

CHAPTER 2

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

This chapter first attempts to trace the origin and development of the research into hazards, which forms the foundation of the theoretical framework of my research, then, will review the literature related to the three concepts which formed the foundation for my data analysis, these being: (1) vulnerability (2) coping strategies and (3) power structures. In addition, this chapter will include the conceptualization of the research processes used.

Research on hazards began its journey in the early twentieth century as a policy-oriented avenue of research focused both on ‘natural’ and ‘technological’ problems faced by human communities. Initially its goal was to study rational management and the amelioration of risk - defined as the calculable likelihood of problematic outcomes arising from human actions and decisions. Writing his thesis in the early 1940s, White challenged the traditional way of thinking when dealing with flood hazards, calling it a fundamentally *human* problem (White 1945). According to him, a flood is a hybrid human-environment artifact, no more an act of nature than one of planning. This powerful insight into the problem paved the way for several decades of research into human adjustment to the environment, showing that current economic and political structures increase the riskiness of natural events, and that this has tremendous implications for how our society and personal lives are ordered.

But as the academic project on hazard research matured in the late twentieth century, it lost the critical momentum of its precursors and failed to form a robust and relevant theoretical account of social adjustment to the environment. For example, why do structural solutions prevail in the face of better alternatives? Are poor and marginalized groups more vulnerable to floods? And, what is the role of power in the environment system and its relationship to people? These urgent questions could not be answered within the existing hazards approach - the

contextual forces that create unequal vulnerability and differential response paradigms fall outside the concerns of traditional hazards research.

However, the research into hazards to that point had placed some practical problems into the purview of human ecologists, boldly suggesting that natural events are indeed quite social. However, researchers were asking crucial questions regarding land tenure laws and commodity markets which are further arranged along the linked axes of money, influence and control, and the study of these areas ultimately gave birth to political ecology. The difference between this contextual approach and the more traditional way of viewing problems is the difference between a *political* and *apolitical* ecology. Political ecology analyses the vulnerability context by tracing it back from immediate and local causes (in space and time) to less direct, long-term and structural reasons (underlying dynamic pressures and root causes of the Pressure and Release (PAR) model developed by Blaikie et al.).

2.1 Vulnerability

The word vulnerability is derived from the Latin word *vulnerare* ('to be wounded'), and describes the potential to be harmed physically and/or psychologically. It is often understood as the counterpart to resilience and has been increasingly studied in relation to social-ecological systems.

In the 1970s, the concept of vulnerability was introduced within the discourse on "natural hazard and disaster" by O'Keefe, Westgate and Wisner (O'Keefe et al., 1976), who insist that socio-economic conditions are the cause of natural disasters. The book gave empirical data showing that the occurrence of disasters has increased over the last 50 years; paralleled by an increasing loss of life. The work also showed that the greatest losses of life have been concentrated in underdeveloped countries where vulnerability levels are increasing. Chambers put these empirical findings on a conceptual level and argued that vulnerability has an external and internal side; people are exposed to specific natural and social risks at the same time and that people possess different capacities to deal with their exposure by means of various strategies of action (Chambers 1989).

Scholars are divided on use of the word vulnerability. Cutter (1996) and Downing et al. (1999:5) seem to see vulnerability as an outcome, but Lewis (1999) instead refers to vulnerability as the set of attributes that condition outcomes – as a *susceptibility* to impacts. Hence the influential work of Blaikie et al. (1994:9) defines vulnerability as “characteristics of a person or group in terms of their capacity to anticipate, cope with, resist, and recover from the impact of natural hazards”. Adgar (2000: 739) provides an alternative definition closer to this sense, saying it is “the presence or lack of ability to withstand shocks and stresses to livelihood”.

However, there are differences in approach between those that see vulnerability in terms of variations in exposure to hazards, and those that concentrate on a variation in people’s capacity to cope with them. Studies in the former vein tend to “focus on the distribution of some hazardous condition, the human occupancy of this hazardous zone...and the degree of loss (life and property) associated with the occurrence of a particular event” (Cutter, 1996: 531-32). Studies in the latter vein tend to highlight the social construction of vulnerability (Cutter, 1996). Pelling (1999) suggests it is the socio-political processes by which people are made vulnerable that are most relevant to mitigation strategies; however, Parker (2000) warns against becoming too polarized in this perspective, preferring an ‘environmental’ approach that recognizes the influence of both social and physical environments in the creation of flood risk, but puts explanatory focus on social aspects.

Blaikie et al. (1994) developed the PAR model which understands disaster as the intersection of two opposing forces: socio-economic processes on the one side and physical exposure on the other. They distinguish between three components on the social side - root causes, dynamic pressure and unsafe conditions, and one component on the natural side, which is the hazard itself. The most important root causes are “economic, demographic and political processes”, which affect the allocation and distribution of resources between different groups of people. Dynamic pressures (class, gender and state) translate economic and political processes into local circumstances (such as migration patterns). Unsafe conditions

(the physical environment, public actions and institutions, a fragile economy and poor health service) are specific forms in which vulnerability is expressed in time and space (Blaikie et al. 1994). Watts and Bohle argue similarly by formalizing the “social spaces of vulnerability”, which is constituted by exposure, capacity and potentiality (Watts and Bohle 1993).

A sub-category of vulnerability research is social vulnerability which has emerged most recently within the discourse on natural hazards and disasters. The social vulnerability approach represents an attempt to understand the social conditions that transform a natural hazard (such as a flood or earthquake) into a social disaster. The concept emphasizes two central themes: (1) both the causes and the phenomena of disasters are defined by social processes and structures; thus, it is not only a geo-physical hazard but rather the social context that is taken into account to understand ‘natural’ disasters (Hewitt 1983), and (2) Although different groups of a society may share a similar exposure to a natural hazard, the hazard has varying consequences for these groups since they have diverging capacities and abilities to handle its impact.

Cutter has developed an integrative approach (hazard of place), which considers both multiple geo-biophysical hazards on the one hand as well as social vulnerability on the other (Cutter, Mitchell et al. 2000). Recently, Oliver-Smith has grasped the nature-culture dichotomy by focusing both on the cultural construction of the people-environment relationship and on the material production of conditions that define the social vulnerability of people (Oliver-Smith and Hoffman 2002).

Some authors have criticized the conceptualization of social vulnerability for over-emphasizing the social, political and economical processes and structures that lead to vulnerable conditions, for, inherent in such a view is the tendency to understand people as passive victims (Hewitt 1997), neglecting the subjective and inter-subjective interpretation and perception of disastrous events. Bankoff criticizes the very basis of the concept, since in his view it is shaped by a knowledge system that was developed and formed within the academic environment of western countries and; therefore, inevitably represents values and principles of that culture.



According to Bankoff, the ultimate aim underlying this concept is to depict large parts of the world as dangerous and hostile, to provide further justification for interference and intervention (Bankoff, 2003).

Another thing about vulnerability is that it is produced historically. Arguing that events have histories, Kath Woodward (2000) suggests that if we ask the following questions, we will be able to find an historical link to natural hazards: How is it that the people, the land and the environment become so vulnerable? Has there been mismanagement of resources? Have planning regulations been ignored? Are gender inequalities producing vulnerabilities?

Vulnerability is also linked to particular geographies, as the affected areas may be the victims of unfair trade conditions or be poorly treated by national governments and international bodies, or neglected in terms of investment in the essential services that would reduce vulnerability.

In their book 'The Natural and the Social: Uncertainty, risk, change', Hinchliffe and Woodward (Hinchliffe and Woodward, 2000) establish a connection between markets and vulnerability, dividing the financial world into two categories: 'core' and 'periphery', and argue that those people or countries that lie at the periphery remain vulnerable.

There is a movement away from simple taxonomies of "vulnerable groups", to those of "vulnerable situations" which people move into and out of over time, and within this approach social characteristics such as gender, age, health status and disability, ethnicity, caste, religion and socio-economic status are the focus of attention.

So, it seems that human vulnerability amplifies the physical exposure to hazards through poverty and low socio-economic status, with the added risk varying according to occupation, social class, caste and other life factors. The very young and the very old are the most high risk groups, and in the Bangladesh cyclone disaster of 1970, over half of all deaths were suffered by children below ten years of age (Sommer and Mosely, 1972). Older people, especially widows, face difficulties

in maintaining their livelihoods after disaster, and similarly, people with chronic malnourishment suffer more from water-related diseases after floods. Vulnerability, like risk, is a universal problem; for example, 20% of the US population suffers from some form of disability and is perhaps less likely to undertake emergency evacuation than other members of society (Keith Smith 4th ed., 2004), plus there is also concern about vulnerability and gender in the wealthier countries; however, in the Least Developed Countries (LDCs), socio-economic problems combine with insecure physical environments to create a high degree of vulnerability.

There is also a time-space factor to be considered when analyzing vulnerability. The immediate impact of an event may be explained largely by asking the question 'who was where and when?' If the event occurred at night, most people would have been in bed and therefore more vulnerable than during daylight hours. A similar vulnerability rationale may be applied for fishers who happen to be offshore when a storm occurs.

Many vulnerability situations are temporary and change with life stages or with changes in occupation, immigration status or residence. Flood hazards have a variable impact on people according to the vulnerability patterns generated by the socio-economic system in which they live, and as such, class relations and structures of domination are crucial for explaining vulnerability to floods, as they determine the level of ownership and control over assets and livelihood opportunities that may already be inadequate to provide basic needs for the household. As a result, the initial pre-hazard conditions are largely determined by patterns of vulnerability that result from the economic and social system in which they exist.

Weaving together the foregoing discussion on the concept of vulnerability, I find that vulnerability is associated with the following key aspects: (1) It is the result of an exposure to hazards, (2) it is a process of social construction, (3) it is the combined result of both natural and social processes, (4) it has a link to geography, history and the market, (5) time/space factors sometimes create vulnerability, and (6) the gender, age, religion, caste and ethnicity of those impacted are also important in terms of influencing their level of vulnerability. An understanding of the above

key aspects of vulnerability helped me to study the vulnerability status of those flood affected people at my study site.

The people in my study area live in extreme poverty, as 40% of them are landless, 35% are small land holders, 23% have access to a medium amount of land and only 2% can be considered as rich. The average per capita cultivable land is as low as 0.07 hectares, and during the off-cropping season many landless people suffer from *monga* (starvation). Generally, the population density in Bangladesh is high, but in Gaibandha District it is even higher than average for the country. The male-female ratio in the study area is almost equal, with 50.26% being male and 49.76% being female, but as most women are not involved in income earning activities, most households have to rely on a single earner. Geo-physically, Gaibandha is one of the worst sufferers from floods in Bangladesh; therefore, the concept of vulnerability might be seen as an appropriate tool to use to map the geo-physical as well as socio-economic conditions in which the inhabitants of the District have to live, in terms of coping with the recurrent floods. I will now turn to my second concept: ‘coping strategies’, in order to gain a broader understanding of the ways in which the flood affected people behave in a given vulnerable situation.

2.2 Coping Strategies

Should a shock or stress challenge the basis of a livelihood, then people move into ‘coping strategies’ which are short-term ex-post efforts to support the basis of their livelihood - while the stress is present (Davies, 1993). The concept of ‘coping strategies’ evolved during efforts to explain how households and individuals adapt to crises. Despite practical difficulties and some criticism of the theory, the term has been mainstreamed into donor thinking such that the “ability to cope with and recover from shocks and stresses” is seen as a critical component of a sustainable livelihood (DFID, 1998).

According to Start and Johnson (2004), typically there are three potential components to a coping strategy, which is based around assets, activities and needs, or consumption. Coping at the needs or consumption level typically involves

(Devereux, 1993) consumption diversification by changing diets or inputs to cheaper or more plentiful items, reducing consumption by rationing or by reducing the number of consumers (e.g. by loaning livestock or sending family members away). Coping at the assets level typically involves liquidating stores, eroding productive assets (in extreme cases), making use of informal claims (through kin networks and the moral economy) or by making use of formal claims (through the state or financial services) (Swift, 1993). Coping at the activity level can involve working harder or longer hours on existing activities, or diversifying into new economic activities protected from the original shock or trend.

At the end of the 1980s, Anderson and Woodrow stressed the need to identify the capacities that already exist in societies when designing disaster-related development interventions (demands from aid/humanitarian workers led them to reprint their ideas in Anderson and Woodrow, 1998). Since then this positive aspect has been further explored, for as Pelling (1999: 250) states:

“Vulnerability has three components: exposure, resilience and resistance. These components are simultaneously the products of political and socio-economic structures and the capacity of individual actors and social institutions to adapt to hazard and stress.”

Adaptation is a key concept here. If exposure refers to floodwater incursion into “living spaces”, resistance and resilience refer to the human capacity to minimize the impacts of that incursion through some form of adaptation. Roger Few (2003, 3:43) argues that people facing flood risks might take action (a) to prevent the spread and penetration of floodwaters through physical means, and (b) to reduce negative effects from floodwaters through actions such as livelihood diversification, relocation of belongings, or the community distribution of emergency drug supplies.

Blaikie et al. (1994: 62) define ‘coping’ as “the manner in which people act within existing resources and range of expectations of a situation to achieve various ends”, that is, “managing resources (physical and social means of gaining a livelihood) in adverse situations”. They also describe how such hazard coping

strategies may comprise preventive, impact-minimizing or post-event coping actions.

Clarke Guarnizo (1992) has developed a framework for mapping out “adjust mechanisms” based on categories of mechanisms (social organization, economic relationships, technology use and cultural arrangements) and how they relate to different phases in the disaster life cycle (before, during and after). Social coping mechanisms include assistance from kinship networks and self-help groups, economic adjustments include livelihood diversification and community credit groups, whilst technological adaptations against flood damage include portable housing materials and schemes for food storage. Cultural arrangements include crisis perception and the passing on of knowledge between generations. Many of these adaptations may not be solely related to flood hazards, but may be part of a general process which covers the adaptation to stress (Clarke Guarnizo, 1992; Nishat et al. 2000).

Households and communities bring differential resources to bear in their adaptation to environmental hazards such as flooding, and the literature on hazards and disasters has increasingly paid attention to such attributes. In their framework for analyzing vulnerability/capacity, Anderson and Woodrow (1998) identify three factors: physical/material resources, social/organizational structures and motivational/attitudinal factors. Morrow (1999:1) sees risk as being socially constructed from the following:

“Beginning with economic and material resources, the argument is extended to include human or personal resources (education), family and social resources (networks of reciprocity), and political resources (power and autonomy)”.

Adger (1999) makes a conceptual connection between vulnerability and resources, drawing on the concepts of entitlements first developed by Sen (1981) and elaborated upon in an environmental setting by Leach et al. (1999). Here, the emphasis is placed on access to and rights over resources, and these diverse aspects that determine vulnerability can be conceptualized as a set of entitlements; it is the

structure or architecture of these entitlements which underpins both security and vulnerability (Adger, 1999:252).

Pelling (1999) employs similar notions of rights of access to resources and the consequent “ownership” of assets. His analysis focuses on the processes that create vulnerability to flooding within a political ecology approach, one that integrates an understanding of power and social relations in seeking to explain issues relating to the environment (Peet and Watts, 1996; Bryant and Bailey, 1997). This connection between vulnerability and the ownership of assets has been highlighted by Moser (1998:3), who identifies important assets as comprising labor, housing, social and economic infrastructure, household relations and social capital. Carney (1998) lists five types of capital asset: natural, social, human, physical and financial, defining them as follows:

1. Natural capital includes resources like land, water, forests and pastures, as well as minerals;
2. Social capital denotes the quality of relations among people at different levels; for example, with neighbors, relatives or different social groups
3. Human capital can be labor, skills, experience, knowledge and creativity
4. Physical capital includes food stocks, livestock, jewelry, equipment, tools and machinery, and
5. Financial capital is money kept in a bank or in old stock; as a loan or credit.

Moreover, it has been increasingly accepted that people do not simply draw on their assets but possess sophisticated skills in managing them to cope with adversity and to take advantage of opportunities: “There is a growing recognition that the poor are strategic managers of complex assets portfolios” (Moser, 1998:5). A central focus on the assets and strategies of households lies at the heart of the non-influential livelihood approaches to development research and practice. In this framework, assets mediate the ability of households to pursue livelihood strategies designed to cope with ‘shock’ events such as flooding (Carney, 1998; Sanderson, 2000).

Ellis (1998: 13) distinguishes between risk management and coping behavior by arguing that risk management is a deliberate household strategy while coping is an involuntary survival response to crises or unanticipated failures in major resources.

Drawing on their experience in the Andes in Bolivia, Valdivia and Quiroz (2001) argue that changes in consumption, income and diversity are measures that can capture the impact of shocks and the ability of people to adapt to the perturbations that result. They also point out that flexibility and the level of access to networks and non-market institutions are the keys in terms of coping with climatic perturbations and adapting to change.

On the other hand, Ayog et al. (2004), from their experience in the Sabah floodplains of Malaysia, argue that one's cultural background is a structural influence which shapes one's perception as well as behaviors in response to hazards. As a result, some coping steps are not calculable as they are carried out instantly, depending on the situation.

However, Ahmed (2009) identifies the following coping strategies which people in Bangladesh commonly adopt during high-intensity floods:

1. Wrap dried seeds, food items and medicine etc. in water-resistant polythene bags and hang them from the roof
2. Relocate to safer (flood-shelter/highways) places
3. Help neighbors during the relocation processes
4. Raise the height of the tube-wells (add an extra tube)
5. Use rafts/boats for transportation
6. Relocate livestock to safer places
7. The rich contribute to the common fund; the poor pay with physical labor, and
8. Accept relief from the government, NGOs or aid agencies.



According to De Hann (2000), a livelihood is sustainable if it is capable of adequately satisfying self-defined basic needs and securing people against shocks

and stresses. Shocks (such as floods/earthquakes) are violent and can come unexpectedly; whereas stress (such as drought) is less violent but can last longer. Both have an impact on one or more of the vital 'capitals', and because of the contextual shocks and stresses present, livelihood strategies may temporarily take the form of safety mechanisms which are called 'coping strategies'. De Han argues that these are short-term responses carried out in order to secure a household's livelihood during periods of shocks and stress, but they do not appear out of the blue, but are specific manifestations of that livelihood. During periods of hunger, food stocks are opened up and, if these are used up, assets like jewelry or cattle are sold and livestock keepers migrate to wetter areas; whereas during periods of economic crisis, people are inclined to save and to develop alternative sources of income; for example, by migrating to the city. The collection of food growing in the wild and hunting, called "the subsidy from nature" by Hecht et al. (1988) and "coping extraction" by Takasaki et al. (2002) are old coping strategies, while reliance upon international disaster relief is a modern form.

Coping strategies are thus short-term or temporary responses to external shocks and stresses, and depending on the severity and length of these shocks and stresses, coping strategies fade away and normal livelihood strategies return. However, this type of equilibrium thinking is often no longer adequate for a proper understanding of livelihood strategies. The contextual impact of climate change, world market and politics is growing stronger and shocks and stresses appear more frequently; so it is becoming important to shape the coping strategies more permanently. Thus temporary coping mechanisms develop into more permanent "adaptive strategies". In the view of Community Adaptation and Sustainable Livelihoods (CASL 1998, p.2), adaptive strategies result in adapted livelihoods; so the idea of adaptation vanishes and the adapted strategy is considered to be a normal situation. De Han (2000, p.348) is also inclined to think that new coping and adaptive strategies will have to be developed as responses to the new form of shocks and stresses in today's world.

Coping strategies are often complex and involve a number of sequenced mechanisms to be in place in order to obtain resources in times of adversity and

disaster. The affected people seek, not just survival, but also the maintenance of the family, household and community cohesion, and often outsiders are surprised by strategies that do not seem to try and maintain adequate food intake for a household, but which instead are aimed at preserving the means for continuing the livelihood after the difficult period has passed. Many of these strategies are highly resilient to social and economic changes, and are reported to still function throughout the world (Blaikie et al. 1994).

In an effort to pull together the aforementioned theoretical debates on coping strategies, I can identify the following key points: (1) coping strategies are an important component of sustainable development, (2) coping is perceived differently at different levels, such as at the consumption, asset and activity level, (3) it represents the manner in which resources are utilized to tackle adverse situations, (4) it is also a kind of adjust mechanism involving social, economic, technical and cultural arrangements, (5) access to resources and capitals is vital in coping, (6) it is a short-term temporary strategy which is part of an overall livelihood strategy, and finally, with respect to sustainable livelihoods, (7) it is an involuntary response to crises.

The use of this concept is of pivotal importance to me, because it will help me to understand how the real actors - in this case the flood-affected people of Gaibandha, respond to flooding shocks and stresses in the given geo-physical and socio-economic conditions (called “unsafe conditions” by Blaikie et al. 1994) in which they live. When analyzing the preceding concepts of vulnerability and coping strategies, it has been found that assets and access to them are crucial in reducing vulnerability and coping with hazards, and it is power and power relations that mostly regulate the production, control and distribution of resources and access to them. As a result, I will now move to my third concept “power structures”, to reveal the link between vulnerability and the coping abilities of affected people.

2.3 Power Structures

“In the land of the blind, the one-eyed man is king” - Desiderius Erasmus.

Power is an elusive and difficult concept. The philosopher Bertrand Russell once said that power is to the social sciences what energy is to physics; it is one of a handful of extremely central concepts but it is impossible to define it accurately. Power structures are embedded in the fabric of society, yet there are obvious and clearly very significant differences between societies regarding power relationships, both in the public and the private spheres.

Power is a measure of an entity's ability to control the environment around it, including the behavior of other entities and often the study of power in a society is referred to as politics. In his famous book ‘The Leviathan’, Thomas Hobbes (1558-1679) defines power as a man's “present means to obtain some future apparent good”.

One of the oldest and still most influential definitions of power is that of Max Weber, who wrote that it “is the ability to enforce one's own will on others' behavior” (1978[1919]), and according to Weber, people have power over each other. Other concepts of power, including Marxist, include structural power; that is power relations are embedded in the division of labor, the legislative system and others structural features of society. Structural forms of power are easily noticeable in many contexts; obedience to norms and implicit rules may easily be seen as a form of structural power, “So, it is not easy to tell *who* it is that forces me to hold the fork in my left hand and the knife in my right” (Eriksen, 1995). In the Marxist tradition, the Italian writer Antonio Gramsci elaborates upon the role of “cultural hegemony” in ideology as a means of bolstering the power of capitalism.

However, if power includes any action dictated by cultural convention in its definition, it risks becoming diluted and synonymous with conventions, norms and ultimately culture. So, Weber distinguishes between power, authority (*herrschaft*) and influence; the latter being a ‘milder’ form of power presupposing tacit acquiescence. Authority, in Weber's view, is taken for granted and needs no

justification, while power proper is continuously being challenged and must be defended.

The different ways of conceptualizing power correspond to the differences between actor-oriented and systemic perspectives. If we see power from the actor perspective (Max Weber's view), it may be defined as the ability to make someone do something they would otherwise not have done, but if we look at power from a systemic perspective (as Marx did), it instead becomes crucial to show how power differences are embedded in the fabric of society. The great challenge of social science consists in trying to do justice to both. Much of the recent sociological debate on power is related to the works of Mitchel Foucault (1926-1984) who, following Niccolo Machiavelli, sees power as "a complex strategic situation in a given society". Being deeply structural, his concept involves both constraint and enablement. For Foucault power is "employed and exercised through a net-like organization", saying that individuals are "always in the position of simultaneously undergoing and exercising this power" (Foucault, 1980a, 98).

Scholars like Steven Lukes (1977) argue that power can be studied on three levels: the decision making level, the non-decision (political issues) level and the muted/powerless level. James Scott (1985) has thus shown that poor peasants may maintain a fairly high level of autonomy by systematically sabotaging impositions from the authorities, implying that virtually all humans have some potential power or influence. However, this resource (power), like all others, is unequally distributed.

Anthony Giddens (1979, 1984) argues that though people are not entirely free to choose their own actions and that their knowledge is limited, they are nonetheless the agency which reproduces the social structure and leads to social change. He writes that the connection between structure and action is a fundamental element of social theory and that structure and agency represent a duality (a duality of structure) that cannot be conceived of in isolation from one another. In his own words, "social structures are both constituted by human agency and yet at the same time are the very medium of this constitution." Agency is defined (by De Hann, 2000) as the

capacity of people to integrate experiences into their livelihood strategies and to seek outlets for ambitions and solutions to problems - embodied in the individual but embedded in social relations through which agency becomes effective. He also defines structure as the shell within which the five capitals are embedded, with the social part of the structure consisting of rules that govern common norms (social capital), with the economic part defined as supply and demand, and with the political element containing power relations.

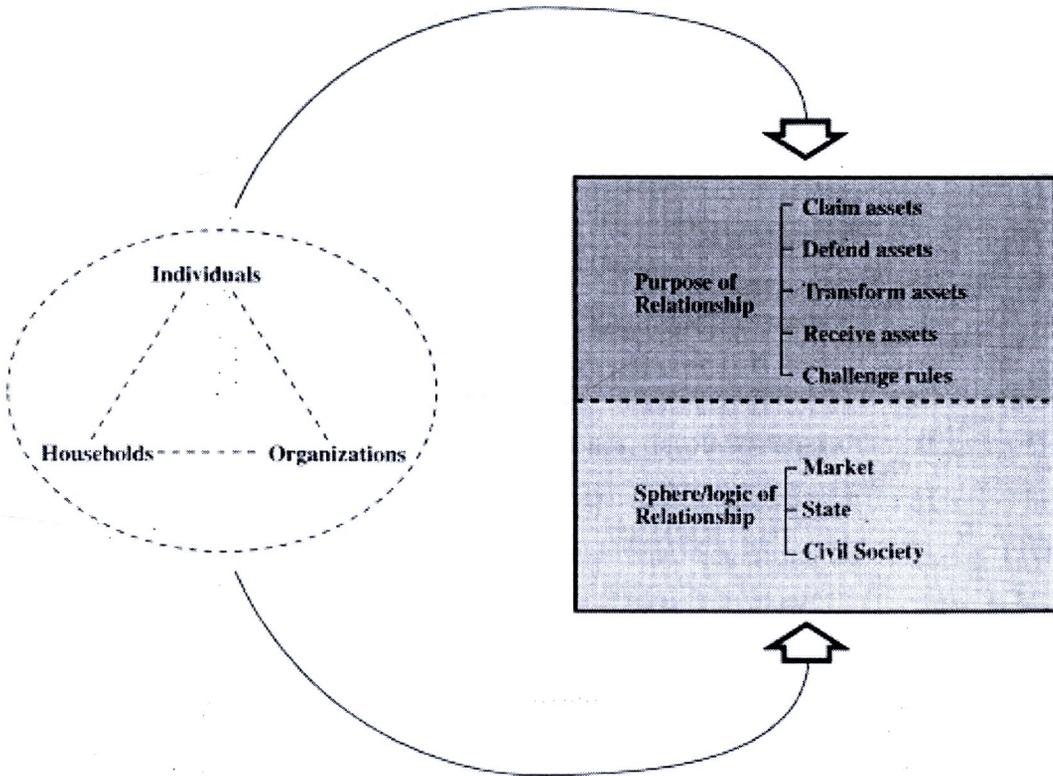
Gender studies highlight the intra-household power structure, and these studies have demonstrated the importance of a kind of power that is normal to us - one that cannot be possessed but exists only when exercised. This is the power that makes the bondsman accept his serfdom or women to accept a subordinate gender role; it is the power component of the institution called gender or of other informal institutions (de Hann and Zoomers, 2005). However, all these authors follow Giddens's idea of continued interaction between agency and structure, and the possibility that actors by their will deviate from discourses shaped by previous generations and thus induce change in structures. As a result, power relations are re-created in interaction and thus constitute a dynamic process of "wielding" and "yielding". The wants of those who wield power are influenced and shaped by the others in a subordinate position. From this point of view, women are not pure victims, but also play an active role in terms of their subordination.

Political ecologists use power as a key concept in efforts to specify unequal relationships among various actors of a politicized environment. Bryant and Bailey (1997, p. 39) conceptualize power as a key player in conditioning patterns of human-environment interaction in relation to addressing the following questions: What are the various ways in which one actor may seek to exert control over the environment of other actors? How do power relations manifest themselves in terms of the physical environment? They explain that an actor can attempt to control the access of other actors to a diversity of environmental resources (land, water, forests, wildlife and minerals) to monopolize a valued environmental resource for exploitation. This attempt is also linked to a marginalization of weaker grassroots actors which leaves the latter vulnerable to episodic changes. In the situations of

episodic changes like floods or cyclones, the powerful or the rich do not look into the root causes of vulnerability, rather they attempt to respond to the crisis by “short-cut” solutions such as providing relief. As a result, the affected people become the losers by becoming more marginalized.

However, debate among scholars continues as to whether everyday and episodic changes in the physical environment can be linked together. A case in point is the widely reported and believed link between upland deforestation and lowland flooding, the assumption being that the deforestation of critical watersheds is associated inevitably with intensified flooding events. However, evidence from the Himalayas cast doubt over such an equation (Ives and Messerli 1989), yet this debate on the physical connection of the everyday and episodic dimensions should not obscure the human activities that link together these two. Thus, a key social factor associated with everyday physical changes is that of marginalization (Blaikie and Brookfield, 1987), a process which occurs when poor grassroots actors such as farmers or shifting cultivators are pushed on to land that is economically marginal, as a result of their marginal political and economic status.

Some researchers place an emphasis on social capital as an asset through which people can widen their access to resources and other actors, focusing in particular on the relationship network between rural people and the familiar trinity of state, market and civil society. According to Bebbington (1999), rural people aim to reassert or renegotiate the rules governing access to resources in society through this network of relationships in different spheres. Thus, access to resources by engaging with the market is limited by commercial logic, with the state constrained/enabled by the ways that states work; whereas civil society is structured by the benefits/limits of this form of action. It is almost certain that to be effective in coping with shocks or enhancing livelihoods, one must have the power to manage relationships and transactions in each of these spheres. Importantly, this can happen through actions either of rural people or of external organizations; from the inside out and from the outside in (Woolcock, 1998). This network of social capital is reflected in the following figure:



Source: (Bebbington, 1999: 2030)

Figure 2.1 Relationship of resource access, use and transformation

In reviewing the preceding analysis on the concept of power structures, I understand that it is very difficult to define power, but yet it may be perceived through the features mentioned below, that: (1) power is deeply rooted in the fabric of society, (2) its exercise depends on the actors, (3) it is the combined result of agency and structure, (4) it is also associated with tradition or culture, (5) all humans have a certain degree of power or influence, (6) sometimes power is reflected in practice or action, and that (7) power is a purposeful means or ability to obtain or control something.

Society in Bangladesh is not rigidly stratified, but rather social class distinctions are mostly functional. Ostensibly, the egalitarian principles underpinning Islam are the basis of social organization, so social classifications are

based mainly on wealth and political influence. Most matrimonial alliances are based on wealth and power and in the countryside, some elites with links to the villages use property as a basis for their socio-political control. These elites who have landed property are called *jotdars*.

A significant social unit in the village is the Voluntary and Mutual Benefit Association known as the *samaj* (society). An informal council of Samaj elders called *matabbars* or *sardars* settles village disputes, and factional competition among the *matabbars* is a major dynamic of social and political interaction. The social class possessing more financial strength enjoys a better social network as well as more political support, and the middle classes, despite being in the majority, have little control or power over society, let alone the lower classes that they always have to think for their livelihoods. So, the existing power structure (unequal power relations), in Gaibandha as well as elsewhere in Bangladesh, can be seen as being one of the root causes of people's vulnerability to floods.

In a case study entitled 'Quang Tri - Living with Floods' contained within the report 'Viet Nam - Climate Change, Adaptation and Poor People' by Oxfam International (2008), it is said that flood hazards impact disproportionately on different groups of people. The report argues that the poor are adversely affected because of worse housing conditions, greater vulnerability to diseases and a less diverse household economy. This report also shows that many people believe that climate change and weather uncertainty are making their coping strategies difficult to implement. However, there are some contextual differences between Quang Tri and my study site. In Quang Tri, there are areas of lowland, upland and coast; accordingly the livelihoods of these people are also different, with farming in the lowlands, fishing along the coastal areas and diverse activities in the uplands, while at my study site the land is mostly plains and the main livelihoods are based on farming. Historically; however, there are interesting similarities between Quang Tri and Gaibandha. While Quang Tri bears the legacy of toxic chemicals left over by the US military, Gaibandha is inextricably entangled in a colonial legacy in terms of its social and cultural arenas.



2.4 Conceptualization of 'Living with Floods'

Concerning the flood hazard, Gilbert White asked the question in 1940: “Why do structural solutions prevail in the face of better alternatives?”, commenting that the issue can only be addressed fully by examining the *political economy* of flood plain development, the role of capital in agricultural development and the control of legislative processes through normative ideologies. Similarly, the risk of flooding is not uniformly distributed; the rich and the powerful are affected by floods but are not as vulnerable to floods as the poor and less powerful. So, what are the most important the root causes of vulnerability for flood affected people? These root causes are produced by economic, demographic, political, historic, geographic and market forces, and the power structure in society conspicuously contributes to the creation of vulnerability. In this scenario, stopping the floods is not the only solution, because many people live on the benefits provided by them in terms of food. What is imperative then, is to reduce the vulnerability to floods and to attain a sustainable adaptation to them; however, humans are purposeful individuals who first perceive a hazard, recognize available alternatives and then rationally adapt their behavior. The provision of livelihood opportunities by means of resources and capital using non-exploitative social and political processes can lead us to a better level of sustainable adaptation to floods.

As a broad framework, I will adopt the political ecology approach to hazards developed by Blaikie et al. According to this approach, “(a) hazards emerge directly from human activity (b) the severity of damage is related to the intensity of human environmental intervention (c) development, encouraging dependency and specialization in individuals and communities, actually reduces both normal coping capacities and the ability to respond to hazards and (d) outside disaster aid may convert a short-lived local problem into a long term one” (Morren, 1983: pp. 284-297). Here, in my conceptual framework, I want to depict that vulnerability is the result of the ongoing social process; it is created in combination with the root causes of a society with dynamic pressures resulting from hazards. A coping strategy is the tool which can reveal how the actors respond to a given situation, while the concept of a power structure serves as a link between the degree of vulnerability of the actors

and their coping mechanisms, because without an analysis of power, the concept of access to resources, which is the key to coping, is never complete. In addition, the power of representation is particularly crucial in the politics of defining the occurrence and extent of disasters and aid distribution (Russell, 1992, Benthall, 1993 cited in Anthony Oliver-Smith 1996: p. 309).

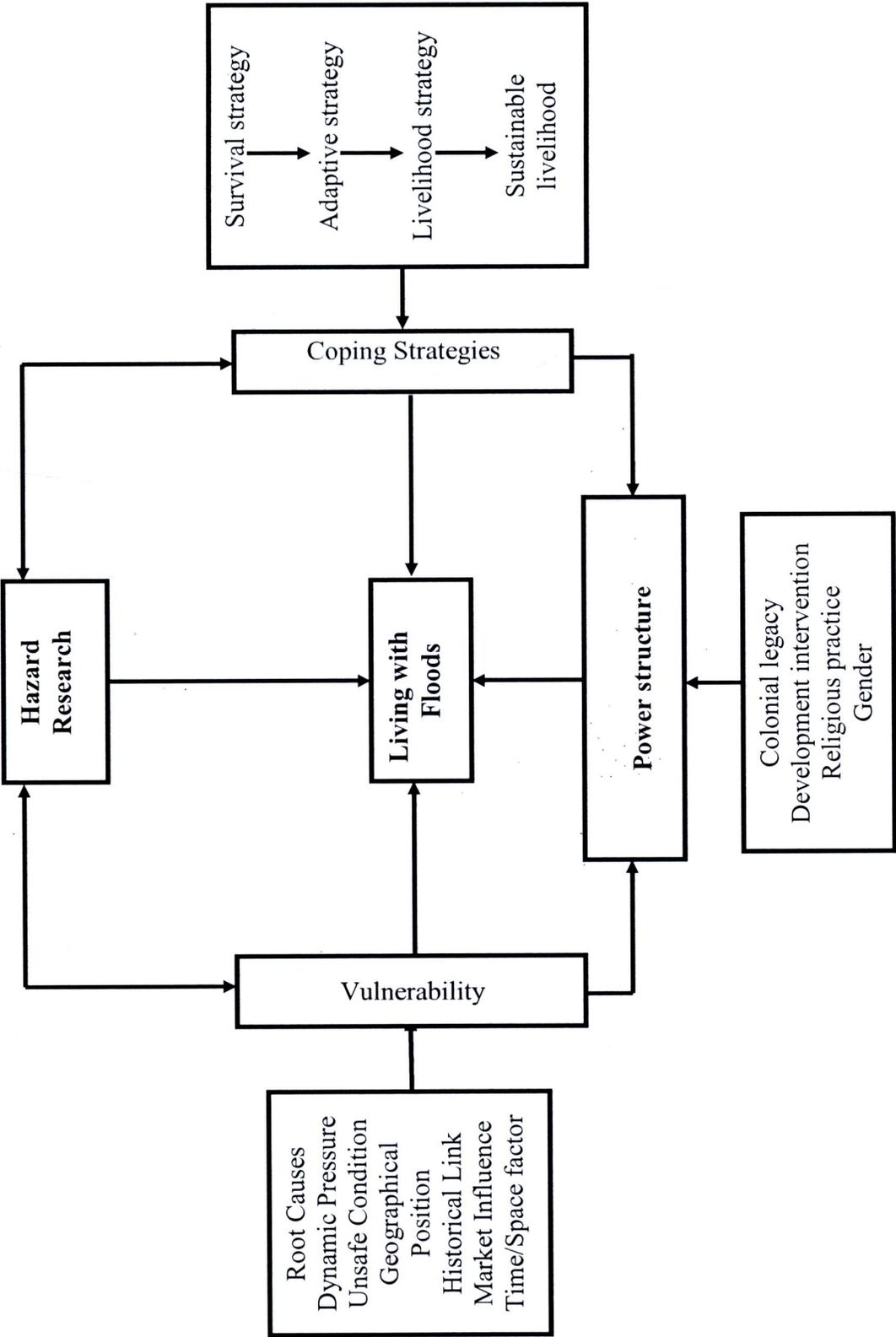


Figure 2.2 Conceptual Framework

2.5 Summary

The concept 'vulnerability' has wide ranging implications. Daily life is generally comprised a set of activities carried out in space and time during which physical hazards, social relations and individual choices become integrated into patterns of vulnerability, and these patterns are guided by the socio-economic and personal characteristics of the people involved. Gender, age, physical disability, religion and ethnicity may have a role in addition to poverty, class or socio-economic status, while coping strategies are complex and sometimes implemented in an instant. However, "the ability to cope with and recover from shocks and stresses" is regarded as a critical component of sustainable development by the Department for International Development, as people become braced to cope with extreme natural events through the stress of making ends meet, in avoiding the daily hazards of work and home, and of evading the predations of the more powerful.

Power structures are spread everywhere - like a net, representing the tool used for the exploitation of people under their control. Power structures in formal institutions are clearly noticeable, but the power structures that exist within intra-house relations and religious practices work more implicitly. The three concepts - vulnerability, coping strategies and power structures, are interrelated, and the coping strategies of a particular group of people will depend on their vulnerability situation. Again, the knowledge of power structures in a given society opens a window for us to see the 'access' profile of a particular group of people. So, Blaikie et al.. in their PAR model, aim to establish a link between human development and vulnerability reduction. emphasizing issues of governance, livelihood resilience and local capacity.