



Social Impact Conceptual Model and Framework

1) Introduction : Two approaches to Disaster:

We enter the discussion by distinguishing between two major approaches to conceptualising disasters: the natural hazards paradigm and the political economy paradigm out of which has developed the vulnerability approach. It is the latter approach which most closely characterises the work of the Microdis project. A brief explanation of each follows.

The major thematic areas of the natural hazards paradigm, indicating where it would see appropriate interventions, include:

- Identification and mapping of the human occupancy of the hazard zone
- Identification of the full range of adjustments to the hazard
- Description of the processes whereby mitigation measures are adopted
- Identification of the optimal set of adjustments to hazards - what people know and actually do

(See: Burton, I, R Kates, and G White. 1993; and Cutter 2002)

Geographers have commonly used the term 'natural' within hazards research which denies human agency in hazard and disaster causation. There is much talk of natural hazards as 'acts of God' but also recognizing the losses arising from them as 'acts of man' [sic]. However, such are the interactions with and impacts upon 'natural' geophysical systems that it has become increasingly inappropriate to use the word 'natural' for either the triggering event or the resulting loss. These must be seen as, at best, quasi-natural hazards in most circumstances.

The term 'natural' becomes even less appropriate when attached to disasters - the sometimes catastrophic outcome of hazards. Disasters are more often associated with vulnerability, dependence and marginalisation and arise largely as a consequence of socio-economic rather than natural factors (Winchester, 1992; Susman et al, 1983; O'Keefe et al, 1976). Use of the word 'natural' can suggest an event for which nobody is to blame. Particularly in the early hazards work - the "dominant view" (Hewitt 1983) - quantitative measurement techniques were favoured and these concentrated explanation on the individual, to the neglect of the socio-political-economic context. The theoretical underpinnings of the dominant paradigm lie with behavioural geography which concentrates on *choice* – choice of location in hazardous areas; choice of 'adjustment' to the hazard; etc. - when, in light of power relations in society, a more realistic focus should be on *constraint* arising from inequalities in social structures.

The critique of the technocratic dominant paradigm led by Hewitt (1983) has resulted in the development of an alternative approach - socio-political, or structural, which is focused at the societal level on the ways that social, economic and political systems create and perpetuate hazards and vulnerability. This approach is closely allied to development theory and much work has applied the theory to less economically developed countries in the global south. However, the theory or approach is just as relevant globally. Solutions within this approach examine the basic questions of political economy and the ways that inequality and poverty cause vulnerability and disaster. Understanding the 'natural' hazard trigger is just the first step and not necessarily the most important one.

This is clearly demonstrated through the '*pressure and release model*' (PAR) (Blaikie et al 1994; Wisner et al 2004a) which shows how:

"...`underlying factors' and *root causes* [such as limited access to power and resources] embedded in everyday life give rise to '*dynamic pressures*' [such as a lack of institutions or training or rapid population growth] affecting particular groups, leading to specifically '*unsafe conditions*' [such as unprotected buildings or low income or lack of disaster preparedness]. Being at risk of disaster is shown to be the chance that the characteristics of people generated by these political-economic conditions coincide in time and space with an extreme 'trigger event' natural *hazard* to which they have been made vulnerable" (p.12). This is captured in the pseudo-equation:

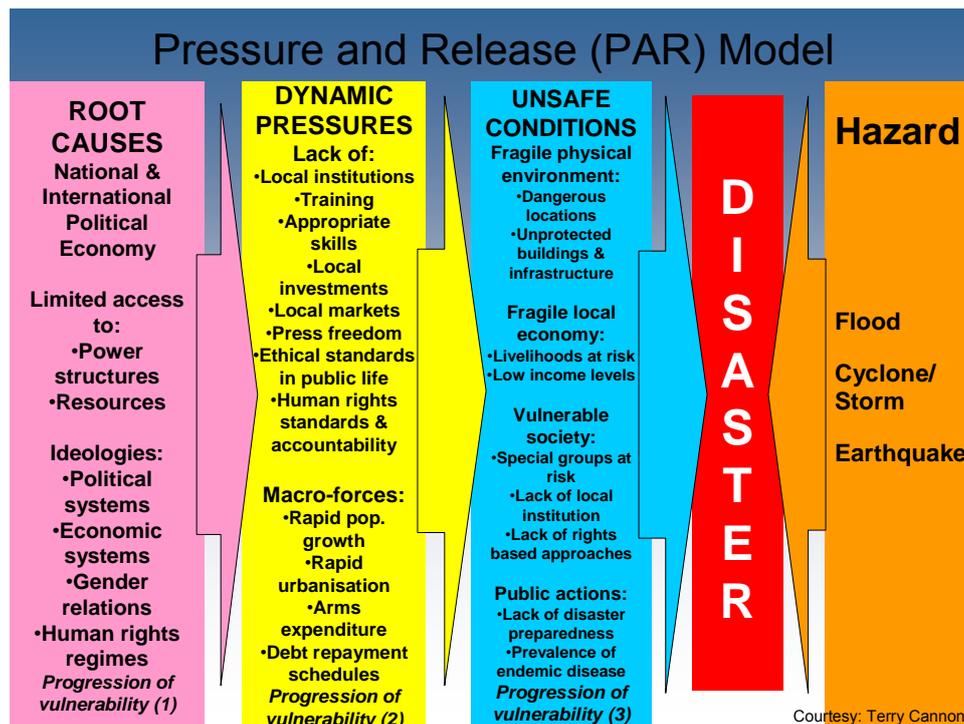
$$RISK = HAZARD \times VULNERABILITY$$

PAR also uncovers the idea of 'social vulnerability' and suggests that it is social and not natural causes which have led to the disasters.

2) Developing a conceptual Frame : Situating Microdis in the larger debate on disasters:

The paradigm shift from natural hazards to socio structural means a reconceptualising of the risk factors. As socio-political constructs, in this new paradigm 'vulnerability' and 'resilience' of the individuals, households, and communities can be understood as a net result of systemic pressures which influences their ability to cope, adapt and recover from disaster.

The PAR model is the basis of our (Microdis) understanding of how disasters are caused and how they impact on individuals, households, communities and at all other scales. If the PAR model forms the background understanding, we can see that those elements on the left are the most abstract and difficult (but not impossible) to influence. They are macro level forces and are the backdrop to the micro scale investigation that is at the heart of Microdis.



Within the PAR framework, the Human rights factors and regimes within different country contexts will be seen to be informing the progression of vulnerability to disasters. We focus on human rights as an ideological system in disaster research as they have an impact on disaster survivors and indeed in the causation and outcome of disasters themselves. For example, the human rights regimes in different country contexts will determine the extent to which civil, political, economic, social and cultural rights are enjoyed by the community and particularly marginalised and vulnerable groups. These rights will determine to what extent the states are accountable to the people in their country to ensure the freedoms associated with each of these rights? Disaster situations as ‘extreme events’ could be seen to be testing some of the fundamental freedoms or non freedoms existing in that society itself. In that sense the existence/non existence as well as the functioning/non functioning of the human rights regimes can be conceived to be leading to different levels of progression of vulnerability in disasters as outlined in the PAR model. Human Rights in disaster contexts then can be conceived in following ways : At the level of root causes – this would mean asking whether the countries have civil, political, economic, social and cultural rights frameworks – also called as ‘human right regimes’ – as outlined in the Constitutions of the respective countries. To what extent are they in line with the international standards? The dynamic pressures would mean whether these meta human rights regimes have been operationalised into ‘Human rights standards and accountability processes’ – taking a form of specific laws so that they become justiciable by all the citizens and people in the country. In the context of disasters – it would mean for eg asking are their laws that guarantee them protection during the disasters? Are their laws and standards to ensure the preventability of the disasters? For eg building codes in earthquake vulnerable zones would be one such standard. Other indicators would include whether there are social protection or welfare systems in place which would enable recovery of the households – beyond the self protection measures that households may undertake. At the level of unsafe conditions this could mean – ‘lack of rights

based approaches' – that is insufficient public action and awareness and civil society associations that guarantee the enforceability of the rights regimes and standards as well as the lack of participatory approaches, or discriminatory responses from the duty bearers toward the building of disaster preparedness, response and recovery processes.

At the individual/household level; the existence and enforcement of the human rights (or its lack) at these different levels will lead to the differential levels of vulnerability or the resilience and thus could be seen to be contributing to the progression of vulnerability of the households – intersecting with other social factors that affect resilience and vulnerability of the households.

2.1 Intersection of social factors with vulnerability and resilience:

The intersections of the varied social factors leading to the relative levels of resilience and vulnerability of a household (while recognizing intra-household power dynamics, of an individual within that household) can thus be said to be determined by a range of interconnected characteristics. Thus some of these are held by the individual (e.g. age, gender, etc), others at the level of household (self protection systems; intrapersonal ideologies within household) and others are characteristics of the community (e.g. social capital, community as right holders), society (e.g. nature of governance, human rights regimes and laws, social protection systems) or environment (e.g. topography). Additionally, the existence of disaster-related structures and practices, and civil society entities can be positive or negative *mediating factors*.

The characteristics of interest at the individual and household (micro), the community (meso) and the macro levels are identified in the variable list given later.in section 4.1.

Research tells us that certain characteristics can be identified as '*markers of vulnerability*' e.g. feminine gender, low income. Others can be seen to be '*factors of resistance*' e.g. high income, high social class or caste. Identifying particular social groups or characteristics in this way is akin to adopting a 'checklist' approach (Wisner 2004b) which focuses on the vulnerability of 'social groups' and the causes of their vulnerability. This approach is based on empirical observation about different groups suffering from differential losses and the differential nature of their recovery. It breaks vulnerability into different elements (social, economic, environmental, informational) and through empirically developed taxonomies – such as vulnerability of women, children, differently abled, minorities etc. This approach is an advance on the conventional approach which used the term 'vulnerable' in an undifferentiated way and has a practical application for busy administrators and planners for planning as well as responding in disasters (Wisner 2004b :185-6).

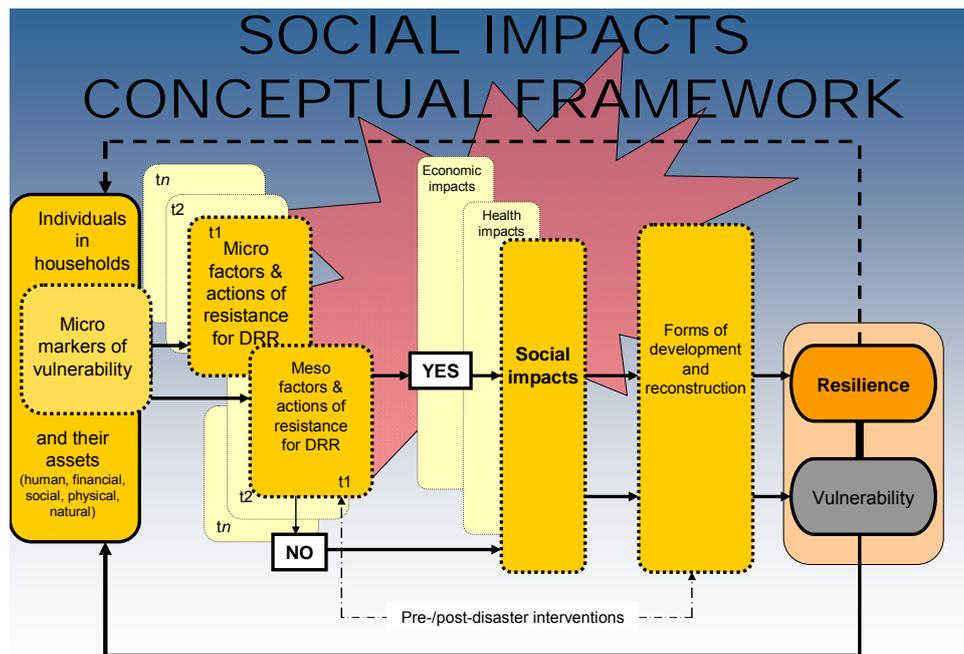
However, this formulation must be seen as just a beginning because it does not capture the complex dynamics nor the elements of negotiation and bargaining that can change vulnerability into resilience and vice versa. These are better conceptualized as '*actions of resistance*', one example of which might be for a nominally vulnerable individual or group to resist vulnerability through becoming socially organized. This is where the existence of community based organizations

(CBOs) and NGOs can mediate between conditions of vulnerability and resilience. Such organizations may enable community based capacity building, through development projects, assisting people to claim their rights, and other interventions. Another example could be that feminine gender is often assumed to signal vulnerability because of socially constructed forms of subordination and inequality. This can indeed be the case. When crossed with other axes of putative vulnerability such as age, class/caste, race/ethnicity, etc., a woman can be multiply impacted. However, women – as with other social categories – are not homogeneous and never totally defined by social structure; they are also active agents who negotiate within the systems of their confinement.

In particular, the concept of ‘cooperative conflict’ can be used to analyse household relations. We consider households as gendered and that the gendered relations within a household are guided by both conflict as well as cooperation. The cooperation between men and women in the household takes place as both have an interest in the wellbeing outcome of the household – that is they are guided by similar interests. The conflict between men and women is a result of the differing or conflictual interests between them and both have contesting claims with each other and the outcome is negotiated between them (See Sen 1990). After Sen (1990); Kabeer (1991) suggests that this means that women can become poorer due to deterioration of collective entitlements of family based households or alternatively by the breakdown of the family units and their claims arising out of it. That is the breakdown of the family denotes the limit condition for the operation of the cooperative conflict model for household analysis. Similarly Kandiyoti (1988) uses the idea of ‘bargaining with patriarchy’ as a way of analysing household relations in a patriarchal society. She suggests that Patriarchy is not just an overarching static system and that women in patriarchal systems are not just passive victims but exercise their agency in everyday life. Their forms of resistance to patriarchy include bargaining with the patriarchy – where they make a tactical choice of using their gendered identities in order to have an outcome which furthers their positions and conditions in a household in a given social context. This can often be at the level of meeting practical rather than strategic needs and thus might not radically alter their unequal position but will make everyday living more bearable (Molyneux 1985; Moser 1993).

We argue that all variables and intervening factors are dynamic, interlinked, and open to challenge and change. The ownership, entitlement or claim to the *factors and actions of resistance* can lead to differing levels of social impact and thence to forms of development and reconstruction. It is hypothesized that the relations between these factors give rise to conditions of vulnerability or resilience.

2.2 The Conceptual Framework:



Macro Context of Understanding: The Pressure and Release Model

The conceptual framework above¹ expresses this in the following way: we begin on the left of the model with ‘*micro markers of vulnerability*’ because it is vulnerability we are trying to reduce. We could have started with resilience and resistance but we begin with vulnerability for purposes of simplicity in model construction as also because we conceptualise resilience as a process rather than an absolute state of individuals or households. The very fact that households have suffered damages in disasters shows that they are ‘*not*’ in fact resilient.

Individuals and households (micro level) can be characterized as holding ‘*markers of vulnerability*’ although this does not mean they are fixed in this position and unable to change their circumstances. A variety of interventions at the micro individual/household level or the meso community level may allow their conditions to change. This is expressed in the choice boxes: ‘*micro factors and actions of resistance for DRR [disaster risk reduction]*’ and ‘*meso factors and actions of resistance for DRR*’. The notion of change over time is presented in the t1, t2, tn shadow boxes. If people resist the vulnerable state by, for example, livelihood improvements or they are assisted by CBOs/NGOs to organize and better command resources, then they follow the upper route on the model. Similarly the change in other levels – namely macro for eg laws in relation to disaster protection or civil and political right/law to organise protest or form associations can also impact the micro factors and actions of resistances in a disaster context. The level of ‘*social impacts*’ they experience (and the related health and economic impacts) in a disaster is likely to be less than otherwise and this is hypothesized to lead to forms of ‘*development and post-disaster reconstruction*’ that are more likely to lead to ‘*resilience*’.

¹ Based on the conceptual framework and the research questions, an operational model has been developed as given in Appendix 1 which will test some of the possible relationships between the variables of interest discussed above.

However, if, for a number of reasons, they are unable to engage with the *'micro factors and actions of resistance for DRR'* and the *'meso factors and actions of resistance for DRR'* then the social impacts they experience are likely to be correspondingly greater and they are led along the lower route towards greater levels of social impact and poor levels of *'development and post-disaster reconstruction'* which reinforce or increase their vulnerability and lead them back in a possible vicious spiral of disaster risk and development failure (White et al 2004). Positions of vulnerability or resilience are neither fixed nor exclusive. People can move between relative levels of either and can be both vulnerable in some ways and more resilient in others.

This conceptualization of the social impacts of disasters allows us to bring together an explanation across scales and to recognize the pivotal importance of a range of intervening or mediating factors that can change what are sometimes thought of as fixed markers of vulnerability. It is the mapping of these characteristics of vulnerability and actions of resistance that will enable us to capture the social impacts of disasters. This conceptual framework will form the basis for our further conceptualisation of social impacts, including our main dependent variables ('vulnerability', 'resilience' and development and post-disaster rehabilitation and reconstruction) and the other independent variables around 'social impacts'. While our main focus is on social impacts, which we propose to examine in some detail, we are also concerned to identify the interactions with health and economic impacts.

3) Conceptualising Vulnerability and Resilience:

The notions of vulnerability and resilience have had multiple interpretations.

Consider the definition by UNISDR which suggests vulnerability as

'conditions determined by physical, social, economic, and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards' (UN/ISDR 2004).

This definition emphasises the various factors and processes that make people vulnerable.

Resilience is conceptualised by UNISDR as:

'the capacity of the system, community or a society potentially exposed to hazards to adapt by resisting or changing in order to reach and maintain an acceptable levels of functioning and structure' (UN/ISDR 2004)

This definition of resilience – is linked to the characteristics of what constitutes the resilient society/system/community rather than how it becomes one; it is thus essentially descriptive rather than analytical.

Other definitions of vulnerability have suggested that vulnerability has a predictive quality – it is a way of conceptualising what may happen to a particular group at risk; that it is a complex set of characteristics that include a person's well being, self

protection, social protection, social and political networks and institutions etc (Cannon, Twigg, Rowell 2003).

Building upon the above definitions, in this Microdis conceptual framework, we suggest that vulnerability and resilience are relational. In its simplest form we suggest in this framework that vulnerability is not a *property* of social groups but is embedded in social relations and processes. It is through understanding of these processes at different levels that can enable us to understand what makes people vulnerable or resilient. (Hilhorst D et al 2004). However, pragmatically, many DRR-related organizations start with a checklist approach which identifies particular social groups (e.g. women, children, elderly, etc.) as bearers of these markers of vulnerability and so we start at this point in our analysis. Further, rather than understanding resilience as an absolute concept, we conceptualise resilience in this research as a process oriented attribute malleable to change – depending upon the post disaster recovery strategies – which include both building of material assets as well as non material assets or states of being such as psychosocial elements.

4) Conceptualising Social impacts:

In this research, our primary research question is, *what are the differential social impacts arising from disasters?* The definition of social used is quite wide and includes impacts on, and interactions between, the individual, the household, the community and the nation. Who you are, how and where you live, the degree of social care afforded to you by the wider community (beyond the household), the type of governance structure you live with, all affect the degree or form of disaster impact that you face. However, as the discussion in the earlier sections suggests, this is not a static position or characteristic but rather a dynamic process. As suggested in the earlier sections, the form that the dependent variables – vulnerability, resilience and development, or post disaster reconstruction – will take is mediated by a number of intervening processes and factors/actions of resistances. For example, the existence of disaster-related structures and practices, and civil society entities can be positive or negative mediating factors. Furthermore, forms of individual coping behaviour can positively or negatively reinforce damage impacts. For example, a man may resort to excess alcohol consumption in order to deal with the distress of losing his traditional role as family provider and protector; this negative coping behaviour can increase household vulnerability in various ways (possibly through ensuing gender violence and/or the drain on financial resources). Alternatively, a woman whose husband has been killed in an earthquake may be driven to start up her own business in order to support herself and her family; this positive form of coping may have the dual outcomes of increasing household income and personal empowerment).

In a disaster context, this could mean the consequences of various social pressures or support systems that lead to certain strategies of coping behaviour of the affected populations. Thus, social impact in this research is conceptualised as a cumulative impact of several intervening social factors (specifically – the sociodemographic; sociopsychological; sociostructural; socioeconomic; socio-political; and sociocultural factors discussed in more detail below) and other factors such as disaster related structures and practices and the physical environmental contextual factors. It is important to have an understanding of these variables as they have long term impacts on the community. It is also imperative to have a thorough understanding of

these variables as they provide a predictive value for various mitigation and relief providing agencies and they will be in a better position to develop contingency plans to prevent adverse consequences from occurring (Lindel and Prater 2003).

In the next sections we discuss in varying levels of detail, the key variables of interest.

4.1 Socio-demographic: (Micro)

These factors refer to socio-demographic aspects of social impacts such as sex, gender, age, diversity, marital status, literacy, ethnicity, initial well being etc.

4.1.1 Gender²: Disasters are not social levellers but their impacts can be felt variously through race, class and gender parameters in specific historical contexts (Enarson and Fordham 2001). Research has shown that due to women's socially constructed invisibility they are more vulnerable before, during and after the disaster (Fordham 2000; Enarson and Fordham 2001). Feminist literature (Tinker 1990; Phillips 1987, Mies 1986) shows that men as a group enjoy more opportunities than women, given that the majority of us live in patriarchal societies. The unequal opportunities lead to less power, and freedoms making women more vulnerable in particular locations and times. Gender blind decisions can impact their work load and increase violence after a disaster and women may be marginalised from decision making. This then becomes the context for viewing vulnerability from women's eyes in disaster contexts (Fordham 2004). Several studies have now drawn our attention to the root causes of women's vulnerability (see Ariyabandhu 2003; Bhatt Ela 1998)

A Gender and Development (GAD) approach³ in disaster context can be used to analyse men and women's differential access to power and resources with the household and how it might be affected by relief and rehabilitation interventions. It also draws attention to division of labour between women and men and particularly women's reproductive labour. Women across the world to varying degrees have triple roles of reproduction, production and community work although it is the reproductive role that is most commonly identified. A GAD approach analyses women's *strategic* interests as well as *practical* needs, where strategic interests refer to those practices which directly impact women's subordinate status and ideologies in the society in which they live. Further analysing cultural constraints faced by women they also identify the way it affects their mobility and response in disaster situations. However, despite a range of commonalities of women's experiences, - showing that women are central to household and community recovery, and their gender specific needs, they are also impacted by their ethnicity, class, and marital status. For eg female headed households may be particularly restricted and

² For most of our discussion we refer to 'gender' and only occasionally to 'sex'. 'Sex' refers to biological differences between men and women while 'gender' refers to socially constructed differences between men and women. Gender differences are evident in different roles and behaviours of women and men in societies. Given this distinction, this discussion on gender can also be included in other subsections as well – for example socio-cultural factors.

³ GAD framework evolved as a critique to the WID or Women in Development framework. Whilst WID analysis focuses on women's exclusion from Development and thus call for participation and inclusion of women in all developmental processes a GAD approach focuses on 'gender relations' and their impact on developmental processes, thus highlighting issues of power and powerlessness so embedded in any gender relations and developmental processes.

humanitarian assistance needs to ensure that it does not increase the vulnerability of such groups (Bryne and Baden1995).

4.1.1.1 Gender and relief conditions: Several studies have focused upon the issue of gender specific social impacts with GAD as an influencing framework. In one such study during the 1998 floods in Bangladesh, it was found that adolescent girls had to face problems in the relief camps that were set up after the floods. “A majority of the girls experienced great shame because they had to live in exposed conditions.” (Rashid and Michaud, 2000:59). As most of the houses were damaged and submerged in the flood waters many of the girls were exposed to the view of strangers as they had to share the living space in the relief camps. This was a major problem with most of the adolescent girls as they were not able or ashamed of carrying out the daily activities like bathing, going to the toilet and sleeping in the ‘public eyes of men’ (Rashid and Michaud, 2000). In addition to this, the study also points out that the girls were also concerned about their partially uncovered body that was exposed in front of strange men. The study further elaborates and points out that as most of the houses were damaged and submerged therefore people were sharing the houses and many families were staying together. In such a condition the girls felt awkward living in such a close proximity with the other families, specially the male members of the families (Rashid and Michaud, 2000). Another gender specific impact of the extreme event brought out is the physical safety issue of the girls during flood conditions (Caldwell et al, 1998).

4.1.1.2 Gender and casualties in disaster: It has been reported by WHO (2002) that during an earthquake in Maharashtra, India more females than males died. This was attributed to gender specific roles. It was argued that at the time of the earthquake most of the male members were away from home as it was the harvest time and many men and boys were busy in the preparations of the festivals that follow; other boys were in schools away from the village and many men were away from the affected areas as they were employed somewhere outside, thus they suffered less casualties as compared to the females who were in homes that were totally damaged by the earthquake (WHO, 2002). Oxfam’s study on Tsunami also reported more deaths of women than men in Tsunami which hit several Asian countries in 2004 (Oxfam 2005).**

4.1.1.3 Gender and Risk perception and early warnings: Drabek (1992) identifies gender as one of the factors that affects risk perception along with disaster experience and other factors. Fitzpatrick and Mileti (1994) report on the relationship between attributes of the receiver, such as gender and socio-economic status; and how disaster warnings are heard, understood, personalized and responded to..In another study by O’ Brian and Atchinson, of 1989 Loma Prieta earthquake in Northern California, the results suggested gender differences in the after shock warnings. The research suggested that women were more likely to get shock information from informal sources such as word of mouth and social networks such as relatives and friends whilst men from the authoritative or official sources; that women were more likely to perceive damage; that women were more likely to take household level action. Women were found to be more concerned about personal, family, and home damage than men (54% versus 42%).(O’ Brien et al 1998). Other examples of gendered differences suggests (1) that due to the structure of many

societies, females may be more at risk in a general way to the consequences of hazards and disasters than males (e.g. Morrow, 1995; Valdes, 1995),

Whilst gendered nature of early warning and mitigation is an emerging area of study, Fordham 2001 suggests that gendered warning and mitigation strategy need to be locationally and context specific – that there is no single type of ideal preventive structure or warning system appropriate to every locale or impending disaster situation. Thus early warning dissemination methods must serve diverse needs and situations. Further, warning information needs to ensure women's needs and circumstances are recognised. Ultimately the warning system must deliver what users and women want rather than what experts think should be disseminated. This is confirmed by Lott (1994) who after assessing a number of studies concludes that 'behaviour does not always confirm the stereotypes, and careful reviews across the empirical literature typically fails to support generally accepted conclusions of stable gender differences across situations'.

4.1.1.4 Gender and post disaster response

Research reveals that there are specific trends in the differences in post disaster responses by men and women. The studies suggest a) that men were more likely to help outside the household. Men were found to be more involved in search and rescue operation (6% versus 2%) and to have directed traffic (3% versus 1%). More women (30%) than men (22%) provided food or water to others (O'Brien et al 1998). (b) that both formal and informal personal post-disaster community response services are more likely to be performed by females than males (e.g. Morrow, 1995; Neal & Phillips, 1990; Reskin & Padavic, 1994; Valdes, 1995). c) males tend to be more active in early post-disaster recovery efforts, while females tend to be more active in later post-disaster recovery efforts (Morrow, 1995). In the wider community, disaster situations can have differing impacts on women's public participation – they may provide opportunities to women to take on leadership positions, but may also increase the demand on their already overburdened time (Byrne and Baden 1995) balancing reproductive, productive and community roles.

4.1.1.5 Gender and Disaster Mitigation and Preparedness:

Studies have suggested that the family unit which has specific gender-related functions affects the preparedness, mitigation, response, and recovery aspects of the disaster cycle (e.g. Abel & Nelson, 1991; Drabek, 1986; Fitzpatrick & Mileti, 1991; Hill & Hanson, 1962; Nigg & Perry, 1988; Perry, 1987; Quarantelli, 1960; Shelton, 1992). Morrow (1995) notes that women are generally involved in more mitigation and preparedness activities than men, particularly for activities centered inside the house. Furthermore, mitigation and preparedness activities that men perform, usually revolve around behaviors related to the outside of the residence (e.g. structural reinforcement of walls) (Mulilis 1998-99). This clearly underlines the public-private divide so often seen to reflect the traditional roles of men and women.

4.1.1.6 Gender, Violence and mental trauma: Another area of study which has emerged more recently and so far on a smaller scale has been the violence against women found in certain researches in disasters (Larabee, 2000; Ralph 1999; Fothergill 1999; Wilson et al 1998; Enarson 1997, 1998, Fisher 2005). However,

Wilson has argued that stress such as disaster event itself is not a sufficient condition to initiate violence. Rather, an individual's place in the social structure creates the likelihood of the person experiencing violence – or furthering of vulnerability. In other words it is the inequitable patriarchal systems that lead to violence – a form of male domination over women (Wilson et al 1998).

Another study by Vinas Carolina (1998) in two district communities in Manzanillo municipality impacted by the Colima Earthquake in Mexico on Oct 1995 looked into– what happened after the disaster – and how they felt about work, politics, authorities, neighbourhood, families and everyday life. The findings suggested that women organise more effectively than men; that women openly show their emotions – fears, anxiety, pain and frustration – while culture repressed the expressions of emotions in men; that not all women are equally vulnerable – some women had high wage jobs, others have their own houses; some did not suffer direct damage but were emotionally affected (Vinas Carolina 1998).

4.1.1.8 Feminization of poverty and female headed households in Disasters: Feminization of poverty refers to the fact that poverty is not similarly distributed within and across the households. After Sen (1990); Kabeer (1991) argues for a broader concept of entitlement that accommodates the intra-household distribution based on normative kinship and family structures. This means women can become poorer due to deterioration of collective entitlements of family based households or alternatively by the breakdown of the family units and their claims arising out of it. Women experience food malnourishment – and in disasters- women and girls are the primary victims of food insecurity. Women face marginalisation – in terms of ownership of land, livestock and other property and this affects female headed households particularly. In Kabeer's terms, existence of female headed households are a signal of both household and female pauperisation as a result of the breakdown of family entitlements. Women's interests continue to be tied to the fortunes of their family unit as long as family based entitlements are respected. In a disaster context, women when abandoned by men or separated due to conflict induced by disaster, are more likely to be less recovered in reconstruction efforts (Weist Raymond 1998). However, despite the current theorising around gender and disasters, it is still less known how decision making and negotiation takes place in the household in disaster situations. Ultimate breakdown in negotiation occurs with family break-up, often with the abandonment of women, children, or the elderly, whose claims for support have been rejected.

The discourse on gender has evolved over time – from simple inclusion of women (a typically WID approach) to focus on their empowerment (a GAD approach) (Fordham :2003). A more recent turn in the theorising has suggested a use of a more nuanced approach to gender relations. The nuanced approach would focus not only on gender alone but its intersection with class and ethnicity (Enarson and Morrow 1997) but also on capacity and vulnerability analysis rather than vulnerability analysis alone – given that women are not just victims but also active agents constructing their own reality (Fordham 2004). As suggested by Fordham and Ketteridge (1998), we must engage with gendered dimensions of disaster without resorting to stereotypical or deterministic notions of women's needs and behaviour.

4.1.1.10 Construction of Gendered subjectivities

Newer theorisation is now looking at how gendered subjectivities are constructed in a disaster context through constant negotiation of gendered identities. Thus women's responses in disasters are not simple but highlight the complexities and contradictions. Julie Cupples' study (2007) shows that the experience of disaster by women is shaped not only by pre-disaster vulnerabilities and forms of resilience but also by the refigurations of self facilitated by the disaster itself and disaster response processes. The narratives show that women move in and out of states of resistance, accommodation, vulnerability and strength, sacrifice and self assertion. This is because of the number of identities active at that time and their boundaries being very fluid. Although women are disadvantaged due to cultural constructions, they also draw upon them strategically and construct their subjectivities discursively. The Disaster process then becomes a space where gender is performed differently and or hegemonic gender identities used strategically (Cupples 2007). This new focus, while crucial to gaining a deeper understanding of the gendered dimensions of disaster, also complicates attempts to create more gender-sensitive frameworks for disaster response as it is now important to acknowledge the differences as well shifting identities and subjectivities of women whilst forging practical common agendas of women as a group as well.

4.1.1.11 Gender, Disasters and Opportunities for change

More recently, there has been a change from gendered vulnerability to capacity which has implications for practices as well as theorising. Disasters provide an opportunity to make the ideological shift to break down the public-private dichotomy and its inherent hierarchy that makes the feminized private sphere subservient to the masculinized public sphere (Fordham and Ketteridge 1998). As Yonder, Acker and Gopalan (2005) suggest conventional disaster response programs fail to recognize women's participation in decisionmaking. Instead they suggest that disaster should also be looked upon as an opportunity to make groups less vulnerable, improve conditions of living for women and must favour equity. For example, disasters push women out of their traditional roles and into taking up new roles. Drawing from casestudies from India and Turkey, they suggest that four barriers that needed to be overcome were: overcoming biases around gender roles and professional expertise; overcoming lipservice and enabling interventions that genuinely reflect principles of participation and sustainability; overcoming top down brick and mortar type of government programmes and rebuilding lives and livelihoods; and overcoming misconceptions about grassroots women's groups being 'small scale' and 'low tech' despite evidence to the contrary.

4.1.2 Age : Apart from gender, age is also a crucial variable that makes populations vulnerable. An exposure and resource perspective can be used to explain greater vulnerability of older people to trauma than younger ones. The coping capacity of older people decreases potentially because of declining health and lower socioeconomic resources (Friedsam, 1961; Phifer, 1990). Bolin & Klenow (1982-83) report that they have lesser likelihood of receiving warning, greater reluctance to evacuate, higher resistance to alter accustomed patterns of life, and a severe sense of deprivation resulting from losses as well as are more likely to experience disaster-related injuries and evaluate their situation as worse compared to those around them. They are also less likely to use post-disaster services of counselling and social support and suffer substantial economic losses (Bell, Kara, & Batterson, 1978).

Joshi et al 2007 report of the impact of the Indian Ocean Tsunami on the elderly. Researchers found that most of the government and NGO relief workers did not regard the elderly as a vulnerable group and their attention was more on orphaned children. Again during the relief distribution the elderly were overlooked and most of the older people were forcefully thrown out of the way by younger people in order to get the relief materials. In Sri Lanka it was seen that the elderly did not get the monetary compensation to help them restart their livelihood. Gender discrimination also accompanied the age discrimination. It was seen that in such households where older women were the heads and looked after the orphaned grandchildren, no effort was made to collect information on their circumstances. Limited mobility is also a factor in the vulnerability of older people. In the study it was realized that most of the older people lost their lives as they were unable to run fast away from the waves or were unable to swim.

Joshi et al (2007) also report that after the Tsunami which led to displacement of many people from their homes, elderly were affected in a special way, as they had a sense of special bonding for their damaged homes and found it extremely difficult to adjust in the relief camps. There was a sense of insecurity that crept in the elderly as they wanted to return to their homes. It was realized further that the elderly were largely seen as people who only required help and not as people who can help others due to the supportive role they play in the community. Thus no consultations were sought from them and their positive contributions were not recognized. Another problem for the elderly was their livelihood which most of them lost as a result of Tsunami. Financial insecurity was the main concern among the survivors as many of them lost their family members too on whom they were dependent (Joshi et al 2007).

Studies also indicate that age has an influence on mental health. Suar et al (2007) examine the influence of age on anxiety, depression, and post-traumatic stress of the 1999 supercyclone-affected people in Orissa. Their study found that when the effects of exposure, caste, and gender were controlled, linear effects of age on psychological distress were found to be significant. With increasing age, survivors experienced more anxiety, depression and post-traumatic stress. The elderly people were the most vulnerable. The supercyclone however depleted the personal (self esteem, mastery, well being), social, economic and work resources that survivors had built and conserved over time. Elderly people had a greater sense of resource loss with little hope to regain the resources at the end of their lives inducing more distress. Further, elderly in this culture live with a high uncertainty avoidance and low tolerance for ambiguity – and the sudden crisis was cognitively painful. Suar et al 2007, suggest therefore that Interventions such as preserving resources such as “sense of mastery” and self esteem would help the old people regain their status.

Not only the elderly are vulnerable to the threats posed by a disaster, children are equally vulnerable. Young children and elderly fall under the vulnerable group as they lack the developmental capacity or strength to escape the hazard (Joshi P C & Mir, 2002). Vulnerability during the disaster may be high for children but of equal importance is the post-disaster vulnerability of children. Studies conducted by Carol Toms and Heather McLeod (2004) point towards the post-disaster vulnerability of children. After the disaster the health care facilities are the biggest casualties. There are several diseases, most commonly diarrhoea among children which prove fatal to

them in addition to several communicable diseases. Another impact of the disaster is related to the destruction of recreational parks and other such activities which form a major and central part of the child's development process. In addition, damaged building, destruction of water supply system, lack of toilets, inappropriate aid, etc. can all be risks to children's safety.

The problem of reduced family income after the disaster can lead to child labour. Another problem faced by children as an impact of disaster is increased child abuse. After the disaster the community becomes porous to the outside world and due to this many antisocial elements can take advantage of the situation and may exploit and indulge in child abuse (Joshi P C et al 2007).

Children also become vulnerable to trafficking which may be caused by separation of the child from the family and thus no one to take care of him/her. Due to the death of parents in disasters children become orphans and they may be kept in orphanages if no one else is there to take care of them. The kind of care which they get in their homes is not available in the orphanages and thus it adversely affects their development (Tolfree, 1995).

However, recent work of organisations such as Plan International in El Salvador also show that while children prove to be vulnerable in many ways throughout the disaster process, they like other vulnerable groups also have capacities and are potential contributors (Fordham 2008).

4.1.3 Religion :

Religion can also contribute towards the vulnerability or capacitating of the group. Gillard and Paton (1999) in their study conducted in Fiji islands focused on the impact of Hurricane on the vulnerability of three religious groups viz- Indians who followed Hinduism, Indians who followed Islam and Christian Fijians. The results of the study indicated a relationship between vulnerability and religious affiliations. It was found that the Hindu and Muslim Indian groups experienced more disaster stress as compared to the Christian Fijians. The interpretation of these findings was that – the Temples and the Mosques did not provide sufficient assistance to the people of their religion as they themselves were devoid of or lacked sufficient funds. Due to this financial constraint the Mosque and the Temple instead of providing some help to the needy at the time of disaster called for assistance. The Hindu and Muslim religious groups found their religious organizations making demands upon them after the disaster. On the other hand the financial stability of the Christian Church was greater and they were in the position to provide food, clothing, shelter, etc. to the needy. This state of affairs gave a sense of security to the Fijian Christians and they were confident that some help will be provided from the Church. This study is important as it linked religion with vulnerability and it was found that in Fiji around 95 percent people practice one or the other religion, thus making religion a prime factor in any vulnerability assessment exercise.

4.1.4 Marital Status:

Marriage is another institution which is affected by disaster. Rashid and Machaud (2000) found in their study on the Bangladesh 1998 flood that newly married girls were in a fear of abandonment during the disaster. A deeper analysis of the situation

brought out the fact that in Bangladesh, the system of dowry persists. In this system the bride's family pays the groom's family some amount of money and goods in kind at the time of marriage. If the bride's family is unable to pay the dowry then the girl can be justifiably abandoned or returned to their parents. During the disaster people suffer huge losses of life and property and in that situation it becomes almost impossible to pay the dowry completely (Rashid and Michaud, 2000). This situation brings the feeling of abandonment in the newly married girls as they are afraid of what turn their future will take.

Studies have also suggested that female headed households are more vulnerable after disasters – and have more difficulties in coping and recovery (see Buvinic et al., 1999; Delaney and Shrader, 2000; Bradshaw, 2004). In a recent study on female headed households in the Tsunami, it was found that female headed households faced more discrimination in accessing relief and rehabilitation support and entitlements; and were abandoned by their husbands as economic hardships after the disasters led to men not being able to fulfil their roles as providers (Akerkar 2007).

4.1.5 Disability :

Following the Draft Convention and of the Rights of persons with disabilities by UN ad hoc committee on Disability on 25th August 2006, article 11 proposes – ‘State parties shall take, in accordance with their obligations under international law, including international humanitarian law and international human rights necessary measures to ensure protection and safety of persons with disabilities in situations of risk, including situations of armed conflict, humanitarian emergencies and the occurrences of natural disasters’. Disabled persons are being included along with other vulnerable groups in disaster contexts as persons whose specific vulnerabilities affect their ability to cope and survive in a disaster (Rath 2006).

However, combining groups too broadly leads to problems in planning and response. The broad label ‘special needs’ incorporates people whose functional needs include assistance with communication, medical needs, maintaining functional independence, supervision and transportation. Used widely in emergency management literature, the special needs groups include people with disabilities, those with serious mental illness, minority groups, non English speakers, children, and elderly persons. Other lists can add single working parents, people with special dietary needs, pregnant women, prisoners, homeless and others. These groups represent a large and variety of concerns and challenges in disaster response and planning. Special also implies difference and isolation. Among disability advocates, special is the label often used for segregated programmes. Pointing out the limitations of the use of the category; ‘people with special needs’; Kailes et al 2007 suggests that since, as a group, this is a very heterogenous group – it is important to understand a range of function-based needs within the population. The authors propose a flexible framework built on five essential function based needs – communication, medical, maintaining functional independence, supervision, and transportation to be used – this would reduce negative consequences and improve planning, preparedness, recovery activities at all levels. They suggest the need to move from special needs to diverse needs perspective.

Further Rath (2006) following recent disasters such as Tsunami in Asia (2004), Hurricane Katrina (2005) and Kashmir earthquake (2005) suggests that disability was not taken into account in disaster response. Mortality of people with disability during disaster was high in Tsunami effect in Andaman and Nicobar, Indonesia and Thailand. The root cause was lack of access to shelters for the disabled and any absence of plan for them. Disasters also lead to injuries – however very little was done during recovery to enable medical care for the disabled in Tsunami. Therefore the need is to:

- Promote inclusive policies and programmes by involving people with disability.
- create collaboration between stakeholders to actively consider disability issues
- promote standards to ensure inclusion
- ensure that disability organisations are actively involved in the disaster relief organisations and overall governance response.

Further structural changes are needed by engaging States in devising laws to transform practices and traditions which discriminate against people with disability – that match international standards (Rath 2006).

4.2 Socio-Economic: (Micro)

The socio-economic variable would include issues such as income, occupation, social security issues such as insurance, subsidies; government disaster recovery assistance programmes, access to resources, such as land or property rights and other assets.

Whenever a hazard strikes a community depending on the extent of vulnerability, it causes economic damages. The direct economic damages which become quite visible are in the form of damage to property – both movable and immovable. The ultimate economic impact depends on the nature of the damaged assets. If the assets damaged cannot be replaced then it will affect the consumption pattern of the people (Lindell and Prater, 2003) and thus will have an effect on the quality of life. (Joshi et al 2007). The literature on disaster recovery in the United States has indicated that insurance is one of the most important determinants of recovery in US (Bolin 1982; Drabek and Key 1983).

In a community there are people from different socio-economic strata. This difference makes some people more vulnerable than others. Studies point out that there exists a relationship between poverty and vulnerability. Disaster has the capacity to produce newly impoverished people (Cannon, 1994). A person or a group is said to be vulnerable not on the basis of only one trait or character but it is a combination of many traits that are a result of the social and economic condition of that person or the group (Blaikie et al, 1994). We thus need to look at economic aspects in conjunction with other social aspects. That is, in addition to the economic aspects, there are other aspects of social positioning such as ethnicity, class, community structure, community decision making process and political issues that determine poor people's vulnerability (Yodmani, n.d.).

4.2.1 Race, Class, Caste, ethnicity:

In their pathbreaking study on Hurricane Andrew, (Peacock et al 1997); it was found that race, class and ethnicity had affected the various facets of disaster recovery of the communities and groups following this disaster.

Their research findings identified how these various factors colluded to create barriers and discrimination in recovery processes of certain groups:

1)Blacks and Hispanics had to face particular discrimination compared to Anglo homeowners in various aspects such as accessing housing insurance recovery support (Peacock and Girard 1997).

2)On issues of relocation, it was found out that Anglo households in general were most likely to leave their homes. Blacks were the least to leave and Hispanics showed a intermediate tendency. The findings also suggest that blacks were less likely to relocate after hurricane not only because of economic constraints, but because of barriers created by residential segregation (Girard and Peacock 1997).

3) The black community in Florida city held little power and therefore was not able to compete successfully for the resources necessary for recovery (Dash et al 1997).

4) The role of the State, disaster relief agencies and their policies also impacted the outcome. The policies of FEMA and their officials were reflective of the 'misguided' notion of community. Further they also idealised the 'North American Middle class model of household and family which did not reflect the reality of those people who were on the cultural and economic periphery of American society. While the tent cities provided temporary relief to the poor and the powerless, their policies of admitting those to the tent cities often increased inequality. In their recommendations, the authors suggest that disaster response needs to be more aware of the ethnic, and cultural needs of specific populations – and should not model their household recovery on the middle class model of nuclear family (Yelvington 1997).

Whilst the study on Hurricane Andrew around 1997, pointed out the effects of class and ethnicity in relief and recovery, 8 years later, Hurricane Katrina in 2005 in New Orleans, USA more recently also bring forth similar issues. Manning (2006) in his analysis of Hurricane Katrina, through several examples suggests that poor Blacks in New Orleans had to face discrimination due to race rather than class factors. One example of this was the comprehensive study by the National Fair Housing Alliance, a coalition of 220 civil rights and nonprofit fair housing organizations in 2005. The study suggested that there was unequal racial treatment of black versus white Katrina victims in their attempt to secure temporary housing after the disaster. This study conducted telephone tests with black and white homeseekers requesting information about unit availability, rents, and other conditions of housing leasing. In 66 percent of the tests, whites were distinctly favored over African Americans.

4.3) Sociopolitical: – (Macro)

This refers to variables such as nature of governance (from local to international); leadership patterns (democratic, kinship based etc); political status of affected people (such as migrant; refugee; IDP; nomadic, slum dwellers; destitute and

homeless). Other factors include accountability and transparency – at all levels (local, community and national); freedom of expression; the effect of the mass media and communication; entitlements; presence of civil society (such as tolerance; encouragement of INGOs/NGOs/CBO) and other social determinants such as matriarchy, patriarchy, social exclusion, untouchability. The other positive social determinants would include capacity of people to influence.

The domain of political impacts deals with the distribution of power and the conflicts or cooperation that arise during the disaster situation due to the interactions of the different factors/variables suggested above.

Consider the following examples of patterns of conflict and cooperation among different actors:

4.3.1 Govt and relief agencies, and community: During disaster people can be so distressed and frustrated that they can unite/ cooperate with each other against the governing agency to overthrow it as they perceive the existing governing bodies to be the cause of their miseries (Lindell and Prater, 2003). This unity and cooperation can be stronger if the people of the community share the same culture. This gives them the sense of identity which helps in the mobilization of the masses. Here it does not imply that disaster produces different political behaviour, but what is meant implicitly is that the disaster situation produces a set of victims and grievances that may be different from that which existed in the normal situation and this difference is responsible for the change in political behaviour (Morrow and Peacock, 1997). On the other hand if the people of the community affected by the disaster are culturally different then it potentially can create a situation of conflict. The conflict could be due to the difference in the goals of the people belonging to different cultures for example, their goals regarding what type of community they want to live in. Some may want to re-establish the conditions that existed before the disaster while some others may want to change radically from what they were before and they perceive the disaster situation as the opportunity to introduce changes (Rubin, 1991; Dash et al, 1997).

Another area of conflict or cooperation is the difference between the cultures of the affected community and the relief agencies. The affected community may have a culture which values personal relationships and is based upon bonds of affection whereas the relief agencies might value a more universalistic culture based on the values of rationality and efficiency. This difference might hinder the normal process of relief work as this may clash with the interests of the victim community (Bolin, 1982; Tierney et al, 2001). This issue is also expressed by Schneider 1992 – who observed that there exists a gap between bureaucratic norms and emergent norms in any relief process. The bureaucratic norms deal with what the government and NGOs have planned to do in the emergency management situation and the emergent norms concern with the expectations of the disaster victims (Schneider, 1992). The success and failure of any relief response is dependent upon this gap between the two norms. When the gap is greater the response is largely unsuccessful on the other hand when the gap is less it is most likely that the response and the relief work will be successful. Thus this gap is the primary determinant of the public perception of the success or failure of the relief work and hence has an impact on the political scenario. Mass media also plays a role in creation of public perceptions of recovery efforts.

4.3.2 Mass media : The mass media's role in creating public opinion concerning the kind of help people are getting from the government/NGOs in the recovery phase, – can fuel cooperative or a conflictual behaviour amongst different actors. In this sense the mass media plays a very crucial role in shaping the political environment. Further more, media can also act as a gatekeeper in creating subjective opinions – depending upon the affinity of the people in leadership position in the media vis a vis different players in the disaster contexts. According to sociologist Howard Becker-people at the top of the hierarchy in a media setting have the right to define how things really are and any piece of information communicated by them is believed to be credible. Thus credibility and the right to be heard are differentially distributed throughout the ranks of the system (Becker, 1967). Media has a preference for official information and information from established news sources (Quarantelli 1971,1981). It is also possible that the official information is largely coloured by the political agenda of the ruling party.

4.3.3 Vulnerable communities: Disasters also create IDPs (Internally Displaced Persons) and there is much that we can learn from the specific vulnerabilities faced by the IDPs in civil conflict situations and humanitarian crisis. It has been observed that IDPs in civil conflict situations are vulnerable to human rights violations as they are caught in the crossfire between two groups possessing arms. When natural hazards happen in these countries, they are made doubly vulnerable. In such situations it is seen that preparedness shown by the government in dealing with the humanitarian crisis and sustained relief and assistance – is very much dependent on the political will shown by the governments involved (RIMCU:2007).

Differences in the political powers of the community members may contribute to its vulnerability or capacity. The study on urban flooding in Guyana, by Pelling (1998) suggests that the maps of the settlements in the urban city studied showed that those neighbourhoods with better representation in community leadership were those neighbourhoods that had lower levels of vulnerability to flood hazard. Thus the same socio-economic processes which created social and economic differentiation within the settlements underlay the creation of vulnerability to flood hazard – and shaped the access to local political decision making.

4.3.4 Need to build socio-political resources of vulnerable groups; While there is much discussion on the socio-political factors leading to vulnerability, in recent work, it is acknowledged that these very factors can be capacitating. For eg, given that vulnerable sections of society are precisely those sections who have very little economic and political resources, the key to building resilience is about building organisational and motivational capacities of the vulnerable sectors – which are essentially socio-political resources that poor and vulnerable people can develop and possess. This starts with the belief that people have capacities, despite their vulnerabilities. People are not totally helpless during disasters. It is important to identify these capacities as they serve as the starting point for development based disaster response. Capacities may be defined as those resources including skills and positive traits and values of the people and the community that can be used in mitigating, preparing for, to cope with the damaging effects of hazards or recovering from disasters. These capacities can be classified into physical/material, social/organizational, and motivational/attitudinal (see Anderson and Woodrow 1989). An example of social/organizational capacity is the presence of the people's

organization itself; for social/attitudinal, it can be the practice of traditional ways of community cooperation (for example “bayanihan” in Phillipino society), or the critical and scientific thinking of the people. Other areas could be social awareness through education to transform people’s traditional beliefs and concepts of disasters and their participation in the response and risk reduction. Participation as a learning process can increase people’s knowledge and skills, developing their potential, capabilities and confidence. Thus developing disaster preparedness committees among communities and people’s organisation can be a foundation for building resilience and serve potentially as an alternative and developmental approach to disaster management. In this way, disaster work by developing socio-political resources amongst vulnerable groups can also contribute to addressing the root causes and other dynamic pressures leading to people’s vulnerabilities (Esqondor 2007).

4.4 Disaster practices and institutions (Meso)

This variable includes formal and or/informal disaster management and response structures – national, community based disaster management entities; plans and policies at a range of scales (local, regional, national and international) for disaster preparedness and mitigation and a presence of disaster culture – either participatory or hierarchical.

The Pressure and Release (PAR) model by Blaikie et al 1994 and Wisner et al 2004 suggests that vulnerability as a social condition needs to be addressed if we are to make a long term difference and enable the persons/households/communities to be resilient in the long run. Thus socio-political factors (the governance systems), the dynamic pressures as well as the root causes need to be addressed in the disaster risk reduction response. This brings us to the architecture of entitlements that the disaster survivors are entitled to from their governments and other civil society actors (depending upon the governance regime in the different disaster affected countries) and to what extent they serve not only the purpose of immediate and long term recovery but also engage with the embedded social relations which created their social vulnerability in the first place. Disaster plans are an outcome of the architecture of entitlements which are themselves a result of different governance systems in different countries. For example, gender insensitive plans amount to institutionalized discrimination and are unable to give marginalised groups the much needed protection and assistance to live with dignity in disaster contexts. Disaster response plans, if made without recognising the fact of compounded discrimination faced by the vulnerable groups prior to the disaster indeed leads to exclusion from relief and recovery activities, leaving them poorer and worst off after disaster (Akerkar 2008). These issues can be addressed by developing disaster response and recovery plans in line with human rights strategies in disaster management. This means plans may need to adopt at their core for example engendered redistributive principles or rights (Akerkar 2008).

Now new theorisation has linked denial of rights with the presence or absence of social protection systems in disaster-affected countries. Challenging narrow interpretations of traditional notions of social protection systems, which focus on safety nets or cushioning against economic shocks, as promoted by the World Bank and other players, Devereux and Sabates-Wheeler (2004) argue for a broader social protection system that not only includes traditional dimensions of safety nets but also

further social and equity rights of people by transformative dimensions such as protective legislation, and rights of people to organize and demand social change. They argue that the key objective of social protection is to reduce the vulnerability of the poor. Social protection interventions may be categorized as protective, preventive, promotive, or transformative. This has implications for the policies and practices adopted by the institutions intervening in disaster contexts as well as human right standards against which they can be evaluated.

Building appropriate policies within any disaster response process - in line with social protection and human rights would mean developing a *historicised* understanding of the ways in which vulnerability or capacity of the individuals, groups and communities have been developed over a period of time in the particular disaster context. It would mean also understanding the availability and the distribution of the entitlements and how they have been changed, eroded and defined over a period of time vis a vis disaster affected individuals, groups and communities and how they have contributed to the 'factors/actions of resistance'.

Lastly, the question of disaster plans and policies and entitlements also brings in the issue of ability of the vulnerable groups to access them. What sort of disaster mitigation culture would enable or increase their access to these resources? What sort of best practices could enable such access? How could social impact assessment as a methodology also contribute to such an endeavour?

4.5 Socio-Psychological –(Micro)

This variable includes disaster mental health indicators – Post Traumatic Somatic Disorders (PTSD) such as depression, anxiety, phobia, hysteria, panic reactions etc as well as disaster mental health care – both organised and unorganised.

The socio-psychological impacts of natural disaster deal with the effect of the extreme event on the mental state of people leading to some change in their behaviour. The amount of loss and shock associated with the disaster may have a profound effect on the mental health of the victims. There have been several studies focused on the impacts of disaster on the socio-psychological aspect.

By and large research has revealed a negative impact of disaster on people (for example, after the landslide in Italy in 1998, higher PTSD was found amongst those affected by landslide than the control group (Catapano F et al 2001). One theory suggests that most of the psychological impacts are due to limited resources in terms of social support as it is itself vulnerable to the disaster. Kaniasty and Norris (1993) introduced "social support deterioration model" which says that decline in perceived social support and social embeddedness explains much of the mental health consequences of natural disaster. Other models suggest that traumatic stress stems from a threat to an individual's or a group's very existence. The impact of the existential threat may be compounded by an inability to cope and the perception of helplessness. In this model, the traumatic process is conceptualized to develop through three stages: (1) Alert; (2) Impact; and (3) Post trauma (Shabtai Noy 2004).

Research studies are now providing more disaggregated data on the mental health impacts of the disasters.

However there is no simple relationship between disasters and mental health. Several complex intermediary factors – such as age, gender, class, income, social location, predisposing factors, coping mechanisms, kinship structures, severity of disasters play an important role. The following studies highlight the often contradictory nature of the findings.

a) Using a model of psychosocial stress, the study by D'Souza Melvin JJ et al 1999 analyzes post-disaster psychological distress as a function of social location, disaster stressors, and other life events. It is hypothesized that persons of disadvantaged social status would have higher levels of distress due to differential exposure and vulnerability to stressors. However Multi-staged regression analysis indicates that in the 1994 Northridge Earthquake in Southern California, persons of disadvantaged social status (such as minorities and persons of low socioeconomic status) were in general less exposed than others to earthquake-related stressors. Post-disaster psychological distress was higher for Hispanics, non-Black ethnic minorities, widowed persons, and persons with low family income. In addition, Hispanics, divorced/separated persons, and persons with low family income were more vulnerable than others to two or more earthquake stressors. Finally, as measured in this study, other life events were found to be stronger predictors than earthquake stressors of distress. By analyzing the relationship between disasters and psychological distress in a socio-structural context, this study highlights the importance of considering both differential exposure and differential vulnerability as complementary explanations of post-disaster psychological distress (D' Souza Melvin J J et al 1999)

b) It has been found that people who experience the same disaster might suffer from different consequences (Norris, 2002). This is due to the fact that different people might be exposed to different level of severity of disaster. In a study on flood victims it was found that there is a difference in the consequences of the disaster on the individuals and on the community as a whole. The effect on the individual is characterized by increase in the negative effect whereas the effect on the community as a whole is characterized by decrease in the positive effect. This implies that disaster has an effect on the quality of life of the community and this will be manifested in the expression of stress although the level of stress remains sub-clinical (Norris et al, 1994).

c) There are other factors like gender, age, personality traits, pre-disaster mental health and post-disaster social support that have an influence on the extent and nature of the impact of disaster. In a cross-cultural study of Hurricanes Andrews and Paulina it was found that the psychological influence of the disaster varied across culture according to the male and female roles that are prevalent in that culture (Norris et al, 2001). Substantial gender differences (greater levels for women) were apparent in both short- and long-term PTSD response rates (Steinglass et al 1990).

d) Studies on PTSD taking age as a factor suggested following: Norris (2002) in his study of Hurricane Hyogo found that post-disaster psychological impairment in school-aged children is greater than the adults. Thompson et al (1993) found that younger adults and middle aged are at greater risk for post-disaster symptoms. Lewin et al (1998) concluded that post-earthquake morbidity persists longer in those who are older, have a history of emotional problems, have higher neuroticism, use more neurotic defences, and report higher levels of post-disaster life events.

Similarly, Ticehurst Stephen (1996) in his study amongst those impacted by the 1989 earthquake in Newcastle, Australia found that effects were more marked on the elderly and that among the elderly, more on females who used avoidance coping styles.

Disasters are also believed to have large effects on the mental health of adolescents but the lack of prospective pre- and post-disaster data on affected and control populations have limited our knowledge on the validity of these claims. In the research by Reijneveld et al, 2005 done in Netherlands, the medium-term, 12 months' effects of a severe disaster on the mental health of adolescents, were compared with the effects after 5 months. Effects had decreased compared to those after 5 months. The conclusions suggested that in the long run, the effects of disaster decrease regarding self-reported behavioural and emotional problems, but they remain regarding alcohol misuse among those present at the disaster, and their peers.

In another study the extent of trauma exposure was associated with greater binge drinking among adolescents. Similar to adults, post-traumatic stress symptoms experienced in the aftermath of a disaster can lead to increased alcohol consumption among adolescents (Schroeder et al 2004).

Another study on children and adolescents in the context of Hurricanes Katrina and Rita looked into children's responses to loss and crisis. Therapeutic approaches such as self care, comfort strategies, developmental, traditional and non traditional methods were found to be useful in facilitating integration of crisis and loss after the disaster (Gaffney 2006).

e) Mental health responses and coping strategies used by individuals are strongly influenced by cultural factors as well as social support and other factors. It suggests that in cultures which are kinship-based, the help may be available within kinship, and statutory services may rely on such systems (Bhugra et al 2006).

f) Researchers have found a relationship between behaviour and education – for eg, a survey was conducted of 500 male and female survivors (aged 19-80 yrs) of the 1999 earthquake in Turkey to investigate their levels of alienation and forms of preparedness for future disasters. It was found that the social isolation variable and the level of education are the most important influential independent variable. As level of education increases and social isolation decreases, responsible behaviour increases (Ecevit et al; 2002).

g) Studies have also indicated that increases in PTSD symptoms as a function of disaster were slightly greater among respondents with the lowest incomes and among residents living in small rural communities, as opposed to on farms or in cities – see for eg Ginexi et al 2000; on impact of flood impact in Iowa, US

h) In this study, amongst the non English Speaking Background immigrants in Australia following the Earthquake in Newcastle in 1989, particularly women, appear to be more at risk for developing psychological distress following a natural disaster. Further, the study also suggests that level of exposure and an avoidance coping style contributed more substantially to psychological distress than did ethnicity (Webster RA et al 1995).

i) In the study by Lutgendorf et al (1995) which examined the effects of Hurricane Andrew on physical symptoms and functional impairments in South Florida, it was found that although extent of disruption due to the storm was a significant factor in predicting relapse, the patient's posthurricane distress response was the single strongest predictor of the likelihood and severity of relapse and functional impairment. Additionally, optimism and social support were significantly associated with lower illness burden after the hurricane, above and beyond storm-related disruption and distress responses. These findings suggest the impact of the environmental stressors and psychosocial factors in the increase of chronic fatigue symptoms (Lutgendorf et al 1995)

Above range of studies show the complexity of different factors affecting mental health after disasters. Following from these studies, several interventions have been taken up depending upon the larger model of self, identity and culture involved.

Contemporary theories emphasize the importance of a holistic perspective and promote the idea of identity. Placing identity and maintenance of cultural integrity at the heart of practice, health care professionals are encouraged to take a holistic perspective across all phases of the disaster. Individuals, groups, and communities exhibit a range of responses influenced by levels of vulnerability or resilience. From this perspective, facilitating expression of feelings related to the disaster experience is an important focus for health care. Always working within the cultural context and being sensitive to the rituals related to remembering and mourning help preserve dignity and possibly facilitate creation of a new identity and a revised culture after disaster (Deeny, Mc Fetridge : 2005).

Further, psychosocial interventions must be tailored to address the needs of the target population, with special attention paid to vulnerable groups such as children, women and the elderly. These should also be modulated according to the phase of recovery following the event occurrence because each phase will highlight different needs. Since psychosocial care is a long-term, continuous process, disaster management and preparedness programmes must invest in training for capacity building by training community workers and primary care health professionals (Rao Kiran 2006).

Another approach - The ADAPT model – uses an expanded perspective on the psychosocial systems undermined by disasters, encompassing threats to safety and security; interpersonal bonds; systems of justice; roles and identities; and institutions that promote meaning and coherence. Social reconstruction programs that are effective in repairing these systems maximize the capacity of communities and individuals to recover spontaneously from various forms of stress. Within that broad recovery context, clinical mental health services can focus specifically on those psychologically disturbed persons who are at greatest survival risk (Silove, Steel and Psychol 2006).

4.6 Socio-Cultural – (Meso)

This heterogeneous variable includes, local gender sensitive knowledge; local architecture; traditional housing structures practices; land use practices; cultural norms and practices including dress pattern, food habits, storage practices.

Culture can be defined as the complex whole of knowledge, belief, attitude which largely shapes the behaviour of the people. The extent to which the population will be vulnerable to a disaster depends upon the norms and values of the society. It has been highlighted earlier that gender roles, age related norms, social support etc. affects the vulnerability as well as the capacity of the population to respond in disaster situations. In this sub-section the focus will be on traditional cultural systems and indigenous knowledge and how these factors affect the vulnerability and the capacity of the people.

Gaillard (2006) in his study suggests that there are broadly three approaches to traditional societies and resilient behaviour. The first approach regards traditional environment dependent societies as fragile and unable to cope on their own with large scale, fast-onset, Natural hazards. Such arguments emanate from top down technocratic and western logic. The second framework sees traditional societies as capable of recovering on their own from the impact of natural phenomena. The third approach regarding responses of traditional societies in the face of natural hazards defends an intermediate viewpoint. It argues that the occurrences of natural hazards act as catalysts for ongoing cultural changes among traditional societies pressured by the industrial world. However, in his study, Gaillard suggests that all the above approaches are inadequate as they do not address cultural change as a way of coping with the havoc wrought by disaster. He suggests that while the 1991 Mt Pinatubo eruption in Phillipines brought undeniable differentiated changes in the Aeta society the fundamentals of the Aeta social system survived the consequences of the disasters. While Aetas, have changed their food habits, clothing, religious beliefs, the Aeta households still co-exploit the swiddens, share food, and journey together to public markets for economic transactions. Thus Aeta social system has not disappeared due to disaster but has adapted to new environmental, social, economic and political environment while maintaining the stable core. It is this factor of maintaining their social fabric or accepting marginal or larger changes in order to survive that makes the Aetas resilient. Analysing the effect of disasters on the Aeta communities it suggests that capacity of resilience of traditional or other societies and the concurrent degree of cultural change is due to four factors: the nature of the hazard, pre-disaster sociocultural context, geographical setting and the rehabilitation policy of the govt authorities.

Another example illustrates the importance of indigenous knowledge. When the Tsunami struck the Indian Ocean, it resulted in large scale destruction. There was severe loss to life and property. In this scenario of nature playing havoc there were many media reports that showed how people of certain communities managed to escape the harmful impact of the disaster. These communities were able to gather early warning by observing animal behaviour (Dekens, 2007). Indigenous knowledge not only prevents the people from harm but also is useful for the relief workers. It is known through experience that if the relief workers have some insight about the needs and practices of the people concerned then they can provide better service which will cater to the requirements of the people (Dekens, 2007). A better understanding of local knowledge can help in disaster preparedness. It gives an idea

about what is important and can be promoted at the local level. It provides the basis for capitalizing on the strengths of the community which can lead to lesser dependence on outside aid (Dekens, 2007). Indigenous knowledge helps in promoting mutual trust, acceptability, common understanding and a sense of community feeling of 'we' feeling (Dekens, 2007). This in turn helps in coping.

In another study by Jan et al (2006); in the context of Taiwan with Hakka believers; the participants in the study suggested that Hakka Spirit - which is the cultural set of beliefs and behaviours influenced resilience.

4.7 Socio-Structural – (Micro)

This variable includes family/household⁴ structure (nuclear, joint, extended single), household size (number of members); the intra-household dynamics/equity and entitlements. It also includes existence of social capital – that is the range of existing social relations/networks; frequency of contacts, existence and size of social support group and other issues such as social/community cohesion – the quality and extent of cooperative behaviour in the social group, impact of chronic conflict etc.

Society can be visualized as the network of social relationships. Every society has a structure. The structure of the society emerges from the status and roles that the actors play in the given society. Every status has some role associated with it. This role is largely determined by societal norms. This arrangement forms the network of relationships that can also be called as the 'social capital' (Coleman, 1990). Social capital is different from human capital. The latter deals with the traits and attributes that are present in the individual whereas the former deals with the resources that are present in the network and can be mobilized when needed (Coleman, 1993). Social capital is located in the relationships and personnel networks between and among social actors. During an emergency period or disaster situation social capital serves as the primary base for community response (Dynes, 2002). It is observed that in a disaster situation there occurs a role conflict among people. This is due to the fact that an individual has many statuses and associated with them are many roles. During the disaster an individual has to choose between the roles. For example, he has to choose between the work role and the family role as disaster always bestows more importance to some roles over others (Dynes, 2002). It has been observed in many studies (LeChat, 1989; Dynes et al, 1988) that people's participation in search and rescue efforts are not at random. It depends on the strength of relationship between the victims and the fellow rescuers. Another form of social capital emerges within the family. During a disaster situation there occurs delegation of responsibility among the family members. For example, while husband and wife maybe busy in the rescue work, the older siblings in the household are looking after their younger siblings (Dynes, 2002).

Disaster studies have shown that recovery of families is contingent upon the use of personal resources, for example savings, insurance etc; support from informal kinship systems and thirdly institutional (such as government) support. While survivors may use all the three – the most frequently used system – is dependent upon the larger political and economic settings (Dynes 1975; Bolin and Trainer 1978;

⁴ Household is defined here as a shared cooking space.

Bates and Peacock 1989b). Research has suggested that in industrialised countries, kinship ties, for example are important but not primary (Drabek et al 1975; Bolin 1982; Erickson et al 1976. Morrow et al 1997 suggest that for families who are disadvantaged, informal kinship ties are important to their recovery processes. The case of Hurricane Andrew shows that urban families, regardless of their ethnicity, are embedded in kinship networks and are an important resource when disaster strikes. An explanation for many people not receiving help from local kin could be that they themselves had problems as they too were impacted (Morrow et al 1997).

Nakagawa and Shaw (2004) suggest social capital - a function of mutual trust, social networks of both individuals and groups, and social norms such as obligation and willingness toward mutually beneficial collective action that can facilitate the post-disaster recovery process. This social capital will be facilitated and/or enforced by trust in community leaders and also by the political maturity of the community. Political maturity means that the community is accustomed to consensus building by having meetings and discussions among community members. In their comparative study of Kobe, Japan and Gujarat, India Earthquakes Nakagawa and Shaw show that although the local socioeconomic and cultural backgrounds are different in these two areas, the recovery process of urban areas is quite similar. At every stage of the disaster cycle (rescue, relief and rehabilitation), the communities played the most important roles among other concerned stakeholders. In both cases, it was found that communities with more social capital had better rates of recovery.

4.8 Physical Environment (Macro)

This variable includes, the environmental factors – such as climate, floodplain, topography etc; as well as hazard mitigation structures built – for eg checkdams, irrigation, embankments etc. UNISDR (2002) suggests that ‘environment and disasters are seen as inherently linked. Environment degradation exacerbates the impact of natural disasters. It affects natural processes, alters humanity’s resource base and increases vulnerability. The degree to which environment can absorb impacts, increase overall resilience and provide effective and economical solutions to reduce disaster risks is therefore jeopardized. Furthermore, societies ‘traditional coping strategies are challenged’. Thus ‘Adaptive capacities of ecosystems to absorb sudden shifts in climatic, geological and biological components are a key feature increasing disaster resilience’ (UNISDR 2002). The adaptive capacities of the environment include natural features such as wetlands – which act as a water storage, storm protection, flood mitigation, and erosion control. Mangroves and barrier reefs mitigate the impacts of the tidal surges, storms and hurricane risks. Forests are a protection against land slides, avalanches. The destructions of such natural protection systems is also increasing disaster risks (UNISDR 2002). Human societies and governments have also built hazard mitigation structures – for example the elaborate system of dykes in Vietnam span over 1000 km and were erected over a course of thousands of years (Dolcemascolo 2004). The investment made by the governments and societies into creating such hazard mitigation structures would also impact the disaster risks. Thus increase or decrease in the vulnerability and resilience against risks would be impacted by these macro factors as well.

5) Research Questions:

Based on this conceptual framework, the research questions that will be studied in relation to social impact are:

1. What are the social impacts on individual households and communities, and representatives of individual social groups (eg women, children, frail elderly, widows, etc) within households and communities, of floods, storms and earthquakes? (Each hazard has different social consequences, according to different time frames and other factors).
2. What factors make people vulnerable and how can they be reduced? Why are some people more vulnerable than others? (age, gender, education level, urban/rural, class, ethnicity, caste and other socio-demographic, socio-economic, socio-cultural, and socio-political factors)
3. What are the socio-political impacts (related to power and powerlessness) of disaster?
4. What are the socio-economic impacts (ethnicity, gender, caste and other social variables in intersection with economic variables) of disasters?
5. What are the psychosocial impacts (eg depression, anxiety, etc) of disasters on individuals?
6. What is the role of entitlements and human rights in reducing vulnerability or increasing resilience?
7. What are the impacts of natural disasters on social structure and how do socio-structural factors decrease vulnerability or build resilience? (Eg household structure/dynamics, family size, etc)
8. What are the impacts of natural disasters on social capital and what is its role in vulnerability reduction or resilience building (eg social supports, cohesion, community participation, networks)
9. What are the impacts of natural disasters on social welfare and what is the potential for vulnerability reduction and resilience building (vulnerable groups, social services, housing, education, health)?
10. What is the impact of the emergency response system and disaster response institutional practices in reducing social impacts?
11. What preparedness measures reduce vulnerability and build resilience? At household, community, institutional (GOs, NGOs, etc) and other levels?
12. Is there a mechanism for institutional (eg GOs, NGOs, CBOs, etc) learning in disaster preparedness? What are the barriers to the learning?

Based on the conceptual framework and the research questions, an operational model has been developed as given in Appendix 1 which will test some of the possible relationships between the variables of interest discussed above.

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Appendix I : Social Impact Operational Model

