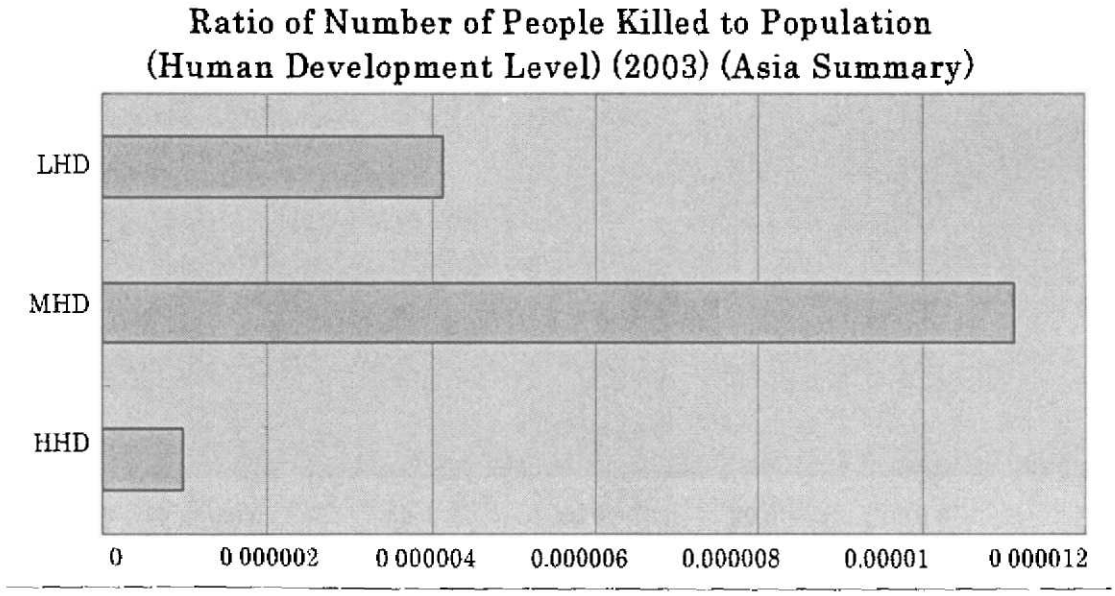
evident that human loss and suffering were considerably higher in countries with low human development (LHD) as the ratio of those killed and affected by disasters to total population in LHD countries was considerably higher than medium human development (MHD) or high human development (HHD) countries. But in 2003 this trend is changed drastically for World perspective. Due to the unexpected heat wave in the HHD countries in Europe, there were huge human sufferings in those countries. Since the human development index is considered for literacy rate, life expectancy, and the per capita income, improvements, these variables could contribute immensely to reducing the impact of natural disasters in a country. Though in 2003 HHD countries suffered much human loss in relation to their population size, it is seen here that developing and under developed countries mostly posses low and medium Human Development Levels in Asia and throughout the world, causing elevated levels of human loss in these countries thus urging better disaster management approaches in these regions. It is also quite evident from the following figures that the ratio of *totally* affected people to population is still high in the MHD and LHD countries stressing the importance of mainstreaming the disaster reduction issues into national policy

Figure 9:



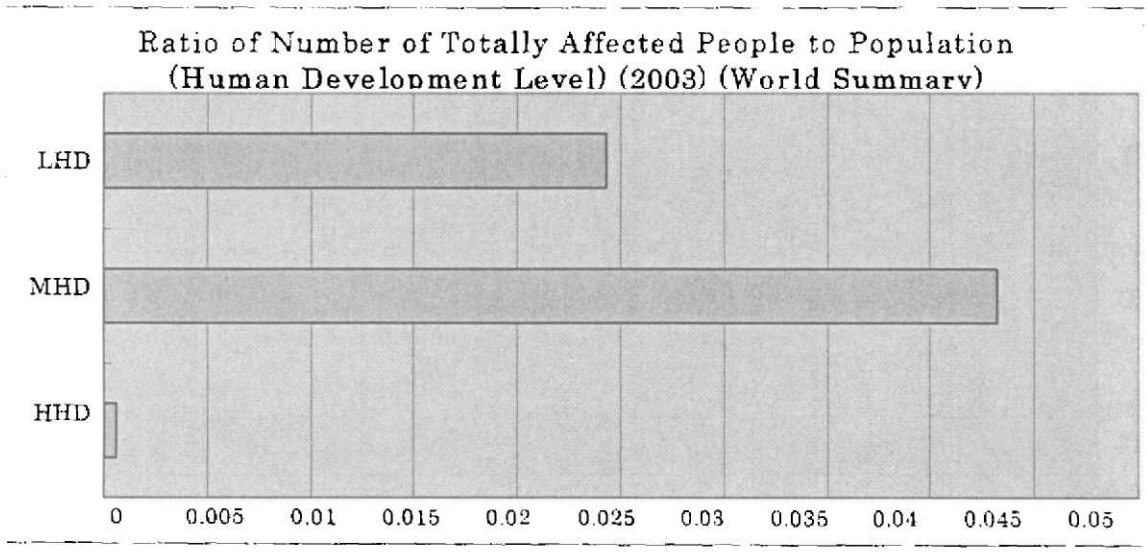
Source: ADRC, Japan, CRED-EMDAT, Universite Catholique de Louvain, Brussels, Belgium and UNDP, 2003

Figure 10:



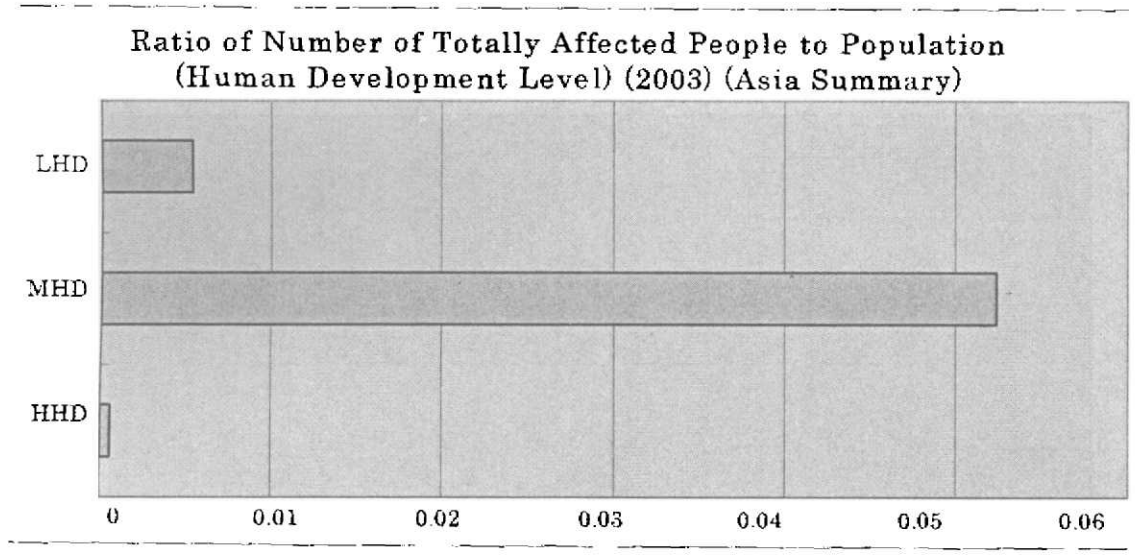
Source: ADRC, Japan, CRED-EMDAT, Universite Catholique de Louvain, Brussels, Belgium and UNDP, 2003

Figure 11:



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

Figure 12:



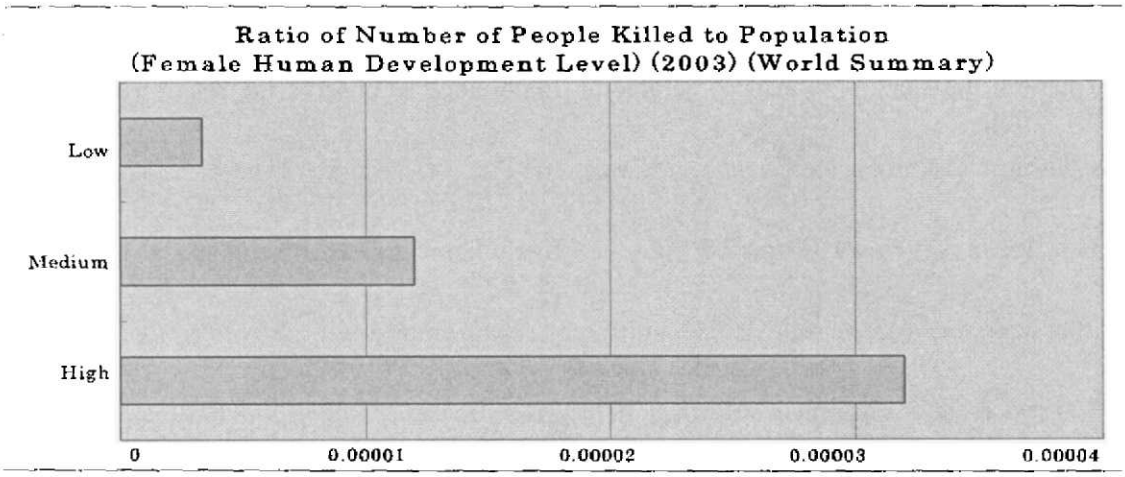
Source: ADRC, Japan, CRED-EMDAT, Universite Catholique de Louvain, Brussels, Belgium and UNDP, 2003

2.2 Gender Issues and Natural Disaster Impact:

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 to observe the relationship between gender issues and the impact of natural disasters. Here we have observed the Female Human Development Index, which was extracted from the general Human Development Index, in relation to disaster characteristics. Generally it is understood that countries with lower female human development report the most human suffering, as the ratios of *totally* affected and killed people to the total population respectively is very high in comparison with countries with higher female human development levels. The trend is very similar to the trend in general human development. But in 2003 the ratio of number of killed to population is high in the High Female Human Development countries due to the heat wave human loss in the Europe and high in the Medium Level countries for Asia, especially due to the Iran earthquake and China Flood (Figure 13 & 14). Also the ratio of *totally* affected people to population is high in the Medium Human Development Countries as shown in the Figures 15 and 16. These figures point out and stress the importance of gender related planning and mitigation strategies and approaches in the field of disaster management not only in the Low and Medium Female Human Development countries but also in the High level countries.

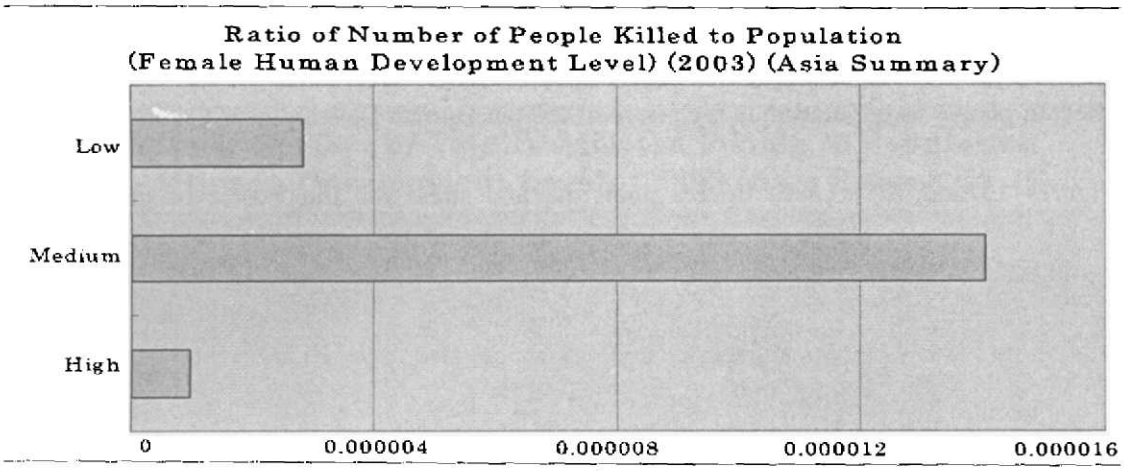
It is known that gender powerfully shapes human response to disasters, both directly and indirectly. Also it has been found that women are hit hard by the social impacts of disasters. From these analyses we could say that women should play a major role in post disaster activities if proper integration of gender issues into disaster management is achieved. The fact 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 strategy, it is imperative to prevent gender bias and ensure women participation.

Figure 13:



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

Figure 14:



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