

Fig.1-17 ~ 1-19 show the relation between Human Development Index (HDI) proposed by UNDP and natural disasters.

This index indicates development levels of the countries as average life expectancy, literacy rate, rate of proceeding to higher education and GDP per person. According to the figures, it is seen that damages by natural disasters are closely related not only to poverty, but to education and hygienic conditions, and also the impact of natural disasters on such countries in the lower HDI index is much higher.

The relation between Women's Human Development Index in countries and the number of affected people by natural disasters is also shown in Fig.1-21 ~ 1-22, to see the correlation between gender and natural disasters.

Correspondingly, it is said that people in countries on lower Women's Human Development Index are more affected by natural disasters, thus indicating the importance of post disaster period.

一方、国連開発計画（UNDP）の提唱する人間開発指標（Human Development Index）と、自然災害の関係を見たものが、Fig.1-17 ~ 1-19 である。

この指標は、平均余命と識字率・進学率、一人当たり GDP からなるその国の人の開発度を示すものである。このグラフから、自然災害による被災は、単に貧困度のみならず、教育や衛生状態などとも密接に関連があり、HDI 指標の低い国に自然災害の被害が集中していることがわかる。

また、いわゆるジェンダー問題と自然災害の相関を見るために、各国の女性の人間開発指標 HDI 指標と自然災害による被災者数の関係を Fig.1-21 ~ 1-22 に示した。

同様に女性の開発度の低い国ではより自然災害による被災者が多いことがわかる。

Fig.1-17

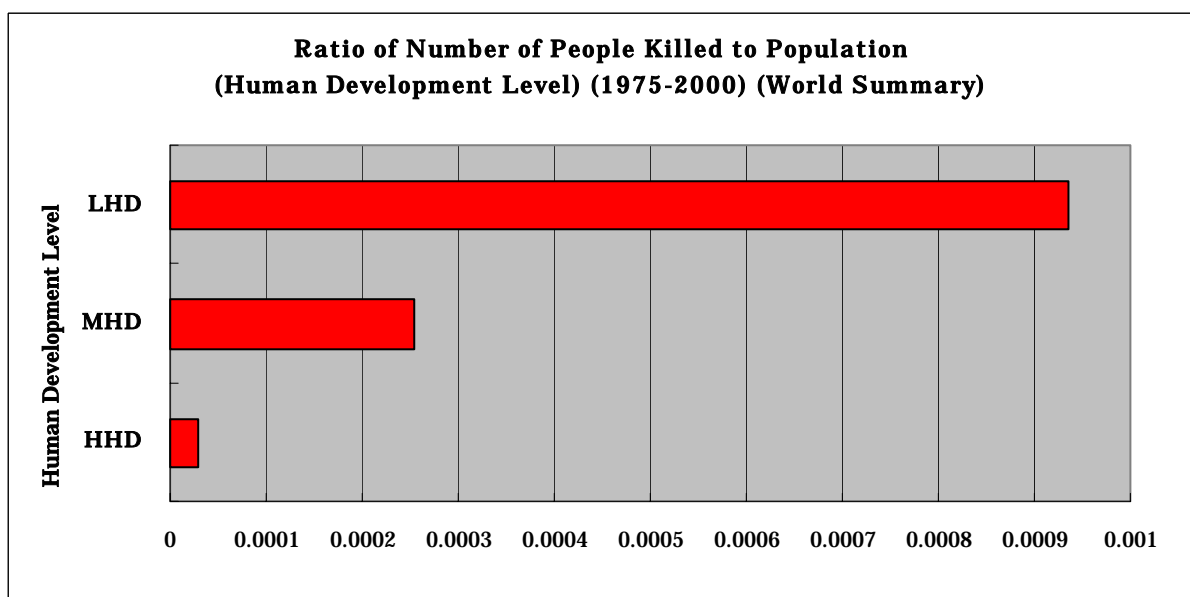


Fig.1-18

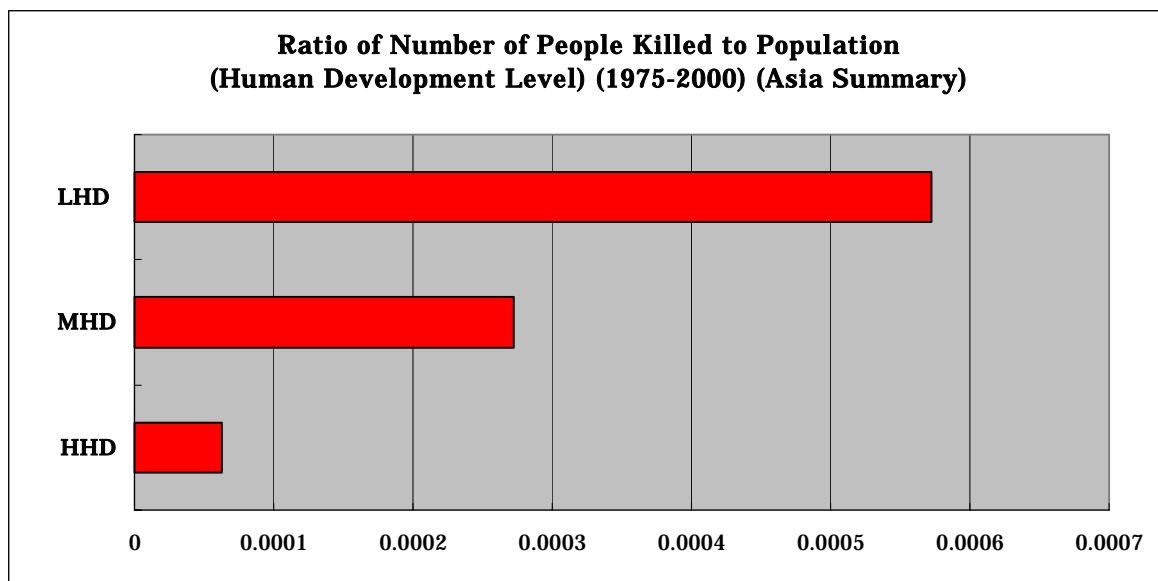
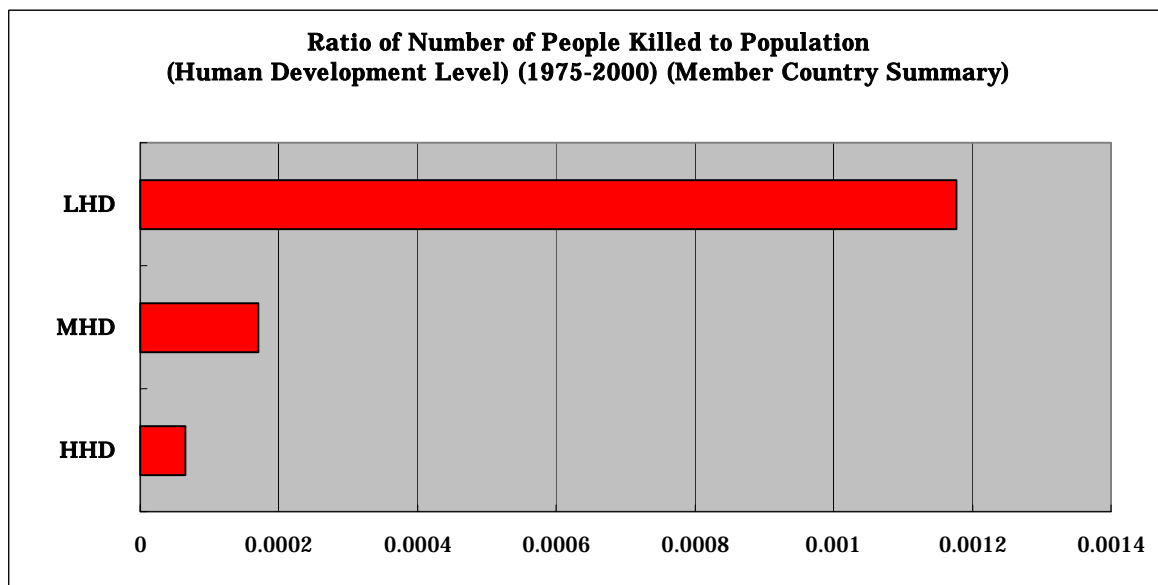


Fig.1-19



Cf. HDI

INDICATOR	MAX. VALUE	MIN. VALUE
Life Expectancy at Birth (years)	87.5	27.5
Adult Literacy Rate (%)	100	0
Cobined Gross Enrolment Rate (%)	100	0
Estimated Earned Income (PPP US\$)	40,000	100

LHD: Low Human Development (HDI < 0.5)

MHD: Medium Human Development (0.5 ≤ HDI < 0.8)

HHD: High Human Development (HDI ≥ 0.8)

Fig.1-20

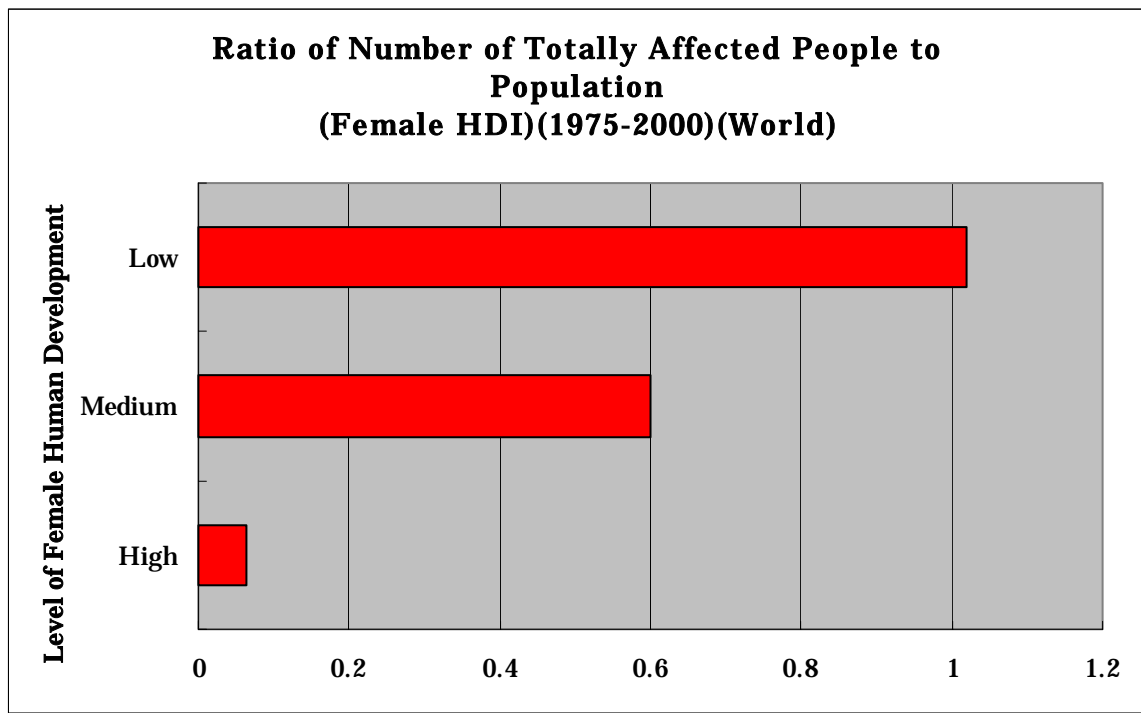


Fig.1-21

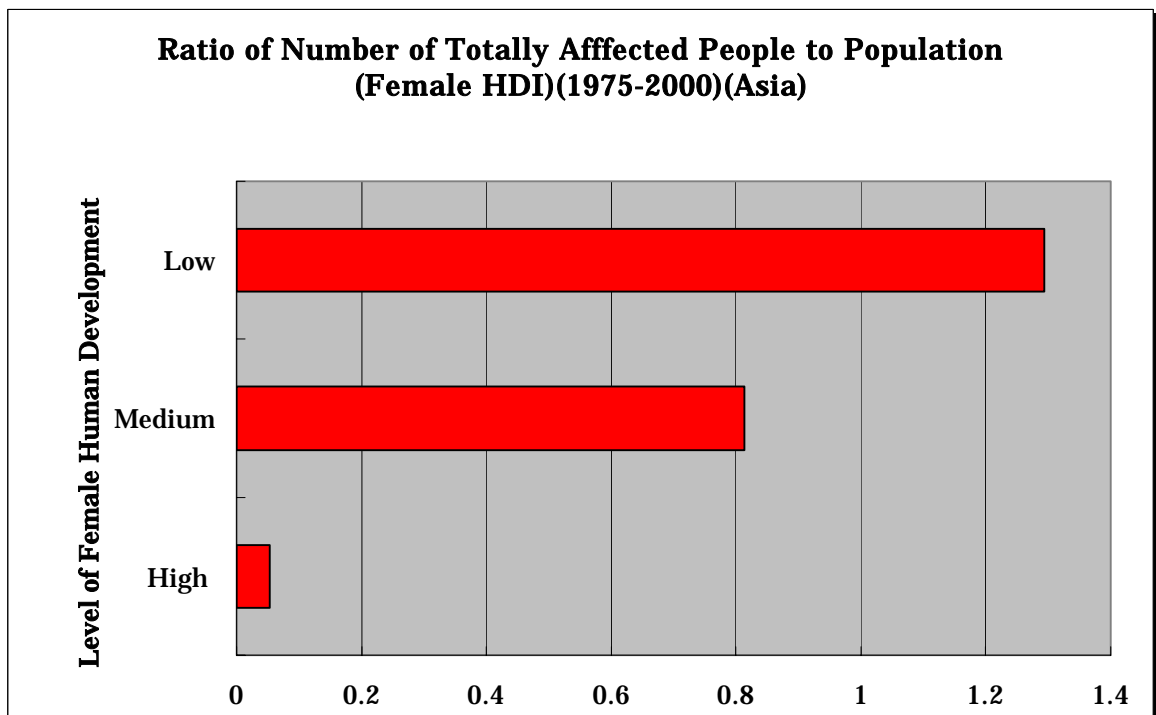


Fig.1-22 is a table showing the past major disasters. The right section of the table depicts the comparison between the amount of the economic losses and GDP in countries and it makes clear that Mongolia lost 1.5 times of their GDP due to only one time of wild fire.

As seen above, “disaster management” plays a crucial role for “sustainable development”. Impact of natural disasters is also closely related to “poverty”, “education”, “health care and hygiene” and “gender” problems. Hence, it is crucial not only to promote disaster management measures, but also to lift up the whole society from the bottom with cooperation from the sectors such as “social and economical development”, “education”, “health care and hygiene” and “advancement of women’s status” for natural disaster mitigation.

Fig.1-22 は、過去の大きな災害の一覧表である。右の欄は、自然災害の被害額と国の GDP 等を比較した数字であるが、これを見ればモンゴルの森林火災では実に GDP の 1.5 倍もの被害があった 1 回の自然災害によって引き起こされたことがわかる。

以上のように、「持続可能な開発」にとって、「防災」は極めて重要な鍵となっている。また、自然災害は、「貧困」、「教育」、「保健・衛生」、「ジェンダー問題」などと極めて強い相関があり、自然災害軽減のためには、単に防災対策を進めるだけではなく、「社会・経済の開発」、「教育」、「保健・衛生」、「女性の地位向上」など多様な機関と協力し、社会全体の底上げを図ることが不可欠である。

Fig. 1-22

Top 10 Severest Disasters According to the Ratio of Amount of Damage to GDP
(Member Country Summary 1975-2000)

Rank	Country	DisType	Year	Killed	TotAff	Damage (Mn US\$)	GDP (MnUS\$)	Dam/GDP
1	Mongolia	Forest Wild fire	1996	25	5,061	1,712.800	1,180.00	1.452
2	Armenia(Soviet Union)	Earthquake	1988	25,000	1,642,000	20,500.000	16,900.00	1.213
3	Tajikistan	Flood	1992	1,346	63,500	300.000	290.00	1.034
4	Mongolia	Winter Wind storm	2000	4	500,000	875.000	1,000.00	0.875
5	Nepal	Flood	1987	188	351,000	727.500	2,930.00	0.248
6	Lao, P Dem Rep	Wind storm	1993	8	120	302.151	1,330.00	0.227
7	Tajikistan	Flood	1993	5	75,357	149.000	680.00	0.219
8	Myanmar	Flood	1991	23	359,976	498.800	2,380.00	0.210
9	Nepal	Earthquake	1980	100	275,600	245.000	1,840.00	0.133
10	Tajikistan	Landslide	1992	243		24.100	290.00	0.083

Source: ADRC, Japan based on CRED-EM- DAT data base, 2001, HDI of UNDP, World Bank and World Fact Book, CIA 2001