The Impact of Governance on Disaster Vulnerability

by

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Author's Declaration for Electronic Submission of a Thesis

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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Abstract:

This thesis outlines research that was conducted on the relationship between governance, public policy and the impacts of disasters. Here, the vulnerability approach to disaster management is viewed through a political economy perspective, and I contend that political ideologies and economic structures influence vulnerability to disaster. This perspective is taken in order to determine how vulnerability reduction fits into a political agenda that combines a strong central state with a liberal economy. Khao Lak and Koh Phi Phi Don were the most severely impacted of Thailand's coastal communities in the 2004 Indian Ocean tsunami. These two communities are used as primary case studies for the research. The population groups that were most vulnerable to the December 26, 2004 Asian tsunami are identified, and the social, environmental, political and economic factors that contributed to their vulnerability are analyzed. The methods of data collection for this project included interviews with key informants and with residents of Khao Lak and Koh Phi Phi Don. The conclusions drawn from the research fed into a series of recommendations designed to assist in ongoing disaster vulnerability reduction efforts in Thai and other developing country communities.

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Special thanks to my mom, from whom I have adopted a desire to be of use, to contribute to social justice and who always encouraged me to fly.

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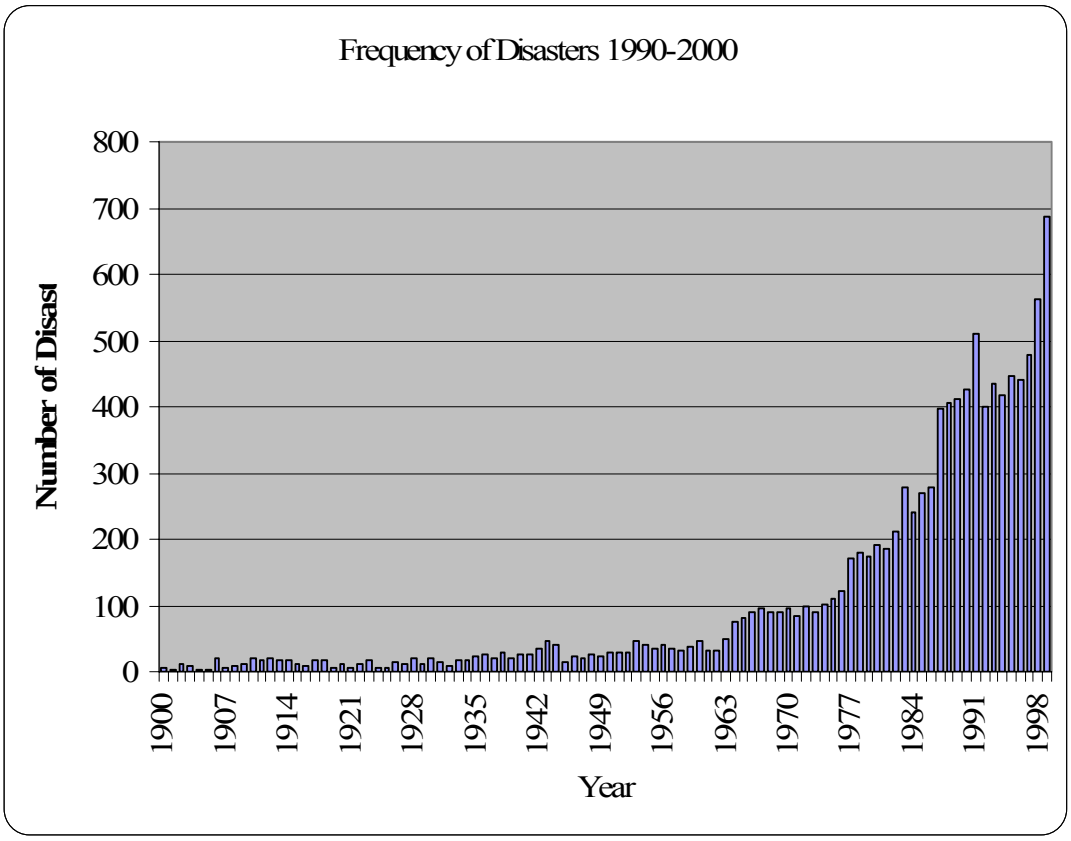
1 INTRODUCTION

Over the past century, the frequency of recorded disasters has increased dramatically (EM-DAT, 2005). In 2004, disasters[1] affected over 135 million and killed over 329 thousand

Figure I: Frequency of Disasters



Source (EM-DAT, 2005) 1

people (EM-DAT, 2005). However, many have argued that although disaster agents are rising vulnerability to hazards is increasing at a much faster pace and accounts for most of the increase in disaster events (Haque, 2003; David A. McEntire, 1999; Susman, O'Keefe, & Wisner, 1983; Varley, 1994). Although the 1990s were declared the United Nations International Decade for Natural Disaster Reduction (IDNDR), the number of disasters increased during this decade (See

[1] EM-DAT defines a hazard event as a disaster if one of the following criteria is met: 10 or more people are either confirmed as dead or have been missing and presume dead; 100 people are reported as affected; there is a declaration of a state of emergency; or if there is a call for international assistance.

Figure I) (Twigg, 1998). At the 1994 IDNDR conference in Japan, representatives of the international community agreed that disaster management requires greater attention to community-based disaster mitigation which encourages participation in disaster mitigation and community planning (Newport & Jawahar, 2003; Twigg, 1998). However, follow-up initiatives have been infrequent and have not been backed by adequate resources (Yodmani, 2001). Unless social, political, economic, and environmental vulnerability is addressed pre-disaster, an increased frequency of disasters seems inevitable.

At 7:58 a.m. local time on December 26th 2004, the pressure between the Eurasian and Indian tectonic plates was suddenly relieved and the largest earthquake in over 50 years, an estimated magnitude of 9.3 on the Richter scale, resulted (RMS, 2006). On Koh Phi Phi Don, the earthquake was neither felt nor learned of until much later that morning. It was a quiet Sunday morning until one woman said to another "Oh, go see, your boat is on the sand" (Interview 2m, 2005). "We ran together and were surprised that the big ferry was on the beach, there was no water. Then, it started to come back very fast and every long tail boat was washed up on the land. The water came to me and I said 'Oh my God, where is my baby,' but nobody talked because they were all running" (Interview 2m, 2005).

The Indian plate has been subducting beneath the Burma plate at an annual rate of 5 cm/ year, creating enormous unrelieved pressure. Once this pressure was relieved through the earthquake, the Burma plate was displaced 4-5 meters upwards, along 1,200 kilometers of faultline, with a rupture width of over 300 kilometers (CCOP & DMR, 2006): the massive volume of water that was displaced almost instantaneously caused a devastating tsunami.

The affects of the Indian Ocean tsunami, including over 281,000 lives lost (ADPC, 2005) and roughly 1.5 million displaced, are not comparable to any disaster within modern history.

Although the western coast of Sumatra has a history of tsunamis, there has not been one with such a large magnitude since 1861 (RMS, 2006). In the wake of such a large-scale disaster, disaster relief agencies, humanitarian organizations and academics have been challenged to adjust and reinvent disaster management strategies. The Andaman-Sumatra earthquake and the resultant tsunami caused overwhelming impacts in Thailand, Indonesia, India and Sri Lanka and has stimulated the search for more effective disaster management and preparedness strategies in order to decrease future vulnerability to tsunamis and other disasters in South-East Asia.

1.1 Structure of Thesis

In the first chapter of this thesis, I identify my research problem, goals, questions and research rationale. In the second and third chapters, I outline the context of my research within two main bodies of literature: vulnerabilities literature, in which I define vulnerability and situate the "vulnerability approach" within the broader field of disaster management; and literature on the neoliberal economic model and state-led development, in which I trace the benefits and limitations of each system on disaster vulnerability. The fourth chapter offers a breakdown of my research methods, details the phases of my research in the field, and provides background information for my case study site. Following the methodology, the fifth chapter of this thesis provides information on the geophysical processes that occur in a tsunami, and specifically discusses the events of the Indian Ocean tsunami in 2004. The sixth chapter describes and summarizes the research results. A critical analysis and discussion of the research findings is provided in the seventh chapter, while the research limitations, broader implications of the findings and considerations for future disaster management strategies are outlined in the concluding eighth chapter of the thesis.

1.2 Research Problem

Vulnerability, in the context of disaster management, has been widely explored in disaster management literature; however the link between vulnerability and governance, particularly governance in coastal zones, has been under-studied. This thesis investigates the relationship between political ideology, public policy, national governance and vulnerability to disaster using two case studies: Khao Lak and Koh Phi Phi Don, Thailand. In Thailand, Khao Lak and Koh Phi Phi experienced the greatest devastation by the tsunami and I hypothesized that vulnerability in these places was considerably influenced by political structures and authorities. Here I focus on the causes of human vulnerability pre-tsunami and seek to reveal the underlying political, environmental, economic and social factors that influenced vulnerability for residents and tourists of Khao Lak and Koh Phi Phi Don. It is my hypothesis that both global and national political structures influenced the socio-economic landscape in Thailand and therefore shaped disaster vulnerability.

1.3 Research Rationale

The paradigmatic shift in disaster management, my confidence in the vulnerability approach to disasters, and the devastating impacts of the December 26th tsunami for residents of Kao Lak and Koh Phi Phi Don, have all influenced and steered this thesis. Pre-1970s, the prevailing 'dominant' approach to disaster management considered that disasters were singular and natural 'acts of God'. However, this perspective encouraged only a *reaction to* disasters rather than *preparedness for* disaster. As a result, disasters were far more destructive than necessary. Gilbert F. White (1961), Robert W. Kates (1962) and Ian Burton et al., (1968) were the first to challenge the dominant approach and to recognize that disasters are usually, in part, human-invoked. This assertion was the starting point of a paradigm shift towards the 'alternative approach' to disasters. This alternative approach is based on the notion that disasters are

resultant of human behaviors *and* problems with development. However, in the past decade, some disaster management theorists have combined these approaches to establish a 'holistic' approach, which understands disasters as products of *both* physical and human invoked causes. Here, I understand disasters from the holistic perspective: the combination of a natural 'trigger event' with human-invoked vulnerability. More specifically, I adopt the vulnerability approach to disaster management which has roots in the alternative perspective and is valuable because it seeks to understand: why a disaster happened; what its impact has been; why it affected a certain population; and how to estimate future risk (Anderson & Woodrow, 1989).

There are various lenses through which the vulnerability approach has been observed. For some authors, vulnerability to disasters has been conceptualized as the susceptibility of a community to a hazard (Hewitt 1997). For others, vulnerability is influenced by industrial development and technological processes (McEntire 2001). Wisner and Luce (1993) take the approach that vulnerabilities are revealed by analyzing daily behaviors, actions and patterns, while others take an ecological approach in which vulnerability is rooted in environmental fragility (Bryant & Bailey, 1997). Political economic approaches to vulnerability have been used in a number of disciplines, and essentially understand vulnerability as a phenomenon related to economic class. The 'Political Economy Approach' was derived from the theory or marginalization (Susman et al., 1983) and is focused on the affects of economic and political powers on vulnerability (Greenberg & Thomas, 1994). However, the political economy approach was criticized for not giving adequate attention to environmental influences on vulnerability. Thus the Political Ecology perspective originated out of a need to integrate human ecology, political economy and development studies perspectives (P. Blaikie & Brookfield, 1987; Wisner, 2005a). In this research, I take both a political economy and political ecology

approach. The political economy approach enables investigation into the influences of capitalism on disaster vulnerability, while the political ecology approach is geared towards understanding the linkages between human agency, policy and environment. There are a number of advantages to the political ecology approach: it aims for research to integrate social, environmental and political factors; it focuses on understanding local to global dynamics; and it seeks to understand the different vulnerabilities human groups face depending on their class, gender, age, and geography (Stonich, 1993). The political ecology perspective also enables the investigation of the influence of political ideology on disaster vulnerability. Although one of my objectives is to demonstrate whether capitalist motivations can increase vulnerability, I do not presume that vulnerability to disaster would be less extreme under a socialist state. In contrast I recognize that, for developed countries, capitalism has increased economic security and has therefore dramatically reduced hazard vulnerability. Western economic and political systems have significantly reduced vulnerability through national emergency preparedness and management programs, improved disaster tracking technology and warning systems, education programs on hazard awareness and response, and increased community participation in disaster relief and response initiatives. The disaster reduction that has occurred *as a result* of capitalistic development should not be overlooked. However, disaster theorists have a responsibility to remember that in some places "the skewed distribution of resources associated with capitalism increases liabilities and reduces capacities" (David A. McEntire, 2001, 192). Diasporas of wealth often limit the opportunity for people to reduce vulnerabilities.

I traveled to Koh Phi Phi Don in October of 2002 on a four day backpacking trip. As a small-town southern Ontarian, my trip to Koh Phi Phi offered a tropical paradise experience in which I experienced enchanting differences in environment, climate and people. The December

26th, 2004 tsunami triggered personal sympathy for the Koh Phi Phi Don community, and it was the connection that I felt to the island that motivated this thesis. The enormity of this disaster and its impacts, specifically for those economically and socially marginalized, moved me to review and evaluate disaster management approaches and to study the influence of local governance on vulnerability.

1.4 Research Goals and Objectives

The broad aim of my research was to determine how Thailand's political environment influenced the way in which Khao Lak and Koh Phi Phi residents were impacted by the December 26th tsunami. As such, I seek to:

a) Identify how national and local public policy influenced the vulnerability on Khao Lak and Koh Phi Phi;
b) Determine the degree to which economic inequalities, socio-political marginalization, and the environmental landscape influenced vulnerability to the Asian tsunami for Khao Lak and Koh Phi Phi Don residents; and
c) Influence re-development through recommendations on how to reduce future disaster vulnerability.

In order that these goals are reached it was necessary that my research address a number of questions:

a) Is the political ideology of Thailand compatible with vulnerability reduction?
b) Is vulnerability reduction (with goals of equity) possible through state-led development?
c) Are free-market capitalism and vulnerability reduction ideologically compatible?

2 THE VULNERABILITY APPROACH TO DISASTER MANAGEMENT

The vulnerability approach is a key framework in disaster management and "governs the art of disaster mitigation" (Winchester, 1992, ix). My objective here is to situate the vulnerability approach within the broader context of disaster mitigation. In order to do this, in this chapter I define disaster mitigation and examine its benefits and limits; define the vulnerability approach and document its theoretical evolution; review current vulnerabilities perspectives; and compare vulnerabilities approaches to evaluate their significance. I also explore the 'holistic' approach to disaster management and demonstrate how it merges the 'alternative' and 'dominant' perspectives. I also identify the unique components of the holistic approach and reveal those characteristics which have been named by some authors as 'original' but which I contend are only marginally different from previous perspectives.

2.1 Defining Disaster Mitigation

Disaster management encompasses a broad range of disaster relief and management strategies. Figure II names the disaster strategies referred to in this paper and illustrates how these are situated within the broader realm of disaster management. As shown in Figure II, disaster mitigation is situated with two other pre-disaster planning techniques: disaster prevention and disaster preparedness. Although disaster

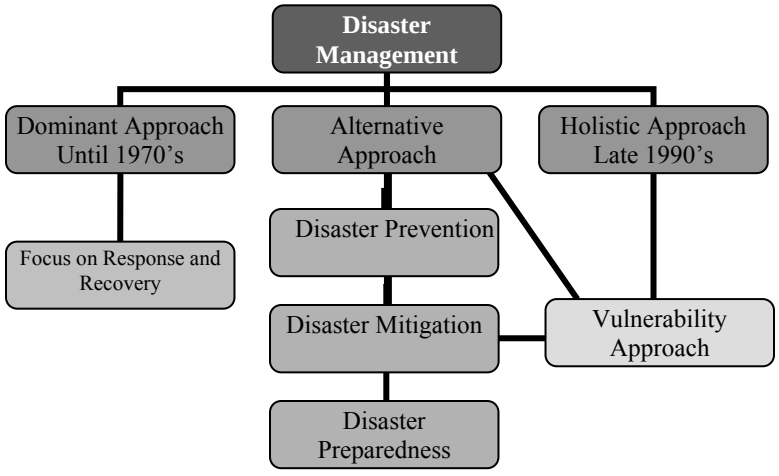


Figure II: Disaster Management Approaches

mitigation has not traditionally been a priority for development organizations, there has recent been a call for integration between disaster relief and development initiatives (Yodmani 2001; (Moench, 2005). Disaster mitigation: focuses on capacity building and reducing vulnerability; recognizes the importance of managing rather than preventing hazards and; seeks to combine disaster relief and redevelopment. It is the third premise which is particularly significant and will be further explored here.

2.2 Understanding Disasters and Disaster Management

In order to understand vulnerability to disasters, it is important to identify the meaning of disaster in the context of the vulnerability approach. From a vulnerability standpoint, disasters are seen as the combination of a trigger agent (or hazard) and human vulnerability, which often results from problems with development (i.e. development on unsafe land, poor enforcement of building codes or land use policies) (David A. McEntire, 2001; O'Keefe, Westgate, & Wisner, 1994; Yodmani, 2001). For this thesis, I adopt Randolph Kent's (1987) definition: "a disaster occurs when a disaster agent exposes the vulnerability of a group or groups in such a way that their lives are directly threatened or sufficient harm has been done to economic and social structures, inevitably undermining their ability to survive" (Kent, 1987, 4). More simply, disaster is "the interface between an extreme physical event and a vulnerable human population" (Susman et al., 1983, 264)[2].

[2] DISASTER= Hazard + Vulnerable Population.

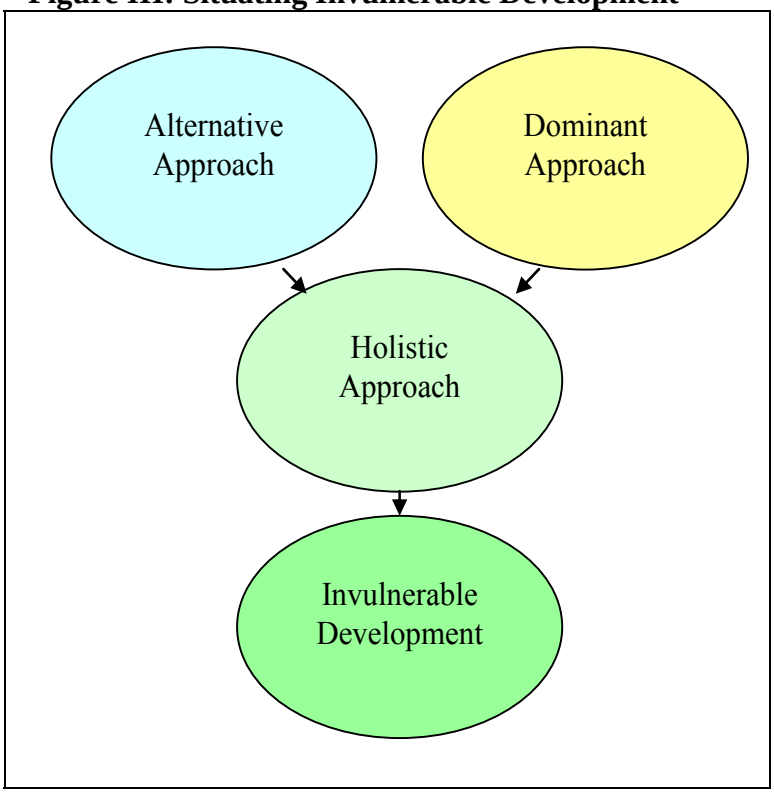
2.3 Shifts in the Disaster Management Paradigm

Understandings of disaster have changed significantly over time. During the early and mid 1900s, the 'dominant perspective' understood disasters as 'acts of God,'[3] while, in the 1970s, anthropologists and social geographers conceptualized a new 'alternative' view of disasters which discredited the dominant approach (David A. McEntire, 2001; Varley, 1994; Weichselgartner, 2001). Although preceded by Burton et al. (1978), Kenneth Hewitt (1983) was among the first to contest what he called the 'dominant view' of disaster management and became a leading vulnerabilities theorist. Hewitt (1983) contended that the dominant approach to disasters missed "the main sources of social influence over hazards" by focusing *only* on how disasters are attributed to nature (Hewitt, 1983, 7). The 'dominant perspective' to disaster management, he argued, views disasters as singular and normal 'natural' or physical events in the path of development, and fails to address human behaviors as contributors to disaster (Twigg, 1998). In practice, this perspective is inadequate as it facilitates 'reaction to disaster' instead of allowing for disaster preparedness and mitigation pre-disaster. The 'alternative perspective' more appropriately views both disaster preparedness *and* mitigation as important and recognizes that, in addition to the characteristics of physical/natural hazard phenomena, human behavior and patterns of development *also* influence the severity of disaster. While the dominant perspective views geophysical processes as the centre of disasters, the alternative perspective more fittingly accounts for human interaction *with* and *on* the environment. Thus, the major difference between the alternative and dominant approaches to disasters is that the alternative perspective links disasters to societal development. For example, McEntire (1999) and Haque (2003) theorize that the increase in the number of disasters is related to the increase in numbers of

[3] Acts of God are defined as a fatalistic "syndrome whereby individuals feel no personal responsibility for hazard response and wish to avoid expenditure on risk reduction" Smith, K. (1996 p. 70).

vulnerable people. That is, as societies adopt ill-advised development agendas, the number of vulnerable people increases. Consequently, in disaster situations, a greater number of people are affected.

Figure III: Situating Invulnerable Development



The recently developed 'holistic approach'[4] combines the alternative and dominant approaches and is valuable because it recognizes the importance of both natural *and* human-made forces in affecting vulnerability. This approach suggests that the 'alternative' approach (and its focus on socio-economic and political causes of disaster) should be combined with the 'dominant' understanding of environmental agents (Alexander, 1993; Cardona, 2003; David A. McEntire, 2001). McEntire (2001) argues that the dominant perspective needs to expand its explanation of disasters beyond natural causes, while the 'alternative perspective' should expand its point of view beyond the social, economic and political realms (David A. McEntire, 2001). Although the 'holistic approach' is considered 'new' for integrating natural *and* human-influenced vulnerability, the 'alternative approach' did not completely ignore natural hazards as influential

[4] The holistic perspective to disasters, "takes into account multiple sources, catalytic processes, and the compound interaction of physical, built, technological and social systems" (McEntire 2001, p.190).

to disaster, rather its *focus* was on social processes. In fact Hewitt (1983) asserted that "it would be wrong to suggest that events associated with flood or earthquake in no way reflect the nature of…geophysical processes" (Hewitt, 1983, 25). Still, the holistic approach has merit because it focuses more evenly on the natural and human invoked causes of disaster. Pelling and Uitto (2001) also call for a holistic approach to disaster management and believe that disaster theorists should extend their focus in order to understand the influence of broader political and economic structures and patterns on disaster vulnerability (Pelling & Uitto, 2001). This argument complements a shift in development discourse which has involved critique of 'alternative development' and grassroots initiatives. Still, theorists should strive to understand local-level vulnerabilities in the context of broader socio-political structures, rather than framing vulnerabilities solely as resultant of *either* local patterns *or* larger political structures. The 'holistic perspective of disaster,' geared towards development and economic progress to address vulnerability was the starting point for McEntire's (2000) concept of 'invulnerable development.'[5] Invulnerable development was established as a development plan aimed at identifying the capacities of an area *and* reducing both physical and social vulnerabilities (D. A. McEntire, 2000). One advantage of invulnerable development is its emphasis on identifying the different actors (i.e. government bodies, civil society and NGOs) that influence vulnerability. In this way, the invulnerable development approach has the potential to understand local vulnerabilities in the context of broader political agendas.

There are a number of lenses through which the alternative perspective has been viewed. Some of these include: the influence of industrial development and technology on vulnerability (David A. McEntire, 2001); urban vulnerability; disasters and gender (Anderson & Woodrow,

[5] Weichselgartner defines invulnerable development as "development pursued in such a manner as to address vulnerabilities" (Weichselgartner, 2002 p. 151).

1989; Cutter, 1995); disasters in daily life; and the political economy and political ecology perspectives (Pulwarty & Riebsame, 1997). Each of these is valuable, but the political economy and political ecology perspectives are best suited to analyzing disaster vulnerability as it relates to issues of governance. The political ecology approach though is appropriate to this study as it "applies methods of political economy in ecological contexts" (Wilson, 1996, 76) and is primarily concerned with the ways that economic and political actors influence the human-environmental relationship and the impacts of these relationships on the environment. Thus, the political ecology approach is useful for analyzing the affects of economic and political agents on the environment. However, I am not only concerned with the influence of political and economic actors on environmental change, but am also interested in investigating the influence of these actors on human vulnerability. The political economy perspective fulfills this area of the study as it is concerned with the ways that vulnerability is influenced by capitalistic styles of development (Cannon, 2000; Maskrey, 1989; Yodmani, 2001). The political economy approach to disasters is particularly relevant to this study because it asserts that financial security is increasingly dependent on the ability of a person to integrate, at the very least, into his local economy, but more likely on his/her ability to participate in the global economy (Wisner, 2003). It also maintains that it is the *most* poor who are often forced to locate and develop livelihoods in environmentally insecure areas.

The political economy perspective to disasters has grown in the past decade and has been paralleled by a tendency to view disasters as at least partially a result of human-invoked causes. For example, McEntire (2001) states that "the skewed distribution of resources associated with capitalism increases liabilities and reduces capacities" and "capitalism must be altered if not carefully held in check" (David A. McEntire, 2001, 192). Although this plea may be legitimate,

it is idealistic and improbable to hope that the global economic system will change. Until then, political economists should strive for an approach that could sufficiently decrease vulnerability to natural hazards and maintain economic security for those previously vulnerable. Disaster strategists should also acknowledge, however, the global spread of Western style capitalism, and that people are dependent and attached to the capitalistic economic system. Although a number of vulnerability reduction approaches exist, none seek to integrate critiques of capitalism *and* vulnerability reduction, and this is an approach that should be investigated.

2.4 Combining Disaster Relief and Development

Disaster mitigation is a pre-disaster scheme that is situated among disaster prevention and disaster preparedness. These approaches are underlined by the argument that there has been too much focus on relief from disasters and there needs to be emphasis on the planning for and management of disasters (Alley, 1993). Cuny (1983) argues that disaster prevention is expensive and suggests that because disasters are important and often positive events for the environment, they should not be 'prevented', but should be prepared for and managed (Cuny, 1983). Disaster preparedness involves reducing vulnerability and building local capacity (including the ability to respond and recover from disaster). However, it is disaster mitigation which focuses on combining disaster management and development. This combination has been widely advocated within the past decade: (McAllister, 1993; David A. McEntire, 2001, 2004; Mileti, 1999). Disaster mitigation has four key objectives: to minimize destruction of a hazard; to reduce physical vulnerability; to reduce economic vulnerability; and to strengthen community social structures.

Ideally, combining development and disaster relief organizations would reduce vulnerability; however, there are two main barriers to effective disaster mitigation. First, disaster

mitigation requires a certain level of development (Cuny, 1983). The aim to reduce physical, economic and environmental vulnerability assumes that political and social systems exist that will enable economic restructuring. This restructuring would be more plausible in a nation has a stable political and economic system, but it is more often countries that lack solid political and economic institutions which experience the greatest impacts of disaster. The second problem is with the practical implementation of disaster mitigation. Theoretically, a combined development and disaster relief approach is ideal, but the integration of these is difficult: combining development and disaster relief initiatives requires larger time and financial commitments by aid agencies, greater assistance from international donors (for developing country disasters), and can produce host-country clearance difficulties for aid agencies when disaster relief efforts extend into development projects. For example, the December 26, 2004 tsunami in the Indian Ocean devastated the Aceh province in Indonesia. However, as a result of political turmoil and fights for independence the government initially refused external relief for the province (Keys, Masterman-Smith, & Cottle, 2004).

Despite these problems, pre-disaster planning has a number of important benefits. Disaster mitigation reduces vulnerability; decreases the potential for human suffering; builds on local capacity; focuses on managing rather than preventing hazards; provides a framework for relief organizations; and integrates development *and* disaster relief (O'Keefe et al., 1994). O'Keefe, Westgate et al. (1994) indicate that pre-disaster planning is appropriate because it aims to "consider and alleviate the causes and not merely the symptoms of disaster" (O'Keefe et al., 1994, 96). From this perspective, development after relief is particularly important. Since disaster relief often *returns* disaster victims to their pre-disaster social and economic positions, it is less effective at decreasing vulnerability to future disasters (Baird, O'Keefe, Westgate, &

Wisner, 1975). Disaster mitigation, on the other hand, aims to increase the standard of living for people instead of returning populations to their pre-disaster status (O'Keefe et al., 1994).

The term 'resiliency' has been an important concept in the paradigm of disaster management. Disaster resilience is described as a characteristic of households or communities enabling recovery after a disaster (Pelling & Uitto, 2001). Resilient communities are built when the worlds of relief and development integrate local, national and global institutions and organizations in meaningful ways: "disaster resilient communities means that disaster reduction is everyone's responsibility" (Briceño, 2004, 235). Disaster resilience can involve community and household preparedness, including obvious preparation measures such as: community evacuation plans, financial contingency plans, and escape routes. However, resilience also extends to social capital and community cohesiveness. Communities become more resilient to disaster situations when they seek to build on existing social capital. Both formal and informal connections between people can enhance community cohesion and can unite community members. Social capital can increase a community's ability to adapt and respond during a disaster (Pelling, 2003). One restriction is that social capital is often linked to household members' livelihoods and economic resources: even basic interaction with neighbors may be restricted if a household has little means to reciprocate something as minor as dinner invitations. Thus, resilience is often "enhanced by stimulating local economic development" (Pelling & Uitto, 2001, 55) at the household or community levels.

Two of the most well-known disaster relief organizations that have combined disaster relief and development are The Red Cross and Red Crescent societies. These have shifted focus from relief to development, are now concerned with disaster preparedness and disaster mitigation contending that 'Band-aid assistance is inadequate' (McAllister, 1993). However, to date, few

other development-focused agencies have attempted to integrate disaster management into their mission (Yodmani, 2001). Nevertheless, most vulnerabilities theorists continue to argue for the integration of disaster relief activities and development initiatives (David A. McEntire, 2001; O'Keefe et al., 1994). In order to adequately reduce vulnerabilities, "precautionary planning needs to be totally integrated into planning for real development," but this would take considerable integration and cooperation between governmental, bilateral, and non-governmental organizations (David A. McEntire, 2001; O'Keefe et al., 1994,96).

2.5 The Vulnerabilities Approach to Disaster Management

Vulnerability is one lens through which disaster mitigation can be viewed. The initial establishment of the concept of 'vulnerability' had roots in the social sciences (Cannon, 2000) and the approach "serves as a focal point to enable understanding of the unique and complicated relationship between development and disasters" (David A. McEntire, 2004, 197). The term vulnerability has been used in a number of disciplines and its meaning varies depending on the context in which it is used (Vatsa, 2004). In the past decade, vulnerability has been used in the disciplines of risk, hazard and disaster mitigation (Weichselgartner, 2001). In this thesis, I use vulnerability in the context of disaster management, and in this context, it has been widely agreed that vulnerability is defined as the degree at which people are susceptible to hazard (Baird et al., 1975; Piers Blaikie, Cannon, Davis, & Wisner, 1994; Hewitt, 1997; Lewis, 1999; Maskrey, 1989; Winchester, 1992).

The vulnerability approach to disaster management was introduced in the 1970s and stemmed from the 'alternative perspective'. One of the tenets of the alternative approach is that human behavior determines the level of vulnerability in the event of a disaster (M. R. Bhatt, 1998; Piers Blaikie et al., 1994; Hewitt, 1983; David A. McEntire, 2001; Winchester, 1992).

The vulnerability approach, not surprisingly, takes vulnerability as the starting point for understanding why a disaster happened who it impacted, why it impacted a particular group, and how to estimated future vulnerability (Anderson & Woodrow, 1989). This approach is important because it aims to reduce future vulnerabilities. The emphasis of the vulnerability approach is on "how communities are exposed to dangers or become unsafe," but the focus is on those who are affected (Hewitt, 1997, 141).

Vulnerabilities are dynamic and are always in a state of flux, (Alcántara-Ayala, 2002; Downing & Bakker, 1999; Lewis, 1999; David A. McEntire, 2001; Vatsa, 2004). They exist before a disaster occurs, they contribute to the severity of the disaster, they restrict appropriate responses to the disaster; and continue after the disaster has subsided (Anderson & Woodrow, 1989). Hewitt (1997) believes that the vulnerability approach sees risk as originating in vulnerability: vulnerability refers to the *inability* of people to influence the societal processes which determine security. This perspective effectively demonstrates the difficulty of changing larger political and social structures; however it makes assumptions about the desire of individuals to change them. Although people are often *restricted* from 'societal processes which determine security' many are also *unwilling* to participate. Hewitt's (1997) statement suggests that those vulnerable to disaster have a desire to influence and participate in broader political structures, but are 'unable' to do so because of restrictions beyond their control. However, this is not necessarily the case. In some cases, individuals perpetuate their own vulnerability because they are not interested in participating in political processes or community meetings, or decide not to participate in risk reduction activities such as household disaster preparedness.

Blaikie et al. (1994) situate vulnerability in an equation for risk: Risk= Vulnerability+ Hazard and this equation has been adopted by many theorists (Piers Blaikie et al., 1994;

Maskrey, 1989; Twigg, 1998; Vatsa, 2004). This equation is somewhat problematic because it views vulnerability as static. However with a slight adjustment, Lewis (1999) formulated a more appropriate equation: Risk=Vulnerability x Hazard. This equation is more accurate because it considers that there are always multiple factors of vulnerability (poverty, gender, ethnicity, age etc.) and suggests that a greater number of vulnerable characteristics (ie. poverty, gender, and ethnicity) can cause disaster vulnerability to increase exponentially. In addition this equation suggests that more extreme hazard events multiply existing vulnerabilities and magnify risk even more than Blaikie et al.'s (1994) equation would suggest.

While Hewitt (1997) and Blaikie et al. (1994) focus on risk, Anderson and Woodrow (1989) and Warmington (1995) perceive that vulnerabilities result from long-term factors that affect a community's ability to withstand disasters or respond to and recover from them effectively. Vulnerabilities exist before disasters, and continuing inattention to problems with development or inequities in society will result in the perpetuation of vulnerability to disaster. Despite some conceptual variations regarding vulnerability, vulnerability theorists take vulnerability reduction as the starting point for disaster management.

2.5.1 Goals of the Vulnerability Approach

Advocates of the vulnerability approach suggest two broad goals: 1) to reduce physical, social and economic vulnerability, and; 2) to increase capacity to cope with hazards. However, there are also more specific goals which vary between vulnerability researchers.

For Hewitt (1997) the aim of the vulnerability approach is to "examine the ways in which people are actually at risk: their frailties, lack of protection and limited survival capacities" (Hewitt, 1997, 143). McEntire (2001) suggests that changes in industrial development, environmental management and technological processes are needed in order to reduce

vulnerability to hazards, however his approach does not give adequate attention to the influence of social, political and economic processes on vulnerability. Wisner and Luce (1993) take a much more 'local' approach to vulnerability reduction, arguing that the vulnerability approach should be focused on analyzing 'vulnerabilities in daily life' (Wisner & Luce, 1993). Although this approach would be useful for reducing individual vulnerability, it would be difficult to apply such a scheme on a regional or national scale. Similarly, Alcántara-Ayala (2002) and (Winchester, 1992) believe that the key to understanding vulnerability is understanding the concept at a household level. This claim has merit in that it considers how household decisions impact broader socioeconomic and political systems, but Alley (1993) noted that pre-disaster planning is more appropriately focused at the community- rather than household-level.

Community-level disaster management focuses on involving the entire community in disaster mitigation plans and strategies. In fact, "a critical element of sustainable disaster management is communities' participation" (Pandey & Okazaki, 2005, 2). Community disaster management integrates local authorities, civil society and aid agencies (in that order), but places communities at the forefront. Community-based disaster management stemmed from recognition that those who are vulnerable are the best at describing their needs and capacities (Pandey & Okazaki, 2005). Involving an entire community in disaster management increases disaster resilience since those who would be affected by the disaster are also those who were responsible for preparing disaster plans and implementing them. In addition, community-based initiatives have the potential to influence household decision making *and* maintain access to regional officials and decision makers.

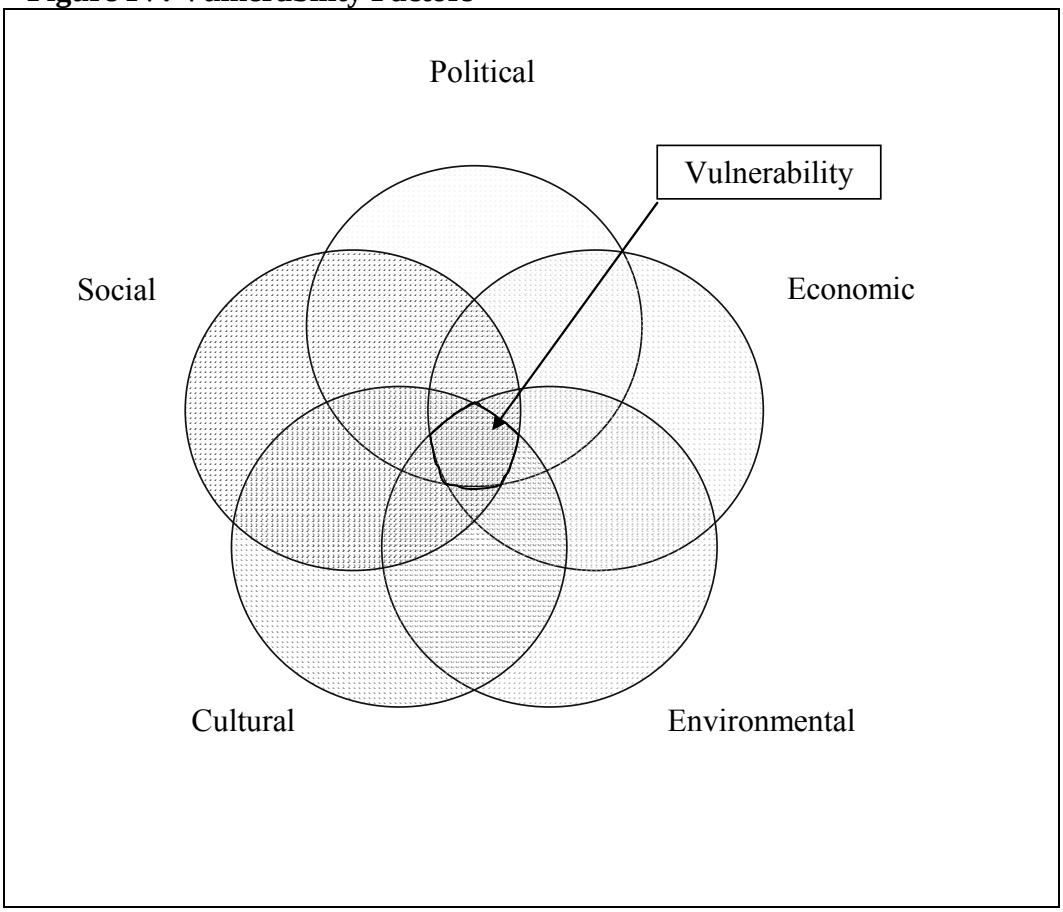
A broad array of vulnerability approaches exists, but selection of an appropriate disaster management method is dependent on a number of factors, including the type of disaster and the

geographical position of those at risk. Thus, before choosing a vulnerability approach, it is important to identify the vulnerable area and define the specific factors influencing vulnerabilities in that location.

2.6 Indicators of Vulnerability

Both the alternative and vulnerability approaches focus on the concept that vulnerability is, at least partially, socially produced through human behavior and mismanaged development. Most often, political, social and economic structures are highlighted as key factors that contribute to vulnerability (Alcántara-Ayala, 2002; Cardona, 2003; Maskrey, 1989). However, some scholars perceive different factors that influence vulnerability. For example, Wisner (2005) focuses specifically on livelihood security, McEntire (2001) stresses physical and technological variables, and both Mileti (1999) and McEntire (2001) mention cultural attitudes (i.e. feelings of apathy towards disasters, breakdown of traditional coping measures and fatalistic attitudes towards disasters) as major causes of increased vulnerability to disasters. Aside from the economic, political and social processes that are theorized to influence vulnerability, Pelling and Uitto (2002) suggest that environmental and geographical processes are also key considerations. Cannon (2000) frames these indicators differently, and argues that vulnerability originates in: physical fragility; socio-economic fragility; and lack of resilience. Despite the semantic differences between the factors identified by each of these theorists, there is little difference in how they understand vulnerability more broadly. The factors most consistently perceived to influence vulnerability include the: political, economic, cultural, environmental and social. Each of these will be addressed in more detail here (See Figure IV).

Figure IV: Vulnerability Factors



Political structures significantly impact vulnerability to disasters. Vulnerabilities, as Hewitt (1997) suggests, "are embedded in, and more or less fully subject to, actions and developments at all levels of governments" (Hewitt, 1997, 164).

Canada Corp and the Canadian International Development Agency (CIDA) define governance as "the set of rules, traditions and the practices that define who the decision-makers are, how they get to be decision-makers in the first place, the kinds of decisions they can make, the purpose they're supposed to be serving, to whom they have to listen when they make decisions, where their money comes from, and to whom they're accountable for their actions"

(CIDA, 2005). The concept of 'good governance'[6] originated in the neoliberal development paradigm, specifically in a 1989 World Bank report on Sub-Saharan Africa, and reflected the World Bank's concern for state involvement in economics (Santiso, 2001). However, since then the term 'good governance' has been conceived more broadly and assumes that "a transparent, accountable, participatory, and effective state will reduce corruption, increase growth and promote democracy" (Orlandini, 2003, p.18). The attributes of good governance include: upholding the rule of law; promoting human rights; making sound economic choices; and ensuring transparent, participatory and accountable decision-making processes (UN, 2005). In contrast, bad governance is defined to include "failures by governments to provide good and efficient public services; failures to manage the fiscal and the budget problems of the country; and failures to prevent bureaucratic and political corruption" (Phongpaichit, 2001, p.1).

Governance influences disaster vulnerability by shaping public policy, guiding development processes and outcomes, and organizing decision makers. In societies with high numbers of vulnerable people, it is likely that the political environment is corrupt and that governance is illegitimate but powerful (Hewitt, 1997). Political structures extend from national politicians to local government officials. If managed inadequately, policies implemented by these structures reinforce inequities and further vulnerability (Sarewitz, Roger Pielke, & Keykhah, 2003). Economic processes are often integrated within political structures and also contribute to disaster vulnerability (Piers Blaikie et al., 1994). Often, deficiencies in economic well-being lead people to face environmental factors which contribute to vulnerability (Comfort

[6] According to UNESCAP, good governance is "participatory, consensus oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive and follows the rule of law. It assures that corruption is minimized, the views of minorities are taken into account and that the voices of the most vulnerable in society are heard in decision-making. It is also responsive to the present and future needs of society" (UNESCAP, 2005)

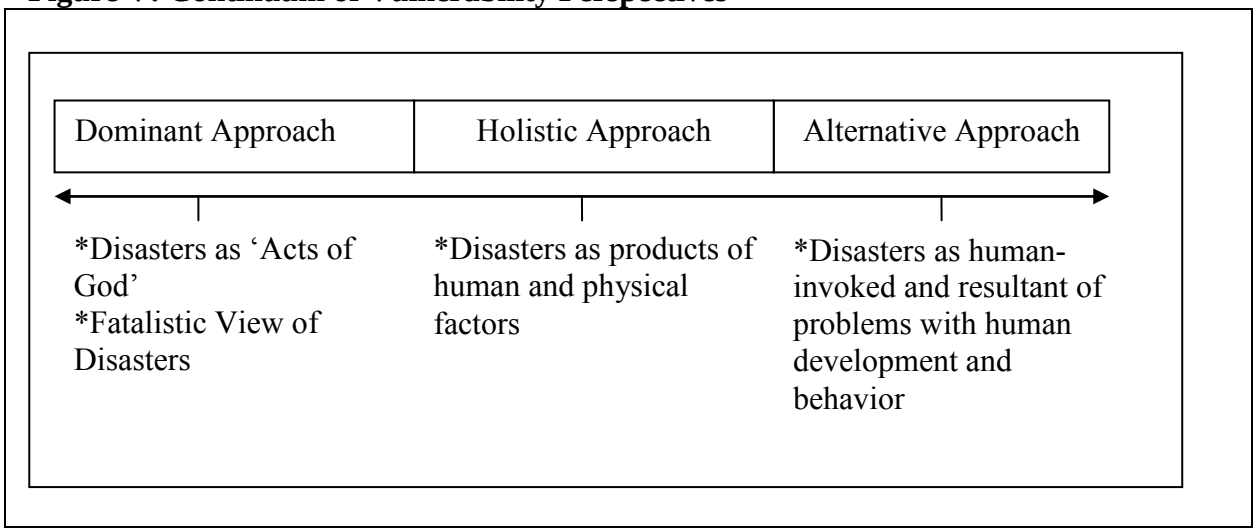
et al., 1999{Twigg, 1998 #32). For example, exposed coasts are often inhabited by people whose livelihoods are dependent on fishing and tourist vending. Thus, in many cases, the poor must risk environmental insecurity in order to survive economically. Lack of economic security "force many of the poor to settle in cheap but dangerous locations" (Twigg, 1998, 2) thereby increasing vulnerability to disaster and restricting recovery post-disaster. Socio-cultural organization can also impede or enhance the ability of a population to cope with disaster. For instance, social marginalization may restrict individual access to community resources, social networks and support systems. By contrast, strong social roots are beneficial during times of disaster: resources can be pooled and strong support systems can motivate and empower recovery.

2.6.1 Defining Vulnerable Areas

Vulnerability is not consistent across space, in fact, levels of risk and factors of vulnerability vary significantly across the globe and even within communities (Hewitt, 1997). Although local vulnerability can be defined in the event of a disaster, there are broader global trends that make it possible to identify vulnerable areas and to make assumptions about future populations at risk. Most disaster management theorists agree that developing countries experience the greatest loss of life per disaster, and that vulnerabilities in the global South are increasing (Alcántara-Ayala, 2002; O'Keefe et al., 1994; Wijkman & Timberlake, 1984). However, some take a more hazard-based approach to vulnerability and argue that those most vulnerable to disasters are "those living in the most precarious physical environments" (Liverman, 1994; McAllister, 1993; O'Brien, Eriksen, Schjolden, & Nygaard, 2004, 3). If disaster management was conceptualized as a continuum between those who viewed vulnerability as a result of natural/environmental causes (dominant approach) and those who

viewed vulnerability as resultant of human behaviors (alternative approach), researchers such as Liverman (1994) would be situated nearer the dominant side. This is because she observes that people "living in areas likely to experience sea level rise, increasing storminess, drier conditions, or heavier flooding" are more vulnerable to disaster (Liverman, 1994, 329). Despite the importance of human-influenced factors that contribute to vulnerability, physical location and vulnerability are certainly related.

Figure V: Continuum of Vulnerability Perspectives



2.6.2 Social Vulnerability: Defining Vulnerable People

The impacts of a disaster are not consistent across populations (Anderson & Woodrow, 1989), however, theorists have identified characteristics that are consistent among vulnerable groups and have argued that certain groups are especially vulnerable. Members of lower economic and cultural classes, minority groups, women, the disabled, youth, and the elderly are all typically more prone to disaster than their counterpart populations (Fordham, 2003; Wisner, 1999, 2005a; Yodmani, 2001). If people hold one or more of these characteristics it will increase the likelihood that they will experience greater vulnerability to disaster.

It is also important to mention that these factors of vulnerability are relational and can magnify the effects of other factors (Wisner, 2005a). For example, a woman may experience economic insecurity *because* of her gender. As a result of economic insecurity she might have limited access to resources leading to poverty and being labeled as 'lower class.' This low social position might limit her ability to make important social contacts that could enable her to establish a better livelihood. Thus, characteristics of vulnerable people act on one another and are resultant of one another (Wisner, 2005a).

Socio-economic characteristics can also restrict access to risk reduction techniques (Comfort et al., 1999). For example, a person's class may inhibit his/her ability to obtain insurance, social marginalization as a result of ethnicity or physical ability may decrease access to community assistance programs or neighborhood help, and gender could influence access to community decision makers and relief programs. Human behaviors and characteristics can influence ability to tap into risk reduction techniques and can impede a whole community's potential to bounce back from disaster (Comfort et al., 1999). The combined characteristics of any individual influence his/her connectedness to their community and influence his/her ability to respond to a disaster (Morrow, 1999). Although demographic characteristics are relational, each trait influences vulnerability for different reasons and it is therefore important to investigate how each of the five characteristics (class, ethnicity, gender, physical ability, and age) influence disaster vulnerability.

2.6.2.1 Economic Class

An individual's class in society has been used as a key measure of vulnerability (Hewitt, 1997; Vatsa, 2004; Wijkman & Timberlake, 1984; Wisner & Luce, 1993). Vasta (2004) believes that those with "fewer assets, almost no insurance, and less diversified sources of income" are

more prone to disaster (Vatsa, 2004, 2). Wijkman and Timberlake (1984) agree that in a disaster situation it is the poor who suffer the most. In fact, countries with low human development indices experience on average 1052 deaths per disaster, while countries with high human development indices suffer approximately 23 deaths per disaster (IFRC, 2001). This is often because the poor are forced to accept livelihoods which make them more vulnerable.

2.6.2.2 Ethnicity

Ethnicity is another determinant of vulnerability. Minority groups often have limited access to social and natural resources and experience lower average incomes than dominant ethnic groups (Wisner & Luce, 1993). Financial insecurity for ethnic minorities influences decisions to reside in disaster prone areas and accept employment that is tied up in more dangerous locations[7]. In addition vulnerabilities that ethnic minorities experience are often tied up in language abilities. If ethnic minorities lack fluency in the dominant language they can experience difficulties in seeking information, filling in application forms, and tapping into service programs (Morrow, 1999).

2.6.2.3 Gender

Many have argued that women and men are unevenly affected by disasters (E. R. Bhatt, 1998; Fordham, 2003; Hewitt, 1997; Vatsa, 2004). Wisner and Luce (1993) suggest that "women generally have less access to resources" (Dankelman & Davidson, 1988) and less representation in decision making at all levels" (Pietila & Vickers, 1990) and are therefore more vulnerable than their male counterparts (Wisner & Luce, 1993, 19). In addition, women are physically less able to evacuate in disaster settings and child care responsibilities often increase the difficulties of disaster response. Bhatt (1998) draws information from rural and urban

[7] Dangerous locations can include residence on "unsafe land and in unsafe shelters or low-cost dwelling, because there is no other land available at reasonable cost" (UNISDR et al., 2002, 5)

women of Gujarat, India when she suggests that rural women are more often the victims of droughts and floods because they are left behind while men look for work (E. R. Bhatt, 1998).

2.6.2.4 Physical Ability

The physically or sensory disabled are also believed more vulnerable in disaster situations (Phillips & Morrow, 2005). Disabled individuals often lack socio-economic security pre-disaster *and* lack the physical ability to respond in a disaster situation. Pain et al. (2001) indicate that the disabled are more likely to be unemployed, more often hold inferior positions, have poorer housing, have more limited access to education and transportation, and are marginalized more frequently than their able-bodied counterparts. As a result of being socially and economically marginalized before a disaster, the disabled are generally more vulnerable to the impacts of disaster.

2.6.2.5 Age

Youth and the elderly are more disaster-prone than adult populations. In part, the physical restrictions which sometimes accompany these populations make it more difficult to respond in disaster situations. However, there are broader socio-economic processes of which youth and elderly are sometimes restricted, which increase their vulnerability. In fact, "older people and children are often constructed as 'problematic' groups who are outsiders to the spaces of mainstream social life" (Pain et al., 2001, 141). The youth and elderly are often marginalized before a disaster and in many societies "people are segregated on the basis of age" (Pain et al., 2001, 152). For women, the lower-class, minority groups, youth, and the elderly, social and economic marginalization often influences vulnerability during disaster.

Although vulnerable populations often hold one of the above characteristics, this taxonomic approach is not appropriate in all cases. For example, "not all women are equally

vulnerable" (Wisner, 2005a, 3). The above characteristics do not *define* vulnerability, but are rather *characteristics* of vulnerability. In a disaster situation, a woman is not *inherently* vulnerable, but is *more likely* to be vulnerable than male counterparts. Furthermore, these social characteristics are dynamic and are always modified by one another. Fordham (2003) argues that "Women are not a homogenous category…we must also recognize difference in terms of race/ethnicity, class/caste, sexuality, [dis]ability, etc. which intersect in complex ways with gender (Fordham, 2003, 64). Different combinations of these vulnerability characteristics depend on space and place. As a result, there are large variations between and within communities, regions and nations in regard to the characteristics of vulnerable groups (Yodmani, 2001).

2.7 Types of Vulnerability

Anderson and Woodrow (1989) suggest three categories of vulnerability including: physical/material; social/organizational; and motivational/attitudinal (Anderson & Woodrow, 1989). These categories are useful because they enable monitoring of the processes that create vulnerability. Physical, or material, vulnerabilities are the most recognizable during times of disaster. These refer to a lack of resources to fulfill basic needs: i.e. food, water, clothing and shelter. In disaster situations, it is usually the poor who experience physical/material vulnerability to the greatest extent (Anderson & Woodrow, 1989). Often, the poor experience physical vulnerability pre-disaster and vulnerability increases in the event of a trigger agent. In order to address physical vulnerabilities, promoters of the vulnerability approach ask why certain groups are materially vulnerable. This may depend on their geographic location or on their livelihoods among other factors.

Social/organizational vulnerability contributes in many ways to physical risk. These vulnerabilities relate to the impacts of a disaster on social organizations. Lack of access to social groups (including community groups, schools, and religious centers) can limit individual and community capacity and social cohesion, which can prove detrimental in disaster situations.

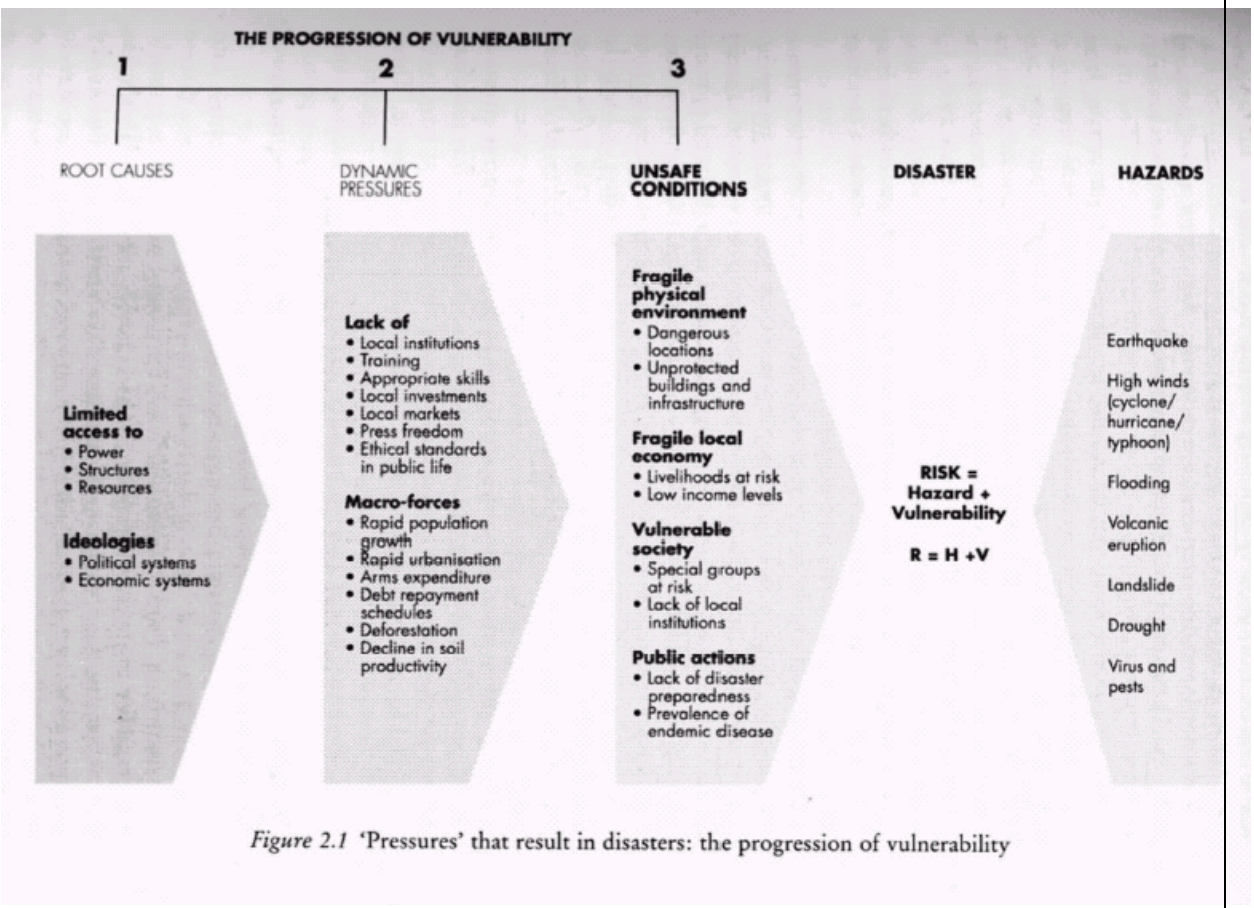
Finally, Anderson and Woodrow (1989) suggest that motivational/attitudinal vulnerabilities significantly impact an individual's ability to cope with and recover from disaster. Motivational/Attitudinal vulnerabilities describe "how people in society view themselves and their ability to affect their environment" (Anderson & Woodrow, 1989, 11). Some may adopt an 'it can't happen to me' disaster psychology and do not take steps to mitigate risk, while others may recognize their vulnerabilities and manage risk before a disaster strikes. On a practical level, a vulnerability approach deals with motivational/attitudinal components by examining how disasters influence people's motivations. More specifically, vulnerability analysts would determine whether people felt victimized by disaster or empowered by community cohesion post-disaster. Motivational/attitudinal vulnerabilities influence the ability of individuals to cope with disaster and are, in part, dependent on emotional and psychological health. While physical and social vulnerabilities to disaster are easier to detect in a disaster, (Anderson & Woodrow, 1989; Hewitt, 1997) are among the few authors who have linked the psychological impacts of disaster with the ability for resilience and recovery. Fatalistic attitudes towards disaster can increase disaster vulnerability and impede appropriate responses to disasters (Kieft & Nur, 2002). The relationship between disaster recovery and emotional health is significant and should be emphasized and paid more attention in vulnerabilities discourse.

2.8 Vulnerabilities Assessments

Shifts in the disaster management paradigm have been congruent with changes in vulnerability models. Methodologically, the vulnerability approach compliments a paradigm shift in the development field; towards bottom-up development and good governance (Yodmani, 2001). However, vulnerability assessments are not limited in scale and can be conducted at the community, regional and national levels. Assessments focus on the factors that cause the severity of the loss and damage *and* on how capacity should be developed to reduce vulnerability in the future (Wisner, 2005a). These assessments involve the 'mapping' of vulnerable areas and populations and the goal is to assess existing conditions "of a given area and its ability to cope and withstand to specific natural hazard events and their impacts" (Bertens, Bruschi, & Weichselgartner, 2000, 9).

There have been a number of key models for vulnerability assessment. Most commonly cited is (Piers Blaikie et al., 1994) 'Pressure and Release' (PAR) model (See Figure VI. This model is a tool for understanding how disasters affect vulnerable people and is based on the idea

Figure VI: Pressure and Release Model



Source: (Blaikie et. al, 1994)

that vulnerability originates in a series of social factors including: root causes; dynamic pressures; and unsafe conditions and exposure to hazard (Piers Blaikie et al., 1994). The PAR model plainly outlines the root causes of vulnerability, but is problematic because it characterizes these causes as static, when in fact, vulnerabilities are dynamic. In addition, the PAR model overlooks the relationship between the human and physical environments and shows the trigger event as isolated from social processes, when most often these act on each other to create vulnerability.

In the late 1990's, the Sustainable Livelihoods (SL) approach was conceptualized as a way of dealing with vulnerability; by focusing on livelihood security to reduce vulnerability (Twigg, 2001). This framework deals almost exclusively with development and relief problems

in the South, while the parallel Northern framework is entitled Community Capacity. The sustainable livelihoods approach is promoted by the British government's Department for International Development (DFID), is participatory in nature, and aims to reduce vulnerabilities that affect people's assets (Twigg, 2001). However, by focusing on livelihoods this approach does not give sufficient attention to political, social and environmental causes of vulnerability.

The holistic approach to vulnerabilities has received significant attention within the past five years. McEntire (2001) developed a holistic model which acknowledges both the capabilities and liabilities of a given population (David A. McEntire, 2001). This model accounts for natural and human vulnerabilities and combines the dominant and alternative approaches to disaster management. This model is not entirely new: it is similar to what was framed as Vulnerabilities and Capacities Analyses by Anderson and Woodrow (1989). In McEntire's (2001) model, vulnerability is shown as a product of risk, susceptibility, resistance and resilience, a perspective that has been adopted by a number of theorists (see for example Paton et. al. 2000; McEntire 2000; Pelling and Uitto 2001; Cardona 2003; Klein et al. 2003; and Pelling 2003. The ideas of 'resilience' and 'resistance' are similar to what Anderson and Woodrow (1989) define as 'capacities.' Whereas *resilience* "describes an active process of self-righting, learned resourcefulness and growth- the ability to function psychologically at a level far greater than expected given the individual's capabilities and previous experiences" (Paton, Smith, & Violanti, 2000, 173), *capacity* refers to the strengths of an individual or community that will enable them to cope with or recover from disaster (Anderson & Woodrow, 1989). So, while recent definitions of 'resilience' and 'resistance' are more complex, they are quite similar to the earlier defined 'capacity.'

Each of these models is useful for understanding vulnerabilities, but for different reasons. While (Piers Blaikie et al., 1994) PAR model clearly illustrates the root causes of disaster, McEntire's (2001) is useful in considering the importance of both social factors and environmental factors in vulnerabilities. Both of these are important reference tools for work in the field of disaster relief.

2.9 Benefits and Limits of the Vulnerability Approach

The vulnerabilities approach is based on the notion that the extent of human suffering in past disasters is unacceptable. Advocates of this approach view that disaster vulnerability results from both human-invoked factors and geophysical processes. The social, political and economic factors of vulnerability, which are influenced by human behavior, frequently increase vulnerability for people who are often already marginalized by their age, gender, ethnicity, physical ability and poverty. Decreasing vulnerability is about changing the human behavior that contributes to it, and the vulnerability approach is appropriate in advancing this objective. The approach is significant for a number of reasons: it offers guidance for both development *and* relief organizations; it identifies risk and enables disaster mitigation strategies; it exposes inequity; and it reveals the factors, policies and people responsible for existing inequities.

The vulnerability approach is important because it challenges disaster management to extend beyond disaster relief, and to acknowledge and contend with broader socio-political structures that lead to vulnerability. In order to do this, these broader issues need to be identified and analyzed within each disaster situation. For this, Vulnerability Assessments are used, and there are many practical benefits to their use. Weichselgarnter (2001) suggests that these are simple to carry out and do not require expert knowledge. Vulnerabilities analyses are beneficial because they: identify why a disaster happened; identify populations at risk; suggest how to

identify risk for future disasters; identify factors that should be 'restructured' rather than 'repaired' during relief; keep relief teams aware of activities that could contribute to vulnerability in the future; can be applied across scales (i.e. communities, regions and nations); encourage local participation and value local knowledge; and can be repeated in order to assess changes over time.

The premise of the vulnerability approach is ideal; however, it has some practical limitations. While a vulnerabilities assessment does 'map' vulnerable populations, these only represent vulnerabilities for specific moments in time and cannot make assumptions about how vulnerabilities will change in the future (Wisner, 2005a). In addition, Yodmani (2001) suggests that Vulnerabilities Assessments often take place within the formal sector of society and do not gather information from those most vulnerable: they often capture information only from those sources available, generally not the most poor and most vulnerable (Yodmani, 2001). Weichselgartner (2001) suggests that the results of Vulnerabilities Assessments are vague and it is not possible "to arrive at exact results" (Weichselgartner, 2001, 92). However, 'exact results' should not necessarily be the main objective. The major type of data for Vulnerability Assessment is qualitative; however this is not necessarily a limitation. The vulnerability approach may have merit in that it has compassion for the marginalized and seeks to empower them. Kenneth Hewitt (1997) says it well: "empowerment may be much more critical to reducing… [vulnerability]… than any particular tools, information or regulations to combat a hazard" (Hewitt, 1997, 153).

Disaster mitigation strategies, including the vulnerability approach have gained significant attention within the past decade. However, Yodmani (2001) suggests that "there is more room than ever before for addressing the issues of risk reduction for the poor" (Yodmani,

2001, 2). Disaster management initiatives and organizations that combine disaster relief and development remain subordinate on the agenda of the international community, and projects which do combine disaster and relief are few and under-funded (Yodmani, 2001). Academics should, nevertheless, continue to develop the vulnerability approach, seeking to integrate disaster and development strategies and to establish a framework for measuring social and economic vulnerability pre-disaster. The vulnerability approach is a key disaster mitigation strategy because it aims to decrease susceptibility and risk for those who will be *most* affected by disaster: those who are the *most* poor and the *most* marginalized. Potential researchers of the vulnerability approach should be motivated by the fact that there is "still-untapped potential of situational, proactive self assessment of vulnerability and capacity" (Wisner, 2005a, 4).

Disaster vulnerability has only marginally been studied from a political economy perspective, but this perspective is useful because it seeks to understand the broader political structures which influence vulnerability and which may impede appropriate disaster response. The influence of political structures in shaping disaster vulnerability requires more attention since political structures can influence economic and social roots of vulnerability. It is my hypothesis that governance significantly influences disaster vulnerability and that specific strategies are influenced by political ideology. The political approach to vulnerability is therefore worthy of discussion.

3 THE IMPACTS OF POLITICAL IDEOLOGY ON VULNERABILITY

Cannon (1994) suggests that the "vulnerability approach to disasters is immediately concerned with political and economic power" (Cannon, 1994, 28). Broader political ideologies shape national and local economies, social life and, often, patterns of inequality. Thus, an investigation of how different political systems influence their respective societies is a necessary step in understanding how political systems influence disaster vulnerability. In order to understand the influence of politics on disaster vulnerability, I take a 'power-centered' approach to political economy. The power-centered approach to political economy is based on the idea that those who gain wealth also gain power: "the expansion of wealth necessarily means an expansion of power…since wealth consists of objects that satisfy our wants, wealth gives us the power to achieve our ends" (Caporaso & Levine, 1992, 165). If power stems from wealth, and influences an individual's access to resources, it is important to determine how a nation's political ideology influences the distribution of wealth. In the next section I demonstrate how both neoliberal capitalism and state-led development or 'managed capitalism' can influence and accentuate disaster vulnerability. In addition, I outline the South East Asian path to development and summarize Thailand's political ideology.

3.1 State-led Development

Traditionally, East and Southeast Asian growth has been characterized by "macroeconomic stability, high savings rates, and export and industry promotion based on close business-government relations" (Jongryn, 2005, 10). The East Asian economic model is based on a strong central state which *manages* a liberal market and promotes foreign investment (Jongryn, 2005). The key tenet to state-led development is the government's role in 'managing'

the economy. Pre-1997 financial crisis, East Asian economies were geared to advantage the state as a whole rather than the individual industries or shareholders. Consumer lending during this time was generally discouraged, and critics suggest that financial institutions lacked transparency, with close relationships between bank managers and state officials leading to corruption (Beeson, 2003). While neoliberals argue that government mismanagement sparked the Asian financial crisis, advocates of state-led development argue that market liberalization and a declined regulation of domestic finance initiated the crisis (Beeson, 2003; Phongpaichit & Baker, 1998). Since the Asian financial crisis, East Asian governments, including Thailand, have reformed economic policies and reverted to priorities of good governance, increased privatization and market liberalization (Jongryn, 2005). While some countries have reverted to a more Western-style capitalism (i.e. a free market system involving relatively low-levels of government intervention), others (including Thailand and Japan) have maintained a state-led development in which cooperation between the government and the financial sector has been maintained.

Since the 1997 financial crisis, Thailand has undergone some economic reforms (including increased privatization, market liberalization and greater emphasis on economic transparency) however, the government has maintained central state involvement in the Thai economy. For example:

- in 1998 the government established Radhanasin Bank, which was responsible for managing the assets of finance companies that went bankrupt during the financial crisis;
- the Krung Thai Bank (KTB), also a state-owned bank, was used to control industry restructuring in the late 1990s, and;
- Thai Airways International, threatened by the financial crisis, was maintained as a state-controlled enterprise for two years after the end of the crisis (ultimately privatized thereafter).

Similarly, in 1999, a government stimulus package was introduced in order to encourage real estate investment and in the same year the government presented subsidy packages to producers of sugar (Unknown, 2005g). Clearly, the central state has maintained significant control over Thailand's economy since political restructuring after the financial crisis. With a state-led development system focused on 'managing capitalism', it is important to investigate how Thailand's political and economic environments and ideologies influence vulnerability to disaster.

3.2 Linking Vulnerability and Poverty

The debate between the neoliberal and welfare state[8] ideologies has continued since the 1929 American stock market crash. While liberal economists including Adam Smith and Milton Friedman argue that economic growth will 'trickle down' to the poor, welfare state advocates, in line with Keynesian economics, assert that capitalist economies fail to demonstrate effective trickle down effects, and argue the central government should actively pursue economic equity (Caporaso & Levine, 1992). The goal here is not to affirm or reject either ideology but to determine the effects of each on disaster vulnerability.

The theoretical debate between the neoliberal and state-led development models does not focus on disaster vulnerability. However, there are components of the debate which focus on poverty alleviation and inequality, both of which concern disaster vulnerability. Though it is important to understand that vulnerability reduction and poverty alleviation are not synonymous (Chambers, 1982), they are certainly related. Poverty reduction is in fact a component of and

[8] Under the 'ideal model' the Centre for Public Policy and Management defines the 'welfare state' as "an ideal model of provision, where the state accepts responsibility for the provision of comprehensive and universal welfare for its citizens" (CPPM, 2006). Advocates of the 'welfare state' system view "spending on welfare as a useful economic regulator, helping to balance the economy in periods of recession" (CPPM, 2006).

contributor to vulnerability reduction (Wisner, 2001). 'Basic Needs' literature suggests that poverty is about deprivation and often inequality, and it refers to the inability of an individual or group to access opportunities or necessities that are critical within a society (Pyatt, 2000; Sen, 1981). Vulnerability refers to individual or group characteristics which make them susceptible to a hazard, or impact their ability to cope with or recover from a disaster, and this often includes poverty (Piers Blaikie et al., 1994). Though poverty may contribute to vulnerability, it is not a necessary precondition for vulnerability (Cannon, 2000). Still, poverty is an important indicator of vulnerability and often it is the most poor who are vulnerable in a disaster situation. In order to determine whether free-market capitalism or state-led development would best reduce vulnerability, it is important to determine how each addresses issues of poverty.

3.3 The Neoliberal Perspective on Vulnerability

Since the fall of the Soviet bloc and the market liberalization of China, the world has seen a near collapse of communism, a decline in welfare state advocates, and a virtual mainstreaming of neoliberal ideology (Beeson, 2003; Veltmeyer, 2002). Neoliberal thought (or the New Economic Model) gained momentum in the late 1970s and 1980s, when Ronald Reagan and Margaret Thatcher were elected in the United States and England respectively (Chang, 1999). The neoliberal model is based on a laissez-faire liberal economic ideology in which, as Adam Smith argued, the invisible hand of the market would meet public interest. As such, neoliberal economists advocate: free market systems which promote consumer power; privatization; liberalization of trade; deregulation of economic activity by the state; and decentralizing state enterprises (Chang, 1999; Pyatt, 2000; Thomas, 2001; Veltmeyer, 2002). Similarly, liberal economics holds that increasing economic progress and market liberalization will result in decreased societal poverty because capital advantages of economic growth will 'trickle down' to

lower income populations (Brady, 2003). The World Bank, International Monetary Fund (IMF) and World Trade Organization (WTO) have strongly supported a neoliberal agenda as the 'correct' approach to development. This perspective has been given so much institutional support that it has been frequently referred to as the *Washington Consensus* (Beeson, 2003; Fine, 1999; Pyatt, 2000; Thomas, 2001).

The core neoliberal argument against state-led development is that the state is too heavily influenced by lobbyists, politicians, and elites who use political control to satisfy personal interests (Chang, 1999). In addition, free market advocates argue that the high taxes and generous social welfare programs, which often accompany state-led development, reduce work ethic, while a free market system increases competition and provides incentives to work (Friedman, 1982 [1962]; Rapley, 2002). One of the principle tenets of neoliberal economics is that market freedom is preferred above state control. In fact, through a neoliberal lens, state intervention is a hindrance on the economy. Thus, advocates of a neoliberal economic model presume that free market capitalism ensures prosperity and stifles poverty: as an example of this, Friedman (1982) stated that the "the economic progress achieved in the capitalist societies has been accompanied by a drastic dimunition in inequality" (Friedman, 1982 [1962], 169-170).

As sponsors of capitalism, neo-liberals made efforts to associate the success of East Asian economies between the 1980s and 1990s with economic liberalization, privatization and deregulation, and generally dismissed the role that central Asian states were playing in their respective economies (Newell, 2002). Though East Asian countries were certainly involved in economic liberalization pre-financial crisis, many central governments in the region maintained a strong role in the financial sectors, and state-led development was central to East Asia's success (Beeson, 2003). The state-led development model adopted by the Asian tigers contradicts the

neo-liberal economic model and made it "extremely difficult to fit convincingly into the neo-liberal framework" (Dixon, 1999, 448; Newell, 2002). There has been much debate about whether Thailand's economic success during the 1970s, 80s and 90s was resultant from free-market capitalism, or state-managed economics, or a hybrid of both. It is important to investigate how both systems have influenced disaster vulnerability in the past.

3.4 Capitalism, Development and Vulnerability

Capitalism has led to decreased disaster vulnerability for many developed states (M. O'Connor, 1994). In the United States, before 1950, private organizations and local groups were responsible for disaster response and death tolls and damages soared (Platt, 1999). However, after the 1950 Federal Disaster Relief Act was passed, the financial and social consequences of disasters were dramatically reduced (Platt, 1999). Insurance industries and federal disaster assistance plans, more common in advanced free-market states, often accompany industrialization and capitalistic development, drastically reducing disaster vulnerability. For example, the higher income levels and disaster preparedness systems in capitalist America make people much less vulnerable to hurricanes than in Bangladesh (Cannon, 1994). Over 1,300 people were killed by Hurricane Katrina, a daunting number for the American public, but for a category 3-4 hurricane, with over 2.16 million people evacuated, the death toll was relatively low (Gidley, Batha, & Rowling, 2006). Despite criticism of the Federal Emergency Management Association (FEMA), the large scale evacuations in New Orleans and the response post-disaster were efficient and controlled compared with similar disasters in developing countries. In developing countries, lack of large scale disaster preparedness and assistance programs and insurance packages makes vulnerability more acute. Developing countries "share a greater level of economic and social vulnerabilities" than do developed countries thereby making disaster

impacts much higher (Vatsa & Krimgold, 2000, 132). For example, in the World Disaster Report (2001), prepared by the International Red Cross a study compared the impacts of natural hazards between countries of high and low Human Development Indexes[9] (IFRC, 2001; Wisner, 2003). Of 2,557 disasters (between 1991-2000), two-thirds of all deaths were in countries with low HDI, while only 2% of deaths were recorded in countries with high HDI (IFRC, 2001; Wisner, 2003). As in the Katrina example, capitalism in developed countries reduces vulnerability; however, in the global South, capitalism has the potential to, conversely, increase disaster vulnerability.

O'Connor (1994) suggests that liberal capitalism is notorious for the unequal distribution of resources, including power and wealth, and that the global economy "makes more people hungry, poor, and miserable every day" (J. O'Connor, 1994b, 154). Though neo-liberals argue that economic growth will 'trickle down' to members of the lower class, this argument is not convincing, especially for developing nations. Even in the United States, inequalities are in part resultant from the "widespread influence of the neoliberal political ideology" (Thomas, 2001, 164), even though high national wealth *does* allow for national disaster preparedness systems which reduce hazard vulnerability. In poorer nations, with limited means of creating and funding national disaster systems or federal disaster assistance plans, capitalism can be a detriment.

Market-led capitalism and low spending on social welfare systems has been associated with population explosions in Africa and Asia (Susman et al., 1983), a wide variety of 'social costs' (including: water, air, and soil pollution; environmental exploitation; poor working conditions; and underemployment) (Beckenbach, 1994) and has been coined unsustainable (Daly & John B. Cobb, 1994). Negative associations between capitalism and vulnerability exist

[9] The Human Development Index (HDI) is comparative way of measuring poverty, literacy, education, life expectancy, and well being for countries worldwide (Wikipedia, 2006b).

because the neo-liberal ideology does not support adequate avenues through which developing countries can address poverty. For example, the increased privatization that accompanies neoliberal capitalism can impede a state's ability to respond effectively to emergencies: "once assets are privatized, the state's access to them in order to provide services in times of emergencies is limited by its purchasing power" (Thompson & Gaviria, 2004, 15). Though some may argue that capital 'trickles down' to lower income groups in developed countries, there are significantly fewer avenues (e.g. social welfare programs, employment insurance) in developing nations through which wealth can 'trickle'.

Capitalism, in both developed and developing nations can dramatically widen the gap between rich and poor. Arguably, even more problematic is the observation that increases in wealth under capitalism result in increases in power (Caporaso & Levine, 1992) and the concentration of this power in the hands of relatively few people. In fact "capitalist market economies tend to distribute wealth very unequally across persons, [and] such economies create a stratified structure of power" (Caporaso & Levine, 1992, 165). Lack of financial capital in developing countries, coupled with high income inequalities, can lead to a lack of preparedness for disaster. For example, low wages jobs that accompany neoliberal economics "funnel huge numbers of people into shanty towns and coastal cities" thereby making these marginalized poor more susceptible to hazard (Wisner, 2005a, 91). In developing countries a free market neoliberal ideology seems a recipe for disaster: it is geared to market liberalization and decentralization but often lacks any alternatives for developing disaster programs and is deficient in poverty alleviation and vulnerability reduction strategies (Pyatt, 2000).

In countries such as India, Brazil and Mexico, capitalism exists at the expense of a vast number of poor (J. O'Connor, 1994b). Emphasis on economic growth and lack of attention to

social welfare is particularly detrimental in disaster prone places, where market-led economies marginalize the poor and influence them to live in dangerous areas (Susman et al., 1983). For example, before Hurricane Mitch, the Nicaraguan government cut public service spending which disabled an effective disaster response (Comfort et al., 1999).

Wisner (2001) agrees that economic development based on "the invisible hand of the market" most often *increases* risk and vulnerability to disasters, using the example of El Salvador to support his position (Wisner, 2001, 262). El Salvador has supported a number of core neoliberal principles including: free trade; extensive foreign investment; privatization; and state decentralization, but in the shift to market freedom, failed to establish government departments, or social programs oriented to protecting those most vulnerable to disasters. The 2001 earthquakes in El Salvador resulted in a chaotic reaction in which poorly organized and inadequate disaster responses were carried out. In fact, the neoliberal model of development resulted in "extreme disparities in wealth" for El Salvador (Wisner, 2001, 260). Wisner (2001) describes the situation in El Salvador as "run-away capitalism" in which neoliberal ideology accentuated vulnerability for everyone, save the richest (Wisner, 2001, 261).

Authors such as Cannon (1994) suggest that widespread capitalism has increased vulnerability for some and has created new vulnerabilities for others. In order to develop a fully effective hazard mitigation scheme, Wisner (2003) suggests that capitalist states need to challenge "the prevailing ideals of limitless growth, of ever-decreasing governmental regulation, and of the dominance of market values" (Wisner, 2003, 50). In summary, neo-liberal economics has had an uneven impact on disaster vulnerability: it has reduced vulnerability for some (through national disaster preparedness systems and insurance industries), and has increased vulnerability for others, primarily through increased economic disparities.

3.4.1 State-led Development and Vulnerability

State-led development is based on Keynesian economics, which asserts that imperfect markets require state interventions and calls for 'managed capitalism' (Beeson, 2003; Fine, 1999; Rapley, 2002). Though many of his ideas, regarding international trade, had been rejected at Bretton Woods John Maynard Keynes had far-reaching influence on political leaders after WWII. His idea of capitalism involved a greater role of the state than was allowed in the neoliberal economic scheme, particularly in the area of fiscal management (Rapley, 2002). Under the Keynesian view of state-led development governments 'manage' capitalism by adopting fiscal policies in which governments spend during recession periods and save in time of economic growth (Rapley, 2002). After the second world war, the Keynesian Consensus emerged in most developing capitalist countries based on the ideas that market forces result in an unbalanced distribution of resources, and that direct government intervention is beneficial for managing the pace of economic development (Beeson, 2003; Rapley, 2002).

State-led development is also associated with the East Asian model of economic development, including market liberalization and a strong central state, and the success of Japan, Asian tigers, (Taiwan, South Korea, Singapore, Hong Kong) and the 'tiger cubs' (Indonesia, Malaysia, and Thailand). The principle assertion of state-led development is that state management of the market is important and necessary in guiding economic development and in ensuring a balanced allocation of resources (Rapley, 2002; Yoshimatsu, 2003). In terms of disaster management, a more equitable division of resources would lead to vulnerability reduction. Advocates of state-led development argue that unmanaged free markets can result in high economic disparities whereas government intervention in the economy, particularly during recession, could be used to create jobs "which in turn would create more demand for goods and services, which would cause factories to increase their output and then to take on more workers,

and so on in an upward spiral" (Rapley, 2002, p. 8). If state-led development can lessen economic inequalities it would reduce poverty and, in turn, reduce vulnerability. In addition, attention to social development and the provision of social welfare programs can reduce risk of disaster (Wisner, 2001). Thus, in theory at least, state-led development could lead to decreased vulnerability, but it is important to investigate empirical examples of high levels of government control over societies in order to determine whether state-led development has the potential to successfully reduced hazard vulnerability. Though state-led development and socialist systems of government are not synonymous, in the following examples socialist states are used to demonstrate how differing levels of government control can influence disaster vulnerability.

Cuban socialism has created an environment in which the central state effectively manages disaster. Cannon (1994) believes that in socialist Cuba central government control *has* resulted in decreased vulnerability. He suggests that Cuba has "achieved a much better record in dealing with hazards like cyclones" than some of its neighbors like Haiti, Nicaragua and Honduras (Cannon, 1994, 25). Vulnerability reduction has occurred in Cuba in part because the central state has emphasized "social and economic development, an equitable distribution of resources, universal access to social services, and a narrower urban-rural development gap (Thompson & Gaviria, 2004, 15). Wisner (2003) also expresses that a strong central state is important in mitigating disasters and believes that "hazard mitigation…is impossible without challenging the prevailing ideals of limitless growth, of ever-decreasing governmental regulation, and of the dominance of market values" (Wisner, 2003, 12).

However, socialist state systems also have the potential to be 'undemocratic and authoritarian' (Woo-Cummings, 1999). Unlike Cuban socialism, Soviet and Chinese 'absolute

command economies'[10] exhibited authoritarian domination over their respective societies (Grossman, 1963). These are examples of which extreme state control has severely increased susceptibility to hazard. Cannon (1994) suggests that authoritarian socialism can create different forms of vulnerability for its populace. For example, Mao Zedong's Great Leap Forward Campaign (1958-1962) resulted in an extensive famine in China. In July of 1976, during the Chinese Cultural Revolution, the deadliest earthquake in the 20th century hit Tangshan, in Northern China. There was no warning because the State bureau of Seismology was engaged in political power struggles and regular work was at a standstill (Cheng, 1986). Similarly, the 1988 Armenian earthquake killed over 100,000, in part because of inadequate communication and response systems that were controlled by the Soviet central state (Wisner, 2003). The poorly organized and defined systems of collective ownership, associated with strong central states, can create intense vulnerability (Cannon, 1994; Torry, 1986).

Both free market capitalism and state-led development systems have increased and decreased disaster vulnerability in different disaster situations. States under both the direction neo-liberal ideologies and Keynesian economics have been involved in environmental exploitation, often exploit resources in an unsustainable manner, and both systems can increase vulnerability to disaster (Daly & John B. Cobb, 1994).

At the state level, both free market capitalist societies and states under state-led development have had both effective and ineffective responses to disasters. It is necessary to see how these ideologies influence community-level vulnerability. Next, I demonstrate the influence

[10] Grossman (1963) defines command economies as states in which "the central authorities prescribe everything and in the minutest detail to the production unit…without any 'household choice,' in which consumer needs are satisfied through physical doling out and labour is assigned" (Grossman, 1963, 105).

of governance on local level vulnerability and illustrate how political ideologies shape local vulnerability to disaster.

3.5 Local-level Governance and Disaster Vulnerability

Local-level governance and disaster vulnerability at community levels are directly connected to national governance and the global economy. Disaster mitigation strategies are embedded in political agendas at all government levels and this makes local-level disaster preparedness even more complex. Regional governments must comply with national demands, must work within a regional budget, and must satisfy their local populace. Disaster responses are often motivated by political rivalries and conflicts of interest, and these can severely impair effective disaster management (Winchester, 1992). Politicians, often at the central state levels, bargain for funding because they have both local and state power groups and interests in protecting certain areas (Winchester, 1992). In addition, decisions at local levels reflect national ideologies and global market demands. For example, in the 1990s, the increased global demand for bananas, cotton and coffee drove local farmers in Honduras and Nicaragua to cultivate land on steep slopes (Comfort et al., 1999). (Wisner, 2003). Since global markets, the agendas of national government, and the power relationships between the central states and local governments all strongly influence disaster responses, the coping strategies and interests of community members are often unheard. However, in order for mitigation efforts to be successful they must include local-level public participation (Pearce, 2003). Residents should be encouraged to rebuild their lives and respond to disaster, and local authorities should seek to involve citizens in the disaster management process (Maskrey, 1989).

Local-level involvement in disaster management is important to disaster management, thus to effectively manage disaster, governments should decentralize decision-making power

(ADPC, 2003; Piers Blaikie et al., 1994). Though it is important for disaster preparedness strategies to exist at the national level, it is equally important that local governance contribute to the design and implementation of these strategies at regional or local levels. Newport (2003) suggest that community involvement, in both pre-disaster preparedness and disaster response, must exist in order to effectively mitigate disasters. Local governance must be supported by both residents *and* national policies for effective disaster responses. This is especially important for rural areas with the smallest governmental units because these experience the highest proportional impacts of disaster (Lewis, 1999). In terms of development, local governance must ensure that growth is sustainable and is aimed at reducing vulnerability. However, even if local officials have these intentions, central state agendas for economic growth often compete with or override priorities of sustainable development.

As an example of this local/national tension, in 1997, in the Kheda District of Gujarat, India, women worked as part of a government sponsored forestry scheme to raise saplings during dry seasons. However, when faced with a drought and financial strain, the Forestry Department sold the saplings and the women felt that their labor was worthless (E. R. Bhatt, 1998).

Local level governance is often tied up in national ideologies and development agendas. Though national-local government relationships can be detrimental in a disaster, when national and local governments cooperate, disaster responses can be very effective. For example, in the Philippines, the national and local governments collaborated in establishing policies which encourage: the use of local resources to recover from disaster; self-reliance within communities; and mutual assistance between constituencies (ADPC, 2003). In addition, disaster policy stipulates that the national government support the agendas and operations of local governments and requires that all government organizations and agencies document disaster plans and

emergency responsibilities (ADPC, 2003). The municipal government of Ilo-Ilo province established links with religious and civic organizations, and created a Rescue and Emergency Assistance Movement and Municipal Economic Council to provide loans for economic recovery in times of disaster (ADPC, 2003). As a result of community-preparedness and capacity building strategies, residents of Ilo-Ilo province are more confident in dealing with disasters because they are wiser about disaster protocol (ADPC, 2003).

Effective local governance, aimed at reducing vulnerability and building adaptive capacity is important to disaster preparedness and mitigation. However, in order for vulnerability reduction to occur, there must be a commitment from all levels of government and a clear collaboration between national-local governments, non-governmental organizations, and civil society.

3.6 Crony Capitalism, Corruption and Government Capacity

Regardless of political ideology, corruption disables government capacity from functioning in ways that enhance social welfare. Though widespread economic debate between neoliberals and advocates of Keynesian economics has occurred since the 1920s, scholars of both paradigms agree that "uncorrupt governments are better at fostering growth than those riven by crony capitalism and corruption" (Kang, 2002, p.3; Rodrik, 1995). Specifically, "corruption saps the resources available for development, distorts access to social services, and undermines public confidence in government" (Ramos, 2001, p.12).

Neoliberals often attribute state-led development and government intervention in the economy with corruption and crony capitalism[11] (Ramos, 2001). Indeed, there is some truth to the argument that state-led development provides a more likely environment for government

[11] Crony capitalism is "a system in which those close to the political authorities who make and enforce policies receive favors that have large economic value" (Haber, 2002)

corruption. For example "license administration enabled ministers and officials to reward favorites or demand kick-backs; directorships of marketing boards and public firms [can] be used to skim off resources for personal use; discretionary government budgets [can] be plumbed to further individual interests" (Rapley, 2002, p.40). However, there are ways to combat corruption in the state-led development system. The World Bank, in accordance with neoliberal economics, asserts that economic reforms, including deregulation, privatization and increased market freedom, would contribute to the battle against corruption (WB, 1997). However, there are other avenues through which state-led development systems can reduce corruption and crony capitalism. For example, the competing priorities of officials could be addressed. State-led development often fails to demonstrate how officials should be kept accountable and often does not address the incentives of state authorities to maximize profit within their own firms (Rapley, 2002). In addition, systems of accountability and monitoring should be in place in order that lower echelons of government are responsible to higher-level authorities. Too often "the problem of corruption is simply that of badly underpaid officials possessing wide discretionary powers over the conduct of business, the amount of taxes you must pay and even whether or not you are to go to jail for violating some law or other" (Ramos, 2001, p.10). Though state-led development systems may offer easier avenues through which corruption can take place, free-market societies are frequently victims of crony capitalism, fiscal scandals and government corruption. In both free-market economies and those under a state-led development scheme, corruption can be addressed by building government capacity including the formation of transparent and efficient government bodies, skilled and honest officials and strong policies (Rapley, 2002).

In the next section, I outline my research methodology, which provides the foundation for an analysis of local-national governance, vulnerability and disaster preparedness in Khao Lak, and Koh Phi Phi Don, Thailand.

4 CASE STUDY BACKGROUND/ RESEARCH METHODOLOGY

4.1 Study Site

The devastating impacts of the December 26th tsunami in the Indian Ocean suggest significant vulnerabilities in Sri Lanka, India, Indonesia and Thailand. In Thailand, 8,221 deaths resulted from the tsunami (ADPC, 2005). My study is a comparison of the impacts and vulnerabilities of two case study sites in Thailand, Khao Lak and Koh Phi Phi Don. These sites were chosen for three reasons:

a) these were the most tsunami devastated areas in Thailand (Unknown, 2005a);INET, 2004 #116};

b) 'Step Ahead', (my host institution during the four month Canada Corps Internship that facilitated and funded my research) has a base in Khao Lak and has established relationships with those affected by the tsunami; and

c) I have personal interest in understanding how Koh Phi Phi and other southern coastal Thai residents were impacted by the disaster.

4.1.1 Geography

The Kingdom of Thailand is situated in the tropical zone of the Southeast Asian peninsula and is bordered by the Andaman Sea, the Gulf of Thailand/South China Sea, and Malaysia (See Map I). Thailand's northern land borders connect with Burma, Laos and Cambodia. Thailand has 72 provinces with Bangkok as its capital.

Both Khao Lak and Koh Phi Phi Don are located in

Map I: Map of Thailand

(CIA World Factbook, 2006)

Southern Thailand within the Malay Peninsula (see Map II). Khao Lak district is situated on the west coast of Phang-nga province and faces the Andaman Sea. The district includes three national parks including Thai Muang National Park, Sri Phang Nga National Park, and Laem Ru National Park. Kao Lak district includes 25 kilometers of coastline with shallow, long beaches. Research was conducted in two small towns within Khao Lak district: Bang Niang and Ba Nam Kem (See Map II).

Map II: Map of Southern Thailand 1

Source: (Pitsch, 2000)

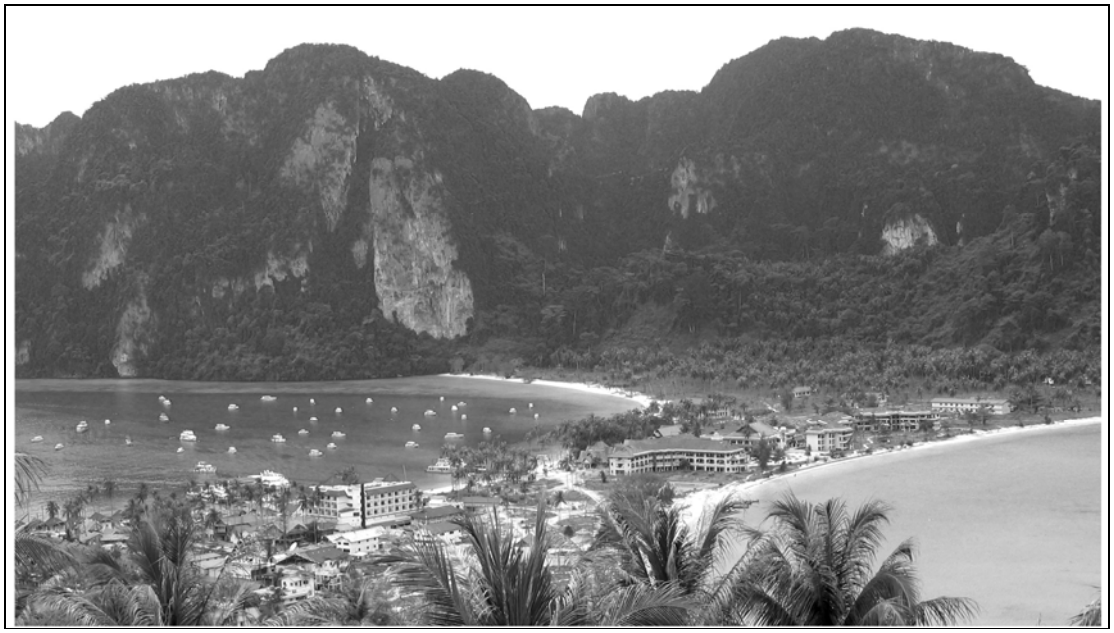
Approximately 15,000 people were in Bang Niang when the tsunami hit and 3000 lost their lives. The small town, stretching approximately 12 km, is low-lying with ground levels approximately 4-5 meters above sea level (CCOP & DMR, 2006). During the tsunami, inundation levels in Bang Niang were 10-12 meters (CCOP & DMR, 2006). Since most buildings in Bang Niang were 2-3 storey's and had reinforced concrete columns, building were usually damaged but not completely destroyed (CCOP & DMR, 2006).

Picture 1: Bang Niang Building

Ba Nam Kem, a predominantely fishing village, is located approximately 25km north of Bang Niang, closer to the border with Myanmar (Field Notes 2005). Approximately two-thirds (3000) of the population of Nam Kem were killed in the tsunami (CCOP & DMR, 2006). The inundation level in Nam Kem was 8 meters with most of the town sitting only 3-6 meters above sea level (CCOP & DMR, 2006). Unlike Bang Niang, many buildings in Nam Kem collapsed during the tsunami since they lacked similar support structures.

Koh Phi Phi Don, meaning 'hilly island', is the larger of two Koh Phi Phi Islands in the Phang Nga Bay, Andaman Sea, Eastern Indian Ocean. The island is in Krabi province and comprises part of Hat Noppharat Thara/Koh Phi Phi National Park. Koh Phi Phi Don is a dumbbell shaped island made largely of limestone, and is approximately 6.6km in length with an area of 28^2 km. The island can be accessed only by boat and is approximately equidistant from Phuket Island and mainland Krabi Province. Much of Koh Phi Phi Don is zoned as a marine reserve; however recent development of tourism infrastructure such as hotels, bungalows, restaurants and handicraft stalls has been intense as a result of poorly enforced development and building laws. Research was conducted in the Tonsai Strip of Phi Phi Don. This is the most inhabited area on Phi Phi and was the area most devastated by the tsunami. The Tonsai strip is sided by two bays: Tonsai and Lo Dalam. The tsunami waves hit Koh Phi Phi Island from both sides of the Tonsai strip (See Picture 2).

Picture 2: Overview of Phi Phi Island



Tonsai Bay (right) and Lo Dalam Bay (left)

4.1.2 Political Environment

Literally translated as 'land of the free,' the Kingdom of Thailand is the only Southeast Asian nation that was never colonized. Thailand, named Siam until 1939, had an absolute monarchy until 1932, at which time a peaceful coup d'état, led by young academics, encouraged King Prajadhipok to accept a constitution: a constitutional monarchy has been in place ever since. Thailand's political system is made up of two Houses: the Senate, and The House of Representatives. The legislative body is chosen through national elections, and the Prime Minister is elected by these representatives. In this system, the King is the recognized Head of State, though the Prime Minister is primarily responsible for governing parliament. King Bhumibol Adulyadej has reigned since 1946 and is influential and well-loved by Thai people (CIA, 2005).

Thailand has three levels of basic government: the central, provincial and local administrative levels. The local administrative levels are based on principles of decentralization and aim to involve local participation in decision making processes (Tummakird, 2001). However, the administrative system which is used to delegate authority is itself highly centralized. Authority begins at the central level and is passed down to the regional and local levels. Although the new constitution (1997, Article 78) gave "significant responsibility to subnational governments" in a move toward decentralized power within government (Beschel et al., 1999, 25), development policy in Thailand remains inspired by both top-down and bottom-up approaches (Tummakird, 2001).

At the local level, the government branches into three sub-groups: district, sub-district and village-levels. The *Nampu* is the district official, the *Ohbadah* leads the sub-districts, and each village has a head official called a *Puyaiban*.

4.1.3 The Role of the State in Thailand

From the early 1980s to the late 1990s, the Thai government was progressively less involved in Thailand's economy. However, since the Asian financial crisis, the Thai government has renewed its belief that government involvement in the financial sector is necessary (Dixon, 1999). In the early 21st century, Thailand continues to encourage a market-oriented and market-based economy, but has followed Japan's lead and maintained an economic ideology based on state-led development (Yoshimatsu, 2003). As such, the Thai government remains focused on generating foreign investment and promoting tourism, but is also concerned with rural development. Governmental reform in Thailand has focused on combining government decentralization with socially progressive principles. O'Rourke (2004) suggests that the state should "balance[s] its support for the emergence of a capitalist class, with the need to continue protecting the interests of peasants and workers" (O'Rourke, 2004, 244). Thailand appears to be doing just this: it encourages decentralization, while maintaining a strong central state, and encourages market liberalization.

The head of the Thai Rak Thai Party, Prime Minister Thaksin Chinnawat, has a nationalist political platform which emphasizes a strong, though small, central state. Thaksin has made a number of decisions which suggest that he will continue to advocate a strong central state. One of the most recent examples was the dismissal of the governor of the central bank, Chatu Mongol Sonakul. Chatu advocated less government involvement with the central bank and his dismissal indicates that the central state will continue to control the bank (APFC, 2001). The government further delved into private economics when it created a state-owned commercial bank to manage the assets of finance companies (CW, 2005). Prime Minister Thaksin, a business tycoon himself, has headed various activities which involve the central state in Thailand's economy: he introduced a subsidized health care system; a system of loans with low

interest rates; created stimulus packages for rural communities, real estate investment, and foreign investment; and created a subsidy fund for sugar producers (APFC, 2004; CW, 2005). These activities demonstrate state-led development however, despite government involvement in the Thai economy, Thaksin still aims for decentralization.

In November 1999, The Decentralization Act was passed in order to downsize the central state and shift responsibility to local governments (ADB, 2005). Traditionally, provincial governments have controlled small districts; however this created a reliance on provincial authorities and gave little incentive for locals to be involved in community initiatives. In 1997, a new constitution took effect and its main aim was to eradicate corruption in Thai politics and to make the government more transparent (CW, 2005). The Decentralization Act is compatible with this Constitution: Chapter 4, Section 290, states that local government organizations have power over "the management, preservation and exploitation of the natural resources and environment in the area of the locality" (Paramintharamaha, Adulyadej, & Borommanatthabophit, 1997).

Decentralization seems to be a positive initiative by the Thai government which will assist disaster mitigation and vulnerability reduction: it will allow for local decision making and permit officials to address unique community vulnerabilities which may have been overlooked in the broader provincial policies. In fact, Lewis (1999) suggests that small islands need disaster management strategies that are organized specifically for their needs and with their involvement, rather than only being part of a national strategy (Lewis, 1999). However the switch to local level governance needs to be made with clear systems of accountability and direction from the upper echelons of government.

Koh Phi Phi Don has already suffered from inadequate local governance. Much of the overdevelopment and environmental degradation on Koh Phi Phi can be linked to a lack of enforcement of existing National Park laws and other examples of inadequate governance (Scott, 2005). The limited staffing, lack of expertise and poor zoning on Koh Phi Phi Don means that local park officials on Koh Phi Phi are not equipped for coastal management. Though local authorities may have the legal power to govern their respective districts and towns, they need to be trained for their new responsibilities and to be kept accountable for their actions.

4.1.4 Economy

Thailand has a free enterprise economy and has welcomed foreign investment since the 1980s. Traditionally, fishing-related industries were dominant in coastal communities around Phuket and Krabi. However, with an increase in tourism, many fishing communities have redirected attention to tourism-related livelihoods. The worst hit provinces in Thailand, Pha Nga and Krabi, including Khao Lak and Koh Phi Phi Island, were tourist spots often located in and reliant on environmentally fragile areas (Unknown, 2005f).

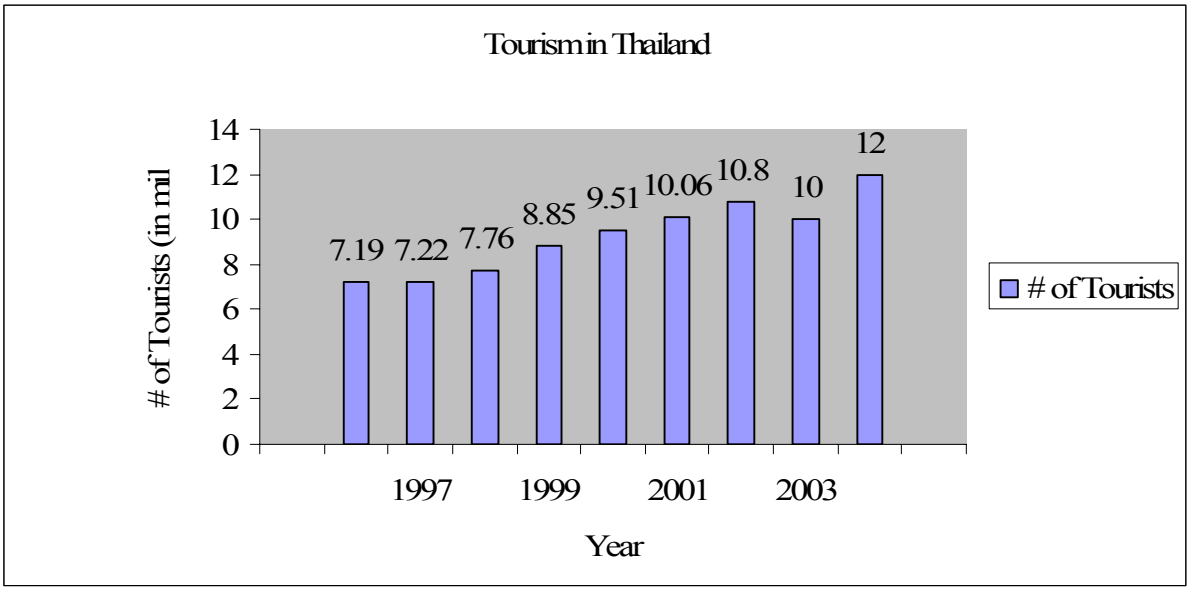
Islands often experience economic difficulties as a result of their geographical isolation. They are often dependent on export markets, lack financial capital and human resources, and experience high transport costs. Consequently, tourism has been a positive option for many tropical islands: the tourism industry generates income and employment and boosts development and economic growth for islands (Gossling, 2003). On Koh Phi Phi Don tourism-related businesses have been on the rise since 1992 when 'The Beach' was filmed on the neighboring island of Koh Phi Phi Ley. On Phi Phi Don, local residents earn their livelihoods through investment or employment in restaurants, hotels, souvenir shops, and ocean transportation, and as tourism has increased, livelihoods in fishing and agriculture have subsided. The same

situation is true of Khao Lak. Though Khao Lak only escalated to a major tourism destination in 2000, tourism increased dramatically in only five years: major hotels sprung up quickly, and local economies began to rely less on fishing and more on tourism (Field Notes 2005). Livelihoods in both Khao Lak and Koh Phi Phi Don are heavily reliant on the tourism industry. The relationship between tourism and vulnerability in both case study sites are explored in more detail in later sections. Thailand experienced extremely rapid economic growth during the 1980s to 1997 period when the Asian financial crisis hit, with an approximate average annual economic growth of 9% (ICEM, 2003). However, as in most capitalist societies, economic benefits were unequally distributed and huge economic disparities resulted (ICEM, 2003). For rural residents, poverty was a great threat and by 1992, the percentage of rural poor hit 92 per cent (ADB, 2005; ICEM, 2003). Rural poverty continues to be a problem in Thailand, however Koh Phi Phi Don and Khao Lak are largely exempt from the levels of poverty experienced by rural communities in the North because of their appeal for tourists (Field Notes, 2005). In fact, pre-tsunami, businesses on Koh Phi Phi flourished. The same was true of Bang Niang in Khao Lak district. Employment opportunities in hotels, restaurants and souvenir shops were abundant in Bang Niang and the town was developing a reputation as one of Thailand's diving hotspots (Field Notes, 2005). However, Ba Nam Kem, only 20km from Bang Niang, did not experience tourism increases to the same extent as Bang Niang (Field Notes, 2005). Before the tsunami, the economy of Ba Nam Kem was primarily driven by fishing livelihoods (Field Notes, 2005). Still, with many of the town's inhabitants involved in livelihoods that brought them nearer the ocean, disaster vulnerability was high in Ba Nam Kem (Field Notes, 2005).

The number of tourists visiting Thailand has exploded in the past decade (See Figure VII). Tourism "surpassed rice as the largest source of foreign exchange in 1983" (Raksakulthai,

2003, 6). In 2003, tourism accounted for upwards of 10 per cent of the employable work force (ICEM, 2003).

Figure VII: Number of Tourists in Thailand



Source (TAT, 2006)

Most residents of Koh Phi Phi Don depend on tourists for their livelihoods. The total revenue from tourism just for the Koh Phi Phi islands is 205 million US$ per year (ICEM, 2003). Tourism is an integral part of Koh Phi Phi's economy, however, a huge influx of people over the last decade, and the associated development of tourism infrastructure, have caused significant environmental degradation on Koh Phi Phi Don. For example, tourism has contributed to the clearance of mangroves, the depletion of coral reefs, as well as the pollution of both beaches and sea water (ICEM, 2003). In rural areas including Koh Phi Phi, high rates of tourism have depleted water reserves and have increased pressures on waste disposal systems making them insufficient even to support the local population (ICEM, 2003). Though tourism has stabilized livelihoods and incomes for residents of Koh Phi Phi and Bang Niang, it has stimulated environmental mismanagement and, I contend, disaster vulnerability.

4.1.5 Environment

Koh Phi Phi Don's coastal environment has been deteriorating since the 1980s as a result of extensive development and increased tourism. Before the tsunami, large buildings prevented sunlight from reaching the reefs and increased tourism lead to the pollution of beaches (Cummings, Bao, Martin, & Williams, 2003). In fact, prior to the tsunami, an environmental assessment revealed that the area of coral reefs that was ranked either 'good' or 'very good' decreased from 34% to only 16% (UNEP, 2005). Because Khao Lak has only recently been deemed a tourism hot spot, the area did not experience as much environmental degradation as on Koh Phi Phi Don although such degradation was beginning to emerge. Large-scale hotels; bungalows and vendors contributed to the cutting of coconut trees and increased diving resulted in oceanic pollution and broken coral reefs, but the affects of increased tourism were far less drastic than those experienced on Koh Phi Phi.

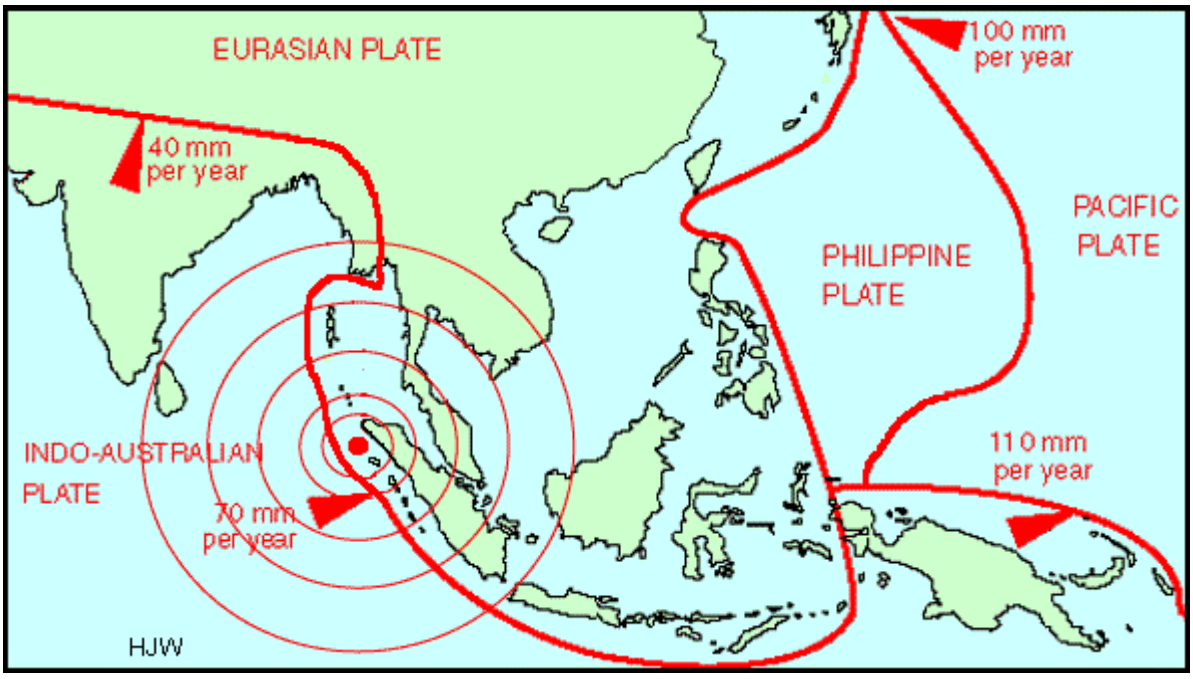
Though negative impacts of tourism were apparent in both Khao Lak and Koh Phi Phi, there were also some benefits of tourism in these locations. For example, dive operations had a business interest in environmental preservation and raising coral reef awareness (Field Notes 2005). In both study sites, diving lessons often emphasized environmental preservation and encouraged diving students not to stand on or break pieces of coral (Field Notes 2005).

4.1.5.1 Defining Earthquake Zones and Tsunamis

Unlike a tidal wave, a tsunami (Japanese for 'harbor waves') is not influenced by the moons' gravitational force, and is not a single wall of water, but is usually a series of waves. Tsunamis can be caused by landslides, undersea volcanic eruptions, and, as in the case of the December 26th, 2004 tsunami, underwater earthquakes. Earthquakes occur primarily on the boundaries of the earth's tectonic plates. Thailand's southern coastal strip follows the fault line

between the Eurasian and Indian Australian plates and this position makes it particularly earthquake-prone (See Figure VIII).

Figure VIII: Map of Plate Tectonics



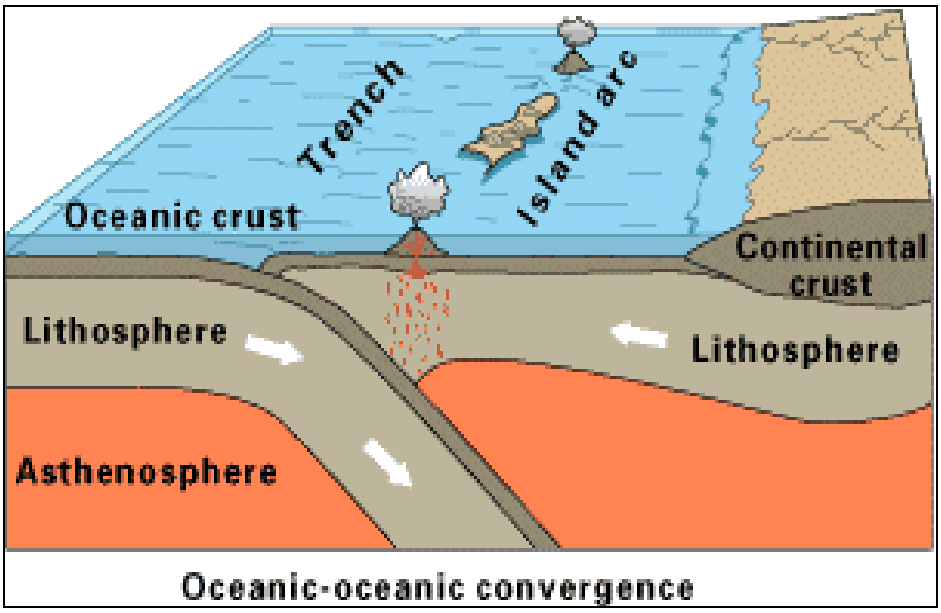
Source: (Weber, 2006)

The epicenter of the December 26th earthquake was off the western coast of Sumatra, Indonesia, but had such an intensity and displaced such a volume of water that the resultant tsunami affected people as far away as Somalia.

Subduction is an ongoing geophysical process but earthquakes driven by subduction result when 'stuck' plates are suddenly released and realign rapidly.

The Burmese plate is considered part of the greater Eurasian plate, while the Indian plate is portion of the Indian Australian plate. During subduction, the older and heavier Indian plate was pushed beneath the other into the earth's mantle or asthenosphere (See Figure IX), while the lighter Burmese plate was simultaneously forced upwards. The rapid shift created an earthquake resulted in a huge displacement of water, triggering the tsunami.

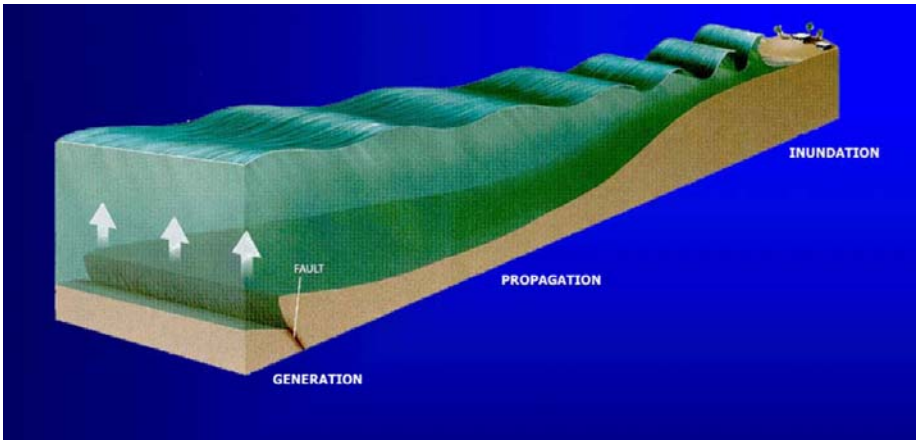
Figure IX: Process of Subduction



Source (Kious, 1996)

In deep ocean waters, tsunami waves are almost indistinguishable from normal ocean fluctuations, and are therefore, difficult to monitor. The three stages of a tsunami include: generation, propagation and inundation (See Figure X). It is only during the inundation phase that tsunamis are clearly recognizable; unfortunately this is the time of contact with land. Tsunami waves only show their height when

Figure X: Tsunami Generation



Source (Weesakul, 2005)

they reach the shallow waters of coastal areas: the depth of water decreases, the wavelength shortens, and the height of the wave increases (See Figure X) (FEMA, 2006).

Tsunamis in the Indian Ocean are relatively rare. In fact, the last major tsunami in this region was caused by the Krakatoa volcanic eruption in 1883. Even then, the death tolls were significantly less. Though tsunamis are relatively rare for Thailand, the country *was* a member of the Pacific Tsunami Warning System pre-tsunami, and still a warning was not issued (UNEP, 2005). This, coupled with a lack of local knowledge about tsunami identification, resulted in a disaster for both Khao Lak and Koh Phi Phi Don. On Koh Phi Phi, the tsunami reached heights of eighty feet, and as of February 2005, the Thai Government estimated that 5,393 people were dead, 8,457 injured and 3,062 missing (UNEP, 2005).

4.1.6 Culture/ Demography

The majority of people (75%) in Thailand are of Thai ethnicity, with Chinese-Thai accounting for 14% (CIA, 2005). Thai is the dominant language, but English is widely spoken and accepted, especially in tourist areas. Ninety-five percent of religious adherents in Thailand practice Theravada Buddhism (CIA, 2005), however Islam is common in Thailand's southern provinces, and is the most commonly practiced religion for locals on Koh Phi Phi Don. The King of Thailand is a highly respected and valued as both an authority and as a model for Thai citizens.

Until 1950, Koh Phi Phi Don was uninhabited. However, Moken people, often referred to as sea gypsies, have periodically settled on Koh Phi Phi Don for decades. The first permanent settlers to the island were from Koh Yai, Koh Lanta and Krabi provinces. Descendents of these original settlers maintained ownership of Koh Phi Phi Don until recently. These 'locals' practice Islam, making Phi Phi a primarily Muslim island. On Phi Phi, it is common social knowledge

that those from the mainland practice Theravada Buddhism, while locals practice Islam. Today there are a large number of Buddhist business operators on Phi Phi, but few consider Phi Phi their home. Before the tsunami Koh Phi Phi Don had a population of approximately 3000 people, with 80% of the Thai population being Muslim (Horn et al., 2006). However, Boxing Day comes during the high season and when the tsunami hit there were between 9,000 and 10,000 people on Koh Phi Phi (Horn et al., 2006). Approximately 690 people were killed on Phi Phi Island and between 500 and 12,000 people remain missing (Horn et al., 2006).

Bang Niang and Ba Nam Kem, both in Khao Lak district, were devastated by the tsunami. Pre-tsunami, the population of Bang Niang was approximately 750 and the population of Ba Nam Kem was between 4,000 and 4,500 (ADPCb, 2005). Theravada Buddhism was dominant in both towns; however the tsunami sparked change in the religious environments of both Ba Nam Kem and Khao Lak. Since the tsunami many Christian organizations and churches have developed in both places and with increases in Christian institutions have come tensions between Buddhists and Christians. Media reports have alleged that Christian organizations have offered support only to those who convert to the Christian faith, making claims that Christians are 'attempting to buy conversions'. Regardless of the accuracy of these claims, the tsunami triggered a religious impact whereby the former religious makeup of the community in Khao Lak has changed, with as yet uncertain results.

Though both Khao Lak and Koh Phi Phi have ethnic diversity, Khao Lak's demographic is more ethnically diverse than is Koh Phi Phi Don. In Ba Nam Kem, and to a lesser extent in Bang Niang, Burmese migrants (usually lacking legal identity cards) work as laborers in construction, farming and in Thai restaurants and shops. There are clear tensions between the Burmese and Thai in Khao Lak, with Burmese considered by ethnic Thai's to be second-class.

The relationships and tensions between the Thai and Burmese populations have influenced community cohesion in Ba Nam Kem and strongly shaped disaster vulnerability.

4.2 Characteristics of a Mixed Methods Approach

One of the aims of this study was to explore the impacts of Thailand's political environment on disaster vulnerability and this was done primarily through a mixed methods approach[12]. A mixed methods approach is beneficial because it allows for a combination of both qualitative research methods (i.e. generation of theory, the researcher as the collector of data, and qualitative analysis) and quantitative methods (i.e. standardized data collection, theory testing, and statistical analysis). This study followed qualitative approach in regard to data collection while the more quantitative statistical analysis was used to demonstrate trends in interview responses.

As in most qualitative research, the researcher was immersed in the site of the participants. This approach was beneficial because cultural immersion helps the researcher develop a personal understanding of the culture, traditions and practices of the participants, and enables familiarity with participants' daily lives and behaviors (Creswell, 2003; Neuman, 1997). The qualitative portion of this research was conducted with the intent to develop assumptions, theories and understandings of social situations and life (Neuman, 1997). The questions were largely open-ended and allowed the participants to give detailed and descriptive responses, as opposed to highly structured closed-end questions with pre-categorized responses into categories that may not be fully understood by participants. When participants are able speak freely through open ended questions, the interview itself becomes more personal and interactive. Indeed,

[12] Mixed methods research is defined as "the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study" (Johnson & Onwuegbuzie, , p. 17)

qualitative researchers have traditionally aimed to build relationships and trust with individuals, maintaining sensitivity to participants and aiming to *observe* the study site without disturbing it by their presence (Creswell, 2003).

The data analysis component of this study also followed a mixed methods approach, and therefore qualitative data was quantified to identify specific themes and possible relationships. A content analysis was conducted based on interview notes and transcripts, allowing lengthy responses to be categorized into both preset and emergent categories. After the responses were coded according to theme, they were analyzed and interpreted through statistical analysis. The limited number of respondent interviews provided a simple statistical analysis, which focused on the frequency of responses in order to identify particular trends or possible relationships.

In line with qualitative research the interpretation of data was the responsibility of the researcher. Data was categorized, filtered and expressed by the researcher and is therefore prone to personal interpretations and is inescapably influenced by the researcher. Since qualitative research can be subject to the interpretation, a good qualitative researcher reflects on the characteristics that shape him/her as a person and acknowledges how his/her values could influence the research (Creswell, 2003). Since a qualitative approach was taken in regard to data collection, the following paragraph outlines the researcher's personal characteristics and suggests how these may have influenced this study.

4.3 The Role of the Researcher

As a Western, feminist, Mennonite faith-inspired student who was researching a predominantly Buddhist South East Asian coastal community, I acknowledge that my personal biases, values and interests have shaped my research throughout this study. I addressed these biases in a number of ways. Through use of open-ended rather than closed interview questions, I

enabled participants to stray from the original question and encouraged discussion of their personal opinions and experiences. In addition, I attempted to counter act my personal biases by using local translators and encouraging discussion of their interpretations, opinions, and insight into Thai culture. I have enjoyed learning about Buddhist practices, Thai traditions, history and culture, but recognize that as a non-Thai, I am unable to fully appreciate the complexities of life in Thailand and my lack of full contextual understanding therefore inhibits my ability to be able to fully understand disaster vulnerability in Thailand.

As a graduate student at the University of Waterloo, I have been able to conduct research in Thailand with significant institutional support. However, the prospect of researching post-tsunami Khao Lak and Koh Phi Phi Don presented an ethical dilemma regarding the soundness of a Western female researching, interviewing and interpreting the disaster experiences of Thai people. Though I sought to compassionately listen to tsunami victims, to understand and document their experiences and vulnerabilities, and to provide them an outlet to discuss their opinions, I was at risk of being perceived as journalistic and not contributing to practical vulnerability reduction. To avoid this, I made efforts to explain my position in the research and to ensure that participants were comfortable with the study.

I have engaged in research in a location where I do not share the culture, history or religion of the participants. In the following section I demonstrate the steps I took to minimize and recognize the potential bias that I may have inadvertently introduced to my research.

4.3.1 Institutional Influences

Institutional partners can serve as accountability partners, and can both enhance research credibility and impose institutional rules and other avenues of influence on the research process. The institutions that have shaped my research include: the sponsoring agencies (the Canadian

International Development Agency, Canada Corps Internship Programme, and the Association of Universities and Colleges of Canada), my affiliate University (the University of Waterloo), and my host organizations in Thailand (Global Youth Network, YWAM Thailand, and Step Ahead).

The University of Waterloo acted as an accountability institution throughout this research. As the primary investigator, I have been required to uphold university regulations and protocol, and was required to obtain clearance from the Office of Research Ethics before beginning research.

Since the research conducted for this study was funded through an internship with the Canada Corp University Partnership Program (sponsored by the Canadian International Development Agency (CIDA) and the Association of Universities and Colleges of Canada (AUCC)), the values and agendas of these institutions also shaped and influenced this research project. These sponsoring agencies approved a research proposal and work plan, and required that I and my research assistant complete a pre-departure training course which focused on issues related to field research and travel abroad including cultural sensitivity, security and gender equity. Though these institutions have increased the credibility and legitimacy of this research, the research has also been limited as a result of these structures. For example, this research project was a required part of my Masters Degree: my personal interests in obtaining this degree, and fulfilling the requirements of the University of Waterloo, have outweighed my desire to fill potential long term needs of the research participants. Thus, I spent only 4 months in the field. In addition, the Canada Corp Internship Program, which is designed for an internship of approximately 3-4 months, leaves little room for divergence from the proposed work plan, despite local needs which arise during field work.

Finally, the religious values of the host institutions also influenced this research. YWAM is a self-described 'family of ministries' and as a branch of YWAM, Step Ahead is also influenced heavily by the Christian faith. Step Ahead is a branch of YWAM's Relief and Development department and is focused on gender equity, poverty alleviation and community development. Step Ahead assisted in developing relationships between the researcher and the community of Khao Lak and although interviews were not religious in nature, participants from Bang Niang were sometimes aware of my Christianity.

4.4 Research Approach

The research approach for this thesis combines institutional analysis of Thailand's national policies regarding land-use and tourism on Koh Phi Phi and in Khao Lak. In order to collect relevant data, I gathered information on government compensation plans, assistance packages and reported damages from the Asian Disaster Preparedness Centre and the United Nations Development Program in Bangkok. I focused on documents that discussed government disaster management initiatives and those that outlined the details of the Thai government's response to the tsunami. The ADPC was a valuable resource for collecting this information; however most data was collected from the reports and working papers printed by the ADPC, thus my research was limited to the information included by staff at the ADPC. As a result, I was able to identify policies that contributed to disaster vulnerability and to outline the strategies and priorities of the Thai government.

The field research component, in Khao Lak and on Koh Phi Phi Don, involved the use of local residents as sources of data by way of interview. This research was guided by the vulnerability approach to disaster management, which was developed in the 1970s and was used as the principle theoretical framework for this study. The vulnerability approach to disasters is

focused on identifying populations most vulnerable to disaster and attempts to understand why certain groups are impacted more than others. In many cases, vulnerability is influenced by a number of individual characteristics including: gender, ethnicity, age, physical ability and class. Most often, those most vulnerable to disasters are the poorest members of society (Anderson & Woodrow, 1989); (Cuny, 1983). A number of key models directed this research including: (Piers Blaikie et al., 1994) Pressure and Release (PAR model); McEntire's (2001) Holistic Model of Vulnerability: and Anderson and Woodrow's (1989) Capacities and Vulnerabilities Analysis Matrix.

4.5 Research Methods and Data Collection

The research methods for this study were based on: a secondary literature review of the vulnerability approach; a secondary literature review of the influence of political ideology on poverty and vulnerability reduction; key informant interviews (n=40), participant observation and interviews on Koh Phi Phi Don (n=20) and in Khao Lak (n=20).

I adopted a social constructivist perspective towards this research and therefore relied significantly on the opinions of the participants to determine if and how governance influenced disaster vulnerability (Creswell, 2003). I have also adopted the assumption that participant perspectives are based on individual histories, social experiences and culture, and I recognize that meanings are socially constructed. Thus, since my experiences, culture and history differ from the participants, there is potential that I may extract different sets of meanings than those that were intended by participants. My experiences, values and culture have inescapably influenced this research. However, as much as possible, I have attempted to demonstrate my relationship to the research and reveal my influences and bias on this study.

My data analysis involved categorizing data based on observable social patterns and human experiences. From a literature-based grounding in vulnerability theory, I developed a content analysis[13] framework for identifying, deciphering and categorizing 'important' data gathered through interviews (Holsti, 1969; Stemler, 2001). The content analysis included detailed coding of interviews based on themes. In this way consistencies between interviews were revealed. For example, the content analysis revealed both similarities and differences in received aid and incited further research into the compensation policies outlined by the Thai government. A content analysis was conducted in order to theorize about broader socio-political phenomenon which influenced vulnerability to the December 26th tsunami. My intentions have been to document and analyze observable data; I have aimed to demonstrate how participants have experienced the tsunami disaster and how they view the relationship between governance and vulnerability.

The data collection for this project was broken down into four stages: preliminary review of disaster management literature in Waterloo, Ontario; data collection through field research in Khao Lak; data collection through field research on Koh Phi Phi Don; and analysis of data and organization of findings in Bangkok, Thailand.

a) The first stage of my research involved the review of disaster management literature, with a focus on vulnerabilities literature. This preliminary phase took place at the University of Waterloo between January and August of 2005.
b) The second and third stages of research involved primary data collection techniques including key informant interviews and field observations. A singular interview process was used and involved semi-structured in-depth interviews with

[13] Holsti (1968) defines content analysis as "any technique for making inferences by objectively and systematically identifying specified characteristics of messages" (Holsti, 1969, 14).

tsunami-affected residents of Khao Lak and Koh Phi Phi Don. Interviews began after one week of exploring each community and familiarizing the research team with the state of each town and the extent of recovery. Since the host institution in Khao Lak had built a rapport and trust with community members this trust was extended to the research team. After initial relationships were built, interviews were arranged and conducted by both the primary investigator and a research assistant with the help of a local interpreter.

c) The fourth phase of research took place in Bangkok from December 1st to December 15th 2005. Aggregate data for both Khao Lak and Koh Phi Phi Don, including information on government compensation packages, spending records and priorities, as well as maps and census data were obtained during the fourth stage of research at the ADPC in Bangkok. During this time, interview data was organized into themes through a content analysis. By the end of the analysis process, findings were established and documented.

4.5.1 Interview Procedure

Interviews were conducted in the language preferred by each participant, with the majority of interviews conducted in Thai, two in Burmese and three in English. For participants whose first language was Thai or Burmese, a translator was used. Field notes were taken both by the primary researcher as well as the assistant, and were compared for accuracy during the data analysis phase. These notes detailed the answers of the participants as well as the interview environment, including any other people present or nearby. Interviews were approximately sixty to ninety minutes in length. In addition, audio recordings of each interview were made and referred to during the data analysis phase of the study. Though interview questions for each sub-

group were similar in theme, interview questions were manipulated in order that they were compatible with the expertise and position of each interviewee. For example, questions were slightly adjusted for non-Thai interviewees, in order to make these more relevant to his/her experiences. Prior to the interviews, a review with the translators was done to ensure that the research questions were understood by the whole research team. In addition, the translator was provided with a set of guidelines regarding appropriate interview protocol. Those who were selected for interview were questioned either immediately or within the week. Broad question themes were generated by the principle investigator prior to leaving Canada, however, these were revised after the first week of orientation in the field, and questions were modified throughout the interviewing phase in order to incorporate newly identified issues. All interviewees were made aware of the purpose of the research and requests were made for voluntary participation.

4.5.2 Research Sample

In each of the two case study sites, Khao Lak and Koh Phi Phi, the team conducted interviews with 9 males and 11 females between the ages of 15 and 70 for a total sample size of n=40. In both case studies, the majority of interviews were with Thai nationals, however in Khao Lak, three Burmese immigrants and one German resident of Bang Niang were interviewed, while on Koh Phi Phi, one Chinese-Thai and one French foreigner were interviewed. The large Burmese population in Khao Lak became apparent approximately half-way through the interview process, and some Thai interviewees speculated that the Burmese were the most vulnerable during the tsunami. As such, we sought to interview three Burmese migrants. Still, when statistically analyzing questions directed at Thai nationals responses from Burmese migrants were excluded. The Chinese-Thai participant on Koh Phi Phi first described herself as

Thai, she was a major land owner on the island and a prominent business woman. Because Koh Phi Phi Don has a large Chinese-Thai population, who have been integrated in the community for more than a decade, all of her responses were included in the statistical analysis. The German and French participants, in Khao Lak and Koh Phi Phi respectively, were people who had resided in the area for more than 5 years. These interviews proved valuable because they offered a foreigners perspective on Thai society and culture however, like the Burmese interviews, their responses were sometimes excluded from the statistical analysis[14]. In retrospect, the interviews with foreigners should have been conducted as key informant rather than 'impactee' interviews.

Participants were selected for interview only if they met one or more of the three criteria: 1) they were present during the December 26, 2004 tsunami; 2) they had resided in the area for over two years prior to the tsunami, or; 3) they had a family member or friend who was impacted by the tsunami and demonstrated an understanding of the reasons that they were impacted. Of those who met the above criteria, forty people were selected for interview, twenty participants from Khao Lak and twenty from Koh Phi Phi Don. Selections were made based on availability; trust; and willingness to participate. All of those selected for interview were informed that all answers would be kept confidential. In addition, all participants were made aware that participation in the research was voluntary and that withdrawal from the interview was acceptable at any time. During interviews, participants were encouraged to offer their personal stories and to describe their disaster experiences. Interviews were guided by open-ended

[14] Interviews with participants other than Thai nationals were excluded from statistical analysis where appropriate. For example, in questions regarding assistance provided by the Thai government only responses from Thai participants were included because the others were not eligible for government compensation packages.

questions offered by the researcher and designed to elicit the views and opinions of the participant.

4.5.3 Method of Analysis

All interview data were kept in the respondents' own words and interview notes were transcribed to computer and were both qualitatively and quantitatively compared. The data analysis included a statistical analysis using SPSS, which highlighted trends among participants, and between case study sites. This analysis helped to identify the population groups most vulnerable to the December 26th tsunami and helped to highlight their vulnerabilities. A qualitative analysis was also conducted in order to identify the concerns, opinions, experiences and feelings of the participants. Finally, the data was organized by theme and was summarized in paragraph form.

4.5.4 Research Limitations and Potential for Error

The vulnerability approach to disaster management is focused on identifying groups that are *most* vulnerable and *most* impacted by disaster, and using representatives of these groups to offer explanations about the reasons for their vulnerability. In the cases of Khao Lak and Koh Phi Phi Don, the 'most vulnerable' people were those in fact killed by the Asian tsunami, and as such I was reliant on the perceptions of remaining residents and staff of relief and reconstruction agencies working in the area.

The accuracy of the data retrieved for this study is dependent on the honesty of the participants, and I have no reason to question their truthfulness. In order to avoid information based on hearsay, each interviewee was encouraged only to discuss information that they had learned through personal experience or from the experience of a close friend or family member. In addition, though this research reflects an accurate description of the participants experiences

and opinions, the sample size is too small to be able to extrapolate the results of this study to the wider population.

This study was conducted under both time and financial limitations. As funding for this project was provided in order to meet the needs of a four month internship, my research agenda needed to follow a strict budget and timeline. This affected the study in a few important ways. Had there not been financial and time restrictions, I would have developed a slightly different interview sample. For instance, the realization that Burmese migrants experienced significant vulnerability to the tsunami could have lead to further research and interviews in order to determine the ways that Burmese populations experienced vulnerabilities and the underlying reasons for their susceptibility to hazard. In addition, an unforeseen change in host institutions three weeks prior to the project start date contributed to a heavier reliance on interviews with local residents in the two case study sites. The planned internship with the initial host institution would have allowed for increased policy analysis in Bangkok and easier communication with local officials. Lack of time and finances during the field research stage meant that these avenues difficult to explore within the projects timeline.

5 RESULTS

This research stems from a desire to identify the socio-economic, environmental and political factors which contributed to disaster vulnerability in Thailand. The central results of this thesis are based on the opinions and insights of 40 participants. The vulnerabilities experienced by the participants must first be recognized and revealed before they can be analyzed and applied to broader global issues of disaster vulnerability. The following results provide a socio-economic and environmental picture of Khao Lak and Koh Phi Phi Don pre-tsunami, and illustrate the effects of the tsunami on communities, families, livelihoods, environments and politics.

5.1 Environment

The coastal environments of Koh Phi Phi Don and Khao Lak were compromised before the tsunami (See Table 1). Excessive tourism in both places led to water pollution, littering,

Table 1: The Influence of Environmental Degradation on Vulnerability

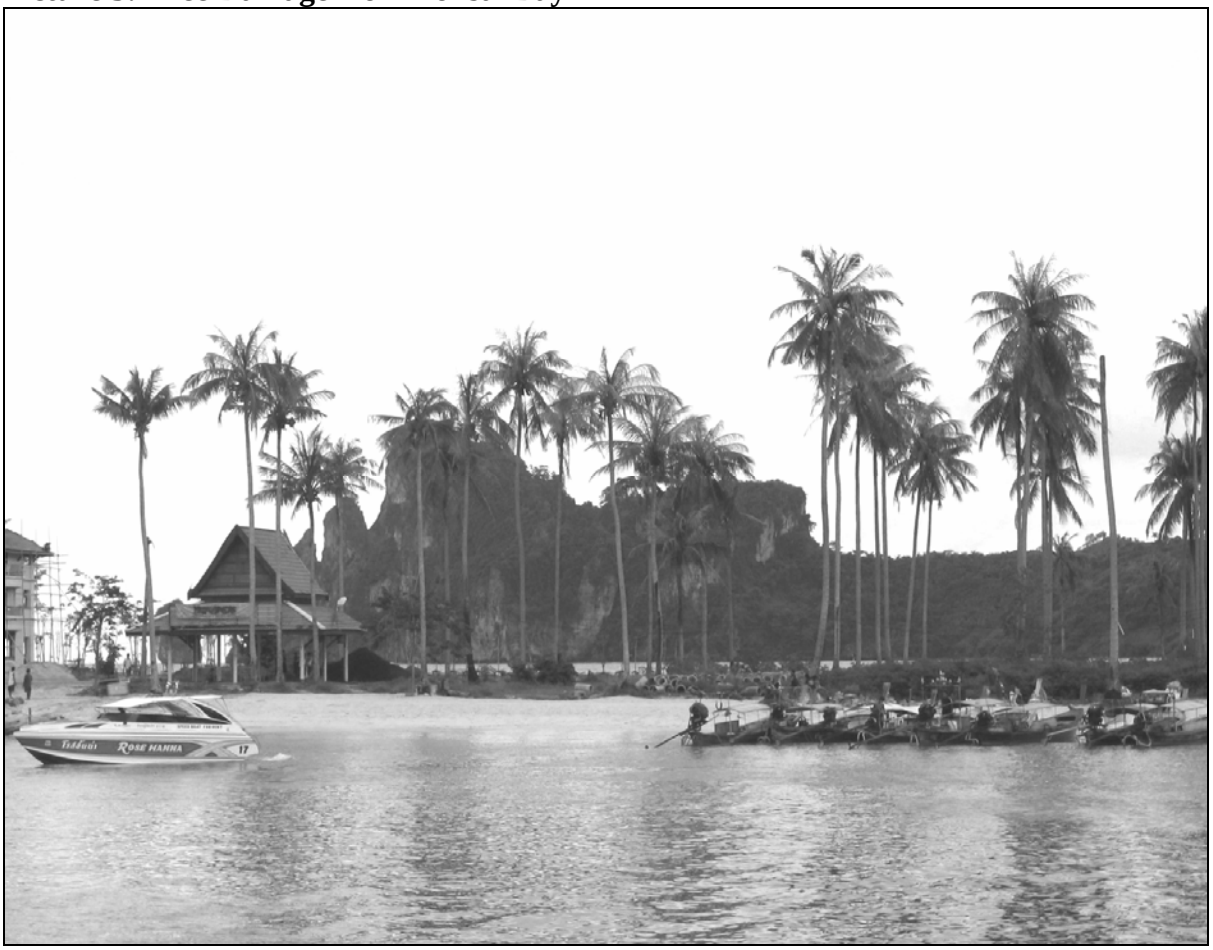
Type of Environmental Degradation	Influence on Vulnerability
Mangrove removal	• Mangrove forests act as a natural buffer reducing and slowing large waves
Cutting coconut trees	• Coconut trees could have reduced wave impact
Extensive coastal development	• The debris from broken bungalows and guest houses caused injury during the tsunami
Water pollution/solid waste disposal in coastal areas	• Kills coral reefs which could have served to reduce wave run-up

cutting of coconut and palm trees to make room for hotels and bungalows, and damage to coral reefs (Interviewee 2k, 2n). However, participants from Khao Lak expressed that before the tsunami, the beaches were beautiful and clean because of a recent government initiative to make Khao Lak a tourist destination. Some participants from Ba Nam Kem also mentioned heavy air pollution including strong odors caused by shrimp farming and described dumping of waste water into the ocean by farms and restaurants. Participants expressed similar concerns on Koh

Phi Phi and described that Phi Phi's waste management systems were inadequate before the tsunami. Some mentioned that solid waste was infrequently collected and remembered tourists plugging their noses and wearing masks in some areas of the island. Some participants also mentioned that restaurants and hotels consistently dumped waste water into the ocean and said that though businesses were required to dump far from the island, the did not adhere to that rule. The environmental conditions in Khao Lak and Koh Phi Phi pre-tsunami were not optimal and the tsunami certainly contributed to some types of environmental destruction. However, the tsunami literally created a clean slate in both places which now offers these two communities an opportunity to change or implement environmental policies and better regulate environmental management in the future.

Participants were asked both to describe the environmental conditions before the tsunami and to explain the impact that the Asian tsunami had on their respective environments. The responses between Khao Lak and Koh Phi Phi were similar, and resulted in seven different categories of environmental change including: broader streams and rivers; fewer trees; increased soil salinity; change in beach shape and length; increased waste on the beach; changes in oceanic species in the vicinity of each site; and damage to coral reefs. In Khao Lak and Koh Phi Phi changes to beach shape and fewer trees were the most commonly mentioned environmental changes, with 11 participants from Khao Lak and 13 from Koh Phi Phi mentioning fewer trees and 13 people from Khao Lak and 10 from Koh Phi Phi mentioning a changed beach shape. In both cases the tsunami pulled sand into the ocean, while pushing the remaining sand upwards, creating a heavily sloped and smaller beachfront. The force and impact of the tsunami resulted in snapped tree trunks and semi or completely uprooted trees. As a result, there were far fewer trees at each site after the tsunami.

Picture 3: Tree Damage from Tonsai Bay



This picture highlights destruction caused by the tsunami waves. Pre-tsunami the density of coconut trees and buildings made it impossible to see from Tonsai Bay to Lo Dalam Bay.

The impact of increased soil salinity on the natural landscape was another environmental concern of Khao Lak residents. Both Bang Niang and Ba Nam Kem are low-lying towns extending back from the coast about 3-5 kilometers. Greenery in both places was devastated by the increased salinity that resulted from the tsunami and many participants described the environment as dry and uncultivable for months after the waves. The most devastated area on Koh Phi Phi was the Tonsai/Lo Dalam strip. This area was heavily developed and lacked the gardens and green areas that existed in Bang Niang, therefore increased salinity was not as great a concern. Coral reef depletion was mentioned by half of the participants interviewed on Koh

Phi Phi while none of the participants from Khao Lak mentioned coral reef damage from the tsunami.

In addition to being asked to discuss the environmental impacts of the tsunami, respondents were questioned about their personal reasons for valuing the environment. During the analysis phase, these responses were divided between two categories: 1) participants who value the environment for the environment's sake and 2) participants who value the environment as an economic resource. In both case studies, the majority of respondents considered the environment important for economic security and growth. In Khao Lak twelve interviewees valued the environment as an economic resource. One woman suggested "the environment is important because if the area is pretty, a lot of tourists can come and bring employment" (Interviewee 1a), another said, "when the beach is beautiful, many tourists come here and spend money and it's good for everybody" (Interviewee 1f). Only five respondents in Khao Lak and five from Koh Phi Phi valued the environment for its own sake.

5.2 Facilities

The availability of public services, social programs and facilities in an area indicate a community's level of development, reveal the extent of government involvement in that area, and serve as an indicator of relative pre-disaster social vulnerability (i.e. communities without such services are generally more vulnerable to disaster). Respondents were asked to identify all facilities and free services available in their communities before and after the tsunami and to comment on how each was impacted by the disaster (Table 2).

Table 2: Tsunami-Affected Facilities

Khao Lak Facility	Affected	Not Affected	Free	Not Free	Koh Phi Phi Don Facility	Affected	Free	Not Free
*Clinic		☑		☑	Primary School	☑	☑	
Kindergarten	☑		☑		Mosque	☑	☑	
**Kids Centre	☑		☑		Hospital	☑		☑
☼Burmese Health Centre	N/A	N/A	☑		♦Police Station	☑	N/A	N/A
School	N/A	N/A		☑	♦Post Office	☑	N/A	N/A
☼Local Radio	N/A	N/A	☑					
☼Preschool	N/A	N/A	☑					
☼Orphanage	N/A	N/A	☑					
☼NGOs: Computer training, English Teaching	N/A	N/A	☑					

*Now the health centre has better equipment, more staff, better service because organizations have donated/assisted. Often subsidized for the poor.
**Moved to a new building after the tsunami, farther from the beach.
☼Opened after the tsunami in response to need
♦Not rebuilt post-tsunami

Before the tsunami, Khao Lak had more free facilities and post-tsunami there was a trend of increased facilities and services, while on Koh Phi Phi, facilities that existed before the tsunami were not-yet replaced or rebuilt at the time of the research (See Table 2). While Khao Lak received a new preschool, orphanage and kids centre relatively quickly, the primary school on Koh Phi Phi Don was not re-opened until November 1st 2005, eleven months after the tsunami. As of November, 2005, neither the police station nor the post office, on Koh Phi Phi Don, had been reconstructed. Residents had to travel to mainland Krabi, a 2 hour boat ride

away, to use the post office and the five policemen on the island were relocated to a small 'police box' next to a pancake shop. In fact, one respondent indicated that the police box was actually owned by a hotel and that the landlord planned to evict the policemen (Interview 2k).

After the tsunami, organizations offering computer training, English lessons and hospitality classes developed quickly in Khao Lak, while Koh Phi Phi was assisted only by Help International Phi Phi "Hi Phi Phi", a grassroots organization which focused on clean-up and reconstruction. Organizations in Khao Lak were often developed by churches, families who had lost loved ones in the Tsunami, or as branches of International organizations, whereas Hi Phi Phi was developed from a core group of tourists who were on the island when the tsunami hit and who felt a personal conviction to return and assist local residents in rebuilding and reconstructing the island (Field Notes, 2005).

In terms of hospital and medical services post-tsunami, residents in Khao Lak, from Bang Niang and Nam Kem, travel to Takuapa for hospital care. The hospital is approximately 40 minutes away from Bang Niang and 10 minutes from Ba Nam Kem, but both towns have closer access to a health centre. Organizations in Khao Lak assisted with the redevelopment of the health centre in Ba Nam Kem and many respondents expressed that the quality of the health centre improved after the tsunami (Interviewee 1a; 1e; 1f; 1g; 1o; 1t). However, on Phi Phi Island, health services worsened after the tsunami. Before the tsunami, the hospital on Koh Phi Phi offered 24 hour service, but with only one doctor to service the island after the tsunami, the hours of operation reduced to 8 hours per day (Interviewee 2a). One man explained: "If we're sick at night we rent a speedboat, it's about 1 hour to the mainland in a speedboat" (Interviewee 2d), while another said that if there is a medical emergency at night, you can go wake up the doctor (Interviewee 2f). Respondents on Koh Phi Phi Don indicated that free health care

services *were* provided after the tsunami, but mentioned that services were provided by 'Hi Phi Phi,' rather than by the Thai government. Usually, hospital care is not free in Thailand, but is heavily subsidized. Thai nationals carry a government initiated 'thirty baht health card' which lowers the cost of each hospital visit to roughly 75 cents US (Interviewee 2i).

After describing the facilities available on the island, respondents were asked about the facilities available for children, elderly and disabled people. Facilities available for children received the highest number of responses, with 70 percent (n=14) of the respondents in Khao Lak and 40% of the respondents (n=8) on Koh Phi Phi mentioning facilities for children. However, many of the respondents (n=6) on Koh Phi Phi cited the school and kindergarten as facilities for children, despite the fact that neither was open at the time of interviews. The situation for elderly people was quite different with only 5% of respondents (n=2) from Khao Lak and Koh Phi Phi Don mentioning any facilities. From the two respondents that mentioned facilities in Khao Lak, one suggested that she had heard that a community member takes care of all the elderly, which does not suggest the presence of a facility for elderly people. The other respondent referred to an organization that takes care of old people in the tsunami survivor camp, which suggests that such services were not available pre-tsunami. One of the respondents on Koh Phi Phi mentioned that elderly residents go to the mosque to socialize (Interview 2u), while another suggested that they get enough care from their families. Neither in Khao Lak nor on Koh Phi Phi were there any organized facilities or services available for the elderly population.

Interviewees were also asked about the facilities available for the disabled. In general, responses fell into two categories: either no facilities were mentioned, or participants explained that there were few disabled people in the community.

After discussing the facilities available for children, the elderly and the disabled, respondents were asked whether these groups were adequately cared for within their respective communities. In regard to the elderly population, responses from both case studies were split relatively evenly with some believing that the elderly received enough care from their families, (n=7) in Khao Lak and (n=7) in Koh Phi Phi, and others stating that the elderly were not cared for enough, (n=6) in Khao Lak and (n=9) on Koh Phi Phi. One respondent from Khao Lak stated that elderly get enough care "because the hospital is free for old people" (Interview 1g). With regard to children, responses to the question of adequacy of services in Khao Lak were approximately even (n=9 vs. n=7) in Khao Lak and Koh Phi Phi respectively, however most respondents (n=9) on Koh Phi Phi expressed that children did not receive adequate care. For all three sub-groups (i.e elderly, children and the disabled), most respondents (67%) who believed that the three groups received adequate care referred to the family care they received and did not mention government sponsored social programs or facilities.

5.3 Residence

Disaster vulnerability is acknowledged to depend significantly on location[15], and this was found to be true in the two southern Thailand case studies examined (Hewitt, 1997). In southern Thailand, people who held ocean-related employment and those who resided near the coast were particularly vulnerable to the tsunami. One of the aims of this study was therefore to explore residential patterns at each study site and to investigate whether place of residence is influenced by employment, ethnicity or income.

[15] Hewitt (1997) describes that "geography is an intrinsic aspect of risk…any given risk or disaster event is distinguished by its geographic location and setting" (Hewitt, 1997, 12).

5.3.1 Residence and Employment

In both Khao Lak and on Koh Phi Phi Don, the majority of respondents (75% and 65% respectively), indicated that residence is strongly shaped by occupation. In both places, all fishers were described as residing within the same area, generally close to the water. However, on Koh Phi Phi one respondent indicated that the number of fishers had decreased in recent years explaining "there's not so many now: they are men and poor" (Interview 2a). Hotel employees in both Khao Lak and Koh Phi Phi were also said to reside in close proximity to the coast, and many had been provided with accommodation by their employer. One Khao Lak resident explained "Fishermen live close to the bay with other fishermen, people working in hotels live in the same area: they live close to where they work" (Interview 1a). However, in Khao Lak, place of residence seemed more strongly influenced by occupation than it was on Koh Phi Phi, however confirming this relationship was beyond the scope of this study. In Khao Lak, respondents gave a long list of the types of workers who reside within the same near-coast area including: hotel employees, fishers, shop keepers, construction workers, and gardeners. However, on Koh Phi Phi, only construction workers, hotel employees and fishermen were described as living within close proximity to each other while the rest of the population was dispersed. In Khao Lak, the residency patterns of entire towns were shaped by occupation, with Bang Niang being described as a 'hotel village' and Ba Nam Kem as a 'fishing village' (Interview 1j). In summary, in both case study sites affected by the tsunami place of residence was strongly influenced by occupation.

5.3.2 Residence and Ethnicity

Interviewees were asked to comment on the link between ethnicity and place of residence, yet differing responses from both case studies suggest that such a link, if it exists, is

complex and place-specific. The majority of respondents in Khao Lak (75%), but only one from Koh Phi Phi (5%), responded that ethnicity influences place of residence.

In Khao Lak, Burmese people were described as living at the place of their occupation (Interview 1m). One woman suggested that "Burmese live in gardens[16]; they don't live in the village because police will catch them" (Interview 1a). Burmese people often lived with other Burmese people and close to their place of employment. When working in construction, Burmese built their own temporary accommodation close to the construction project, then disassembled their homes and relocated to their next job site when the job was complete. In addition, Moken people (or sea gypsies) lived completely separately from Thai and Burmese: in Khao Lak "Moken people have a village where they stay together, the government set up the village, before they worked and lived on the sea, now they live in a village" (Interview 1g).

The residential separation between Burmese and Thai was in part caused by tensions and suspicions between the two groups. One Burmese male gave an example: "if a Thai person goes to buy something and sees a Burmese, he says 'don't come down here' to the Burmese person. Thai people will say 'Where are you going…don't come on my street" (Interview 1p). Similarly, a male Thai respondent expressed that "Some organization wants to help the government make a social map, if they ask me I want to move so that Burmese live together and Thai live together. Many Thai people do not trust Burmese" (Interview 1t). There were no obvious or observable tensions between Thai and Burmese people on Koh Phi Phi. However, Burmese people were still described by some respondents as living separate from Thai, with Burmese generally living in the construction site camps where they worked. A number of

[16] What were commonly referred to as 'gardens' by participants, I understood as plantations. Burmese migrants often lived on coconut and rubber tree plantations in temporary accommodation, or accommodation provided by their employer.

respondents mentioned that there were fewer Burmese on the island since "Police knew Burmese came illegally, they check the permits for construction workers now" (Interview 2i).

As in Khao Lak, respondents on Koh Phi Phi described a clear locational/ residence divide between Moken and Thai people and offered examples of poor relations between them. Similar to Khao Lak, Moken people on Koh Phi Phi lived separately from Thai nationals. In fact they lived on the other side of the island. One French respondent, who resided on Koh Phi Phi for five years, explained "there are not a lot of sea gypsies here anymore. They're a minority. Sea gypsies were always pushed out by Muslims and Buddhists, they are a minority" (Interview 2n). This position was supported by the statement of another Thai male who said that "sea gypsies live by the sea, they don't believe anything, they have nothing and they don't shower also" (Interview 2s). In both Khao Lak and Koh Phi Phi, the more marginalized ethnic groups were more likely to reside in temporary housing and lived in places physically separate from the dominant ethnic groups. Though there is a relationship between ethnicity and place of residents the research did not conclusively demonstrate that ethnically marginalized groups are living in areas that make them more vulnerable to disaster.

5.3.3 Residence and Income

A minority of respondents in both study sites believed that place of residence was influenced by income. Though eight respondents from Khao Lak (or 40%) mentioned a relationship between income and location of residence, only three participants from Koh Phi Phi (15%) agreed. In Khao Lak, some suggested that people with lower incomes lived inland, while more wealthy people lived by the beach (Interview 1a, 1b). Although respondents did not describe a strong connection between income and place of residence, there was a clear relationship between income and *ethnicity*, with Burmese often described as 'poor'. One

respondent said that "In Nam Kem, 70% of Thai people are rich. All of Burmese are poor" (Interview 1r). Thus, since residential patterns in Khao Lak are strongly influenced by ethnicity, and since Burmese are described as the most poor, residence *is* in fact partly influenced by income, with the low-income Burmese populations residing in the same place. While ethnicity and income created residential patterns in Khao Lak, on Koh Phi Phi religion and income were the factors that strongly influenced place of residence[17]. People who resided in the Thai Market (located in the low lying interior of the island) were described as poor. This area was inhabited by the local Muslim population, who were traditionally fishermen. Over the past decade much of the land on Phi Phi Island has been sold to people from the mainland and one respondents indicated that a result of this was that "Most of the places now belong to the rich, poor people don't have a place, they must rent" (Interview 2f). Local Muslims on Phi Phi Island sold much of their land in the early 1990s, and now occupy a small portion of the Tonsai-Lo Dalum strip, known as the Thai Market.

Low-income groups in both study sites (i.e. Burmese migrants in Khao Lak, and Muslims on Koh Phi Phi) were particularly vulnerable to the tsunami, while those who lived on higher ground were less impacted. In Khao Lak this meant that people involved in rubber tree and coconut farming were less impacted, however there was no clear income or ethnic division between those who lived in high or low lying areas. On Koh Phi Phi however, the budget guest houses and bungalows were in the low lying areas between Tonsai and Lo Dalam Bays, while more luxurious and expensive hotels were located on the side of the mountain. Thus, wealthy tourists and hotel owners were less vulnerable to the tsunami.

[17] Though some argue that religion is an aspect of ethnicity, in the case of Koh Phi Phi responses were compared sometimes by the religion of participants since both Muslim and Buddhist groups described themselves as Thai nationals.

5.4 Vulnerability

One of the main objectives of the in-depth interviews with tsunami victims was to determine the community sub-groups most vulnerable to the tsunami. As such, participants were asked in an open question to describe the groups that they felt were most vulnerable to the effects of the tsunami, and through probing questions, were encouraged to discuss and explain their answers. Respondents were asked to describe the gender, occupation, income levels, nationality and age of those most vulnerable to the tsunami disaster (see Table 3 for details).

Table 3 outlines how the participants from both Koh Phi Phi Don and Khao Lak characterize the most and least vulnerable population groups. There are a variety of conclusions that can be made from this table. Firstly, participants were consistent in expressing that lower income groups experienced greater physical threat, while wealthier populations were most at risk of financial loss. Although the numbers do not conclusively demonstrate the high vulnerability of one ethnic or religious group over another, the explanations of vulnerability reveal that Thai nationals and Buddhists were described as more vulnerable than their counterpart populations because they had larger population bases. However, the explanations provided for high vulnerability experienced by foreigners, Burmese and Muslim populations associate vulnerability with location and lack of knowledge. Conversely, Moken people were described as least vulnerable as a result of their knowledge regarding tsunamis. Children and the elderly were described as vulnerable primarily because of their limited physical abilities to respond quickly to the disaster. Finally the table demonstrates a widespread consensus relating low-lying areas in close proximity to the shore line with high vulnerability, and high locations away from the shore with decreased vulnerability.

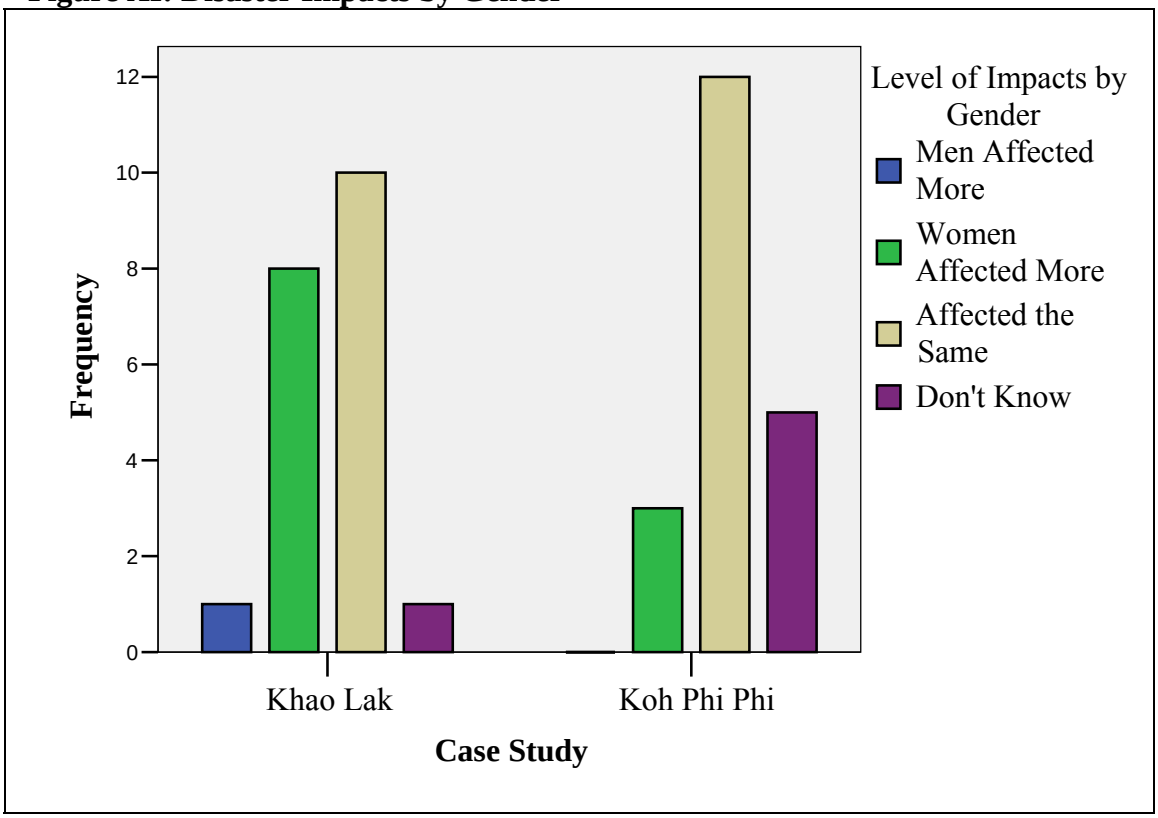
Table 3: Characteristics of Vulnerable Populations

Mentioned Characteristics of the Most Vulnerable	
Most Vulnerable	**Explanation**
Business People/Rich (n=2)	*Lost the most as a result of the tsunami *They had more investments and had more money to lose * "Rich people were more resilient" (Interviewee 1p).
Lower Income People (n=6)	* "Poor people lost family members, their houses were made from wood. Richer people had two floors, sometimes their houses were made of bricks, sometimes wood" (Interviewee 1b). * Lower income groups lost their lives, but not financial security * "Poor people were killed more. Poor people work on the beach, right on the beach in tents/restaurants/sun chairs" (Interviewee 1d).
Thai (n=7)	*Thai were more affected because there were more Thai people in the village (Interviewee 1c).
Foreigner (n=11)	*Curious about the withdrawal of water and stayed on the beach *Lacked knowledge regarding tsunami warning signs *Tourists had a Christmas party the night before and were sleeping in bungalows on the beach (Interviewee 2n).
Burmese (n=2)	* "They don't have rights at all" (Interviewee 1n).
Muslim (n=5)	*Muslims live in the low-lying Thai Market (Interviewee 2k).
Buddhists (n=2)	* "More Buddhists died because there are more of them and they didn't know anything, the waster disappeared and they ran to the ocean" (Interviewee 2o).
People Closest to the Beach, Within 3 Kilometers (n=19)	*Houses by the beach were built close together. *Greatest force of the tsunami
Elderly People (n=3)	*Lacked education and general knowledge (Interviewee 1r). *Unable to run quickly
Children (age 3-7) (n=12)	*Required assistance to escape *Unable to run quickly
Fishermen (n=1)	*There is a larger male population *Fishermen were getting their nets ready when the tsunami came; they were on the beach.
Characteristics of the Least Vulnerable	
Moken (n=1)	*Stories passed down
Rich (n=1)	*Fewer rich people died
Poor (n=1)	*Lacked investments to lose
Thai (n=2)	*More Thai than other groups
People who live on higher ground (n=26)	*Hit with less force, or not at all.
People out on a boat (n=2)	*"If they were out fishing, even if they were close to the island, they were fine because if they were out 100-200 meters it is deep there" (Interviewee 2f).

5.4.1 Gender

When asked whether more women or men were killed by the tsunami, the majority of respondents, in both Khao Lak and Koh Phi Phi, indicated that men and women were similarly

Figure XI: Disaster Impacts by Gender



affected (See Figure XI). However, while 8 respondents in Khao Lak, and 3 on Koh Phi Phi suggested that women were more affected, only one respondent out of the 40 interviewed in both case studies believed that men were more impacted by the tsunami (See Figure XI). This respondent, a Burmese male, explained that more men were affected by the tsunami because there were more men in Khao Lak before the tsunami. Though the Gender Adviser of Oxfam, Ines Smyth, expressed the difficulty of retrieving gender disaggregated data after natural disasters, experts from both the World Health Organization (WHO) and Oxfam have confirmed

that there is evidence that more women than men died in the tsunami in Thailand (WHO, 2005)[18].

When interviewees were asked whether they thought men or women were more affected by the tsunami, many respondents differentiated between immediate and longer-term post-tsunami impacts. Most respondents believed that an even number of men and women were killed, however, when asked to explain the tsunami's impacts, most described the post-tsunami hardships that the tsunami caused for women. One interviewee said "more ladies were affected because men went out in the boat that morning, but ladies stayed in the houses with children" (Interview 2m). Respondents offered a variety of explanations for female vulnerability during the tsunami:

- women run slower, so they couldn't escape;
- women were too scared and they didn't know what to do;
- women are weaker;
- women couldn't swim, and;
- women were more concerned for the children.

One of the more practical and insightful responses was from a female respondent in Khao Lak who said: "Mostly women died because they work at hotels. The uniforms that the girls wore made it hard for them to escape. Men wear better clothes to run: girls wore tight skirts and high heels" (Interview 1a). Two respondents also believed that pregnant women and children were extremely vulnerable during the tsunami and explained that "At that time a lot of pregnant

[18] To date, it has not been possible to retrieve data comparing death tolls by gender in Thailand. However, data from other tsunami-affected countries gives an indication of the trend that women have been disproportionately affected by the tsunami. For example, in the Aceh Besar district in Indonesia "females accounted for 77 percent of deaths" and in Cuddalore, India 391 females were killed, compared with 146 men (Oxfam, 2005, 1)

women were on Phi Phi, I don't know why, but mostly they died, they couldn't run. They got stuck or they couldn't run" (Interview 2k).

Gendered vulnerabilities were, to a large extent, related to livelihoods. The occupations that men and women engaged in often determined their level of vulnerability to the tsunami. For example, one respondent explained that when the tsunami hit, men were getting their fishing nets ready and were therefore lost at sea. Women, primarily responsible for domestic and child care, were at home when the tsunami hit. Female vulnerability was increased because women were often responsible for evacuating both themselves and their children making it even more difficult to escape the tsunami.

Table 4: Gendered and Ethnic Vulnerability

	[1]Male Livelihoods	[1]Female Livelihoods
Thai	[2]Hotel Driver Hotel Maintenance Hotel Security Garden Owner [3]Fishers/ Owner Shop Owner [5]Garden Labourer [6]Construction Foreman Construction Labour Mechanic	[4]Hotel Housekeeping [4]Hotel Reception [3]Sell Fish/ Fix Fish Nets Home Care Restaurant Worker Shop Owner Construction Labour
Burmese	Fishing Labour Shop Labour Garden Labour 6Construction Labour	Shop/Restaurant Labour Garden Labour Construction labour

[1]Men earn more money than women: "Men can get 4000-5000 baht per month; women can get only 2000-3000" (Interview 1s).
[2]It was easier for men to escape in the Tsunami (Interview 1a).
[3]Men engaged in fishing were less vulnerable during the tsunami because they were on the water, whereas women stayed on land to sell fish and fix nets.
[4]Women working in the hotels wore high heels and skirts and these uniforms made it hard for them to escape from the tsunami (Interview 1b).
[5]Burmese and Thai are paid different rates for their labour: "Burmese people get 180-200 baht/day; Thai people get 350-400 baht/day" (Interview 1r).
[6]Burmese are more economically marginalized in Khao Lak. Though they may be engaged in the same types of jobs as Thai, they earn less.
i.e. "I heard that Thai and Burmese don't get the same salary" (Interview 1s).

5.4.2 Vulnerable Livelihoods

5.4.2.1 Khao Lak

Respondents described a number of livelihoods that increased vulnerability for residents of Khao Lak including: people who worked in the tourist industry, construction workers, and hotel workers. Interestingly, there were strong differences in how 'vulnerability' was interpreted. Some understood vulnerability as *physical* vulnerability, leading to death or injury, while others equated vulnerability with economic loss.

> ***Tsunami Survivor Stories***
>
> *We had a restaurant near the beach, we saw the white on the ocean and I said 'I think it's maybe a tsunami.' I jumped on my motorcycle to look for my son, I drove my bike right through the shop, my son was playing in the back with his friends. I saw my son and daughter about 50m away. I dropped the motorbike and ran, but the wave took them, my son and my wife, they were holding on to plastic. I got on a big boat and the wave pushed it back. I walked everywhere to look for my family. I walked to the temple. My wife and daughter came to the temple at 3pm. I walked along the beach for 10km to follow the footprints from the ocean, there were four tracks, but I couldn't find my son. I saw my manager sitting shocked in the truck, just driving the truck, not knowing where to go. I only had water, no food or shower for four days. I didn't find my son. (Interview 1g)*

When asked to describe vulnerable livelihoods, one woman explained that "Mostly women died because they work in hotels" (Interview 1a) and could not see the wave coming. However, others suggested that business people were the most impacted because they experienced the greatest financial loss (Interview 1r, 1m). In terms of economic vulnerability, the Asian Disaster Preparedness Centre found that informal workers faced significant problems post-tsunami because they were often found to be ineligible for compensation packages (Kessler, 2005; MACAW, 2005). In addition, sub-contractors, who do not fit in the category of small business owners, qualify only for humanitarian government

aid, rather than the assistance packages provided to businesses (Kessler, 2005; MACAW, 2005). Thus, while the physically vulnerable lost their lives, others were financially vulnerable and have struggled extensively post-tsunami.

Other respondents in Khao Lak described the unemployed as least vulnerable because they stayed at home during the tsunami (Interview 1a). Insofar as the level of vulnerability for fishers, there was inconsistency in the responses. Some described that fishers were safe because they were out on the water (Interview 1a, 1g), while others explained: "fishers came in from the sea at that time, to prepare for the next day. In the tsunami they were in from the sea, so many fishers were lost in the tsunami because they were on the beach" (Interview 1r). The most consistent response (77.5%), however, was that people in low lying areas, those closest to the beach, were more vulnerable during the tsunami and those whose livelihoods rely on ocean-related activities were vulnerable.

5.4.2.2 Koh Phi Phi

On Koh Phi Phi, respondents were less likely to mention the relationship between vulnerability and livelihoods and more commonly associated vulnerability with physical closeness to the beach. When asked which occupations were most vulnerable to the tsunami one respondent said the most vulnerable were those "who worked by the beach in a resort or hotel. The fishing boats were far from the beach and were all fine. Even if they were fishing 100-200m out they were fine because it is deep there" (Interview 2f).

5.4.3 Income and Vulnerability

In most disasters, members of lower income households are less resilient and have a lower capacity to overcome the impact of the disaster and this was true in post-tsunami Thailand (ADPCb, 2005). In Khao Lak, there was some discrepancy between interviewees in terms of

their response to questions about whether the rich or poor were more vulnerable to the tsunami. Some of the inconsistency can be explained by the residential locations of Khao Lak's higher income groups (sites nearer the shoreline), and in the different housing styles for higher and lower income households. Many suggested that "Poor people lost family members because their houses were made from wood. [Whereas] "Richer people had two floors sometimes made of brick" (Interview 1b) and could therefore escape the wave. However, others disagreed with this analysis suggesting that higher income families lived closer to the beach (Interview 1b, 1c) and that "People near the beach were more affected" (Interview 1e, 1g, 1k).

Respondents *were* consistent, however, in stating that "The people who had more investments and more money were more affected because they lost" material wealth (Interview 1d, 1m), whereas poor people who lacked assets lost their lives (Interview 1d). One respondent explained: "Poor people were killed more. The owners of the hotels didn't stay in the hotel, but the workers and poor people who worked on the beaches were vulnerable" (Interview 1d). In addition, other respondents said: "Rich people were more resilient" (Interview 1q), but "Poor people were the most vulnerable" (Interview 1d).

As in Khao Lak, respondents on Koh Phi Phi associated vulnerability with the type of housing. For example, one interviewee said: "Poor people [were more vulnerable] because rich people stayed in a strong building (cement), but Muslims are poor and have a small house mad with wood (bamboo), the water just took it" (Interview 2m). Similarly, as a tourist island, one person explained that hotel and business owners stay on the mainland and that "More poor people died because the rich don't live on Phi Phi" (Interview 2d).

In both cases respondents suggested that lower income family's experienced greater physical risk, while higher income persons were more economically vulnerable to the tsunami.

5.4.4 Vulnerability and Nationality

5.4.4.1 Khao Lak

Khao Lak is situated one hour's drive from one of Thailand's border crossings with Myanmar, and has a large population of Burmese migrants. Though some Burmese people hold work permits, there is a large population of illegal Burmese migrants. Lack of information on the number of Burmese in Khao Lak before the tsunami makes it difficult to speculate on the number of Burmese who lost their lives. Still, an idea of the number of Burmese in Khao Lak was given by the governor of Phang Nga Province who estimated that there were 40,000 migrant workers in the province of Phang Nga, the majority of which were Burmese (Unknown, 2005c).

As with Burmese and Thai, a Moken village called Pakarung, which is located between Bang Niang and Ba Nam Kem, adds further complexity to the vulnerability analysis of Khao Lak district. This village was created for Moken people by the Thai government in an attempt to deter them from living at sea and to help them settle in Thailand. In addition to these three local population groups, Khao Lak's position as one of Thailand's tourism 'hot spots' meant that it was brimming with European and Asian tourists in the December 2004 high season. With each of these population groups in mind, it was one of the research objectives to determine whether participants believed vulnerability was influenced by ethnicity or nationality.

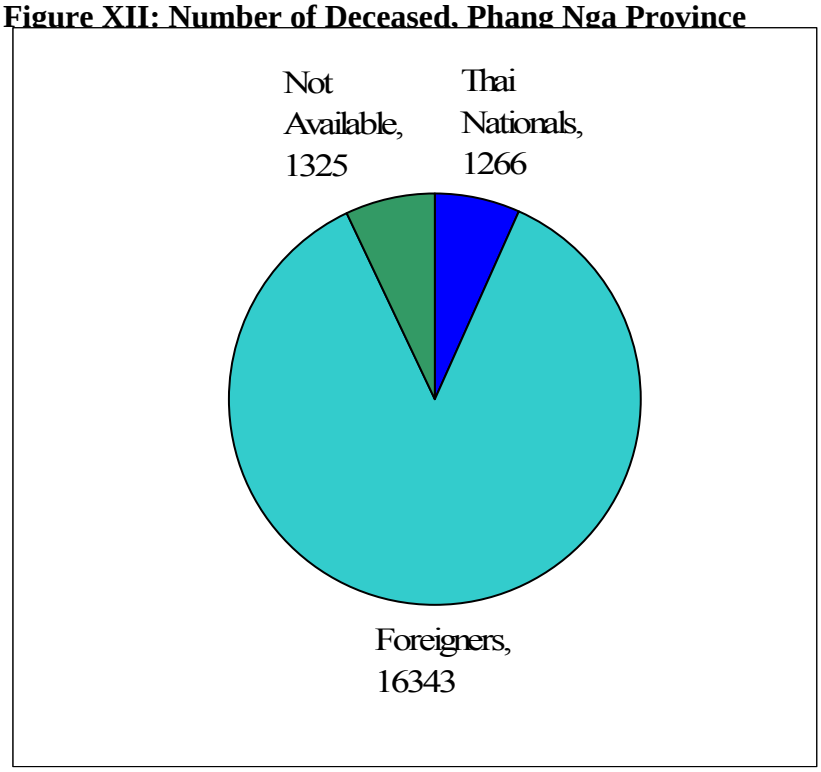
Interviewees in Khao Lak were asked who was most vulnerable to the tsunami. Respondents were consistent in categorizing tsunami victims into four types: Thai, Burmese, Moken, and foreign tourists, however there was some discrepancy in the responses. Some agreed that Burmese were more affected than Thai and Moken people (Interview 1b, 1a, 1h, 1e). However others claimed that Thai people and foreigners were vulnerable and stated that only a few Burmese were affected by the tsunami (Interview 1d, 1n). One respondent explained that

"There were more Thai people affected because there are more Thai people in the village" (Interview 1c, 1k).

Some respondents described that Burmese people are poor and lower income people were more affected in the tsunami (Interview 1b). In fact, one man outlined the situation for Burmese migrants: "It was very sad because the Burmese came here to work for money, they lost family, they lost everything. Thai people also lost, but this is their motherland, so the government gave them money, they could get food, but Burmese people can't get enough" (Interview 1p).

Despite the discrepancies between interviewees, the Thai Department of Disaster Prevention and Mitigation reported that the highest number of deaths in Phang Nga province (which incorporates Khao Lak district) were experienced by foreign tourists, with the death toll second highest among Thai nationals (DDPM, 2005). Further, 1,325 deaths were recorded for which the nationalities were 'not available.' It is possible that these represented illegal Burmese immigrants who did not hold identity cards. Moken people or 'sea gypsies' were described by interviewees as those least vulnerable to the tsunami, explaining that "Moken's

Figure XII: Number of Deceased, Phang Nga Province



were taught as children by their grandfathers, they knew when the water came and they went up high" (Interview 1g, 1d).

5.4.4.2 Koh Phi Phi

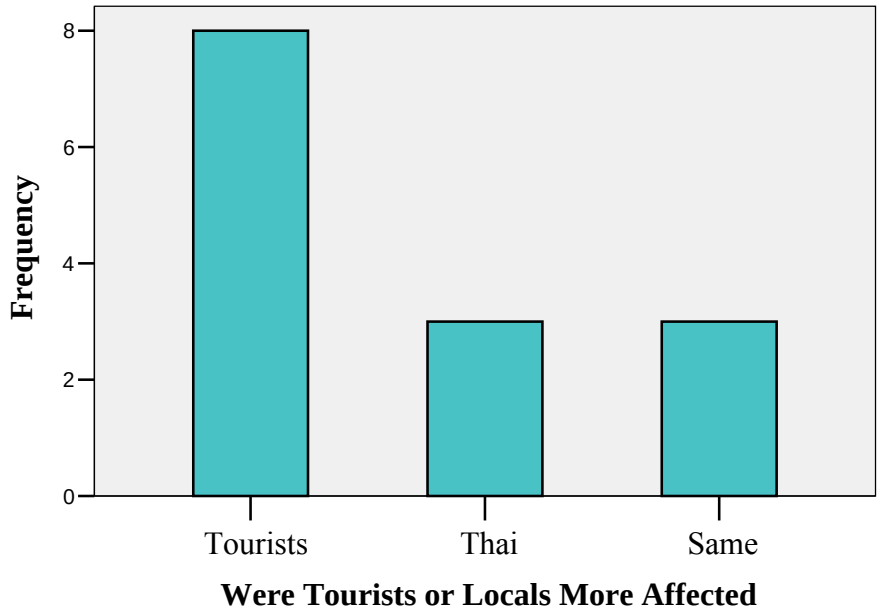
Koh Phi Phi Don had a significantly lower Burmese population than did Khao Lak, and though there was a Moken village on the island, the Moken people lived on the opposite side of the island, separate those who lived in the Tonsai-Lo Dalum strip, the lowland area hit most severely on Phi Phi Island. On Koh Phi Phi Don, populations were most often defined by religion rather than nationality. Respondents often expressed the differences between Thai Buddhists and Thai Muslims, explaining that Thai Muslims were locals to the island, whereas Thai Buddhists came from mainland Thailand (Interview 2e). Respondents also classified foreign tourists and sea gypsies as separate population groups.

When asked who was most vulnerable to the tsunami, many respondents compared Buddhist and Muslims groups. Phi Phi Island is comprised of over 500 Muslims and 3000 migrants from the mainland, described by Koh Phi Phi residents as Buddhists (ADPCb, 2005). Interviewees consistently described local Muslims as poor (Interview 2h, 2e), while people from the mainland (Buddhists) were described as having higher incomes. Muslims were described as being so poor that they sold off their land in the early 1990s and now struggle to pay rent to owners. Some attributed the lower incomes of Thai Muslims to their refusal to sell or distribute alcohol, giving Muslim businesses a disadvantage on Koh Phi Phi. Muslim respondents explained that their religious beliefs prohibited them from selling alcohol, thus Buddhists from the mainland profited from selling alcohol to tourists. Some (23% of respondents asked[19])

[19] Only after conducting some interviews on Koh Phi Phi did I realize the potential influence of religion on disaster vulnerability. Thus, only thirteen respondents were asked whether Buddhists or Muslims were more affected by the tsunami.

believed that Muslims were more affected by the tsunami (Interview 2h, 2J, 2t), because they were poor, and lived in the low lying Thai market area: "Everyone in the Thai Market and (living) by the viewpoint was more affected" (Interview 2i, 2j). Many also believed (31% percent of those asked) that more Buddhists were affected because the Buddhist population on Koh Phi Phi was larger. One man explained that since the Buddhists were not local to the island "they didn't know anything, the water disappeared and they ran to the ocean" (Interview 1o). However, most respondents who answered the question (46%) expressed that Buddhists and Muslim populations were equally vulnerable to the tsunami.

Figure XIII: Comparing Disaster Affects, Tourists vs. Thai Nationals



Respondents on Koh Phi Phi Don also expressed that causes of vulnerability to the tsunami were different for foreign tourists and local Thais. One man expressed: "More foreigners were killed in the tsunami because at that time there was a Christmas festival. More people drank that night before" and slept on the beach (Interview 2a, 2j). Another man explained that tourists were more affected because "the Thai people knew where to go. The tourists just arrived the day before and didn't know where to go" (Interview 2n). Another reason given was that the tourist accommodation (primarily bungalows) were located on the beach, and when the tsunami came, the tourists were still sleeping (Interview 2d, 2o, 2s).

As in Khao Lak, Moken sea gypsies were said to have a story about a tsunami that had been passed down from past generations. One woman said: "The sea gypsies knew before that a tsunami would come. They had a story from old people. Nobody of the sea gypsies died" (Interview 2m). On Koh Phi Phi Don island the death toll was estimated to be nearly 1,000 (Charoenpo, 2005a), however, the deputy commissioner of the Royal Thai Police said "No one knows exactly how many people on the island were killed by the tsunami on that day" (Charoenpo, 2005a). However, through the research, Koh Phi Phi residents have contributed to an understanding of disaster vulnerability in the area: those most vulnerable to the tsunami are seen to be foreign tourists and local Muslim populations.

5.4.5 Vulnerability and Age

In a study done by the Asian Disaster Preparedness Centre (2005) Earl Kessler, deputy of the ADPC, comments that those most vulnerable to the tsunami were widows, children and the elderly (Kessler, 2005). Responses in both Khao Lak and on Koh Phi Phi were consistent with this finding. One man believed that the elderly "run very slowly and the tsunami came on Sunday [when] all the old people and kids stayed at home…many kids and old people died in the tsunami" (Interview 1e).

Tsunami Survivor Stories

I stayed in the house with my daughter and three grand kids. I lost three grandchildren, my house; everything in the house was gone. Our boat was gone. The wave hit me, I felt like I was in a washing machine, I was hit by three waves. It ripped my clothes off and I was left in a tree. I went to another house to ask for clothes. I went to the hospital and came back to stay in a tent for two months, then I went to the shelter.

(Interview 1o)

Children were also extremely vulnerable to the tsunami. A number of respondents on Koh Phi Phi suggested that when local children are not in school, they are on the beach. Since the tsunami hit on a Sunday, children were playing in the ocean and were among the most vulnerable (Interview 2j, 2k, 2m).

As in most disasters, the human characteristics that influenced disaster vulnerability in Khao Lak and on Koh Phi Phi Don were: ethnicity, income, age, gender and physical ability. In Thailand, this meant that lower income groups, women, children, the elderly and the physically disabled were among the most vulnerable. However, since income is influenced by ethnicity (Khao Lak), and religion (Koh Phi Phi), Burmese immigrants and Muslims were also more vulnerable to the tsunami.

In summary, the most vulnerable groups identified by respondents in each of the two case study sites are listed in Table 5. In general, similar groups were identified as vulnerable to the tsunami; however the differing demographic compositions of the two case study sites resulted in some variation.

Table 5: Vulnerable Groups in Case Study Sites

Vulnerable Groups Identified in Both Case Studies	Vulnerable Groups Unique to Each Case Study	
	Khao Lak	Koh Phi Phi Don
• Women[20] • Children • Elderly • Foreigners • Poor[21]	• Burmese[22]	• Thai Muslims[23]

[20] One Khao Lak resident described men as a vulnerable group explaining that more men were affected because they had a larger population base (Interviewee 1r). Here, I exclude men as a vulnerable population because the chart aims to highlight those most vulnerable not those most affected.

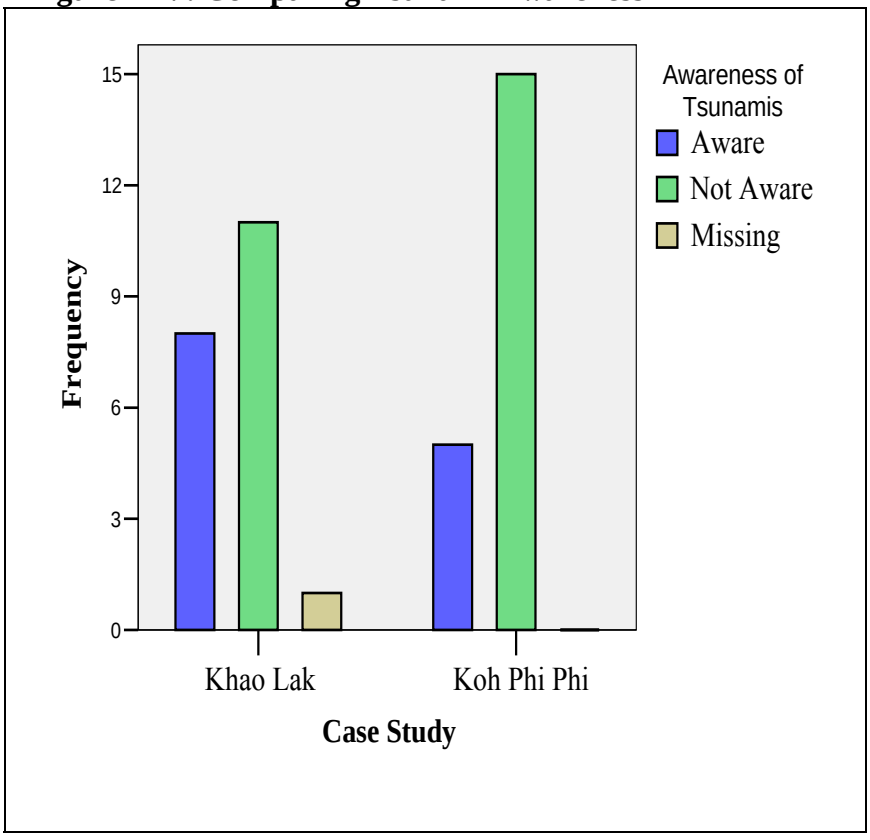
[21] Higher income populations were described by interviewees as financially vulnerable. I exclude higher income populations because a) they were described by interviewees as resilient and b) they lack the intensity of physical vulnerability experienced by the poor

[22] Thai nationals are excluded from this chart because it defines groups most vulnerable and not those most affected. Thai nationals were described by interviewees as the most affected.

5.5 Disaster Education

Lack of preparedness plans and disaster education in both Khao Lak and Koh Phi Phi increased vulnerability for residents of both communities. One of the research objectives was to determine whether tsunami victims had any disaster education, including any previous awareness or understanding of tsunamis. Interviewees were asked if, before December 26th 2004, they had any education about tsunamis. Sixty-five percent of people interviewed in Khao Lak and Koh Phi Phi, had never heard of a tsunami before that day, and 70% expressed that they had no previous disaster education (See Figure XIV). Of those who *were* aware of tsunamis, previous to December 24th 2006, many mentioned that they had learned what a tsunami was 5-7 years before, when a professor was on the news. Many respondents remembered the professor saying that "there would be a big wave in the Andaman ocean in the year 2000" (Interview 1a, 1b, 1c, 1e, 2j, 2t).

Figure XIV: Comparing Tsunami Awareness



One man also mentioned that he learned about tsunami behavior from television, from reading and from "a professor from

[23] Thai Buddhists were described by interviewees as being more affected than Muslims because they had a larger population base (Interviewee 2d, 2o). I exclude Buddhists as a vulnerable population because the chart is meant to reflect those most vulnerable, not those most affected.

university [who] came to give education" (Interview 1g). A few respondents described stories learned from Moken people and from Buddhist Monks which involved a 'big wave'. One man explained: "People said it was going to happen. [The stories] were a Muslim tradition…from monks that live in the mosque and know the future" (Interview 2f, 2t). Other respondents were surprised when the wave came and said that "people thought there was a low tide when the water went out" (Interview 2i). When asked what her thoughts were when she first saw the wave a woman from Koh Phi Phi said: "I was thinking it's the end of the world" (Interview 2u). Lack of disaster awareness and education in Southern Thailand contributed significantly to delayed responses and confusion when the tsunami struck, and intensified disaster vulnerability for residents of Khao Lak and Koh Phi Phi Don.

5.6 Economic Impacts and Related Vulnerability

The tsunami resulted in extensive economic losses for businesses throughout the provinces of Krabi and Phang Nga (See Table 6). In addition to these measurable losses, are

Table 6: Economic Losses

Losses on Businesses Estimates (US $)

Province	Fisheries	Livestock	Agriculture	Small Business	Total
Krabi	4,993,856.26	8,435.26	8,925.01	69,911,345.55	74,922,562.08
Phang Nga	23,798,708.93	355,869.51	64,743.96	161,747,589.46	185,966,911.86

Source: (ADPC 2005b) 1

future economic losses influenced by changes in the flow of tourists (Israngkura, 2005). The Bank of Thailand has estimated that the reduction in tourism will result in a reduced tourism income of 40,000 million baht or roughly 10.68 trillion US$ (Israngkura, 2005). Economic losses for residents of Khao Lak and Koh Phi Phi Don were particularly devastating and disrupted lives and livelihoods even more for lower income members of these villages. Since vulnerability is associated with resilience, and an individuals ability to bounce back after

disaster, lower income households were subject to economic vulnerability. The lack of prior insurance and post-tsunami adequate assistance plans has made it nearly impossible for lower-income families to revive their businesses and as a result, many were forced to rely on tsunami survivor camps for housing and provisions. One woman described her family's financial situation post-tsunami: "Now I think only about saving money to help my kids. My husband does hard work but only has a salary of 3,700 baht per month (96US$). The house fee is 1,000 baht every month (26US$). So for our family, we only have 2,100 baht (54US$) for food, health, education and everything" (Interview 1s). Another said "it changed my life because before I had a lot of things, now my wealth is lost. For three years I saved, my wealth is gone" (Interview 1r). Small business owners on Koh Phi Phi were particularly affected since many are still unsure of whether they will be permitted to rebuild and restart their businesses. Newly enforced building restrictions have limited reconstruction on Koh Phi Phi, and though wealthier business owners have ignored these rules, small business owners lack the financial means to repair their buildings, and the new building restrictions prevent them from obtaining permission to rebuild or obtain small business loans. In addition, the downturn in tourism following the tsunami has further limited lower-income business people by making it difficult for them to secure enough funds to reestablish tourism-related businesses.

5.7 Policies, Preparedness and Planning

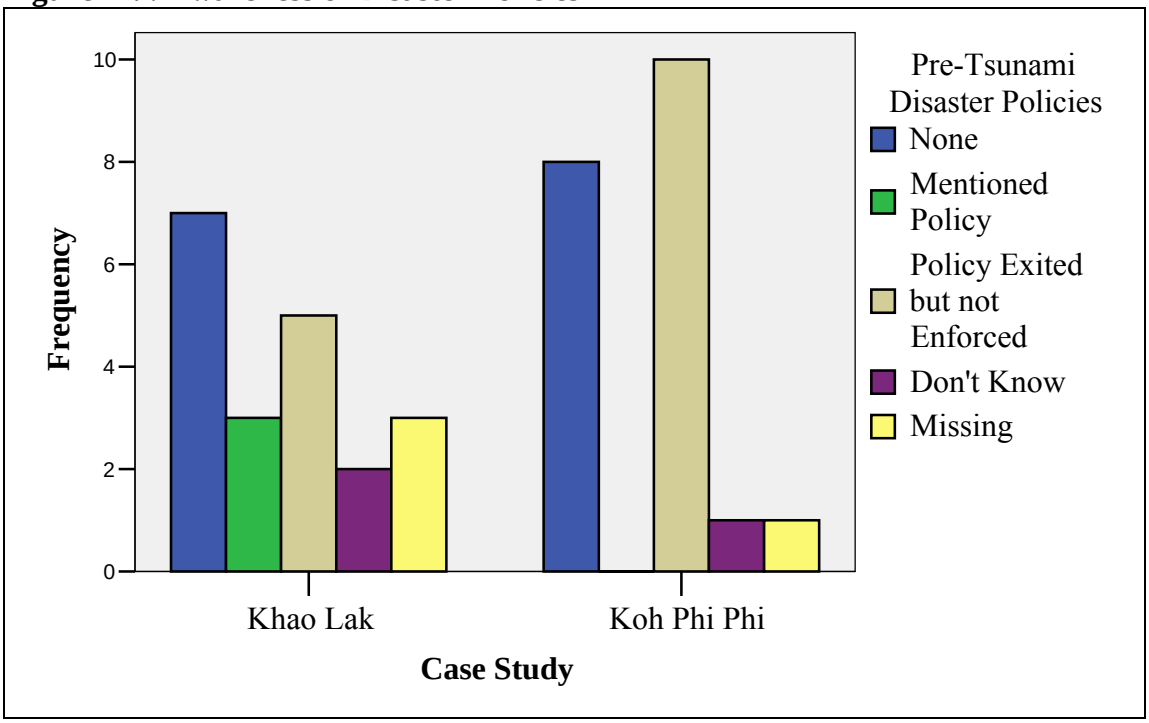
One of the main research objectives was to investigate the relationship between governance and disaster vulnerability in Southern Thailand. Thus, interviewees were questioned about the role of the Thai government in mitigating and responding to the tsunami disaster, with specific questions asked about any disaster policies, plans or emergency measures that were in place before the tsunami. Responses indicated (see Fig. XIII) inadequate disaster preparedness

in both Khao Lak and Koh Phi Phi, with 37.5% of participants expressing that no disaster policies existed pre-tsunami, and another 37.5% stating that although some disaster policies existed, they were poorly enforced by government officials. Though it is possible that disaster policies existed unbeknownst to respondents, there was a consensus among interviewees that the practical implementation of any existing disaster policies, preparedness plans or mitigation efforts was inadequate.

5.7.1 Built Environment: Corruption and Lack of Awareness

When asked about pre-tsunami disaster policies, the majority of respondents were either

Figure XV: Awareness of Disaster Policies



unaware of any disaster policies before the tsunami, or suggested that policies existed but were inadequately enforced (See Figure XV). In both case studies, respondents suggested that building laws and restrictions were in place before the tsunami but few people obeyed these restrictions because they lacked consequences (Interviewee 1d, 1g, 1i, 1k, 1m, 2d, 2e, 2f, 2h, 2i,

2j, 2k, 2l, 2o, 2s). One Khao Lak resident said, "They had a law about public land, not to build. They tried to save the environment on the beach and tried not to let people build on the beach, but people didn't follow that law" (Interview 1d). Before the tsunami, one building law in Khao Lak prohibited building closer than 30m from the seashore and allowed only single story buildings between 30 and 70 meters from the shore (Interview 1g, 1i). However "Some people built anyway. The government didn't check or enforce the law" (Interview 1g). One German national explained an experience of poor enforcement in regard to building laws:

> I had to sell tour packages and diving packages on the beach and often people with a uniform came to measure how close we were. I asked my neighbor [what was happening] and he said to me 'you have to move, you are too close to the beach.' The official told us to move, but nobody did. The whole community paid the measurement people so we could move at the end of the season, but we never did (Interview 1k).

Similar experiences were echoed by many others: "Rich people went further than 30m because they gave money to the authorities" (Interview 1d); "People with money can come and build whatever they want" (Interview 2f); "They had a rule, but when you have money you can do anything" (Interview 2s). Respondents in both Khao Lak and Koh Phi Phi were consistent in suggesting that laws were not enforced if local officials were offered financial bribes.

In Khao Lak and Koh Phi Phi, most interviewees were unaware of any building laws and those who *were* aware of building restrictions did not find it necessary to adhere to them. Before the tsunami, building laws in Koh Phi Phi and Khao Lak were poorly enforced: "They had a building law, but it wasn't strong enough, people build anyways" (Interview 2j). Since the tsunami, conflicts of interest between residents and the Thai government regarding land-use and building restrictions, have delayed solid development plans on Koh Phi Phi Don. Despite the severe impacts of the 2004 tsunami, residents on Phi Phi Island have been negotiating with the government since early 2005 to *reduce* the number of meters required between the shoreline and

new developments. Initially after the tsunami the Thai government attempted to enforce a building code on Koh Phi Phi that would restrict any building 60 meters from the shoreline (Interview 2e). However, in January 2006, a draft report of the development plan for Koh Phi Phi outlines the government's expectations:

- No reestablishment of bungalows is allowed
- Totally destroyed houses are not permitted to be rebuilt without land titles
- A required setback of 30 meters from the coastline is required for all buildings
- Only open roofed single storey buildings are allowed 30-200 meters from the coastline (Sirichana, 2006).

Evidently, negotiations with residents on Phi Phi Island have encouraged the government to reduce the setback requirements to 30 meters from the coastline. Still, the densely populated section of the island (Tonsai strip) sits between Tonsai Bay and Lo Dalam Bay and is no more than 1.5 kilometers wide including beaches and is no more than 2 meters above sea level (Sirichana, 2006). Thus, neither a 30 *nor* 60 meter setback from the coastline would be an effective mitigation measure against a tsunami of the magnitude that struck in 2004. Despite post-tsunami government restrictions, construction projects on Phi Phi Island continue, with residential buildings and restaurants lining the water front again (Field Notes 2005).

Regardless of the recent negotiations between residents of Koh Phi Phi and the government, Koh Phi Phi's post-tsunami landscape has revealed that despite talks, few adhere to building regulations. In fact: "Mostly people can do whatever they want on the island" (Interview 2e). The building code has been a sensitive issue for people on Koh Phi Phi. Before negotiations one man questioned what people would do if the 60 meter building restriction zone was passed: "How many people will be able to make money? There will be fewer rooms for

people, so how many tourists can come" (Interview 2k)? Another illustrated that "If people and the population follow the plan from the government it's good, maybe safer, but then people won't have a place to earn money" (Interview 2l). Despite some worries about the economic consequences of restricted building, some people responded positively to the building law: "For me the new plan is better because it won't be full like before, but I'm sure in two years everything will be full again because now the government said not to build yet, but they build anyways. Nobody listens" (Interview 2f). Unfortunately, even when participants were supportive of the government plans, they had doubts that the plans would be properly enforced.

5.7.2 Infrastructure

Though few participants were satisfied with the redevelopment plans and building restrictions post-tsunami, many residents of Khao Lak were supportive of new infrastructure including roads, street lights and electricity systems. In Khao Lak, roads were broadened and straightened post-tsunami and some residents expressed that clearer evacuation routes eased their anxiety about future disasters. In regard to redevelopment in Bang Niang one woman said "They have bigger roads, they are more developed now. [The government] has a zoning plan and it is more organized" (Interview 1a). Other respondents were pleased with the new houses and buildings (Interview 1c), and with improved roads and better provision of electricity.

In November 2005, the progress of redevelopment on Koh Phi Phi was far behind that of Khao Lak (Field Notes 2005). Because of land disputes between the local population and the government, the development plan was idle. However, some respondents commented on the *proposed* plan which included aims to: broaden pathways; create a direct path from the interior of the Tonsai Strip to the mountain path; and to plant new coconut trees and greenery: "The new plan looks better, there's going to be a lot of nature here, not full like before" (Interview 2s).

However, another alleged tenet of the new redevelopment plan was to relocate lowland residents of Phi Phi Island to the mountains, and this received fervent objection: "The new plan on Phi Phi is to move people to the mountain, but it's not a good idea. If people work in the mountain, who will come?" (Interview 2g, 2p). Another participant commented that the plan is "good because they build for safety, so it's easy to get to the hill. But it means that you have to take off the businesses" (Interview 2o). Still others explained that the mountain land is owned by wealthy people: "It's not good, the new plan. If the new plan works, poor people won't be able to live here anymore. That's what the government wants" (Interview 2r). Government-resident disputes, under the guise of negotiations, have slowed the formation of a proper development plan, but have not altogether prevented building on Phi Phi Island (Field Notes 2005). Though most interviewees agreed that the proposed plan would increase safety for residents and tourists, and would benefit the natural environment, few expressed a willingness to sacrifice Koh Phi Phi's economy in order to decrease vulnerability.

5.8 Governmental Response to the Tsunami

Interviewees were asked to discuss the Thai government's response to the tsunami and were encouraged to elaborate on the quality of the disaster response. In most cases, respondents in both Khao Lak and Koh Phi Phi indicated a lack of trust in the Thai government and a general dissatisfaction with its disaster management strategies. Respondents in Khao Lak described: "They're slow" (Interview 1g); "I'm scared, I don't trust the government" (Interview 1b, 1h); "They're not ready to help the people, they didn't plan anything for a disaster" (Interview 1d); "the government isn't taking care of me. The government doesn't care about people" (Interview 1e). Only two of the 40 respondents were pleased with the governments' disaster response. One woman explained "I'm happy with the government. They try their best to help the people [and]

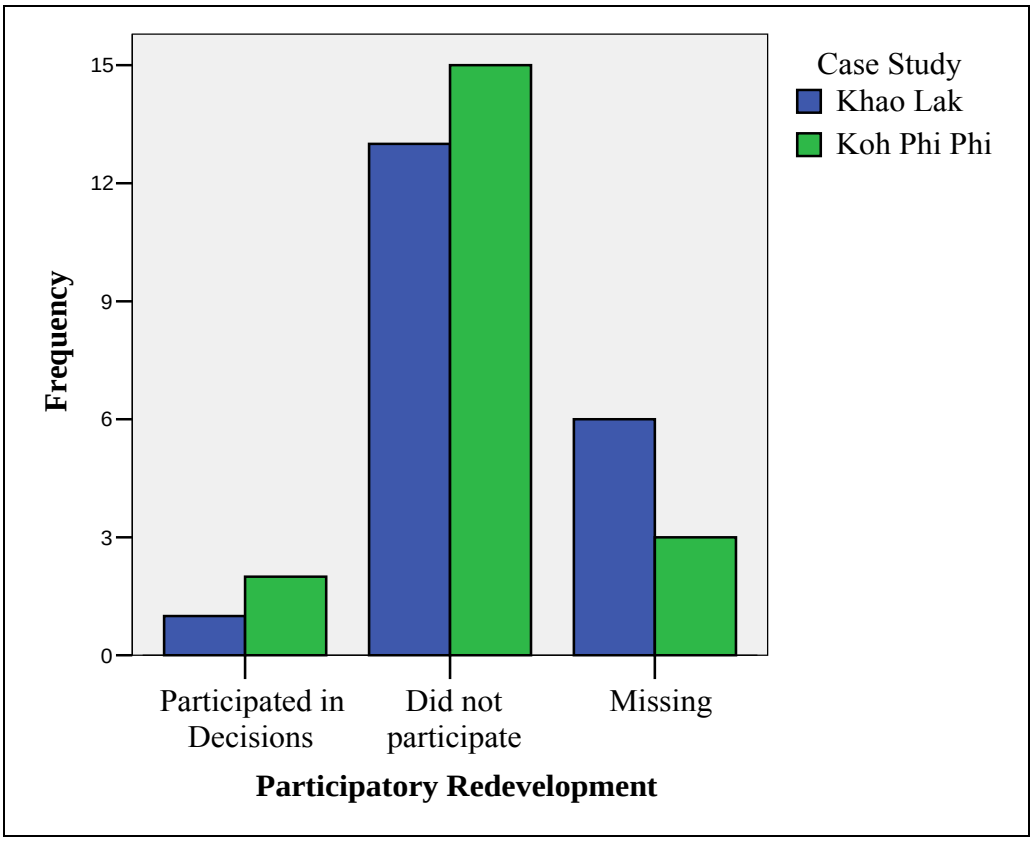
it was the first time that a tsunami hit Thailand. The way that they helped us was fine" (Interview 1j). It is important to note, however that the woman who made this comment was a wife of one of the town leaders: her husband was a member of the small group chosen by the local official and contributed to local decisions pre and post tsunami. Not surprisingly, their family received the highest amount of financial assistance of all interviewees surveyed, (100,000 THB or about $2,900 CAN). Though this study can not conclusively demonstrate that damages to this family were less than those compensated for, the large compensation package received is significantly greater than amounts received by any other participant and, at the very least, this fact encourages further inquiry into government corruption, specifically into the skimming of funds.

As in Khao Lak, participants from Koh Phi Phi were also frustrated with the governments' response. Some respondents said that although a warning siren had been installed by the government, it was inadequate because it was not loud enough (Interview 2a). Another concern was that an evacuation path was still not built. Participants complained that the government was slow in responding to community needs (Interview 2a). This lack of trust in the government by Koh Phi Phi residents is motivated by prior broken promises and inaction in the past. Participants were not confident that the development plan would be carried out properly, or that it would involve the interests of the community. For example, one woman said that the government is "always talking, but they never do anything" (Interview 2p); another described a total lack of faith in the development plan: "I don't really know the plan, but I'm sure it's not going to work" (Interview 2k). Still another believed:

> "The government can help if they want, but if they don't want they won't help. But I know that after the tsunami they didn't help. They were supposed to help the kids, 25,000 baht/year, to go to school, they were supposed to, but they didn't" (Interview 2i).

Some of the negative feelings towards the government are theorized to stem from the lack of participatory development post-tsunami. Only 1 respondent in Khao Lak and 2 from Koh Phi Phi indicated that they had been involved in the post-tsunami development plans (See Figure XVI).

Figure XVI: Participatory Redevelopment



Further, the respondent from Khao Lak who was involved in the development plans was a member of the small group chosen by the local official and was a wealthy community member. In October 2005, a variety of NGOs had sprung up in Bang Niang and Ba Nam Kem, many offering similar community services: lessons in English, hospitality and computer literacy (Field

Notes 2005). There was a significant overlap and surpluses in the types of services provided by many organizations and as a result resources and programs were often under-used (Field Notes 2005). A lack of attempt, both between government bodies and NGOs, to engage residents in the process of decision-making for post-tsunami reconstruction and development plans resulted in an surplus of services for which there was low demand, and large numbers of people (in Ban Muang survivor camp, and in the village of Ban am Kem) who remained desolate (Field Notes 2005). With the tsunami came a large influx of services and resources in Khao Lak, but these came without sufficient research into the needs of local communities and without adequate regard for incorporating the expressed needs of the public (Field Notes). Despite attempts at philanthropy, aid that is not guided by the expressed needs of disaster victims is less likely to provide valuable relief and is more likely to be wasteful of resources and skills (Pearce, 2003).

Residents in both Khao Lak and on Koh Phi Phi often described feelings of powerlessness and an inability to voice their opinions. One woman expressed that "The people have no power to tell them to change something. When they try to do that, nothing changes" (Interview 1o). Another said "Leaders never ask the people. People want to talk but they're scared to talk to the leaders" (Interview 1e). Still, the Thai government did not completely overlook public involvement in redevelopment plans. Town meetings were held in both Khao Lak district and on Koh Phi Phi. In fact, on one visit to Khao Lak, Prime Minister Thaksin asked the public for suggestions (Interview 1a). However, many respondents indicated that participation was limited to listening at town meetings. On Koh Phi Phi, a small group was formed in order to negotiate with the government, however the group was chosen by the local government official who chose 'people with power' to join the group (Interview 2j, 2s). One interviewee explained that the government "doesn't come to ask me or the population, they ask

people that are part of the group" (Interview 2q). Another expressed that attending the public meetings was useless, since they are not permitted to talk anyway (Interview 2r). Although most survivors know what they need in order to recover from the tsunami "their voices often fall on deaf ears" (Kessler, 2005; Mactaggart, 2005).

There is a wide disconnect between Thai authorities, who are responsible for carrying out disaster policies and relief/reconstruction programmes, and the locals who are affected by these. The majority of respondents were unimpressed with the disaster response, but it is important to identify practical reasons for these feelings. Thus, respondents were asked to describe how the Thai government influenced recovery through provision of financial and material resources.

5.8.1 Compensation Scheme

Post-tsunami, the Thai government set up a compensation scheme (see Table 7) which provides a breakdown of aid distribution and considers variables such as: damages to homes; loss of livelihoods; damage to businesses; and loss of family members. The total relief and reconstruction budget from the Royal Thai Government was estimated at US$ 1.75 billion but the Thai government later reported spending of approximately US$ 9 million (Kessler, 2005). The Ministry of Finance was responsible for setting guidelines for aid to individuals, while the Ministry of Education, Labour Ministry, Provincial Administration Department and Disaster Prevention and Mitigation Department provided assistance packages (Kessler, 2005). In addition, the Royal Thai Army provided reconstruction assistance, specifically with housing, including areas in Khao Lak.

Yet, despite the assistance packages "Centralized bureaucracy has made the distribution of aid ineffective and only a fraction of more than 50,000 local victims were able to receive the assistance they need" (COHRE, 2005). In fact, people who were partially hit, in areas

surrounding Bang Niang, did not receive any assistance (Key Informant #1, 2005). Uneven distribution of aid has meant that "Some communities have been luckier than others" (Mactaggart, 2005). This was precisely the case in comparing Khao Lak, which received a great deal of governmental assistance, and Koh Phi Phi, where government involvement was slow and inconsistent after the tsunami (Field Notes 2005). Government assistance packages were also ineffective in providing for home renters and informal sector workers. Renters were not provided with new accommodation post-tsunami and many were forced to live in tsunami survivor camps, or with family. The government's compensation scheme also lacked adequate provision for sub-contractors and informal workers who were not recognized as small business owners and were therefore only entitled to 2000 baht 'humanitarian aid' rather than the 20,000 baht for 'small business operators' (MACAW, 2005) (Kessler, 2005).

Table 7: Compensation Scheme

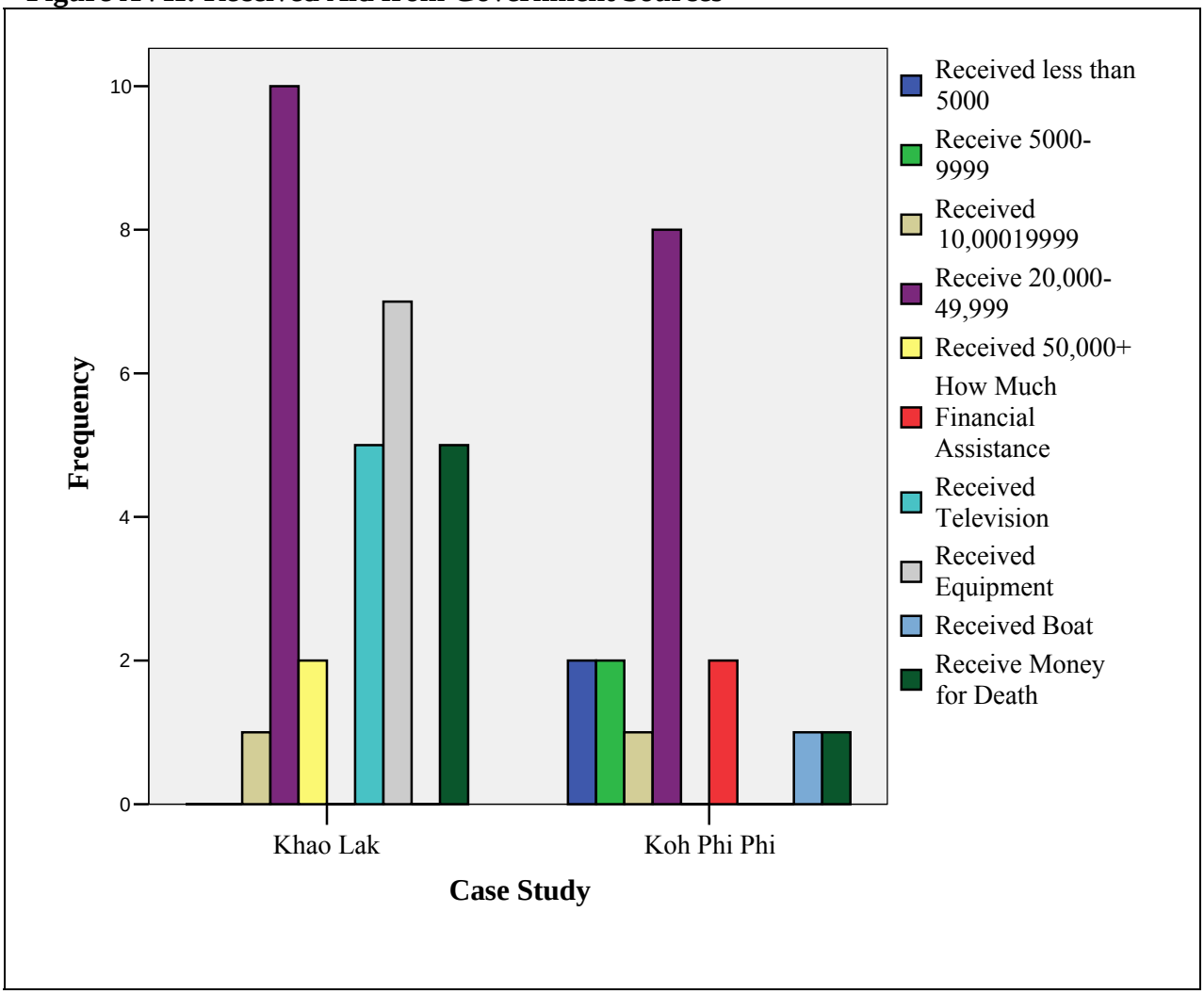
Damages	Compensation (Baht)	Compensation (US$)	Note
Meals	50/day/person	1.25/ day/ person	
Kitchen Utensils	3,400/family	87.5/ family	
Slightly damaged house	20,000/item	500/ item	
Completely damaged house	30,000/item	750/ item	
Completely damaged livelihood/household	8,000/item	200/ item	
Slightly damaged livestock/household	3,000/item	75/ item	
Electrical Lighting	200/family	5/ family	
Rental Accommodation	100/day/person	2.5/ day/ person	Not more than 7 days
Rental house	1,500/month	37.5/ month	Not more than 2 months
Modified temporary shelter	2,000/family	50/ family	
Building temporary shelter	4,000/family	100/ family	
Bathroom	1,500/room	37.5/ room	Available for 10 people
Toilet	1,500/room	37.5/ room	Available for 10 people
Clothes	1000/person	25/ person	2 sets per person
Uniform	1000/ person	25/ person	2 sets per person
Instruments for occupation/capital	10,000/family	250/ family	
Funeral	15000/ person	375/ person	
Funeral/Head of the family	25,000	$625.00	
Medicine	25,000	$625.00	
Hospital Fee	2,000/ 3 days/month	50/ 3 days/ month	
Consolation	2,000/ person	50/ person	Unable to work
Injured/crippled	10,000/person	250/ person	
	Plus 2000 per person/month	Plus 50 per person/ month	Not more than 2 years
Scholarship	1000/month	25/ month	Primary level
Scholarship	1500/month	37.5/ month	High School Level

Source: (Supratid, 2005)

5.8.2 Real Financial Assistance

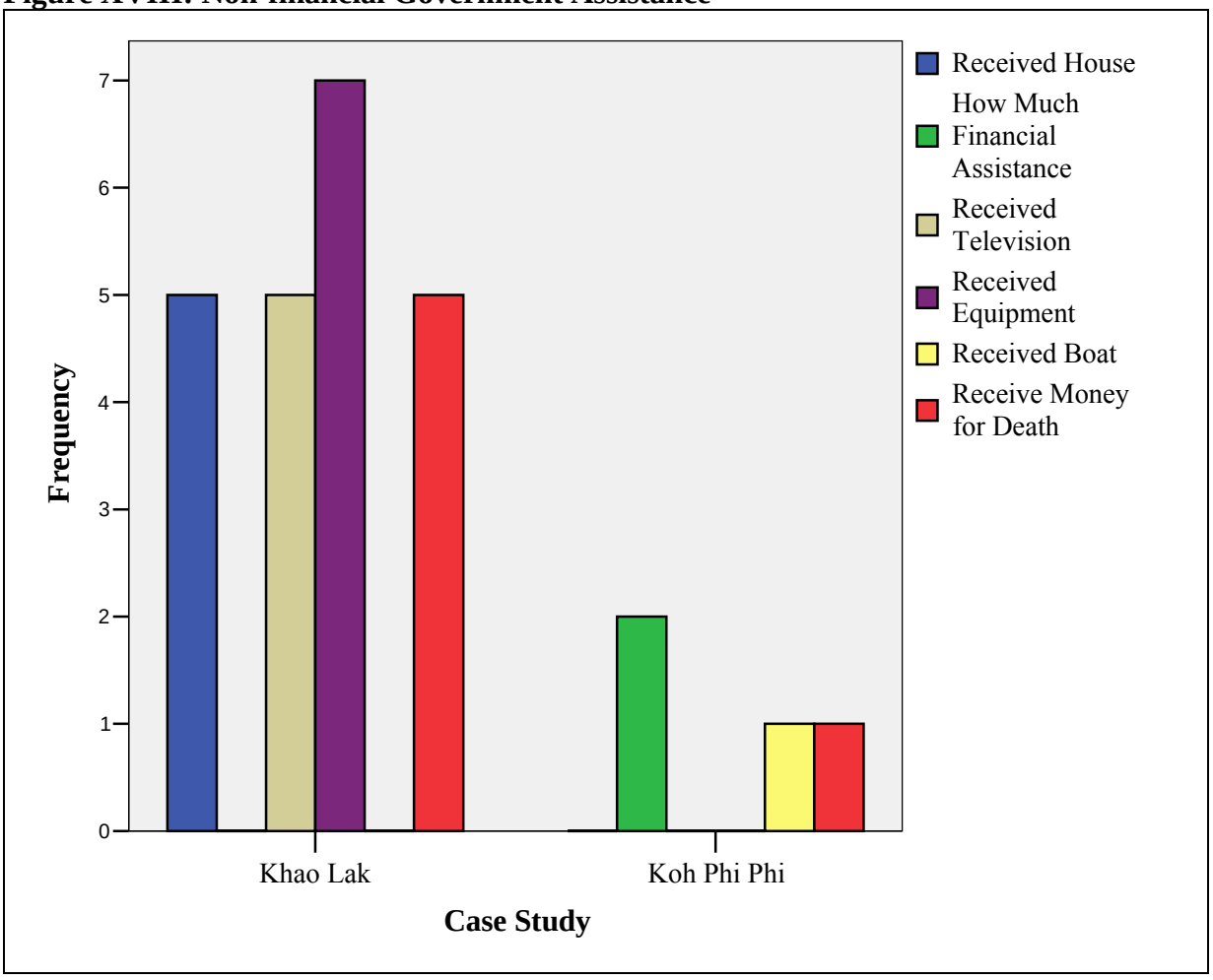
Though the compensation scheme sets financial guidelines for aid distribution, actual aid received often strayed from these guidelines. Thus, interviewees were encouraged to elaborate on the services, equipment and financial aid that were given to them. Responses were first coded according to the amount of financial aid that participants received. The categories are divided into those who received: less than 5000 baht (or 144$ CAN), between 5000 and 9,999 baht (or 144-287 CAN) between 10,000 and 19,999 baht (287-575 CAN), between 20,000 and 49,999 baht (575-1437 CAN) and greater than 50,000 baht (>1437$ CAN) (See Figure XVII).

Figure XVII: Received Aid from Government Sources



In the cases of both Koh Phi Phi Don and Khao Lak, the majority of respondents received between 20,000 and 49,999 baht (See Figure XVII). However, as shown in the above graph, more respondents from Khao Lak received larger assistance packages. All other governmental assistance was divided into five categories including: a house; a television; kitchen and restaurant equipment; a fishing boat; and compensation for a deceased family member (see Figure XVIII).

Figure XVIII: Non-financial Government Assistance



As indicated in Table 7, the Thai government provided compensation for damaged housing. Households were either reimbursed for the damages, or, in the case of completely destroyed houses, the funding was allocated to the organization or department responsible for housing

development (i.e. Habitat for Humanity, or the Royal Thai Army) and houses were given out upon completion. Again, the results differed between the two case studies. In many cases, respondents from Khao Lak received a house, television, restaurant/housing equipment, and compensation for a deceased family member. Only two respondents from Koh Phi Phi received any of these. In fact, one woman from Koh Phi Phi said: "Mostly the government doesn't help with things like a TV and equipment" (Interview 2e). Still the CGO explains that redevelopment of Phi Phi Island will take approximately three years and promises that facilities will be improved from pre-tsunami standards (Horn et al., 2006). Despite plans for redevelopment on Phi Phi, eleven months after the tsunami hit, in the categories of both financial assistance and resource provision, participants from Khao Lak have received much more than did those from Koh Phi Phi Island. One viewpoint may be that interviewees from Khao Lak suffered greater losses than those on Koh Phi Phi, and this research can not conclusively refute that argument. However, the consensus amongst interviewees from Koh Phi Phi is that: government officials were slow to respond to the post-tsunami needs on Phi Phi Island; the majority of relief efforts were attributed to efforts of Hi Phi Phi and international travelers; and that there was a lack of attention given to creating a prompt and appropriate development scheme. The slow speed with which the needs on Koh Phi Phi have been addressed paired with the data collected on financial and resource compensation indicates that, in comparison to Khao Lak, Koh Phi Phi Don had less priority.

Interestingly, the differences in assistance received are linked to respondent participation in reconstruction. In Khao Lak, where respondents received significant material and financial aid, few people (25%) assisted other community members with reconstruction or clean-up (See

Table 8). The opposite was true on Koh Phi Phi where the majority, 80% of interviewees, assisted other community members in their efforts (See Table 8).

Table 8: Involvement in Reconstruction

Case Study		Frequency	Percent
Khao Lak	Provided Assistance	5	**25.0**
	Was not Involved in Reconstruction	9	45.0
	Missing[24]	6	30.0
Koh Phi Phi	Provided Assistance	16	**80.0**
	Was not Involved in Reconstruction	4	20.0

This relationship can be interpreted in different ways: either residents on Koh Phi Phi were *forced* to engage in self-help and community reconstruction because they were inadequately assisted, or they proved more resilient and demonstrated more community cohesiveness than did Khao Lak. A conclusive interpretation however was beyond the scope of this research.

Although I have presented interviewee accounts of the actual provision and assistance provided by the Thai government, it was also necessary to probe whether this provision was considered adequate by the recipients themselves: inconsistencies in aid would not be as problematic if all communities and individuals were satisfied with the assistance received. Subsequently, respondents were asked whether they (and people they knew) were given *enough* assistance post-tsunami. In both Khao Lak and Koh Phi Phi, the majority of respondents (55% and 80% respectively) indicated that assistance was inadequate (See Table 9).

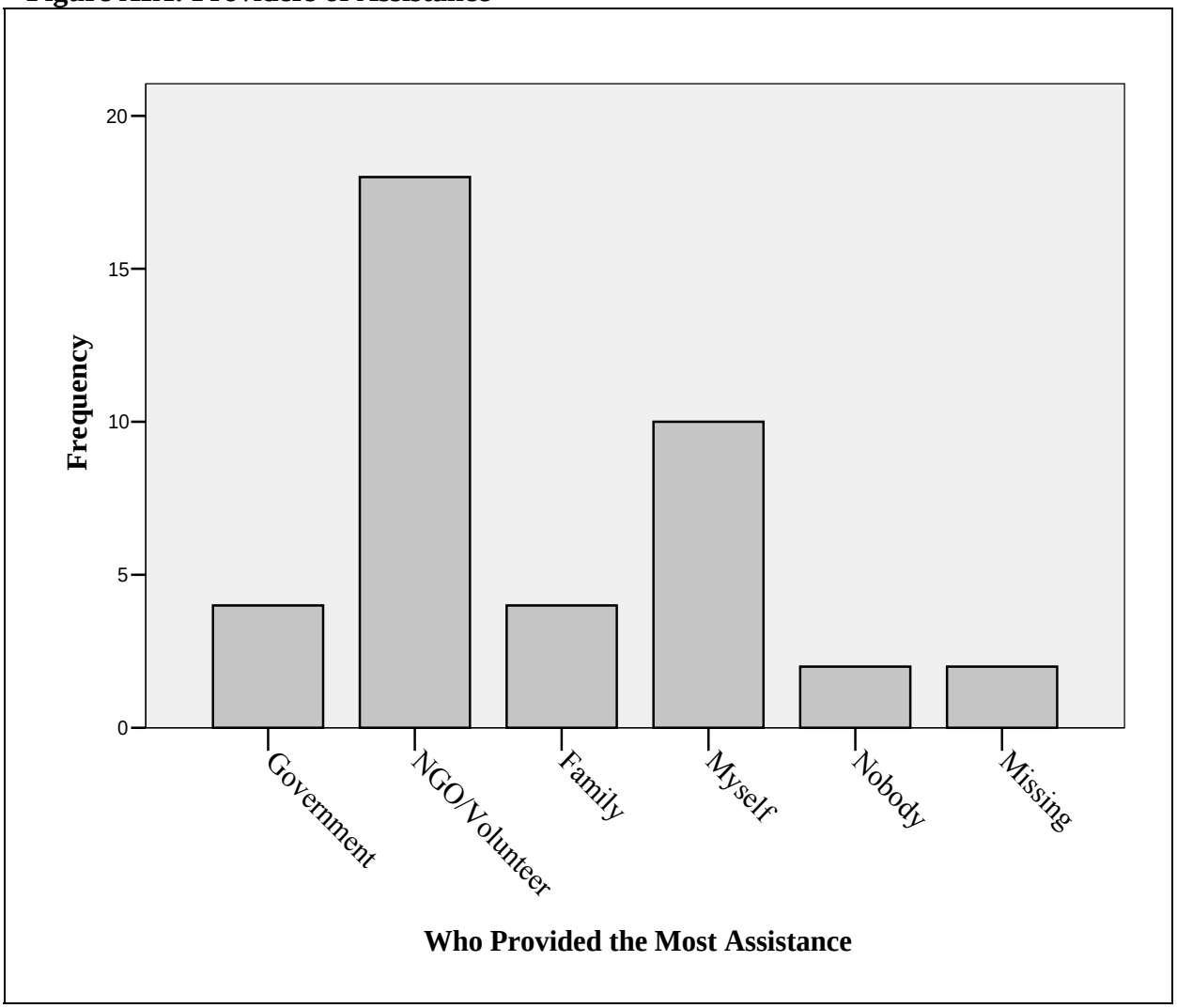
Table 9: Perceived Sufficiency of Assistance

		Case Study		Total
		Khao lak	Koh Phi Phi	
Provided Sufficient Assistance	Yes	6	2	8
	No	**11**	**16**	**27**
	Don't Know	0	1	1
	Missing	3	1	4
	Total	20	20	40

[24] 'Missing' refers missing data, questions that were not answered or themes not referred to by participants.

In particular, the discrepancy in responses on Koh Phi Phi was overwhelming: 16 people indicated that aid was insufficient while only 2 were pleased with the amount of assistance they received (See Table 9). Respondents were also asked who helped them the most post-tsunami. Only 4 respondents in both Khao Lak and Koh Phi Phi mentioned the Thai government, while most indicated that they 'helped themselves' or were assisted by NGOs or concerned tourists/foreigners living in the area (See Figure XIX).

Figure XIX: Providers of Assistance



One man explained "The government helped very little. Mostly people from around the world helped" (Interview 2e). Another said: "Here is what happened, 70% of help was from the tourists, and 20% of help was from the government" (Interview 2o).

5.8.3 Government Corruption

Throughout the interview process and during data analysis, it became clear that interviewees were displeased with the response of the Thai government to the tsunami; lacked trust in their local officials; and did not have confidence that the government would be able to properly enforce new buildings laws and development plans. Though participants were not asked directly about government corruption, many alluded to governmental acts of bribery; dishonesty in recording assistance requirements; fraudulent assistance claims by officials; and aid profiteering. In fact, without being questioned on these issues, 11 participants from Koh Phi Phi and 9 from Khao Lak discussed government corruption.

Lack of trust in the Thai government is severely affecting disaster response and the ability of local officials to communicate effectively with civil society. One woman believed that "Even if the wave comes again we'll never get enough help. Because of corruption" (Interview 2q). Another respondent said that governmental corruption is a reality for most countries and "It's in Thailand too. If the government gets 100 baht, the people only get 50" (Interview 2g). These perceptions are actually quite consistent studies on corruption in Thailand. Transparency International annually publishes a corruption perceptions index (CPI) which measures corruption on a scale of 1 to 10, with 10 representing a highly 'clean' country and 0 being highly corrupt. In the 2004 corruption index, Thailand received a CPI score of 3.6 (Lambsdorff/TI, 2004).

Government corruption has penetrated many areas of Thai society. For example, one interviewee spoke of electoral corruption explaining that political candidates bribe voters: "they

pay people to put an 'x' by their name. They give 10,000 baht to people" (Interview 2k). Another explained: to avoid Thailand's mandatory 2-year army service "I will have to pay. This is something that's not legal; it's like under the table. My name will be in the army, but not myself" (Interview 2k). In the following sections I will further describe the unethical practices that have stifled adequate disaster response and contributed to a lack of trust in the government since the tsunami.

5.8.3.1 Nepotism

Some respondents alleged that government officials made a practice of providing excessive aid packages to immediate family members and relatives. One respondent said that the disaster assistance "dropped to only the local official and his relatives" (Interview 1o). In tsunami-affected areas, local officials were responsible for creating and maintaining lists specifying the losses and needs of community members. One local official in Khao Lak was accused of embellishing these needs in order to gain excessive assistance packages and distribute them to friends and family members (Field Notes 2005). One respondent claimed that the official requested extra equipment and televisions under the name of a community member, and when the provisions arrived, he assigned the 'extra' equipment to his relatives (Interviewee 1e).

Nepotism was also suspected within higher levels of authority. Some respondents believed that Khao Lak received more governmental assistance because the King's grandson, Bhumi Jensen, was killed there (Interview 2r). Another woman said that "of all the money, more than 70% went to Khao Lak (Interview 2q). In fact, a community's recovery "can be directly tied to its position in the local political power structure" (Morrow, 1999) and the perception that Khao Lak received much of the government aid may be accurate.

The data collected on both financial assistance and material provisions demonstrate that Khao Lak residents received significantly more than those on Koh Phi Phi. This is in large part explained by the fact that Khao Lak suffered the highest loss of life of any single community in Thailand (Supratid, 2005): approximately 80% of those killed in Thailand were in Khao Lak (Tangwisutijit, 2005). On closer examination, not only was aid greater in Khao Lak than in Koh Phi Phi, but assistance was concentrated in some areas of Khao Lak, and some people remained unassisted (Field Notes 2005). This is, in part, a result of poorly managed aid and government corruption. Local officials in Khao Lak were accused of providing aid to their friends while ignoring the needs of other community members. Some respondents alleged that in order to receive financial or material assistance it is necessary to know the village leader: "If you know the head of the village they can get your family a house. If you don't know officials you can't get anything" (Interview 1a, 1b). Another said: "You can get money if you know the Puyayban (village-level official), if you know the Ohbadoh, (district-level official), but not me" (Interview 2s).

5.8.3.2 Bribery and Building Laws

Participants consistently mentioned bribery as a major problem, and it proved one of the most apparent types of government corruption in disaster relief and reconstruction efforts in Khao Lak and Koh Phi Phi[25]. When asked why building laws were not enforced, one respondent alleged that "the government doesn't say anything because all of the money is under the table" (Interview 1o). Financial enticement was most often used in order to persuade officials to ignore building/retail laws. In Thailand, retailing is illegal on public land, so landless hawkers use

[25] "Thai Laws have specific provisions on offering or pay bribes to state officials and on state officials misappropriating state assets in such as Penal Code Book II Title III: Offences Relating to Justice, Organic Act on Counter Corruption B.E. 2542 (1999), Art 84 123, and The Anti-Money Laundering Act B.E. 2542 (1999) Art 3(5) 5)" (ADB/OECD, 2005).

financial incentives to coax officials into 'turning a blind eye' on such laws: "They pay officials under the table to turn their heads" (Interview 1a). One woman in Khao Lak suggested that bribery is a fairly open and common practice. In one instance a community of hawkers paid a law enforcement officer in order that they could remain on the beach until the end of the season (Interview 1k). These negotiations were quite common in both Khao Lak and Koh Phi Phi before the tsunami.

On Koh Phi Phi, illegal building is also present in national parks even though national park laws make this illegal. Though it is illegal for any building to occur on any of Thailand's national parks, Koh Phi Phi Don is part of Hadnopparattara National Park and building has been rampant on the island since the late 1980s. Illegal building, some respondents say, has a lot to do with power relations between civil society and the Thai government: "I know if it's a national park you can't build….but if you have a lot of power you can. In Thailand it's like this. Corruption. It's corruption" (Interview 2d). Another Koh Phi Phi resident suggested that "There is a law, but not a strong law. People with money can come and build whatever they want" (Interview 2f). Years of open bribery between local citizens and officials have made this type of corruption the norm on Koh Phi Phi: "If you give money under the table you can do anything" (Interview 1i, 2s).

5.8.3.3 Aid profiteering

Aid profiteering, or 'skimming funds' is a frequent occurrence in Thailand, and has been a problem that has affected the country's tsunami relief efforts. Aid profiteering occurs when financial aid is filtered through a hierarchy of aid distributors and each skims a portion or extracts a payment for personal financial gain. Unfortunately this type of government corruption can have devastating affects on foreign aid as a willingness to provide assistance can be tainted

by a lack of trust that relief aid will reach those who need it most. After the tsunami in Thailand: "officials took a lot of money instead of using it to help people. The leader of the village took a lot of money and got rich" (Interview 1d). The same woman explained that "every level of government takes a little bit and a little bit until it gets to the people" (Interview 1d). In the village of Ba Nam Kem, in Khao Lak, many respondents were bothered by the extent to which the local official skimmed funds for personal profit: "The leader was poor before the tsunami, now he has a big beautiful house" (Interview 1e, 1o). In this village, officials were responsible for doctoring assistance claim sheets in order to acquire more goods for themselves and their families: "the officials make fake reports and send it to Bangkok…maybe they have fifty people who need help, but they say that they need help for a thousand" (Interview 1e). In Khao Lak and Koh Phi Phi, aid profiteering decreased the quality of aid that was provided to tsunami victims and sometimes, "money from the Thai government didn't get to people" (Interview 2e).

Inadequate disaster preparedness plans certainly increased disaster vulnerability pre-tsunami in Southern Thailand, but even more, governmental corruption post-tsunami reinforced and perpetuated vulnerability for many in Khao Lak and Koh Phi Phi Don. Governmental corruption not only stifled the initial equitable distribution of aid, but has established a social environment in which many lack trust and respect for local government officials. In the next section, I address my research objectives beginning with an analysis of the relationship between governance and vulnerability in the two case study sites. This analysis reveals how some governmental decisions and actions have influenced disaster vulnerability.

6 ANALYSIS AND DISCUSSION OF FINDINGS

In the following section, I address and respond to each of my initial research objectives:

a) To analyze the relationship between vulnerability and governance in Thailand and to demonstrate how public policy influenced vulnerability

b) To determine the degree to which economic inequalities, socio-political marginalization and the environmental landscape influenced disaster vulnerability

c) To influence re-development through recommendations on how to reduce future disaster vulnerability.

In addition I demonstrate the link between political philosophy and vulnerability and explain why this relationship is important.

6.1 Governance and Disaster Vulnerability

6.1.1 Natural Environment

Residents of both Khao Lak and Koh Phi Phi mentioned that the tsunami: broadened streams; changed beach shape; increased soil salinity; uprooted trees; damaged coral reefs; altered oceanic species in certain regions; and contributed to waste on the beaches. One report indicated that "The main cause of coral loss (post-tsunami) was from the sediments washed off the land, as well as large quantities of debris from houses and tourist resorts washed from the heavily populated parts of Phi Phi Don"(GCRMN, 2006). However, these were environmental consequences of the tsunami.

Southern Thailand's natural environment was under threat long before the tsunami hit, and these threats contributed to enhanced vulnerability to the tsunami's impact. For example, most coral reefs in Thailand were only slightly affected by the tsunami, but it was human forces that resulted in severe pre-tsunami damage to coral reefs: Between 1995 and 1998 the

Department of Fisheries conducted a reef assessment of 250 sites in the Gulf of Thailand and found that only 4% were in excellent condition, 13% were good, 33% were fair, and an astounding 50% were in poor condition (GCRMN, 2006). In addition, mangrove forests experienced minimal damage as a result of the tsunami: only 306 hectares of mangrove forests were damaged in the tsunami (GCRMN, 2006). Still, as with coral reefs, most damage to mangroves has been a result of human infrastructure development (GCRMN, 2006) prior to the tsunami, leading one author to conclude that, in fact, the tsunami "made only minimal impact to the natural environment" (Israngkura, 2005). This is important because: It illustrates the seriousness of Southern Thailand's environmental degradation pre-tsunami; it reflects an inability or unwillingness of the Thai government to accept and confront the *real* causes of environmental problems, and it exposes the enhanced vulnerability to tsunami impacts that environmental degradation causes.

6.1.2 Built environment

Local interests in sustained economic growth over environmental management certainly impacted the landscapes of Khao Lak and Koh Phi Phi Don before the tsunami, and contributed to both decreased and increased disaster vulnerability for residents of these places. Vulnerability was decreased for some, since successful business owners on Phi Phi can afford to live off the island (Interviewee 2q), while it was increased for others, for example, lack of environmental appreciation and protection contributed to the deforestation of mangrove swamps on Koh Phi Phi Don resulting in the elimination of a natural buffer against large waves. However, the public cannot be held solely accountable for poor law enforcement and environmental mismanagement. Laissez-faire environmental policies and enforcement by government authorities in Khao Lak and Koh Phi Phi sharply increased vulnerability to the tsunami.

Before the tsunami, the built environments of Khao Lak, and particularly Koh Phi Phi Don, were disorganized and poorly planned with beach front bungalows, restaurants, and makeshift vendor huts developing in an unplanned manner and in contravention of exisiting policies. The "modification of shorelines and removal of natural vegetation in combination with high concentration of human activities…contributed to the destruction caused by the Tsunami waves" (Unknown, 2005c). Unchecked development *dramatically* increased disaster vulnerability and most of this occurred as a result of poorly enforced building and environmental laws.

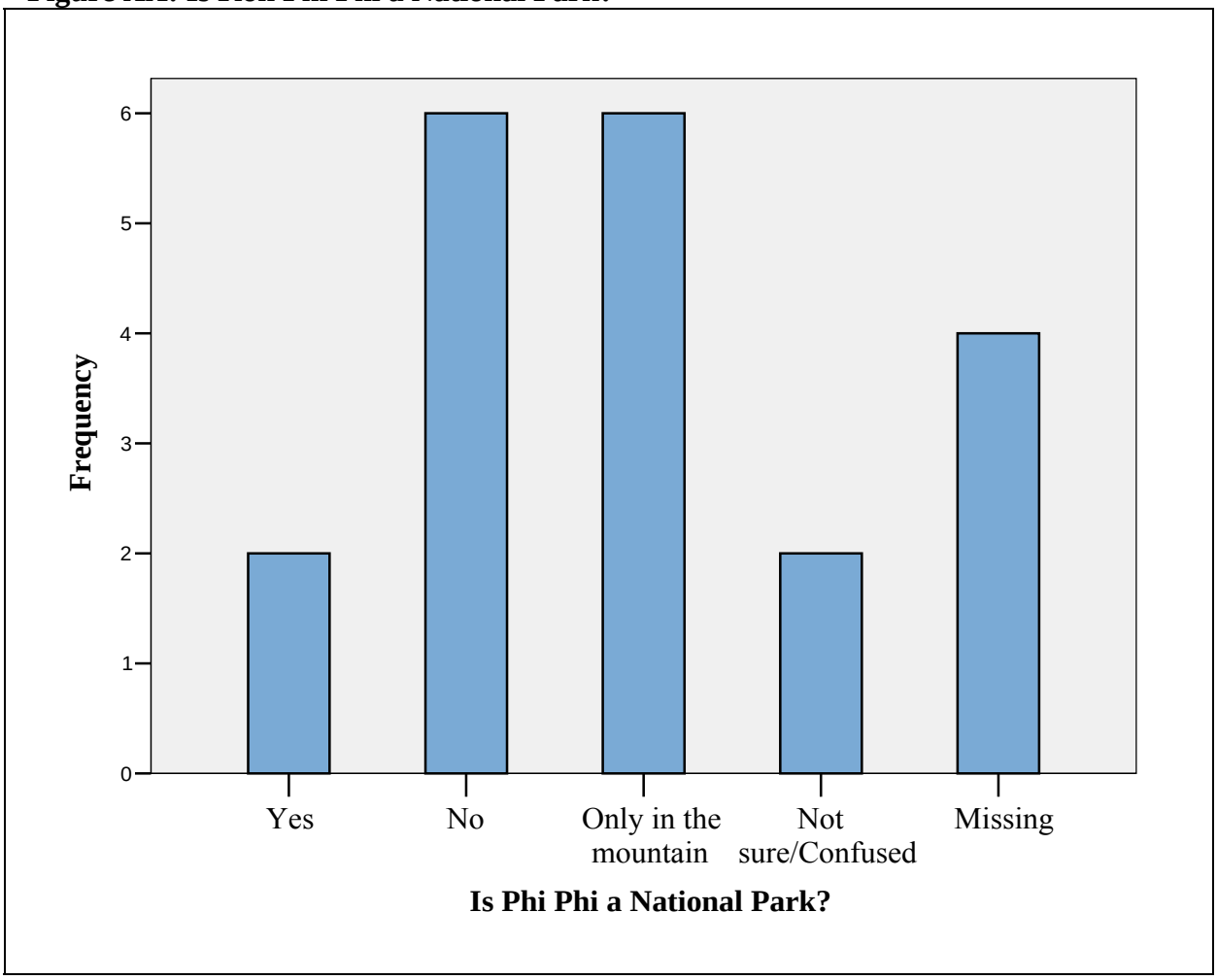
Such patterns of development are not confined to the two case study sites and are symptomatic of a wider country-wide coastal governance problem. For example, under the Building Control Act (1979), developers in coastal areas in Phuket province were only allowed to erect buildings situated at least 20 meters away from the pre-tsunami shoreline. However, this law was not properly enforced. In fact, in Phuket there have been a series of coastal zone management and development plans which have been poorly implemented "…due to a combination of lack of political will, lack of coordination between relevant agencies, [and] corruption" (Raksakulthai, 2003). Coastal development on Koh Phi Phi in particular, is in direct conflict with Thailand's National Park Act (1961).

6.1.3 Governance of National Parks

Koh Phi Phi Island is situated within Hat Noppharat Thara National Park and thus, the protective laws that apply to the national parks of Thailand should also apply to Koh Phi Phi Don. Chapter III Section 16 of the National Park Act B.E. 2540 (A.D. 1961), states that no person shall "occupy or possess land" that is zoned as a National Park (Adulyadej, 1961). Regardless of this stipulation, Gray (1991) estimated that almost 11 million people in Thailand

were living in National Forest Reserves (Gray, Piprell, & Graham, 1991). Encroachment on park land, resulting from mismanaged and unregulated development, was certainly evident on Koh Phi Phi Don before the December 26th tsunami. Bungalow resorts, restaurants and vending-huts lined the beaches and were not consistent with the agenda of the protected area (ICEM, 2003). In fact, when asked about the building laws and restrictions on Koh Phi Phi most residents interviewed were unaware that Phi Phi Don *is* part of a National Park (see Figure XX).

Figure XX: Is Koh Phi Phi a National Park?



The Royal Forest Department (RFD) is the overarching administrator of Thailand's Marine National Parks (MNPs), however it is the Marine National Park Division (MNPD) that is

responsible for the management and the protection of the MNPs and for the enforcement of laws (Sethapun, 2005). To represent the MNPD, a park superintendent and two assistants are responsible for law enforcement and park management at the local levels (Sethapun, 2005). However, residents of Koh Phi Phi indicated that park officials do not work on Koh Phi Phi Don, but usually stay on other islands, including Maya Bay and Bamboo Island. They do this in order to collect a 20 baht ($.50 US) island charge from tourists visiting Phi Phi's from its neighboring islands. In addition, poor zoning of National Parks has resulted in land disputes that park rangers are not trained to address (Sethapun, 2005), and when disputes arise, the results often favor development (ICEM, 2003). Inadequate staffing on Koh Phi Phi, paired with lack of expertise and training, have resulted in poor park management, unchecked development, decreased attention to National Park laws and, ultimately, increased disaster vulnerability for residents.

The consequences of prioritizing economic growth in parks and protected areas over environmental protection were revealed in the 2004 tsunami (UNEP, 2005). Post-tsunami, there has been a high degree of protest from local residents who still support development because their livelihoods are caught up in the 'protected' land (Newell, 2002). Though hotel and bungalow developments located too near the seashore increased vulnerability to the December 26th disaster, local residents depended on these developments for their economic survival. The pressure for the MNDP to preserve and protect park land is consistently countered by local needs to utilize environmental resources to sustain livelihoods (Sethapun, 2005). It is especially difficult for the MNDP to enforce building laws since human settlement on Koh Phi Phi (1950s) predates the National Park Act of 1961, and thus, some families have legitimate claim to the land. It is therefore quite difficult both to enforce park boundaries and to convince people of the benefits of environmental preservation (ICEM, 2003). Though locals value economic growth

over environmental viability, it is the job of the government and parks officials to enforce laws that protect the environment and reduce disaster vulnerability. Regardless of issues around land rights, it remains that Koh Phi Phi lacks a solid environmental management plan or the governance capacity to implement one.

The Thai government, specifically the MNDP, needs to develop strong laws which incorporate and protect Koh Phi Phi's collective interests. Newell (2002) argues that governments often *intentionally* disregard building regulations in order to attract foreign investors and capital. If the MNDP continues to allow laissez faire development on Phi Phi Island then such an allegation may be justified. Unfortunately, residents of Koh Phi Phi are caught in a catch-22: they depend on economic security for their livelihoods, but with most of the jobs on Koh Phi Phi tourism-related, they also depend on the natural environment which attracts many of the tourists.

The tension on Koh Phi Phi and in other parts of Thailand is that people are increasingly reliant on natural environments for their livelihoods at the same time that these environments are being placed 'off limits' (ICEM, 2003). Koh Phi Phi Don residents have become exceedingly reliant on a pattern of unsustainable tourism development and related livelihoods which often contribute to environmental degradation. Although this pattern of development has neglected environmental laws, park officials are in a weak position to control tourism (Sethapun, 2005). To protect Koh Phi Phi, the MNDP needs to:

- develop and enforce a legal framework to improve park management;
- enforce zoning laws, create clear park boundaries and clearly label protected land;
- enforce management schemes with knowledgeable and trustworthy local level staff; and
- seek real community involvement in park management

However, even these suggestions are unrealistic without increased and extended funding as well as local cooperation. One participant expressed that when national park signs were placed on Koh Phi Phi (indicated restricted zones) residents tore down the signs (Interview 2k). Inadequate governance by the MNDP, and by local officials, permits this behavior and has led to lax environmental management on Phi Phi Island.

One of the biggest tragedies of the tsunami is that development lessons that *should* have sparked a straight forward and safety-oriented development plan seem to have been overlooked by residents of Southern Thailand, government officials and land-use planners alike. One land-use planner, Amnuaysart Hassadin of the Special Areas Tourism Organization still aims for construction to be forbidden within 30 meters of the shoreline but says "We cannot stop investors from rebuilding their businesses. And once they have already invested hundreds of millions of baht, we cannot tell them to tear down their buildings" (Tangwisutijit, 2005). Unless government officials at the local level assert their authority and commit to the serious and forceful implementation of building laws in Khao Lak and Koh Phi Phi it is likely that unmanaged rampant rebuilding will continue.

6.2 Socio-economics and Vulnerability

Morrow (1999) suggests that "The impact of a natural event on any given community…is not random, but determined by everyday patterns of social interaction and organization" (Morrow, 1999). In this study, results show that age, gender, physical ability, class, nationality, and religion all contributed to disaster vulnerability in Southern Thailand.

6.2.1 Children, Elderly and the Disabled

Physical barriers made children, elderly populations and the physically disabled particularly vulnerable to the tsunami. In Thailand, grandparents often tend to children while

parents work. In some cases on Koh Phi Phi, grandparents, with limited physical abilities, were left to evacuate themselves and their grandchildren during the tsunami, increasing the vulnerability of both the grandparent and the child. A study conducted by Helpage International (2005) found that the elderly were particularly affected by the tsunami (Sharma 2005). Vulnerability, age and class often have a direct relationship in disaster situations. In the tsunami-hit regions in Thailand "the elderly are among the poorest in the community," and their lower class status increases risk of social and political marginalization and decreases their ability to prepare for and recover from a disaster (Sharma, 2005). Post-tsunami, elderly female survivors were seriously impacted because they lacked means to provide for themselves and lost the support of their daughters or daughters-in-law (Sharma, 2005). This is important because it reveals how household traditions shape vulnerability. Dependents in Thailand refer not only to children, but also to the elderly. Thus, in order to develop effective preparedness and response plans it is necessary to account for the elderly 'dependent' population.

The relationship between age and employment also contributed to disaster vulnerability in Thailand. In the Helpage study, elderly respondents told researchers that "they had worked as unskilled laborers packing fish and squid at fishing wharfs" (Sharma, 2005). This type of employment increased vulnerability in two ways: employment on fishing wharfs brought the elderly close to the shoreline; and as low-skill informal sector workers, they faced "problem[s] of not being entitled to any compensation or benefits" (MACAW, 2005). Without benefits, many elderly tsunami victims were forced to rely on government aid post-tsunami and unfortunately "relief was not targeted at them" (Sharma, 2005). Response plan coordinators must give greater attention not only to workers in informal sectors, but specifically to elderly citizens of those sectors.

Children were also particularly vulnerable to the tsunami disaster. The Asian tsunami struck on a Sunday, when children were not in school, but instead were playing on the beach. As dependents, children were not only at a risk of losing their lives, but at a risk of losing their guardians: more than 1,200 children in Thailand were orphaned by the tsunami waves (Kessler, 2005). Child tsunami victims in Thailand have experienced severe psychological trauma and continue to deal with the loss of not only their families, but their entire communities (Kessler, 2005). In one account of her experience of the tsunami a thirteen year old year old wrote "a lot of people died and my heart disappeared" (Thongert, 2005). The lesson is that physical provisions for children post-disaster are not necessarily adequate. Long-term child assistance plans should include:

> ***Tsunami Survivor Stories:***
> *"My mother has nothing now, just only life…it is such a painful memory, I cannot forget this. I have no future now because my mother has gone bankrupt, my mother has nothing" (Meungaek, 2005).*

- Sustained counseling and psychological guidance
- The investigation of reconnection with family members
- The monitoring of care providers to prevent neglect or mistreatment
- A quick return to school or educational programs

Disaster preparedness should involve an assessment of the number, age and gender of children in each community in order that post-disaster response is effective and appropriate (Morrow, 1999).

It is still traditional in Thailand to view the disabled as a burden: "being born with a handicap is a sign of bad Karma. The disabled are often 'locked away' in Thai society" (CG, 2005, 1; Punong-ong, 1997). Although many respondents in both Khao Lak and Koh Phi Phi said that there were few disabled people in either community, only 1.85% of Thailand's total population are described as disabled (Punong-ong, 1997) so this is perhaps not surprising. In 1991, the Thai government made efforts to support the disabled population by passing the Rehabilitation of the Disabled Act (1991) which provides disabled people with free: medical assistance; education; occupation advice and training; entitlement to participation in social activities and access to various facilities; and government lawsuit services. Still, true integration and acceptance into Thai society depends significantly on the community. In fact, "many principals and teachers will not let them [the disabled] in their classrooms" (CG, 2005, 1). On Koh Phi Phi Don, much of the island's population was made up of migrants from the mainland who had left their families in Phuket or Krabi, thus, there were smaller populations of children, elderly and disabled. Although the history of social alienation that disabled people have faced in Thailand is increasingly understood, and it is plausible that their marginalization increased their vulnerability to the tsunami, the research could not confirm this.

Tsunami Survivor Stories:

"The owners of a [resort in Khao Lak] have five daughters and one son. One daughter was in a car accident and became disabled. The people built a house with a big wall around it and nobody saw this girl again" (Interiview 1k).

6.2.2 Vulnerability and Gender

Although most respondents believed that an equal number of men and women lost their lives in the tsunami, a Gender Adviser of Oxfam suggested that although "It is difficult to get

gender disaggregated data following natural disasters…it is now clear that far more women than men have died in the tsunami" (WHO, 2005, 1). The gender disparity in the death toll is an important indicator of heightened disaster vulnerability. Though women are frequently a vulnerable group in disaster situations, female vulnerability can be lessened if women are given greater priority in disaster preparedness and response plans. However, in order to do this, relief agencies need to better understand the lives of women pre-disaster, during-disaster and post-disaster (Enarson, 1998). Female vulnerability is influenced by gendered divisions of labour, local traditions, household responsibilities, and by their unique vulnerabilities (e.g. pregnancy, and a high vulnerability to rape, trafficking, exploitation and domestic violence (UNFPA, 2005)). It is not enough to know that women are more vulnerable to disasters; we must learn how to lessen vulnerability and increase empowerment. Future research on gender and disasters should commit to a lengthy monitoring of female disaster victims with goals to better understand the post-disaster difficulties unique to women (e.g. gender inequality pre-disaster, access to resources, psychological resilience, post-disaster responsibilities, increased reliance on men/ loss of independence, re-introduction into the workforce, responsibilities in the home and community).

6.2.3 Vulnerability and Economic Class

Intersecting social relations of gender, age, nationality and economic class create unique disaster vulnerabilities for marginalized people which intensify risk. Though women may be more vulnerable than men, they are *even more* susceptible if poor. In Southern Thailand it was "The poor and the recently made poor [who experienced] the greatest difficulties in reestablishing their life's routines" (Kessler, 2005, 10). On Koh Phi Phi Don, vulnerability and economic class were directly related as lower-income households resided in the low-lying

portion of the island. In Khao Lak, lower-income people were described as more vulnerable because of the size of and materials used for their housing. In both cases, the poor were described as more likely to lose their lives in the tsunami while wealthier citizens lost only assets. The poor who *do* survive use shelters and temporary housing, and stay in these places longer (Morrow, 1999). There is a frequent observation from disaster situations that economically marginalized people experience greater vulnerability in disaster situations. There is an inhumane reality that those most poor are generally most vulnerable to disaster. Disaster vulnerability reduction should not be a private good whereby those who are willing to pay for more receive more (Boyce, 2000). There is a strong and troubling tensions "between an egalitarian allocation of the right to life (and hence to disaster-vulnerability reduction) and the inegalitarian allocation of economic wealth and political power" (Boyce, 2000, 7). The discrepancy in disaster vulnerability between the wealthy and the poor is wide and should have strong implications for disaster response coordinators. However, addressing economic inequalities would not solely serve a humanitarian purpose. If the needs and problems facing lower-income groups were dealt with in disaster mitigation planning it would be more cost effective because it would reduce temporary housing and shelter costs and would allow for increased spending on lasting social programs, homes and facilities (Morrow, 1999). In order to reduce disaster vulnerability in any meaningful way, governments must *first* address the needs of those most vulnerable, including the poverty-stricken.

6.2.4 Nationality and Vulnerability

In Khao Lak, the Burmese population was among the highly vulnerable to the Asian tsunami. Often lacking legal status in Thailand, Burmese migrants experienced language barriers, intense ethnic prejudice and were excluded from access to and the benefits of social

resources. The Burmese population lives on the margins of society: they tend to hold the most labour intensive and lowest paying jobs; occupy temporary housing; and are considered inferior to their Thai counterparts. The marginal position of Burmese migrants in Thailand made them extremely vulnerable to the tsunami.

In disaster situations, deaths tend to be higher for minority groups (Bolin and Bolton 1986). In Thailand, however, it was difficult to determine the death toll for Burmese since there was a large population of unregistered migrants. Some estimate that over 3,000 Burmese were killed in Thailand (GCRMN, 2006). Post-tsunami, the Thai government actually increased Burmese vulnerability by searching for and deporting illegal Burmese residents (AHRC, 2005). The Asian Human Rights Commission reported that both registered and non-registered Burmese migrants (whose work permits and ID cards were lost in the tsunami) were forcibly deported (AHRC, 2005). Rather than seek disaster assistance, many Burmese people went into hiding in order to avoid deportation and were therefore completely isolated from any disaster assistance (COHRE, 2005). Instead of focusing on relief and reconstruction, "the Thai authorities have used the tsunami incident as an opportunity to crack down on illegal migrant workers" (AHRC, 2005, 2). As a result, the families of Burmese tsunami victims are reluctant to report missing persons, or to participate in the identification process for fear of repercussions (Unknown, 2005c). Not only does post-tsunami discrimination make Burmese migrants at risk of deportation, those who remain experience economic vulnerability because they lack the capacity to access assistance. For example, migrant workers are equally entitled to compensation for deceased loved ones, but many are unsure of how to access and apply for these compensation packages (MACAW, 2005).

The discrimination experienced by Burmese tsunami victims is in "violation of international laws and standards" (AHRC, 2005, 3). Ethnic minority groups deserve equitable assistance in disaster situations. Unfortunately, this has not been the case in Thailand. Discrimination against minority groups, specifically Burmese, during disaster response was not surprising given their marginal position pre-tsunami. Thus, in order to decrease minority vulnerability in the future, issues of prejudice and mistreatment in Thai communities must first be recognized and addressed. One of tensions between Thai and Burmese nationals is caused by the large population of illegal Burmese migrants. To decrease disaster vulnerability for minority groups, the local Thai government and aid agencies need to focus on:

- Repairing and reconciling relationships between Thai nationals and Burmese migrants
- Understanding and recording the discriminations faced by Burmese minorities
- Developing a social map which would identify the number and locations of Burmese families and the ages of each family member
- Creating accountability institutions that will guarantee that the rights of Burmese are respected

Tensions between Thai and Burmese are significantly caused by a large illegal migrant population which threatens and irritates Thai nationals. Heavier security along the Thailand/Myanmar border, as well as increased systems of accountability for border control officers could reduce the number of illegal immigrants to Thailand, and could potentially aid in easing tensions between Thais and Burmese.

6.3 Political Philosophy and Vulnerability

To illustrate the influence of political ideology on disaster vulnerability I address three key questions:

i. How has governance in Thailand impacted disaster vulnerability?

ii. Is the political ideology of Thailand compatible with vulnerability reduction?

iii. Is vulnerability reduction (with goals of equity) possible in Thailand?

6.3.1 Governance and Vulnerability in Thailand

Throughout the 1980s and 1990s, Thailand was a sweetheart of neoliberal economists who supported capitalistic development and, until the 1997 financial crisis, was a blot on the arguments of dependency theorists (Unknown, 2001). Thailand's economic agenda has followed state-led development in which the Thai government has 'managed capitalism' allowing limited government involvement in some areas of the economy; decentralizing power to local levels; and by continuing to promote foreign direct investment. Despite this, practical governance in Thailand, especially related to tourism and coastal development, has been laissez-faire with a focus on foreign direct investment, free trade and a commitment to free-market capitalism. Thailand's rapid economic growth has created large disparities in wealth across the country and has resulted in mismanagement: "business has reveled in the atmosphere of free-for-all. The machinery for social protection has proved very pliable. The legal framework is defective. The judiciary suspect. The police are unreliable [and] Efforts to strengthen the social infrastructure have been brushed aside" (Phongpaichit & Baker, 1998, p.322). In fact, Thailand has a Gini coefficient[26] of 3.2 and ranks 82nd out of 124 countries, thereby demonstrating a medium to high social and economic inequality (Wikipedia, 2006c). However, Thailand's economic policies towards tourism have not been radical compared with other tropical countries: "In most cases, governments argue in favor of tourism" (Gossling, 2003, 30). Wisner (2001) believes that some

[26] The Gini coefficient is a standard measure of inequality, but is most often used to measure income inequality. "It is a number between 0 and 1, where 0 corresponds to perfect equality and 1 corresponds to perfect inequality (Wikipedia, 2006a).

of the claims of neoliberal economics are mere propaganda: “neoliberalism the world over shares a faith that opening the country up to business interests, without any regulation geared towards protecting the most vulnerable and ensuring that basic services and access to opportunities are guaranteed to all, will take care of poverty and develop the country” (Wisner, 2001, 258).

Unfortunately, while the invisible hand of the free market has facilitated a thriving tourism industry in Thailand, it has also increased disaster vulnerability for many. Thailand’s excessive focus on a tourism-based economy, particularly at the local levels, has neither been adequately organized nor has it given sufficient attention to environmental management. In fact, one of the biggest setbacks to responsible coastal zone management in Thailand is the lack of government organization. Efficiency and capacity in the areas of law enforcement and policy implementation are particularly impeded by the realities of governmental administration in Thailand: decentralization of power has occurred without the development of adequate lines of communication between levels of government (E. R. Bhatt, 1998). In addition, Thailand’s governments are usually formed by coalition. That is, municipalities are sometimes headed by officials of different political parties, with interests that oppose the national agenda. For this reason, policies are difficult to pass (Tan, 1998). Likewise, decisions at the local level are heavily influenced by the vested interests of local authorities and powerful community members, and since Thai culture has long preferred non-litigious means of settlement “many environmental disputes are settled out-of-court through mediation efforts” (Tan, 1998, 8).

Lack of organization in Thailand’s lower-level echelons of government, paired with lax environmental and coastal zone management initiatives, has influenced disaster vulnerability in a number of important ways:

i. lack of attention to environmental management and heavy tourism marketing pre-tsunami strongly increased environmental degradation *and* disaster vulnerability for coastal communities
ii. heavy reliance on the tourism industry led to an absence of diversification in coastal economies and inhibited resilience post-tsunami
iii. inadequate enforcement of building laws and national park laws enabled rampant development on coastlines and beaches
iv. decentralization of power without transparency or accountability systems enabled aid profiteering, nepotism and backhandedness of authorities
v. lack of control over local officials allowed for the mistreatment of special population groups.

Thailand's coastlines are heavily degraded and under threat. As an industry, tourism has been successful in Thailand, but in some cases, over-development in coastal areas has devastated the environment and has made communities extremely susceptible to disasters. Thailand's commitment to neo-liberal economic policies paired with its weak municipal governments has amplified disaster vulnerability. Capitalism and disaster reduction can only co-exist only if governments play a responsible role in balancing the two. There is a lot of room for increased vulnerability reduction in Thailand, but vulnerability reduction will only be trivial if it is not paired with significant modifications to Thailand's economic strategies and governance patterns.

6.4 Recommendations

The Asian tsunami caused enormous damage to Thailand's natural coastlines and its tourism and fishing industries, and was devastating for families and friends of tsunami victims. However, in brainstorming adequate disaster preparedness strategies and vulnerability reduction

schemes, the Royal Thai government, as well as NGOs and civil society need to be realistic about the real hazard risk for Southern Thailand's coastal communities[27]. Risk Management Solutions (2006) reported that areas experience a high risk of tsunamis if they have a return period of under 500 years and concluded that "the 2004 Indian Ocean Tsunami has a return period longer than 500 years, and there is no prospect of another event of comparable size being generated on this particular section of the plate boundary" (RMS, 2006, 21). Another report, conducted by the Norwegian Geotechnical Institute 2005, has a similar conclusion: the December 24th earthquake "released much of the energy that had accumulated" along the subduction zone and that "it will take at least 300 to 400 years before an event of similar magnitude and consequences will occur again" (CCOP & DMR, 2006, 1). However, the report also indicates that an earthquake of up to a magnitude of 8.5 is possible within the next 50-100 years (CCOP & DMR, 2006). Though such an earthquake would have only a small risk to human life, if a tsunami were to occur during a storm surge or during high tide, inundation levels would be much higher and risk would increase (CCOP & DMR, 2006). Though the societal tsunami risk for Thailand is considered "tolerable" within the next 100-200 years, experts from the Norwegian Geotechnical Institute have made it clear that risk increases as time passes and "the long-term risk is definitely unacceptable" and that "similar events will inevitably happen again" (CCOP & DMR, 2006, 2, 13). The same report emphasizes the importance of developing "lasting long term awareness" of tsunami risk and recommends that "authorities in Thailand already now plan for implementation of some mitigation measures that can reduce the exposure to, and consequences of severe tsunamis to future generations" (CCOP & DMR, 2006, 2).

[27] A study conducted by the Norwegian Geotechnical Institute (2005) defines tsunami risk as "the product of tsunami hazard times its consequence in terms of economic loss and/or loss of human life" (CCOP, 2006).

Table 10: Frequency of Earthquakes and Tsunamis

Geophysical Events Involving Tsunamis in Indian Ocean and Pacific Ocean Basins		
	Indian Ocean Basin	
1881	Earthquake and tsunami	Andaman Sea
1883	Volcanic Eruption and tsunami	Krakatoa, Indonesia
Jan-41	Earthquake and tsunami	Andaman Sea
Nov-45	Earthquake and tsunami	North Arabia Sea
Aug-76	Earthquake and tsunami	Philippines
Aug-77	Earthquake and tsunami	Indonesia
Jul-98	Earthquake and tsunami	Papua, New Guinea
Dec-04	Earthquake and tsunami	Indian Ocean
	Pacific Ocean Basin	
Jun-1896	Earthquake and tsunami	Honshu, Japan
Apr-46	Earthquake and tsunami	Aleutian Islands, Alaska
Nov-52	Earthquake and tsunami	Kamchatka
Mar-57	Earthquake and tsunami	Aleutian Islands
Jul-58	Earthquake and tsunami	Lituya Bay, Alaska
May-60	Earthquake and tsunami	Valdivia, Chile
Mar-64	Earthquake and tsunami	Prince Williams Sound, Alaska
Nov-75	Earthquake and tsunami	Hawaii
Sep-92	Earthquake and tsunami	Nicaragua
Jun-01	Earthquake and tsunami	Arequipa, Peru

The tsunami has revealed that coastal communities in Thailand would benefit tremendously from additional disaster vulnerability reduction efforts, especially those which address all hazards facing coastal communities. Both Khao Lak and Koh Phi Phi need to address issues of environmental management and development as well as social issues of gender and ethnic equality. Despite a relatively low risk of another such tsunami in the Andaman sea, coastal communities in Thailand and around the world are in a precarious position. As the earth continues to warm, the frequency of flooding, hurricanes and tornadoes is increasing and coastal zones are increasingly vulnerable to disaster. It would be irresponsible to for Southern Thailand to ignore these threats, and governments should seek to decrease future disaster vulnerability.

6.4.1 Recommendations for Aid donors

Throughout this study, travelers, family and friends have informally asked about the flow of aid to tsunami-stricken areas and have questioned whether donations from the West have been received by those who need it most. In some instances I have hesitated to be candid in my response. Corruption certainly exists, in Thailand, and elsewhere and often impairs disaster response and redevelopment. In Thailand, some members of society gained wealth as a result of unequal aid distribution, officials especially. This is a legitimate problem which means that charities and NGOs sometimes run the risk of acting as scapegoats for mismanaged governance. When governments mishandle relief aid, organizations are often there to fill in the 'aid gaps.' Some believe that a reduction in 'free' aid would encourage responsible governance. However, in doing so, we would be sacrificing those most vulnerable. Thus, it is important that humanitarian organizations and those who donate to them continue to provide for the most vulnerable, and encourage the public to require more of their governments, but it is also necessary that these organizations make efforts to work with governments in order to increase accountability.

6.4.2 Recommendations for Governments, Decision Makers and Stakeholders

In this study, I believed it was important to seek the advice of those directly affected by the tsunami. A list of recommendations was formulated, based on the input of participants. The most common request made by participants was for a tsunami warning system. Over 55% of participants from Koh Phi Phi and 70% of participants in Khao Lak mentioned the necessity of developing a tsunami warning system, including sirens. Although some sirens had already been constructed, many felt these were not loud enough and were therefore inadequate. Below is a list of recommendations organized by type. Environmental, developmental, economic, cultural, and

disaster relief recommendations are provided here and are supported both by interviewee requests as well as by the opinions of other researchers of the tsunami in Thailand.

Table 11: Recommendations

Environmental Recommendations	
1	**Create a waste management program on Koh Phi Phi Don in which garbage is collected regularly and is not solely the responsibility of individual households and restaurants.**
	*A waste clean up and disposal program (Interview 2e)
2	**Reclaim all national park land on Koh Phi Phi Don with aims for marine park protection.**
Developmental Recommendations	
1	**Establish and enforce building codes with aims of reduced vulnerability**
	*Develop plans and policies in order that building is not crowded (Interview 2q,2s)
	*Establish new building codes and new requirements for land-use planning to reduce tsunami impacts (CCOP & DMR, 2006)
2	**When appropriate, install protective barriers that will reduce tsunami impact in the future**
	*Build an artificial protective dam (Interview 1g, 1l)
	*Construct artificial wall or dike to limit impact (CCOP & DMR, 2006)
3	**Adapt building design and materials to minimize damage and risk during a disaster (i.e. reinforce support beams)**
	*Halt building projects that involved metal roofs as these were a significant cause of injury and death in the tsunami (Interview 2k);
Economic Recommendations	
1	**Establish restrictions on the number of tourists for popular tourist areas**
2	**Encourage economic diversification in Thailand's coastal communities**
Cultural Recommendations	
1	**Increased participation of the Ministry of Social Development and Human Security, specifically the Office of Welfare Promotion, Protection and Empowerment of**

	Vulnerable Groups, with goals of equity for ethnic minority groups
	"Thai people can get a lot of help from the government, but they don't give anything to the Burmese" (Interviewee 1r).
2	**Establishment of a community group willing to collaborate with the National Statistics Office with goals of social mapping: disaster response coordinators need to know who will need special care, and where they are**
	"I want to talk with the Prime Minister and local leader about making a social map" (Interviewee 1g)
	*Inform Burmese people about disaster plans, strategies, and protocol (Interview
Disaster Relief Recommendations	
1	**Develop a tsunami warning system**
	Tsunami warning systems will be important in the longer term perspective, but will contribute to awareness (CCOP & DMR, 2006)
2	**Set up emergency shelters**
	*Construct an emergency shelter (Interview 1f, 1g)
	Create 'safe areas' (artificially elevated) within 500m reach (CCOP & DMR, 2006)
3	**Formulate community evacuation plans with annual emergency drills**
	*Establish evacuation plans (Interviews 2a) *Build wider roads that enable efficient evacuation (Interview1g)
	Establish well marked escape routes (CCOP & DMR, 2006)
4	**Provide disaster counseling and assemble mental health facilities in communities impacted by the tsunami**
	*Increase post-disaster counseling (Interview 1g)

These suggestions have been made based on identified gaps in existing disaster management initiatives and represent the genuine needs of community members in Koh Phi Phi and Khao Lak. The recommendations provided above should act as a starting point for those responsible for developing disaster preparedness and response plans in these areas. The practical implementation of these suggestions would not only decrease disaster vulnerability, but would increase community cohesion and demonstrate to the public that their opinions and concerns are

heard and valuable. In order for these opinions to be heard and for vulnerability reduction to occur in Thailand, a number of political issues need to be addressed:

- Increased communication and accountability systems between levels of government
- Local governments, with assistance from the MONRE, must nurture relationships with civil society in order to convince locals of the benefits of environmental preservation and to dissuade development at any cost
- The Ministry of Industry and specifically the Department of Industrial Promotion should invest in and promote business and industrial diversification in Southern Thailand in order to revive non-tourism bases occupations i.e. fishing, agricultural work
- Commit to forcefully implementing building and national park laws
- Local-level officials must face systems of accountability and transparency

One of the biggest threats to meaningful vulnerability reduction in Thailand is one of economics and appropriate tourism development. Currently, the tourism industry in Koh Phi Phi and Khao Lak provides low-cost travel opportunities for high volumes of tourists. For any significant amount of vulnerability reduction to occur in Thailand, the Thai government *must* be willing to either: enforce restrictions on tourist numbers and accept a decrease in tourism revenue, or; must alter the *type* of tourism development. For example, a switch to small-scale luxury resorts may have the potential to generate the same total revenues. Still, the prospects of this are relatively small since global examples of restricting tourist numbers are few (Huahine and Tuamotu islands) (Brunet, 2001; Gossling, 2003). In Thailand tourism is proving increasingly integral to the Thai economy: The World Travel and Tourism Council (WTTC) "estimates the proportion of tourism to Thailand's GDP will increase from 11.7 percent in 2005

to 12.6 percent in 2014" (FPRI, 2005, 1), and this makes the prospect of controlled tourism even smaller.

6.4.3 Theoretical Recommendations

Though most theorists mention the role of political, economic, social, cultural and environmental processes in influencing vulnerability to disaster, there should be greater attention paid to the fact that these factors are dynamic and relational. Vulnerabilities are always in a state of flux as are the processes that shape them. It is important to understand that the overlap in vulnerability factors increases overall vulnerability, but it is first important to recognize that vulnerability results from a combination of processes. This combination could be understood as follows.

Vulnerability= Political frailty x Economic Insecurity x Social Marginalization x Cultural Practice x Environmental risk x Hazard

The difference in the way academics have written about factors of vulnerability appears to be primarily semantic rather than conceptual. In fact, most existing 'factors' could fit well within the above equation. For example, McEntire's (2001) 'physical' variable, Pelling and Uitto's (2002) 'geographical process' and Cannon's (2000) 'physical fragility' could all be framed within 'environmental risk.' Some theorists have argued that 'vulnerability' has been used in so many contexts and has been so widely theorized that it is at risk of becoming useless (Cannon, 2000). Vulnerabilities literature is dense with types and classifications of vulnerabilities, but the literature lacks consistent terminology and unanimity. There needs to be consensus about the factors that contribute to vulnerability because these shape the more practical 'vulnerability analyses.' If vulnerabilities terminology was more universal in the literature it would increase the clarity of the theoretical discussions around disaster vulnerability

and would be more accessible to disaster management professionals interested in developing vulnerabilities analyses. In order to develop this consensus, vulnerability theorists should: place greater emphasis on including disaster victims in redevelopment initiatives and allowing victims of disaster to explain why they were particularly vulnerable and should develop vulnerability factors based on similar disasters and similar locations (Vatsa & Krimgold, 2000; Wisner, 2005a). Increasing public participation in disaster response would have a number of benefits:

- Collective has the potential to improve local empowerment.[28] Thus, the involvement of people in their own vulnerability reduction has the potential to increase community cohesiveness.
- Participation in community decisions mobilizes people to act on their own behalf (Guijt & Shah, 1998).
- Poor people have valuable capabilities that can positively change their situations (Guijt & Shah, 1998).

[28] See Paulo Frire's (1976) concept of 'conscientization.'

7 CONCLUSION

My research has been rooted in the vulnerability approach to disasters and has focused on understanding the primary causes of vulnerability for the communities of Koh Phi Phi Don and Khao Lak, Thailand. As a starting point for this research, I identified that vulnerabilities are in a constant state of flux and combine with one another in ways that often multiply vulnerability. However, it was my intention to determine the influence of governance on vulnerability factors, in order to determine the ways that public policies and systems of governance enhance or reduce disaster vulnerability.

For disaster mitigation to occur (that is, the responsible combination of disaster preparedness and development), political and social systems that enable economic restructuring must be in place. It is usually not a situation of *whether* these systems are in place, but to what degree they impede or enhance vulnerability. Political and social institutions which have the ability to influence vulnerability exist on a 'continuum of adequacy', with some severely impeding vulnerability reduction, and some increasing disaster resilience.

In agreement with a number of disaster theorists (Cannon, 2000; Maskrey, 1989; Wisner, 2001; Yodmani, 2001) my research has led to a general conclusion that capitalistic styles of development have the potential to enhance disaster vulnerability. However, I am unconvinced that these two are absolutely relational i.e. *if capitalism then vulnerability.* Disaster vulnerability has also been high in socialist societies which embrace closed market economic strategies. To answer one of my research questions: is vulnerability reduction possible in a capitalistic state? I suggest that it is possible, but meaningful vulnerability reduction depends significantly on governance. McEntire (2001) is quite right when he calls for a disaster management scheme that addresses all agents (including the public) however, the most effective approach would start with

governance and would incorporate bi-lateral agencies, NGOs and civil society. Any meaningful vulnerability reduction requires transparent, accountable political institutions which give as much attention to environmental management and social welfare as economic advancement.

Though numerous vulnerability reduction strategies exist, none explicitly attempt to incorporate vulnerability reduction *and* capitalism. Arguably, one of the most promising approaches, 'invulnerable development', seeks to "promote social, political and economic advances and minimize the possibility that such progress may be nullified by disaster" (David A. McEntire, 2001, 194). The reality is that, despite environmental or social insecurity, free market economics is the darling of governments, corporations and even small businesses. On Phi Phi Island, it is the locals, not the corporations, who are protesting against land reform and environmental laws. Even if the Thai government was committed to vulnerability reduction and environmental management they would receive little support from small communities *unless* they offered strategies that would combine vulnerability reduction *with* economic growth.

7.1 Implications

The findings of this research are generally consistent with disaster literature of the past. In fact, many have argued for development that incorporates disaster preparedness; academic literature is full of examples of the negative impacts of tourism on coastal environments, including enhanced vulnerability to disasters (Gossling, 2003; Wilson, 1996); and many theorists contend that capitalistic styles of development have increased disaster vulnerability (Wisner, 2003). The case studies in Khao Lak and Thailand *have* demonstrated that although unregulated capitalism does enhance disaster vulnerability, many (including local citizens and higher echelons of government) are unwilling to modify development even following recent and devastating disasters which were in part enhanced by past development patterns. Disaster

management strategies, with aims of environmental preservation and vulnerability reduction, will work best with the support of civil society, economists and politicians, and in many cases this will only happen if vulnerability reduction strategies go hand in hand with capitalism.

The practical implications of vulnerability reduction through capitalistic development would mean that disaster relief and reconstruction agencies should also aim to reduce vulnerabilities through economic re-development. The time immediately following a disaster is critical: decisions are made that affect a community's economy, vulnerability and relationship to the environment for years. Redevelopment and economic planning during that time often determines whether communities follow old methods of development or reinvent their economies. Post-disaster, one important need is the presence of economists with the ability to work with environmental coordinators, land-use planners, politicians and locals in order to reinvent economies by identifying (in the case of coastal Thailand): the demand for tourism; the labour market; and the capacities for all economically viable livelihoods.

Theoretically, there is a need to develop a post-disaster approach to redevelopment that would illustrate the steps community leaders should take, the people who should be sought for advice (i.e. economists, environmental planners, policy-makers), and the issues that should be addressed before redevelopment begins. Though it seems clear that disaster-stricken communities should strive for vulnerability reduction with economic progress, it is difficult to know what this would look like. Eco-tourism ventures are often thought a positive example, but the logistics of enforcing eco-tourism may be problematic. As tourism continues as a primary industry for tropical coastal communities, there is a growing need to identify solutions to the impacts of tourism, on the environment and on disaster vulnerability.

Explorations of gendered and ethnic differences of how people experience, understand and respond to disaster would be useful to identifying and formulating response plans. Practically this might involve vulnerability analyses focused specifically on ethnic minorities and women, and identification of disaster coping strategies and response plans that are helpful to each.

7.2 Future Research

Finally, the relationship between governance and disaster vulnerability requires more research. Specifically, future academics interested in taking a vulnerability perspective in regard to disaster management could increase the validity of a governance-based approach by pursuing vulnerability analyses from a political economy or political ecology perspective. Needed are practical examples of the ways in which governance has influence vulnerability in both developed and non-developed nations.

8 Key Informant Reference List

Interviewee 1a. 2006. Receptionist, Khao Lak town. September 26.

Interviewee 1b. Cook, Ba Nam Kem. September 26

Interviewee 1c. Dim Sum restaurant operator, Ba Nam Kem. September 26.

Interviewee 1d. Restaurant operator, Bang Niang. September 27.

Interviewee 1e. Launderer, Ba Nam Kem. September 27.

Interviewee 1f. Restaurant owner, Ba Nam Kem. September 28.

Interviewee 1g. Restaurant owner, Ba Nam Kem. September 28.

Interviewee 1h. Bakery owner, Ba Nam Kem. September 28.

Interviewee 1i. Architect, Khao Lak town. September 29.

Interviewee 1j. Receptionist, Bang Niang. September 29.

Interviewee 1k. Sales manager in a diving shop, Khao Lak town. September 30.

Interviewee 1l. Tailor, Ba Nam Kem. October 4.

Interviewee 1m. Restaurant owner, Bang Niang. October 5.

Interviewee 1n. Bakery/restaurant owner, Bang Niang. October 5.

Interviewee 1o. Fisher. Ba Nam Kem. October 6.

Interviewee 1p. Labourer, Ba Nam Kem. October 10.

Interviewee 1q. Hotel manager, Bang Niang. October 10.

Interviewee 1r. Labourer in noodle factory, Ba Nam Kem. October 11.

Interviewee 1s. Female head of household, Ba Nam Kem. October 11.

Interviewee 1t. Shrimp farm laborer, Ba Nam Kem. October 6.

Interviewee 2a. Guesthouse owner, Koh Phi Phi Don. October 16.

Interviewee 2b. Masseuse, Koh Phi Phi Don. October 17.

Interviewee 2d. Owner of: guesthouse; tourism office; accounting office; beauty parlor; restaurant and mini-mart, Koh Phi Phi Don. October 17.

Interviewee 2e. Maid, Koh Phi Phi Don. October 18.

Interviewee 2f. Bungalow and restaurant owner, Koh Phi Phi Don. October 18.

Interviewee 2g. Tour shop employee, Koh Phi Phi Don. October 18.

Interviewee 2h. Speed boat driver, Koh Phi Phi Don. October 19.

Interviewee 2i. Restaurant maintenance, Koh Phi Phi Don. October 19.

Interviewee 2j. Restaurant worker, Koh Phi Phi Don. October 20.

Interviewee 2k. Mountain climbing tour leader, Koh Phi Phi Don. October 20.

Interviewee 2l. Coconut tree cutter, Koh Phi Phi Don. October 21.

Interviewee 2m. Tourist information worker, Koh Phi Phi Don. October 21.

Interviewee 2n. Diving Instructor, Koh Phi Phi Don. October 23.

Interviewee 2o. Restaurant owner, Koh Phi Phi Don. October 24.

Interviewee 2p. Guesthouse manager, Koh Phi Phi Don. October 25.

Interviewee 2q. Launderer, Koh Phi Phi Don. October 25.

Interviewee 2r. Retail worker, Koh Phi Phi Don. October 26.

Key Informant Interview #1. Senior staff manager. Interview at Habitat for Humanity, Khao Lak. October 13, 2005.

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