

The social nature of exposure, vulnerability and responses to disaster

Kenneth Hewitt for MRI International Workshop, 'GAPHAZ' Vienna, November 2009)



“Socio-economic analysis of disaster potential and mitigation”...

➤ society > hazards > risk > disasters > society > hazards >



I. The social nature of risk and disasters

- A social approach is primarily concerned with “Whose risks? Whose disaster losses?” It focuses on the nature and roles of the social order, settlement patterns, land use, development...
- We investigate whether and how material life, institutional and cultural conditions, enter into and affect risk, protections, preparedness...
- The key questions are whether and how peoples’ social profiles, gender, age, status, belief systems, predicaments; (lack of) resources and capacities, (absent) protections, **are critical for who is at risk; to losses and survival in disasters**

Unfortunately...!

Social Risk Indicators? **Indiscriminate hazards, discriminating damages**

Disproportionate losses by age, gender, ethnicity, employment...

- 2005 Indian Ocean tsunami
two to five times more women killed than men in communities from Aceh to India
- 2005 earthquake in northern Pakistan, reports suggest:
 - i) **children comprised half of over 75,000 deaths**
 - ii) **more women died** than men
 - iii) **between 17,000 and 20,000 'students' and many teachers killed**
 - iv) **1,000+ destroyed health facilities**; high casualties of health care workers and patients
- 2005 hurricane 'Katrina', USA
 - i) **over 50% of the dead were elderly (70+yrs) ; exceptional toll among the disabled**
 - iii) concentration of casualties, lost homes and livelihoods **among African Americans**
- 2001 earthquake Gujarat, India
 - i) **children comprised half** of more than 20,000 dead, mainly due to collapse of homes
 - ii) over **1,200 health facilities** destroyed or severely damaged
- 1995 earthquake Kobe, Japan
of 6,000+ killed **60% women; 53% elderly (65yr+)**
- 1991 cyclone, Bay of Bengal
 - i) roughly **90% of some 140,000 deaths said to be women and children**
 - ii) **women's casualties two to three times higher** than men

UNACCEPTABLE DAMAGES?

Earthquakes casualties in and/or destruction of schools, that failed to meet established building standards

- **2007, Sechuan, China (70,000+ killed; 375,000 inj.; 4.8 million homeless)**
19,000 + schoolchildren died in school buildings; collapse of some 7,000+ “inadequately engineered” school rooms
- **2005 northern Pakistan (75,000+ k.)**
17,000+ ‘students’ and many teachers reported killed. 10,000+ school buildings destroyed
- **2005 Indian Ocean tsunami**
in Sumatra children 50%+ of 110,00 deaths, 420 schools destr, 1,000+ teachers killed
- **2001 El Salvador, Jan, 13th + Feb. 13th (2,760 killed)**
465 schools destroyed, 2,216 damaged
- **2001 earthquake Gujarat, India (18,253k.; 167,000 inj.; 332,200 homes destr.)**
4000 school rooms destroyed or severely damaged
- **1999 Izmit (Kocaeli), Turkey, (17,000+ k.; 40,000+ inj.; 600,000 homeless) ***
78 schools damaged beyond repair; 499 needed repair or reconstruction. Schools closed for 4 months.
- **1998 East Nepal (722 killed, 1,200 injured)**
1,200 schools destroyed or heavily damaged.
- **1993 Latur-Osmanabad, Maharashtra, India (8,311 killed; 48 % all deaths were <14 years of age).**
Many schools destroyed. Prosecutor General threatens suit against contractors.
- **1992 Dahahour, Cairo, Egypt (560 killed, 6,500 injured, 40,000 homeless)**
Appr. 1,500 schools destroyed or damaged beyond repair; 3,500 needing major repair.
- **1988 Spitak, Armenia (55,000 killed, 130,000 injured, 250,000+ homeless; 32,000 children evacuated)**
65% of deaths children and adolescents, mostly in collapsed school buildings.

* In Turkey destroyed “modern” buildings, including schools that did not meet codes, were reported in disasters of 1967 (Mudurnu valley), 1970 (Gediz), 1972 (Burdur), 1972 (Bingol), 1974 (Izmir), 1975 (Lice), 1976 (Muradiye-Calidran), 1983 (Erzurum), 1992 (Erzincan), and 1995 (Dinar).

Definitively social?

- However, the data given so far are demographic, economic statistics; rough, impersonal estimates rather than being **strictly 'social'**.
- The truly social nature of losses emerges in the disasters cited because:
 - not all schools and groups of children in those events were victims;
 - not all women in Aceh;
 - not all women and elderly groups in Kobe;
 - not all elderly or African Americans in New Orleans....

Rather, most came from the least wealthy and influential groups; people forced to live in unsafe houses, engaged in more dangerous activities, with limited options, and/or who were neglected in the crisis itself.

- Again, part of the problem for mountain areas is lack of **detailed social information tied to losses**. Hence...

The KOBE (“Great Hanshin”) Earthquake

Societal Damage summary

LOSSES

- Deaths 6,430 (5,300 in Kobe itself)
- Injured 43,773
- Housing destroyed or severely damaged 149,000 units
- Homeless seeking shelter 320,000
- Estimated economic losses US\$100 billion+ (mainly port facilities destroyed)

FATALITIES: some socially significant details

- 86.6% died in their homes
- 60% were female
- 53% were elderly (over 60 yrs)
- 32% were aged (over 70 yrs)
- 10% were children (under 15 years)
- 10%+ of deaths were due to fire
- 90% of deaths were concentrated in less than 10% of the urban area, and an even smaller part of the zones of strong ground motion

A GENERAL CONCLUSION

- *“... the chief victims of the Kobe earthquake were the low income older people who lived in low rent, dilapidated housing.” (Ken’ichi Miyamoto, 1996: 8)*

KOBE Earthquake Discriminating damage



This was not primarily a 'physical' or geophysical disaster, but one of the social space of vulnerability within the city ...



Another
important
social reality

Success stories and
'Discriminating'
survivals

From the hills above Kobe you see little evidence of the disaster, for two main reasons:

1. Most of what is here passed through the earthquake undamaged and without casualties (see at right also).
2. Thus, Kobe was also a testament to the remarkable disaster prevention possibilities of modern earthquake-resistant construction where it was applied



And, 'discriminating' reconstruction



Huge investment in major structures



Seven years after, in the hardest hit areas, abandoned lots or small, self-help housing

“... as time passed, economic disparities became palpable: in short, the poor looked on while the rich built new houses.” (A priest from Nagata Ward, qu. Oserdem and Jacoby, 2006, 43).

II. The Perspective of Social Vulnerability

In this view, the expanding scope of today's disasters generally and risks from climate change mainly reflect:

- greater numbers and concentrations of vulnerable people in dangerous situations (1)
- developments that increase vulnerability by gender, class, employment, ethnicity, religion, region, etc. (2)
- multiplying risks and losses associated with modern development and social upheavals, from urbanization and militarization to habitat damage unconstrained by safety concerns (4)

and, for these reasons,

- more disasters are being caused by smaller geophysical events, or greater devastation in less extreme parts of large ones (5)

all of which reflects, especially,

- failure to implement or enforce protections for the more vulnerable sectors (6)
- failure to recognise and support the role of community-based response capacities

I SUGGEST THE SAME APPLIES AND IS DECISIVE FOR GLACIER HAZARDS AND CHANGE IN THE MOUNTAINS

Disasters and development:

a critical relationship according to UNDP (2004)

- “ ...While only 11 percent of the people exposed to natural hazards live in low human development countries they account for more than 53 percent of recorded deaths. Development status and disaster risks are closely linked...”
- “Natural disasters destroy development gains, but development processes themselves play a role in driving disaster risks...The roots of much disaster risk can be traced to historical development decisions ...”
- “... disaster risk reduction [often] falls in the cracks between development planning and disaster response...”
- Risks from environmental change in mountains involve similar issues

III. The mountain context

A Case Study: glacier change, landslides and risk in the Hopar villages, Karakoram Himalaya





The abandoned Shishkin settlement, opposite Hopar



Some findings



On the landslides:

1. The main impacts of the landslides are in land loss, damage to irrigation systems and access to resources along glaciers
2. We can model, monitor, perhaps forecast the landslides, but there is absolutely no prospect of stopping them

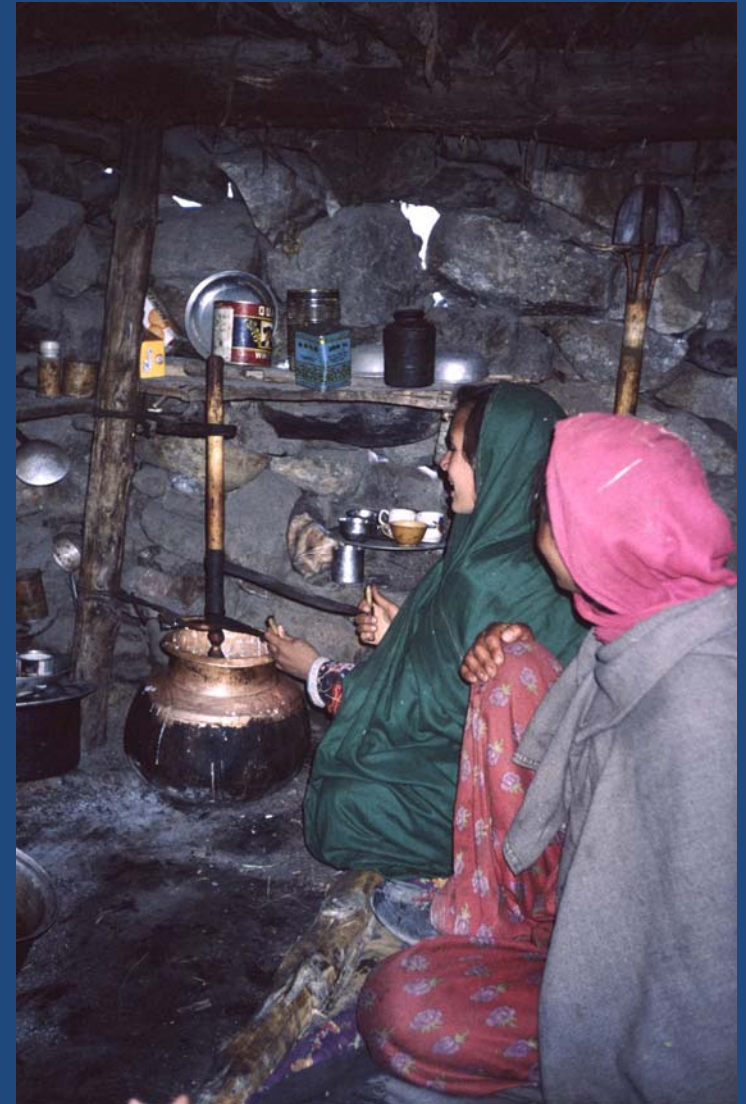
Counterfactual findings:

- i. Away from the villages even more land has been abandoned recently than is lost to the landslides
- ii. There is plenty of land available for reclamation and water to irrigate it – but that is men's work
- iii A major effort in opening up new land did occur after a 1980s flood which killed 25 persons but with small land loss – because disaster funds were made available to pay menfolk

The 'real' disaster?

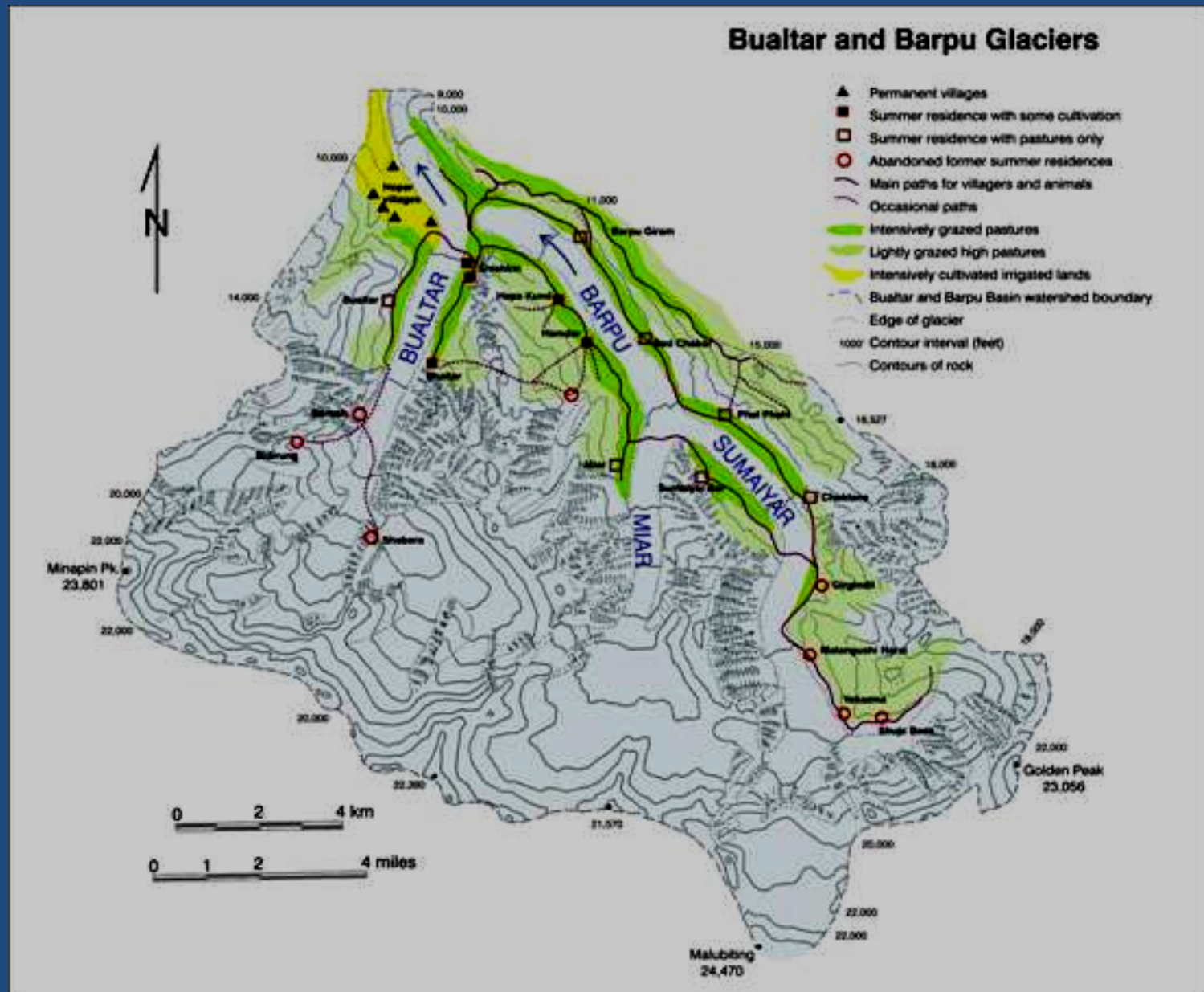
"hidden hazards, shadow risks"

The landslides turned out to be a major if indirect factor in over-work, ill-health and short life span among village women.



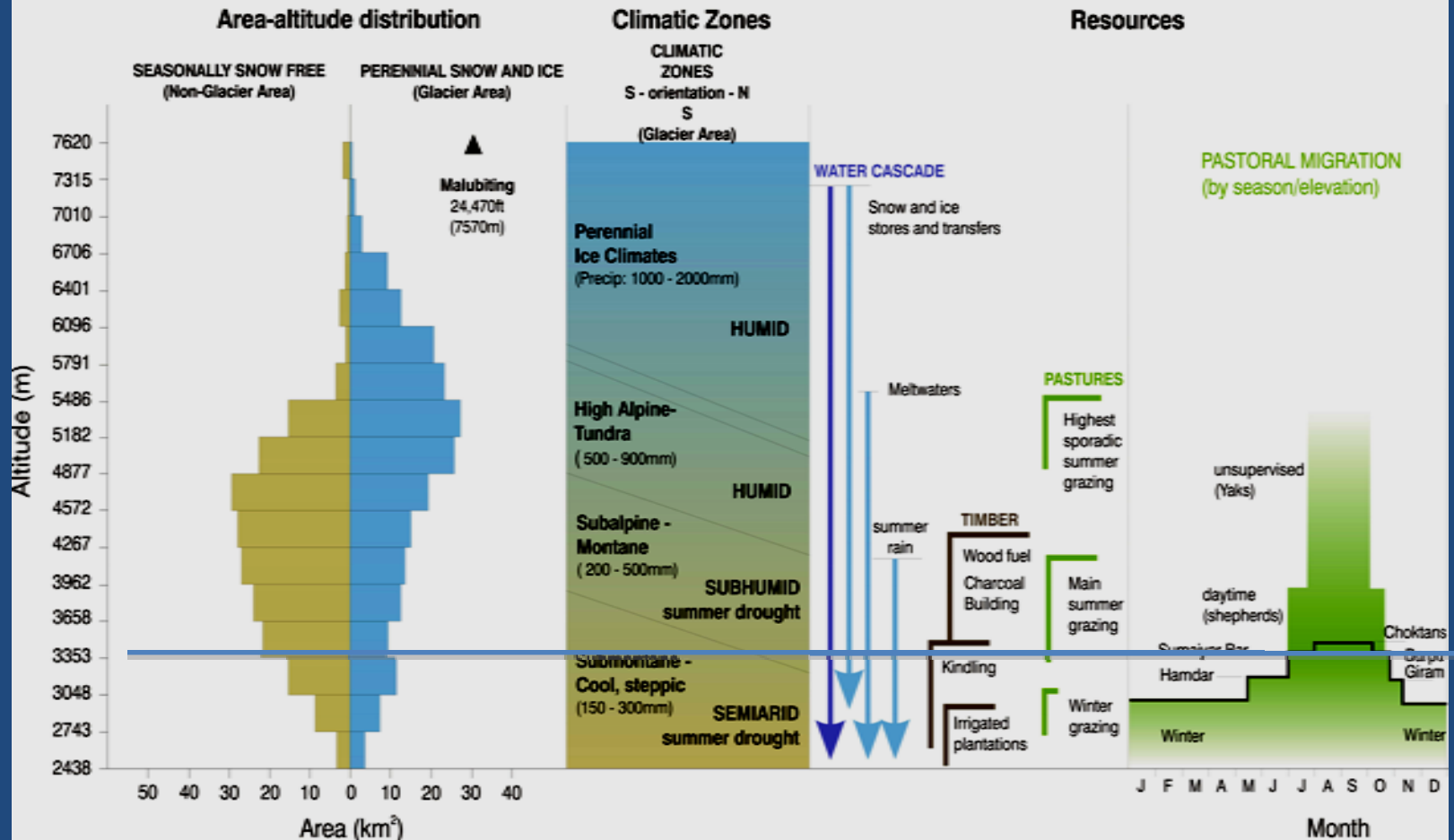
“...addressing the root causes of gendered disaster vulnerability means challenging the social forces sustaining male privilege... **social justice is the linchpin of effective disaster mitigations.**”
(Enarson and Morrow, 1998, 226)

First steps to defining the social space of a glacier?



BUALTAR/BARPU BASINS

Glacier and elevation relations of human activities



Men's spaces

Women's spaces

CONCLUDING REMARKS

Social risk and disaster in a context of changing climates and glacier hazards?

- “...Given the evidence that many risks (in mountain ecosystems) already threaten women disproportionately; and also the elderly, disabled, and indigenous groups, especially their poorer members; **identifying changes in the cryosphere and alpine ecosystem most likely to affect them is of utmost importance...**
(ICIMOD, JUNE 2007)
- While knowledge of glacial and other processes is very important, there is a need to counteract how it can serve **to detach glacial hazards from their human and cultural -- not to say political and rights -- contexts.**

Recommendations?

Leading studies and international agencies support more socially inclusive, multi-disciplinary, multi-sectoral approaches to risk and disasters

- “...Disaster mitigation and preparedness must form part of the wider context of risk reduction – relevant to all those working in hazardous regions, whether in relief, development, business, civil society or government.”
(IFRCRCS, 2002, 9, emphasis added)
- “Natural disasters destroy development gains, but development processes themselves play a role **in driving disaster risks**... (p.15)
“**The roots of much disaster risk can be traced to historical development decisions** (25)
(UNDP, 2004)
- “It is vital that... those involved in disasters work accept that the reduction of disasters is about **reducing vulnerability**, and that this involves **changing the processes that put people at risk**. (Blaikie et al, 1993, 219)
- “Since failures occur in all systems, means to recovery are critical.” (Perrow, 1984, 92)

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