WOMEN, ECOLOGY, DISASTER MANAGEMENT, AND RECOVERY

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FOREWORD

My engagement with issues of the environment and culture dates back to 1993, while working with women farmers in Ile-Ife, Osun State, Nigeria. This experience and others involving working with women farmer groups made me realize that the deprivation and low social capital gains of most women farmers lie between culture and the environment. Therefore, for my MES program, I decided to undertake an in-depth understanding of the influence of culture and environment on women.

When I registered for this course of study, I understood from the gender courses I took that the culture of deprivation of women resulting from lack of access to capital and environmental resources is a global norm rooted in several cultures through value-hierarchical androcentric views. In order to unravel this problem, I took a course titled Gender and Development" which sparked my interest in disaster research. Similarly, the "Gender and Climate Change" course made me understand that the issue of oppression and deprivation of women stemmed from dualism and domination of women and the ecosystem by androcentric males. Similarly, the value-belief-norm of domination and devaluation of women and ecosystems have been rooted in the disaster management culture, and this has further worsened women's vulnerability.

My advisor and supervisor, Dr. Felipe Montoya, also felt that the impacts of climate change on women are heightened in disaster situations, and there is a need to identify the issue that predisposes women to risk in order to reduce their vulnerability. Therefore, in this paper based on secondary data from New Orleans, U.S.A, Southern Thailand and Turkana,

Kenya, I decided to look at issues predisposing and aggravating women's vulnerabilities in a disaster situation. Since women's vulnerabilities cannot be tackled without ecosystem considerations, I decided to look at ecosystem restoration strategies in post disaster recovery.

I discovered that the culture contributes to post-disaster vulnerabilities. For instance, In New Orleans, a community with disaster culture, some people believed they knew how to survive during a hurricane, and this predisposed them to risk (Bourne, 2014). Also, in Southern Thailand the community has a tradition of paying low wages to women. This predisposes women to poverty and aggravates their vulnerability to disaster. Due to their low incomes, these women may not be able to afford the cost of reconstruction, according to the new building code (Stover & Curshi, 2005).

Similarly, culture can contribute to resilience reduction or enhancement. The strategy in New Orleans of using only engineering resilience aggravates the impact of hurricanes on victims, but the government of the capitalist culture prefers this unsustainable way of controlling flooding (Appel, 2007: Bourne, 2014). In contrast, the Turkanas in Kenya have developed a strategy of moving people and livestock, destocking and sending their households to live temporarily with relatives to reduce drought risk (Kandji, 2006; UNDP, 2014).

Based on this study I have ascertained that we need to change some cultures that increase vulnerability to natural hazard risks. Women's needs should be integrated in disaster policy and implementation by disaster managers because the current policies are skewed. Also, sustainable ecosystem restoration is paramount to achieving equity and ecological justice in disaster management and recovery.

ABSTRACT

Disasters are happening at an alarming rate, and in disaster risk reduction and recovery women and ecological systems are neglected. I contend that the value-hierarchical androcentric thinking entrenched in the value-belief-norm culture of communities is responsible for the oppression, denigration and devaluation of women and for putting women and the environment at risk. I advance that disaster management and recovery strategies should be inclusive of differential vulnerabilities of survivors and the ecosystem to ensure social and ecological justice. I argue that although post-disaster needs assessments were carried out after the 2004 tsunami and the 2009 Kenya drought, the report of findings is not integrated into decision-making for disaster management. Considering the reactionary disaster management and recovery strategies during hurricane Katrina in New Orleans, the tsunami in Thailand and drought in Kenya: I argue that disaster managers' continued implementation of androcentric stereotyped disaster responses and recovery plans predisposes all living things to future disaster. Knowing that locational vulnerability and human development activities predisposed the ecosystem to risk and increased the vulnerabilities of the women in the three disaster areas, then women's vulnerability lies at the intersection of gender, race, ethnicity, class, poverty and degraded ecosystem. However, some pre-existing cultures of these communities influenced resilience building in the three study areas. I also proposed that to achieve community resilience, post-disaster ecosystem resilience should be combined with engineering resilience. Furthermore, I advance that gender should be considered in determining access to resources in post-disaster management in order to ensure equity,

social justice and efficient recovery. I reason that the continuation of the existing disaster culture for management of disaster risk reduction and recovery suggest that the hegemony wants to use the disaster as a displacement strategy in order to access the resources of ungoverned spaces.

CHAPTER 1: INTRODUCTION

Disasters are the result of disruptions caused by hazardous agents on the social life and culture of communities (Oliver-Smith, 2002:45). Disasters are complex and multi-dimensional and the recovery processes vary in duration. However, many communities view disasters as an event, and their responses immediately after tend to be spontaneous, the disaster being a process, the rehabilitation and recovery are too often neglected. The disaster management has been divided into two: a) disaster risk reduction, which takes care of the immediate response; and b) disaster reconstruction and recovery. Therefore, attention, policy design, and implementation are important for both aspects of disaster management.

Disaster occurrence has reached an alarming rate. The December 2004 tsunami affected twelve countries within thirteen hours, causing major loss of life (about 300,000) and devastating effects on the ecosystem. Likewise, hurricane Katrina hit New Orleans on August 29, 2005, killing 853 and destroying 320 million trees. The recurrent droughts from 1999-2014 in Kenya have turned the country into a food -deficient nation. (IAP reports, 2009: V; IWPR, 2010:1; Kunwshit &Entire, 20; Philips *et al*, 2010: 5; Seager, 2009: 7)

The rate of occurrence of disasters is unpredictable and most often the impacts on life forms are disproportionate. Although disaster warning centers have recently been used to predict hazardous events a few days in advance, the policy and disaster managers

have not effectively utilized the warning system to enhance community resilience and reduce vulnerability (Fisher, 2008: XI;: Feund, 2008; Srinivas, 2009; Teeling, 2006).

For instance, in 2006, the drought warning center predicted drought in Kenya, but the government did not heed the warning until 2.3 million people were in need of food (Kandji, 2006). This leaves communities prone to disaster and having disaster culture, which make them more vulnerable because past disaster risk reduction, reconstruction and recovery were inadequate (Enarson, 2010; Hannigan & Kueneman, 1978: 130-131).

The reason for this may be attributed to hegemony and the use of policies shaped only by androcentric male views, hence making the disaster risk reduction and recovery efforts ineffective. (Enarson, 2012, Gottlieb, 1997: XX). The disaster management and recovery culture did not take into consideration differential risks and vulnerabilities, a perspective that is necessary for the policies to be effective, inclusive and devoid of inequities. (Eklund &Tieller, 2012: 590; Fisher, 2010:902; Gottlieb, 1997: XX; F).

I want to advance the idea that gender should be taken into account when deciding on access to resources in disaster preparedness, risk reduction and recovery, because the present system is skewed to the disadvantage of women. Even some men who are economically disadvantaged, disabled and facing discrimination (racial, class or ethnicity) experienced same aggravated vulnerability similar to women's experience. Asking the right questions about who is at risk, what makes people vulnerable and how survivors can recover is critical to effective rehabilitation and recovery of survivors. When disasters happen in a community, the social, material and non-material cultures are destroyed, and therefore disaster planners should consider pre-existing vulnerabilities and inequalities. The vulnerabilities affecting victims before a disaster are usually at the

intersection of race, class, gender, ethnicity, politics and poverty; these are often reinforced during and after a disaster (Fisher 111, 2008: 3; Fisher, 2010:905; IWPA 2010:2). Before appropriate recovery from a disaster can be achieved, the disaster manager needs to clarify these and other developing issues.

Currently, many disaster management efforts are focused on humans. I want to advance the notion that ecological consideration and ecological justice should be under consideration in planning, policy making and implementation in disaster management. Humans depend on the ecosystem for survival and disaster affects the whole ecosystem. If disaster agents degrade the ecosystem without effective restoration, this will increase the risk of future disasters. (Fisher 111, 2008:12, Curry, 2011:57; Merchant, 1981:17).

Disasters can be examined as social and cultural phenomena because they happen in communities (Wenger, 1977:18; Fisher 111:3). The action or inaction of individuals and the social integration of the communities influences disaster management and determine the recovery and resilience of the community. (Wenger, 1977: 3, 35; IWPA, 2006:1) Communities are problem-solving entities, by virtue of numerous inherent structures: culture (values, beliefs and norms), social organization (internal and external ties) and power structures. However, these are disrupted by a disaster and therefore the community's adaptive capacity post-disaster depends on the scope and magnitude of risk, the degree of system integration, prior disaster experience and crisis management capacity (Hannigan & Kueneman, 1977:131; Wenger, 1977, 35 Fisher 111, 2008:17). Vulnerabilities are mostly the result of social and economic inequities (Hoffman and Smith, 2002:61). Therefore, disaster management should involve

prevention and management of risk, vulnerability, adaptive capacity or resilience building and recovery through effective mitigation of risk.

The economic system of a given society-- whether capitalist, socialist or mixed economy-- will determine its vulnerability or resilience in the face of disasters. Material and nonmaterial culture are derivatives of cultural principles involving values, beliefs and norms in communities, and sometimes they are determinant factors of vulnerability or resilience (Fisher 111, 2008:19, Wenger, 1977: 19). For instance, America's free market, capitalist economic system determines the ways disaster are managed in poverty ridden states (Fisher 111, 2008:19; Wenger, 1977: 19). The statement by Barbara Bush, mother of former U.S. president George Bush, post hurricane Katrina confirms this. She said, "And so many people in the Arena here, you know, were under-privileged anyway, so this is working very well for them" (Jasanoff, 2010:26). This comment reflects the systemic pre-existing culture of racial discrimination and gentrification in the US.

Ms. Rose Johnson's remarks also confirm the widespread racial discrimination in U.S.A She said no one wanted the land in New Orleans, so the black people settled there. Despite this fact, white people still make derogatory comments against blacks: "We didn't have to worry about white people driving by and yelling, "Niggers go home!" and throwing stuff at us," (Johnson quoted in White, 2012:162).

Likewise, the culture of denigration by hegemony, androcentric males of whatever they did not value influenced the treatment given to mother earth and women. The ecosystem habitually referred to as "mother earth" did not escape the domineering hegemonic destructive probe in the name of civilization and development.

Visions of unlimited growth and globalization of trade have resulted in considerable damage to the ecosystem (Merchant, 1981: Garb, 1990: 265.). Man-made

problems of the last centuries have destroyed our landscapes and coastal regions through engineering, construction and development. The ideology of denigration, devaluation and androcentric views persist in disaster management and recovery. (Appel, 2005:2, Merchant, 1981:13)

In the 17th and 18th centuries, hegemonic scientific technology reduced the earth to being an object to be devalued and denigrated (Merchant, 1981:18). Nature and the earth were regarded in much the same way as a woman, "who needs to be subdued and controlled, a woman [is] thought to be irrational, emotional and of little or no value, needed to satisfy pleasure and curiosity of men" (Merchant, 1981:18). Scientific and technological knowledge were used to build heavy machineries, industries and artificial cities. Even visits were undertaken to space to subdue the earth in the name of development (Garb, 1990; 265 Merchant, 1981:15).

All this was done in order to conquer the earth--industrialization, global free trade and economic development, turning the earth into an economic entity. The earth was no longer valued for its natural capacity and the notion of sustainable development considered anathema (Merchant, 1981:15; Garb, 1990:265). All this industrial activity has culminated in global warming, with the wrath of mother earth unleashed against human activities in the form of increased catastrophic events.(Garb, 1990: 271; Guillot, 2006:1; Enarson and David, 2012: 4; Merchant, 1981: 14). The beginning of this development can be traced to the 17th and 18th centuries and the advent of the industrial revolution. In this century, global warming appears to be reaching its apotheosis and endeavoring to undo much of what humans have accomplished. The end result may well be chaos on a grand scale (Merchant, 1981:14; Day, 2006 cited by Guillot, 2006).

Ethically and ecologically humans needs the ecosystem more than the ecosystem needs us. Yet our continuous destruction of nature results in an increased occurrence of hazards, effects and destruction of what remains of the ecosystem (Keller, 2010: 152; Curry 2010). An example of this would be the polluted salt water termed "toxic stew", after hurricane Katrina caused the wilting of the trees along the coastline of New Orleans (Guillot: 2006:1). This means the destruction of the remaining trees that would prevent recurrence or reduce the surge and wind speed during future disasters. Such destruction of the ecosystem hinders resilience and makes the system more vulnerable to future disaster (Day, 2006 cited by Guillot, 2006:1).

Some disaster managers are skeptical of ecosystem recovery; they believe scarce resources should be for rehabilitation of humans and engineering resilience. There is a contested notion among disaster managers that the devastation caused by a natural disaster was due to an engineering failure, and engineering technologies should solve the problem (Young, 2005 quoted by Appel, 2005:2).

In the same vein of devaluation and denigration of women, in 1953 the U.S national weather service adopted the custom of naming hurricanes after women with the idea that women are capricious and stormy. This thinking makes disaster a gender issue. Mild disasters were given masculine names starting in 1979, but the catastrophic disasters are named after women. The reason is that women are equated with destructive and irrational forces that must be subdued by men (Macomber *et. al.*, 2011:526). The culture of naming catastrophic disasters after women stemmed from the gendering of material and non-material culture. This normative identity of men and women has been working through the hands of dominant androcentric males (Macomber, *et. al.*, 2011:527). This misogyny is evident in a post-Katrina T-shirt produced with an

androcentric view of devaluation of women and their emotions: ‘‘I Got Blown, Pissed On, and Fucked by Katrina. What a Whore.’’(Macomber *et. al*., 2011:530). The destructive disaster was named after a woman, and the character was defiled based on an androcentric construction.

I want to advance the idea that to continue to control nature through technology will only lead to more devastating disasters; instead, consideration for the ecosystem and sustainable ecological management should be paramount in disaster management and recovery. Thus far, the culture of denigration and devaluation of women and the environment has featured prominently in disaster management and recovery efforts (Fisher, 2010: 903). Scholars have discovered that the systemic preexisting vulnerabilities exacerbate the vulnerability to risk and recovery in disaster situation (O’Brien, 2005: 170; Phillips *et al.*, 2012:5). For instance, Ikedia (2005 cited by Fisher, 2009) reported that in the past women were often not considered during rescue operations, but left to their fate. This attitude is perpetuated in current policies on disaster management and recovery that are non-inclusive of women (Fisher, 2009).

The policies of government and humanitarian organizations follow the pattern suggested by Canadian Samuel Henry. He proposed that everyone should be treated equally, but in a disaster, the effect is disproportionate (Enarson, 2012:71). Therefore, the adoption of this notion in disaster management reinforced the pre-existing culturally-constructed vulnerability of women. In some cultures, women are denigrated during a disaster; they face gender violence, rape, loss of property rights and non-recognition of female-headed households in relief distribution. Some women lose their husbands in disasters, and the woman’s in-laws do not take adequate care of the now single woman. Some female-headed households are left out of the relief package; even the relief grants

are taken from them by men (Enarson, 2012:73; Phillips *et. al*. 2010:3; Saroor, 2010:57). The unequal gendered power relations and policies subject women to further dominance and control by privileged males (Enarson, 2010,127; Wahlstrom, 2012:77). The dubious policy with regard to shelters predisposes women to further risk by mixing men and women, thereby subjecting women to great danger by increasing their vulnerability to gender-based violence, coupled with the lack of reproductive health facilities in most shelters (Saroor, 2010; 57).

Women's exposure to risk and vulnerability during a disaster is increased due to their social and cultural roles, and their vulnerability increase with their location at the time of disaster. In many cultures, men are more educated than women. Therefore, the men are privy to more information than women, which may give them an advantage in the event of impending danger (Khunwishit & McEntire, 2013; Steckley, 2006:60). The women are also constrained by their social status through marriage or religion in terms of their mode of dressing; even some jobs require that women dress differently from men, like wearing high-heeled shoes and tight skirts. These modes of dressing reduce women's mobility during disaster and increase their vulnerability. Some cultures do not permit women to swim because of privacy issues, thus increasing their chances of drowning (Saroor, 2010: 57; Steckley, 2006:60). Also, women are responsible for the care of their family, including children, elderly, disabled, and these unpaid socio-cultural responsibilities put women at great risk during a disaster (Enarson & David, 2012; XIX; IFRC, 2012; Eklund and Tellier, 2012, 589).

Contrary to the prevailing notion that women are irrational, I want to argue that women, as half the population of the world, are agents of change. By and large, women are sensitive, proactive and balanced in decision making (Macaulay, 2011; Nelson,

2012). Even though it is men who caused the destruction and devaluation of the earth, women use their intuition and caretaking instincts to take a much more considered approach.

Despite the lack of consideration given to women on issues that concern them, women still strive, where men have failed, to contribute positively to building resilience, socially, economically and culturally ((Warren, 2010:282). For instance, some women in New Orleans organized themselves into a group named Women of the storm and used their tradition of mourning to assist in the recovery. They used blue strap umbrellas as locational display mechanisms to appeal to the powers in Washington, a tradition that originated in West Africa,. (David, 2010: 259). Due at least in part to these efforts, President Bush in June, 2006 signed 194.5 billion dollars in emergency funds, 4.2 billion for housing recovery funds and 3.7 for leaves upgrades. Following the persistence of Women of the Storm and their display strategy, President Bush signed over a share of oil and gas royalties to; be held in a trust fund for enhanced flood control, hurricane protection and coastal wetland protection (Deslatte, 2006 cited by David, 2008:156). These women utilize "[the] politics of mobility and access; they mobilize economic, culture, politics, and social opportunities to move across geographical scales and influence power by reviving memories of New Orleans" (David, 2008:154)

I want to advance the notion that it is vitally important that women's needs and sustainable ecological restoration strategies are integrated into the policies of disaster management and recovery. They will result in social justice for women and ecological justice for nature. It is necessary to ensure the balancing of the ecosystem and ecological dynamics through proactive strategies of ecological restoration so that society too will be made more sustainable.

This paper focuses on the most vulnerable and crucial aspects of effective disaster management and recovery, the women and ecological system. It is based on secondary data investigation of the strengths and weaknesses of disaster management and recovery strategies in three countries in the global North and South, with a focus on women and the ecosystem. My intention in writing this is to promote equity, ecological justice and inclusiveness for all affected. The long term goal is to ensure women's needs are met by taking into account their vulnerability when considering post disaster recovery.

Although this paper attempts to look into the concepts of vulnerability and resilience, attention will be focused on social and cultural factors related to location as it affects women and the ecosystem in disaster management. I want to argue that women as agents of social change and custodians of culture can positively enhance resilience and recovery. This is impossible with the current devaluation of women and unsustainable androcentric management of ecosystems. I contend that ethical and ecological consideration towards good management of the ecosystem is the change we need to reduce disaster risk and ensure adequate recovery

CHAPTER 2: THEORETICAL FRAMEWORK

Disaster is a catastrophic event or stressor that disrupts human social life and culture. The disaster's impact is multidimensional because it affects all life forms in the ecosystem. It negatively impacts the ecosystem's dynamic stability of growth and a community's adaptive capacity, increasing its vulnerability and reducing resilience. (Barrios, 2014; Wenger, 1977:27).

Vulnerability

The understanding of differential vulnerability of a community to risk is imperative in disaster management and recovery and it will enable disaster managers to develop effective strategies that enhance the community's adaptive capacity and ensure better recovery. (Enarson, 2012:53). Vulnerabilities are assessed through the degree of exposure or sensitivity to risk, which varies among individuals. (O'Brien, 2007:74).

A community's vulnerability to risk can be inherent--locational, structural or situational--and these pre-existing vulnerabilities are usually worsened by disaster. For example, communities situated along the coast, or riparian areas and arid areas experience locational vulnerability because the negative impact of natural hazards is made worse by their location. Situational vulnerability involves the system of governance in a community. As a result of inappropriate policies, regulations, and laws, vulnerabilities to risk during a disaster are increased (Hoffman and Smith, 2002:13, 60). Structural vulnerability occurs when a climate of inequality and discrimination is created, whether by the political system and its policies or economic conditions, making some members of the community more susceptible to the negative impacts of natural hazard

(Steckley, 2011:476). For example, the Turkana district in Kenya suffered locations and structural vulnerabilities because it was situated in an arid area that was under land lock for 40 years for resisting British colonialism (Anonymous).

Situational vulnerabilities can be natural or incidental, predisposing individuals to vulnerability due to their particular circumstances. This occurred in New Orleans when those who were economically deprived--single parents, the elderly, the disabled-- were not able to evacuate before the hurricane (Enarson, 2012; Phillips *et. al.*, 2012: 5).

However, the vulnerability does not always happen in isolation, but rather at the intersection of politics, economics, gender and ecology, which feature in communities as race, class, poverty, gender, and political differences. Social behaviors and norms that can involve caste, religion or marginalization of a sect or ethnicity can also contribute to vulnerability (Enarson, 2012:55; O'Brien, 2007:74; Steckley, 2011:465-467). The multifaceted nature of vulnerability makes it pertinent for disaster managers have a full understanding when making decisions, so as to effect a positive outcome (Enarson, 2012: 42; Steckley, 2011:465-467; der Moral & Walker, 2007).

In essence, "vulnerability is a unique currency," in disaster management that " precedes disaster, contributes to the severity of impacts of disaster on humans and non-humans and impedes effective response." It means that if vulnerability does not inform decision-making in risk reduction and reconstruction , then long term recovery will not happen. It is also pertinent to involve communities that may have unique perspectives on strategies to reduce vulnerability ((Hoffman and Smith, 2002:59; Quantelli, 1979:4).

Appropriate framing of vulnerability can be useful in assisting disaster survivors. O'Brien (*et al..,* 2007:75-76) suggests that vulnerability framing should be conceived as outcome vulnerability and contextual vulnerability. Outcome vulnerability

has a scientific basis, while the context has to do with human security. Framing dictates the questions asked and the output, outcome vulnerability asks what happened, and contextual vulnerability asks why it happened. The result from the outcome vulnerability framing solves the immediate problems through scientific or engineering technology, while contextual questions address the immediate and future problems using a holistic community evaluation approach (O'Brien, 2007:80, 83). O'Brien states further that contextual vulnerability considers social factors inherent in communities that predispose them to risk. Outcome vulnerabilities look at linear relationships; such as the contribution of humans to man-made disaster. Contextual vulnerabilities also looks into the multi-dimensional aspects of vulnerability, on a local and global scale (O'Brien, 2007:79).

Women and Vulnerabilities

Women are more vulnerable to the impacts of disaster due to their social, cultural, religious and economic responsibilities in their communities (Saroor, 2010:1). However, disaster managers often report that it is difficult to obtain gender disaggregated data in a disaster situation. However the absence of this data makes women's recover from the negative impacts of disaster difficult. For example, the report from the 2004 tsunami stated that many more women died than men, but there were no data to support this assertion (Elkund & Stellier, 2012: 594,597; WHO, 2005:1). As a rule, this information is not considered necessary in shaping policies for disaster management, a situation which encourages neglect and insensitivity to gender issues (Enarson, 2012:37). Predictably, this persistent neglect has resulted in the failure of past disaster management efforts to impact women positively. Disaster managers' gender blind programs during

disaster preparedness, risk reduction, disaster rehabilitation, reconstruction and in government policies have impacted women negatively (Enarson, 2012; 47 & Ross, 2012:7). Women are hardly included in the planning, so little attention has been paid to their physical health, and reproductive needs in relief camps, which reinforces their vulnerability (Duncan, 2007: 1-3).

Clearly the acknowledgement of women's particular circumstances as well as their involvement in disaster and rebuilding is of paramount importance (Enarson, 2012: 115). The issue of non-representation and lack of recognition affects the citizenship. In many communities the cultural norms mitigate against this.. Women's voices are silenced, they are unrepresented, this ideology persisted into disaster management and affects their treatment in the aftermath of a disaster (Enarson, 2012; Fraser, 2010). Gender blind policies further entrench the patriarchy, male privilege, social inequities, unequal power relations and limited access to resources for women. Gender and gender mainstreaming concepts are regarded as unnecessary by disaster managers and governments. The perception of emergency workers is, "'it is not my job–my job is to save lives, regardless of gender sex"', or, "we cannot change gender relations without changing the underlying culture–that is for development workers to do."'(Eklund & Steilier, 2012:590). So feminists are frustrated in their attempts to identify issues pertinent to women's vulnerability (Eklund & Steilier, 2012:590). The perception of emergency workers is, "It is not my job–my job is to save lives, regardless of gender, or, "We cannot change gender relations without changing the underlying culture–that is for development workers to do.'(Eklund & Steilier, 2012:590).

Currently, gender is not regarded as relevant to disaster management, but collecting data on gender issues during a disaster will help to identify the most vulnerable. For instance, Steckley (2011) post the Thailand tsunami in 2004, reported that women were affected in southern Thailand because the majority of workers in the tourism industry are women and therefore their vocations predisposed them to greater risk. Also, because of their roles as caretakers, some women lost their lives trying to save family members.

Given the attitudes of disaster managers and governments, women's vulnerabilities can be viewed as structural or situational, meaning that they are inherent in the system (Enarson, 201: l43). These vulnerabilities are systemic and pre-existing, integrated in social and cultural life. For instance, the social construction that woman are caretakers of the household and family and that their work is unpaid could prevent them from escaping quickly during a disaster (Eklund &Steillier, 2012: 589). In reality, gender is one of the root causes of social and cultural inequalities and differences that results in the disproportionate experiences of men and women (Enarson, 2012: 29).

The gender neutral ideology proposed by Samuel Henry (Enarson, 2012: 71) that has been used in disaster management is not inclusive of the unique characteristics of communities and individuals. The impact of a disaster is gendered as a result of the different social and cultural roles of men and women. The ideology reinforces these unequal gender relations and the different impacts of a disaster. Women's situational vulnerabilities--widowhood, disability, single parenthood, income, race--are not considered in disaster management. For example, a disabled woman named Buccola went through hardship rebuilding her home post-Katrina and the house were not built with disabled access. In her words, "I've had trouble with my life ever since I've moved into this house. I have gotten stuck in it for anywhere from fifteen minutes to

five and nobody could get me out. I'd have to wait for somebody to rescue me. I've been begging for a ramp." (Davis& Rouba, 2012: 78)

If proper needs assessment that accounted for her gender and situational vulnerabilities had been carried out this issue would have been averted. Additionally, women's vulnerability increases in a disaster situation when they are the temporary heads of the household due to men leaving in search of jobs, etc. and they must take on additional responsibilities (Reid, 2012:105; UNDP, 2014).

Feminist disaster researchers have shown that there is increased violence against women during relief in the post disaster period. Whether a man had been already violent against his wife, the stress of coping with a disaster can increase the likelihood that he will be. (Phillips, 2012; Saroor, 2010: 57). The lack of safety and security, the economic hardship, the potential loss of shelter and livelihood creates enormous stress and trauma for the individual. The social dislocation and lack of a community support contributes to conflicts and increases women's vulnerability (Robichaux, 2012:44). Women tend to cope by sharing with other women or by expressing their fears and sadness through crying, for instance.. Men, however, tend to repress their emotions, which can lead tot gender-based violence (Brown, 2012: 1850).

The gender blind shelter design--overcrowded temporary accommodation--predisposes women for sexual exploitation and prostitution. Even the security operative (security agents, police, military) responsible for women's protection harass them sexually. Gender based violence data increased immediately after hurricane Katrina, as did the protective orders:

> "Protective orders of 5,865 were given from New Orleans parish in 2004 and in 2006-2007 New Orleans had 3,611 domestic abuse protection orders issued by criminal, civil and juvenile courts" (IWPR, 2010,1:5; IWPR, 2010, 2:2).

These offenses were encouraged by poorly designed humanitarian intervention that housed both genders and often abusers with victims. In order to prevent gender-based violence, disaster managers need to apply the ideology of gender mainstreaming. They also need to ask the right questions in order to identify gendered differential vulnerabilities. Who is vulnerable? What is the cause? And how is the issue resolved?

Another issue that increases women's vulnerability in disaster is inadequate health services or a male family member not a woman to seek medical help (Duncan, 2007:2). The issue is borne out of a pre-existing problem with women's citizenship. The disaster managers need to ensure that a woman's right of citizenship is accorded her. This can be accomplished through a stratified needs assessment and by having women on staff (Enarson, 2010). This will remove gender bias and ensure equitable monitoring of relief and recovery programs. The issue of economics--women lacking land rights and access to credit facilities-- is also critical in the post-disaster recovery stage.

Gender vulnerabilities stem from pre-existing political, cultural, social and economic conditions, which was exacerbated by the disaster. Therefore, assessment of women's vulnerabilities in disaster situations will be a proactive initiative, so that a gender ideology and material resources can be enlisted to shape disaster relief efforts and recovery actions. This begins with balancing the gender power structure and utilizing it to, "preserve, protect, change, construct, rehabilitate and restore the environment and regulate the actions of others." (Rochealeau *et. al*. 1996, 10 cited by Enarson, 2012: 37)

Ecology and Vulnerability

Disaster causes disturbance to the ecosystem; disturbance is a relatively discrete event in time and space that alters community, demographics and the ecosystem (der Moral and Walker, 2010: 17). This means a disaster affects the whole ecosystem, and efforts should be directed at ecosystem recovery. Disasters are disturbances that can be classified in terms of frequency, size and severity (Fischer111, 2008, 12). For instance, the severity of hurricane Katrina was extreme and the impact on the ecosystem equally so, uprooting about 320 million trees in New Orleans. The trees need to be replanted in order to mitigate against the next occurrence, as they serve as wind breaks (Israel, 2010).

Ecological vulnerability is caused by location, natural and constructed. To give two examples:, ecosystems near coastal regions are predisposed to erosion; and the rate of destruction of coral reefs can be aggravated by human activities such as intensive fishing, extraction industries, tourism and intensive agriculture (Thanawood *et al.*, 2006:206). Ecological vulnerabilities are affected by many factors, including politics, government policies, economics, culture, gender and social factors. So the ecological vulnerability is at an intersection with all of these factors.

In order to determine the ecological vulnerability of an area, evaluation using contextual vulnerability framing is pertinent because the causes are multi-dimensional, (O'Brien, 2007:84) For instance, in Thailand ecological vulnerability increased with the clearing of mangrove trees (a natural buffer against waves), cutting of the coconut trees (agricultural intensification and tourism) and the bombing of coral reefs by fishermen. The trees were cut down and a natural

barrier against extreme weather was eliminated (Adger, 2005:1036; Thanawood *et al*., 2006:213). Extensive coastal development, with its roots in politics, culture and economics, sets the stage for a natural disaster. Additionally, the debris from the destroyed buildings caused water pollution and did much damage to the coral reefs (Suzczucinki, 2006: 801). These vulnerabilities are environmental, but they are exacerbated by human activities and at the nexus of politics, economics and ecology (Ndibraphar, 2007:5; Steckley, 2011).

In order to avert this scenario, an ecological needs assessment is needed for effective ecological recovery. Environmental recovery is a more appropriate term, but the issue of representation is "essentialized" in environmental justice and is not applied to ecological justice. So that ecological justice can be achieved through ethical, ecological consideration that human and non-human coexist on the planet, and there is a need for adequate respect and a chance for each other (Curry, 2010: 58; Keller, 2010: 39). In order to reduce the devastating effects of disaster, humans need to make proper management decisions with respect to the ecosystem. There needs to be a shift away from dominating and controlling the ecosystem and toward sustainability (Oliver-Smith, 2002; 61, 62; Merchant, 1981; 14).

Resilience

Resilience depends on the positive response of communities to the impacts of disaster, through enhancement of their inherent capacity. The resilience can be cultural, social, economic, and ecological. As well as being inherent, it can also be learned after the event (Adger, 2005:1039; Barrios, 2014:332). The political economy resource use of communities determines the degree of vulnerability and ecosystem resilience. Biodiversity enhances ecosystem resilience, but biodiversity loss (as a result of extreme climatic occurrences, poor land

use and global economic pressure) increases vulnerability and reduces the chances of recovery. The reason is that the system needs a remnant of the old system to serve as the basis of recovery. Therefore the issue of resilience in disaster management, especially in ecological restoration post-disaster, is paramount (Abel *et. al*.2006: 3-4; Walker, *et. al*.2006:2-3).

Resilience is the capacity of a person or group to anticipate, cope with, and recover from the impact of a natural hazard (Tapsell, 2010). There are many definitions of resilience, including the ability of a system to return to near equilibrium after the disaster, where it's determined that the ecosystem is stable and the variables can be controlled (Hollings et, al., 2002). Hollings, et *al* (2002) termed controlling the ecosystem as engineering resilience. Another definition is the amount of change a system can undergo and still maintain its function and structure, or the degree to which a system can reorganize, build capacity and learn from past events (Hollings et al, 2002). This refers to the ability of the system to adapt and develop positively after adversity, which is the basis of Social Ecological Resilience Theory (SERT). In SERT, it is recognized that a system does not function in isolation but is dynamic. There is an interplay of remnants of the old and new systems. So there is a connectivity and continuity and resilience is based on the fact that the system is productive, can acquire resources for future use and has the ability to strike a balance between stability and instability (Hollings, *et. al*. 2002; Walker *et al*. 2006). It is able to bounce back from the effects of a disaster, to maintain a dynamic ecological system. The Social Ecological Resilience Theory connects the human and natural systems and is viewed as a multi-stable, alternating and multi-functional between irreversible aspects and reversible internal dynamics of the system, and form the cycles of fundamentally organized events (Walker *et al*, 2006).

The theorists went further to explain that since the ecosystem is in a dynamic state and multi-functional, it consists of sub-systems connected together and the various systems

function within a hierarchy. The ecological resilience system that functions in this way is called Panarchy, which consists of an adaptive cycle, operational and functional over time at different levels (Abel et.al, 2006; Hollings et. al.2003;). The system has four stages of growth, which involve resource accumulation, a release--which happens after a catastrophic event--then self organization for renewal. The social, ecological sub-system is organized based on the assumption that the system is socially, economically and ecologically sustainable pre- and post-disaster (Abel. et al. 2006:30). I want to presume that the institutional organization includes different governance and political structures.

I make this assumption because the institutional organization cited by the theorist has a political and economic culture that significantly influences its vulnerability and resilience (Walker, et. al., 2006). In a free-market society that takes a more "bottom-line" approach, the government may prefer to use engineering resilience, which only partially enhances adaptive capacity and transformation of the system. This measure has failed in many situations, which has the effect of increasing the community's exposure to risk resulting in higher vulnerability, a devastating hazard impact and reduced resilience. An example of this failure would be the destruction of the levees in New Orleans and the aggravated impact of hurricane Katrina (Israel, 2010).

A similar situation occurred in post-tsunami Thailand due to pre-existing conflicts (caused by religion, politics and economics) between the Muslims in southern Thailand and the government (Teeling, 2006). So the issue of political and cultural resilience is inevitable in Social Ecology Resilience Theory.

An example of a positive cultural contribution to resilience is the singing and dancing adopted by victims of hurricane Katrina, arguably related to the Mardi Gras tradition. This served as a source of strength and encouragement in the Super Dome post-hurricane. The

survivors used this tradition to keep hope alive despite the fact they had neither food nor water for three days, and an uncertain future ahead of them (When the levees broke. YouTube). Resilience is built or enhanced, and the knowledge acquired after the disaster assists in recovery. A holistic approach is preferable to a partial one and will lay the groundwork for enhanced social and ecological resilience.

Women and Resilience

An argument can be made that women have a greater adaptive capacity than men because of their socially constructed roles as caretakers within their families and of the environment (Enarson, 2012). Women have developed many adaptive capacities that contribute to the resilience of their communities. One of them is searching for long hours for food and water for the household and livestock left behind, due to by men forced migrate in search of work (Action Aid, 2009). As well as, during and after crises such as post-Katrina and during drought in Kenya women may do without food to be able to feed their children. Women sometimes must compromise hygiene. Sometimes it is necessary that the girl child withdraw from school (Action Aid, 2009; Reid, 2012: 111). In New Orleans Women of the Storm was able to set aside their racial, class, ethnic differences and their individual struggles. They drew on their blue strap, umbrella tradition to make a remembrance of a dying city to attract development and financial assistance for New Orleans (David, 2009:139). Women's needs are different than men's and their ability to manage in difficult situations is different. Women's experience as caretakers and their tendency to be more cautious than men makes them better managers. In resilience enhancement post-disaster, women's views are pertinent in reconstruction and

rehabilitation. For instance, in Kenya after the 2009 drought, some women were given assistance directly in order to care for their families (Brouwer, 2012). Full and equal participation of women at every stage of disaster management will ensure not only that their needs are met, but also, arguably that recovery will happen more quickly.

Ecology and Resilience

While a healthy ecosystem enhances resilience for living things, the destruction of the ecosystem reduces the adaptive capacity and makes the community vulnerable to risk. For example, one of the ways of enhancing human resilience during a disaster is by running and climbing trees or hiding behind healthy mangrove to escape the strong wind of a tsunami or hurricane. But when the mangrove and coral reefs are destroyed by humans, the human mortality rate will increase and there will be heavy devastation of the ecosystem. (Thanawood, *et. al*., 2006:207).

Women are often stewards of the environment, mostly due to their cultural and social roles, which have enhanced their ecological consciousness. An example of this would be Rachael Carson (1962) who noticed changes in biodiversity and promoted environmental consconsciouness in North America. Similarly, in Kenya Wangari Mataai was greatly involved in re-forestation to reduce the rate of climate change in the country and its impact in her community. Recently, some women in Kenya planted trees near their gardens to reduce the effect of scorching sun on their plants during drought (Practical Action, 2014). So, humans and the ecosystem are interconnected and need each other for survival. (Moral and Walker, 20:17-19). However, ecosystem rehabilitation after a disaster is a human responsibility because natural selection cannot ensure adequate recovery.

Value Belief Norms Theory

The Value Belief Norms Theory is intrinsic to all communities, and influenced risk management, vulnerability, resilience and recovery of a community facing disaster (Wegner, 1979: 33). Community values are collective definitions of what is just and desirous. Values influence beliefs or perceptions, and it constitutes societal norms, adopted by members of that society (Wegner, 1979: 34-35). Haningan and Kuenaman (1979; 130,131) noted that norms, values, beliefs, knowledge and technology are the blueprint for community development and are fundamental to an ability to cope with a disaster.

However, the Values, Beliefs Norms Theory recognizes three environmental orientations: humanistic, egoistic and ecocentric. The three values system is believed to be interrelated and is protective of the environment, although with different motives (Ryan & Splash, 2010:3). The egocentric orientation is the "not in my backyard" stance, because of the possible consequence of an action on the individual. The humanistic orientation is concerned about the effect on others. The ecocentric orientation is concerned with the consequences of an action on the environment and is developed from ecosystem ethics, meaning respect for the ecosystem.

Women are believed to exhibit this orientation not by cultivation, but by their nature and it is referred to as ecofeminism ethics, meaning the ethics of care. It is "relatively undervalued and unrecognized and theorized, [but] this attitude or values of women are indispensable in the global struggle to preserve the ecosystem" (Curry, 2010:147; Ryan & Splash, 2010:3; Warren, 2010). "The ethics of care carried out by women--not of laws, not of calculations, but character--already exists." (Curry, 2011: 134)

Societies and regional values may differ, but they all have value priority because of scarce resources (Quantelli, 1979; 2). The values and beliefs of the community affect attitudes, behaviors and relationships, patterned differential power that governs communities, and dictate the actions of individuals, groups, organizations and institutions. Norms shape the existing social system, and determine the degree of risk, vulnerability and recovery in a crisis (Wegner, 1979:35). An individual, group or community that is ecocentric values the environment and believes it should be nurtured sustainably for its intrinsic value, not for personal interest (Curry, 2011:57). This belief can become the norm. Similarly, a community that values women gives them the opportunity to contribute to the community and a position from which to effect positive change. (Warren, 2010).

In this study I am concerned with social and ecocentric values., which derive from lived experience. They are also the basis for social justice and ecological justice, as a result of the actions and inaction of actors on social systems and ecosystems (Rayan &Splash, 2010:3). And this affects community outlook and action with respect to a particular belief or perception of society and the environment. For instance, in the Turkana region in Kenya the communities value their herds and try hard to ensure their survival--despite the catastrophic effects of drought--through adaptation of a pastoralist social and cultural life (Practical action, 2014). And the Turkanas believe that any environmental policy that does not involve humans and animals, will not work for them. So it is a norm that any technology proposed by the government or NGOs must take this into account. The ideology shapes their culture, beliefs and perceptions about their social life and environment (HNSP, 2011). The integration of the value placed on livestock into the culture enhanced their resilience and enabled them to adapt through various cycles of drought (HNSP, 2011).

Only if our system of cultural values, beliefs and norms that currently devalues, controls and subdues women and the environment can change from controlling and subduing women and the environment, then we will be able to build a more sustainable environment with fewer recurrent hazards.

Ecological ethics

Ecological ethics is an ideology that values non-humans as well as humans; it espouses that humans are part of the ecosystem and need it for survival. Based on this notion, environmental policies should reduce risk to the ecosystem because humans need it to be healthy for our survival. In fact, humans need the ecosystem more than the ecosystem needs humans (Curry, 2010, 247).

Natural hazards affect the ecosystem in various ways, and can even lead to extinction of some species. Therefore, restoration and reclamation of nature are paramount (der Moral and Walker, 2007). Since humans have tampered with nature, and the rate and magnitude of hazards are high, animal (and plant) reproduction cannot keep pace with the destruction (del Moral and Walker, 2007). For this reason, we need to be involved in ecosystem recovery as much as human recovery.

However, in many cultural contexts globally, the dominant ideology of devaluation and denigration of women and nature is a common phenomenon (Seager, 1993). Warren (2010) contested that ethically this is a misconstrued ideology; it is referred to by ecofeminism as conceptual oppression, borne out of value-hierarchal thinking (Warren: 2010:282). She stated further that these concepts are reframed in feminist ethics as an articulation of values lost or underemployed by mainstream values, such as care, appropriate trust, kinship and friendship.

This makes ecofeminism a conceptualistic ethics that defines humans and non-humans as both members of an ecological community (Warren, 2010; 287). Therefore, ecological ethics is a value ethics with an environmental consciousness and a desire to manage ecosystem resources sustainably.

In this study I investigate how a value, beliefs and norms, culture based on hierarchical androcentric thinking that devalues and denigrates women influences the way women are treated in disaster management. I evaluate the instances of women being valued and the effect on women's vulnerability and resilience in a disaster situation. From the position of the eco-feminist ideology of dualism and devaluation of women I consider ecological restoration management in post-disaster reconstruction in order to evaluate the ecological integrity of countries in the global North and South. Therefore, I look at how the cultural values-beliefs-norms have affected social and ecological resilience building in disaster areas. I look into the suitability of ecological resilience and engineering resilience in the context of Social Ecological Resilience Theory (SERT) in managing the ecosystem in post-disaster recovery in New Orleans, Southern Thailand, and Turkana, Kenya.

CHAPTER 3: CASE STUDIES

New Orleans, Hurricane Katrina, 2005

Description

New Orleans is the largest city in the Louisiana State and it is one of the most visited places in the United States. New Orleans is at the head of the Mississippi River delta, in the Gulf of Mexico. The city lies five meters below sea level and enjoys a semi-tropical climate, being close to the sea (BBC, 2014; Richard, 2007:9). The city was surrounded by levees (dykes or embankment) to reduce storm surge because it is often affected by hurricanes. Hurricanes, also known as typhoons (in the Pacific Ocean) or cyclones (in the Indian Ocean), generally move slowly, at about 24km/hr, with wind about 120km / hr. Hurricanes move counter-clockwise in huge circles (maybe 45km wide) of thick clouds with a circular eye (BBC, 2014).

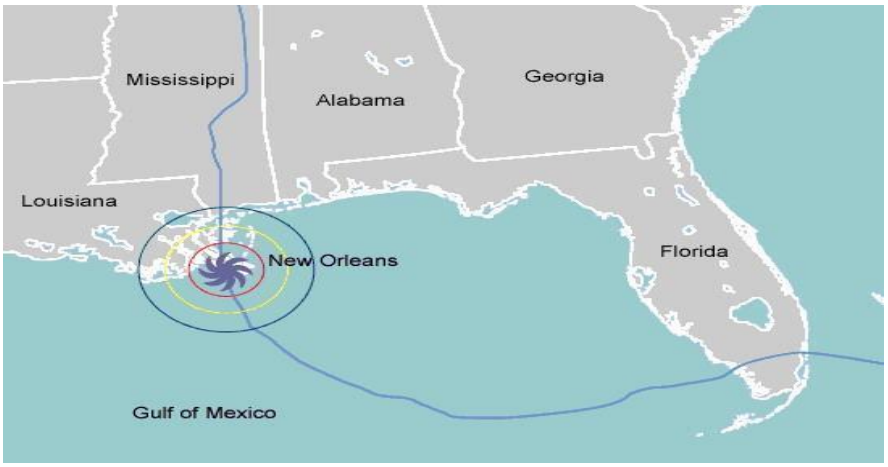

Fig 1: Map of New Orleans. Source: BBC, 2014

Background study

The city of New Orleans has a history of hurricane disasters and documented occurrences in 1909, 1915, 1947 and 1965, which were not as devastating as hurricane Katrina, 2005 ((Roth, 2010:1). The city of New Orleans had a population of 1,314,000 people in 2004, 68% of whom were black; 52.4% of the total population were women and 37.8% were black women. The city has a high population of low-income earners with fewer social capital gains (IWPR, 2006). The city is stratified with great inequalities and social, political and economic segregations based on gender, ethnicity, class and race. As an example, the chief executive jobs were occupied by white men, where black men and women were employed as janitors, cleaners, maids and health support workers (IWPR, 2006, 1: 12).

Employment inequities, therefore, resonate at the of intersection gender, class and race. White and Hispanic woman employed as administrative assistants or secretaries make on average $9,000 more than a black woman (IWPR, 2006: 3). The race, gender, class and ethnicity inequities featured prominently in disaster management and recovery in New Orleans. These phenomena date back to a hurricane in 1927 where rescue efforts were directed to mostly whites. About 13,000 evacuees from Greenville were stranded without food or water after the evacuation of white women and children (Dakinikat, 2010). Government assistance was slower for blacks as attention was focused on whites because a similar occurrence happened during the 1965 hurricane disaster (Snyder, 2005). As a result, most inhabitants of New Orleans have the notion that "They're tryin' to Wash Us Away" (Raeburn, 2007). Although, New Orleans produced 20% of oil and gas used in America in 2005, it had little political influence because it was a black city (Conbro, 2014).

Disaster Policy in United States

During hurricane Katrina, the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) was in place. But after hurricane Katrina, based on the experiences of governments and survivors, the act was amended. The U.S. has a policy of assisting disaster victims with the distribution of relief materials and reconstructing the damaged cities. However, the function of federal, state and local governments differs in the risk reduction and reconstruction. For instance, the state and local governments were solely responsible for a precautionary evacuation of the citizens before hurricane Katrina. But after hurricane Katrina the Stafford Act was amended to empower the federal government to assist state requests for precautionary evacuation subject to the discretion of the President (McCarthy, 2011; Stafford Acts, 1988).

The amendment also includes uncapped financial assistance to state and local governments; individuals, however can only be assisted for accommodation up to only $25,000. The federal government can also help victims with transportation from their houses and service animals and pets can be rescued and allowed in a shelter under the new amendment. Also, a representative of the federal government is to be appointed to assist with disaster management and recovery (McCarthy, 2011). The amendment also included assisting NGO's affected by disaster; special considerations are to be given to disabled people. Unfortunately, the policy is still a gender blind.

Risk

The city of New Orleans lies below sea level, and is sinking at a rate of 2.5 cm each century. This and increased warming of the ocean as a result of global warming put New Orleans at greater risk (Bourne, 2014). The erosion of the wetlands resulting from diversion of the Mississippi river, port activities, fishing, oil drilling and construction of levees, reduce sedimentation and put the city at greater risk. Minimal political influence and poverty make the city prone to risk and its citizens are liable to suffer some degree of discrimination, devaluation and racism (Oliver Smith, 2002; White, 2012).

The ideology of stacking men and women in the same shelter, fragmentation of family members and the haphazard evacuation of survivors to an unknown destination is very risky (Long, 2007). Security agents treated the people like prisoners of war, turning them back at gunpoint from entering neighboring cities, and creating a precarious situation (When the levees Broke. YouTube). All these factors conspire to increase the risk level for survivors (Reid, 2012).

Vulnerability

The metropolis of New Orleans have disaster history of memorable and devastating storms: the racers storm, 1837; Isle Derrieres, 1856; Chenier Cabinda hurricane, 1893; September hurricane, 1915; August hurricane, 1940; Audrey, 1957; Betsy, 1965; Camille, 1969 and Hurricane Andrew, 1992 (Roth, 2010:1). The disaster culture left some people vulnerable because they believed they knew the strategy to survive hurricanes, not taking into the fact that the wetlands that had reduced the impacts of hurricanes were fast disappearing (Bourne, 2007).

Fig 2: Chandelier Island. Source: Israel, 2010.

Hurricane Katrina was devastating because the wetlands that can reduce the surge of hurricanes have been reduced due to human activities (Tiebet, 2006:42). For instance, Chandelier Island, which was roughly 121 km from New Orleans, lost 85% of its surface area during Katrina and five years later is far from recovery. That means humans and non-humans are left vulnerable to future hurricanes (Israel, 2010). Many thought oil exploration and the construction of levees meant hurricane Katrina was a man-made disaster because these activities contributed substantially to the devastation. The levee construction was faulty and of varying capacity from grades 1 to 3 (Apple, 2005; Israel, 2010). This resulted in the devastating effects of Hurricane Katrina, the strong winds and waves washing out the protective islands and destroying 320 million trees, which changed marshland to lakes (Israel, 2010).

Unfortunately, the state and federal levels of government did not work well with the local government, which impeded the response, relief efforts and recovery. Seager (2012) noted that the response of the government was poor and the majority of the people who couldn't leave before the storm were women. She stated further that:

> New Orleans of old people dehydrating and dying on curbs, of bodies floating past store fronts, of families sleeping under highways on beds of garbage and sewage, and of thousands of people sheltering amidst squalor and sewage will haunt U.S. disaster planning, and perhaps U.S. electoral politics, for years to come. (Seager, 2012)

Many authors think the handling of hurricane Katrina by the U.S government showed gentrification and racial discrimination because New Orleans is a black city, and the women, especially women of color, were at an economic disadvantage (Long, 2007; Raeburn, 2007). The women's vulnerability increased in December 2005, when the three public hospitals were closed down, the public schools were closed and 7,500 workers were laid off without the benefit, the majority of whom were women; (Rudowitz *et. al..).*

Gender-based violence and sexual assault in and out of New Orleans post-Katrina was 95% people affected by Katrina. All the people raped were women, and it happened during the early response period and at the shelter (Enarson, 2012:77). The brutality continued in the shelter where women were coerced, forced or deceived by strangers or partners, and sexually violated or molested. The issue of race and class became evident when white women reported abuse; the security officials assumed the perpetrators were black, but the majority of the sexual assault offenders were white males (Enarson, 2012:78). Lack of privacy and poor hygiene in the Superdome, lootings and irrational behavior by security agents increased the women's vulnerability (Long, 2007; Enarson, 2012; 63).

Domestic violence also increased due to strain, loss of livelihood, hardship, prolonged separation of families and unemployment, especially affecting the families of low-income black women. For example, Karen's first physical abuse by her husband of twenty years happened after Hurricane Katrina (Enarson, 2012: 79) The fact that these incidents of domestic violence are overlooked and counted as private matters is an issue deserving of attention. (Phillips, 2005)

Economic and employment differences exacerbated pre-existing gender and race disparities, which increased vulnerability of women during hurricane Katrina, in particular, black women, who earned an average less than $20,000 This compares with a white woman's average earnings of $36,444 annually (IWPR, 2006:6). Blacks were employed in low paying jobs, and some were on social assistance. (IWPR, 2006: 2). At the time of Hurricane Katrina, 29.5 % of women in New Orleans were living below the poverty line.

After Hurricane Katrina, the racialized minorities--mostly black women--could not return because there was no home left, nor any financial support; this coupled with an increase in unemployment. Before hurricane Katrina, 0.3% white women were unemployed compared to 13.6 % black women (IWPR, 2010). For these reasons, the people left behind were mostly blacks because they lacked the financial capacity to evacuate their families. The government had no plan to evacuate the socially and economically vulnerable (IWPR: 2010).

FEMA'S poor performance in the distribution of relief and recovery efforts caused homelessness of victims, overcrowding in shelters, reduced income, exploitation of workers, poor mental health, gender-unequal power relations and disruption of family support for women (Brown, 2012).

Resilience

Traditionally, black people have strong family connections; about three generations live together in most cases and assist each other. They, especially the women, had faith and hope in God, which enhanced their strength and resilience (Johnson cited by White, 2012:165):

> Our parents and grandparents created these little neighborhoods and churches. We must save the Turkey Creek. It saved us. I'm guided by the divine spirit of God.I'm close to my minister and to praying. My minister knows that women are the backbone of the community. Praying and knowing God as I do, this work guides me. The greatest resource in the African American community is hope and our faith in God. (Johnson cited by White, 2012: 167)

Male ministers even acknowledge women as agents of community building and their belief in God as their strength.

The intrinsic adaptive capacity of white women is that they are rich, whereas Hispanic women turn to government for assistance (IWPR, 2006). That the U.S. government has a policy of assisting victims, survivors and communities is intrinsic to the capacity to recover quickly (McCarthy, 2006). The culture of singing and jokes in the midst of adversity also enhanced survivors' resilience. This was demonstrated in the Superdome, where there was neither food nor water, yet singing and dancing alleviated the stress and agony (Mitchell, 2007). The efforts of the military and national guards in search and rescue; government funding; volunteers from the church; civic groups; support from foundations and foreign countries; all enhanced people's resilience and recovery (White, 2012; BBC, 2014). The collective efforts of the Women of the Storm to

appeal to people in power to assist with the recovery efforts was also significant in New Orleans' reconstruction (David, 2009:159)

Disaster preparedness and risk reduction

The U.S government funded a project in 2004 and a report was written by the Hurricane Center predicting that the impact of a disaster in New Orleans was high, but the government did nothing to reduce the risk (What went Wrong. YouTube). Similarly, the Hurricane Center advised President Bush on impending danger on the 27th August, as well as state and local governments, but their efforts were inadequate. The total evacuation order issued on the 28th August, one day before the hurricane, by the government was late, and contained no plan to assist the vulnerable and the poor (Fisher111, 2008: 181). The local government knew one-third of the population depended on public transport, while 23% depended on cash assistance from the government and 20% depended on the government for housing, but no preparation was made to assist these people (IWPR, 2006:6).

When disaster struck at about 2 am on August 29th, one million people were displaced, and 1,200 people died (IWPR, 2006). About 100,000 people were stacked in the Superdome because they could not leave the city before the storm, with hundreds taking refuge in the attics of their homes without food or water for three days (FEMA, 2005:3, Fisher111, 2008: 191). The post-Hurricane Katrina disaster risk reduction was characterized by reinforcement of pre-existing human rights violations, inequality in aid distribution, non-transparency, poor coordination of relief, low public belief in coastal

development and lack of community participation (IWPA, 2006; Phillips et al., 2012:3; Long, 2007; Tiebiet, 2006).

The government began search and rescue on the fourth day; the elderly and kids were rescued by helicopter and the men and women rescued by boat. 80% of the city flooded with water for six days. The post-disaster mandatory evacuation of victims started on the fourth day, marred by haphazard separation of family members and scattering of survivors all over the U.S. to unknown destinations (Aljazeera, 2013; When the Levees Broke, YouTube; Reid, 2012). Oil facilities were damaged as a result of the hurricane. The government gave $50 billion in aid to Federal Emergency Management Agency (Charlevoix, 2005). The UK and Canadian government sent food aid during the early stages of the recovery process (BBC, 2014). Life in New Orleans became unsafe because people were hungry and angry, and there were lots of lootings and the National Guard was mobilized to restore and maintain law and order (Fisher 111, 2008:68). Thereafter, President Bush took responsibility for the failure of the risk reduction efforts (Berger, 2010).

Reconstruction, Rehabilitation and recovery

The recovery efforts started by the 6th day with pumping of water polluted by debris, decaying bodies, industrial chemicals, household chemicals and petrol, back to the Mississippi River (Esworth, *et. al.,* 2005). The insurance companies were tight-fisted and denied people adequate insurance coverage, informing they only had insurance for

floods and wind but not hurricanes (Reid, 2012). The recovery process was slow and marred by political, racial, class and gender issues. The survivor's families were fragmented and evacuated to different states (; Brownie, 2012; Reid, 2012; When the Levee Broke). Women with disabilities were kept in inhumane shelters, women with school age children had the challenge of registering children for school without proper documentation (Brownie, 2012; Reid, 2012). Many mothers were concerned with feeding their children. Cynthia said:

> So I take (food-stamp) card and go get them food to eat, little snacks, whatever, but other than that as long as I have water I will be fine… I do not know what it is to be hungry; I am learning now… I don't want to resort to crime or stealing things. (Reid, 2012: 111)

The problem of insufficient food showed improper coordination by FEMA and the states hosting the victims. If FEMA carried out and implemented post-disaster needs assessment, then the needs of survivors would have been met.

One year after Hurricane Katrina 56% of the people had returned and ten years after 80% of the people have returned, and there has been a shift in terms of class, race and economic status (IWPR, 2010:2). The city is inhabited primarily by rich, white people, and the number of the black citizens is reduced. (IWPR, 2006). The African American women population reduced drastically to 37.3 %, and poverty among the African American women reduced to 23 %, compared to pre-Katrina 37%, while poverty among white women was 9.8 pre -Katrina and 9.7 % post-Katrina (IWPR, 2006). The reduction in poverty among the African American women was not due to improved livelihood, but because most of them cannot return for economic reasons (IWPR, 2006).

Most of the people greatly impacted were socially vulnerable people, such as single mothers caring for children (Phillips, *et. .al.* 2012).

The insurance companies added salt to the victims' injuries, by paying a paltry sum or denying insurance claims for residential (Buckley *et. al.*, 2006). This trend undermined reconstruction and gave way to post-disaster greed with pop stars and artists relocating to New Orleans for land grabbing, eliminating the people who worked hard to build the city before the disaster (Cienfuegos, 2005). The post-disaster rehabilitation and reconstruction in New Orleans was characterized by gentrification, privatization, out-pricing the displaced citizens, and not honoring historical landmarks or respecting safety. The poor people, especially women of color, were forced out of their homes and eventually lost their properties to city planning (When the Levees Broke. YouTube). The city changed from a black city to a white city, including the governance post-Katrina, giving way to more gentrification and injustice (IWPR, 2010). The public housing was demolished--despite the recommendation by inspectors that it was structurally sound, not because it was old or had defects, but due to classism and racism (Long, 2007). As one woman survivor said:

> With disaster, they reach the top and start helping people at the top and nothing left for the poor. African Americans are one of the most discriminated groups of people in the world. Katrina put a light on race, class, and indifference, people treated like we live in the third world, this is the richest country in the world. We were so disappointed in our federal government. They didn't show up in our community until October. It showed us what we knew: they don't value us; we have to do for ourselves." (White, 2012:163).

The reconstruction team capitalized on the inability of victims to provide evidence of ownership and embarked on non-transparent land allocation, neglect and

political power plays between the federal and state governments and local authorities, a situation which did not help matters (Berkley, *et. a*l.,2006). Women's health and security were in jeopardy after Hurricane Katrina with nearly one half of the hospitals closed and the justice system suspended. As it was, social services were stretched to their limits before Katrina with numerous homeless and mental health issues and an over-full shelter for battered women (Rudowitz, 2006).

Despite the class difference of the women who returned, both black and white women "buried the hatchet" and worked together to draw attention of people in power to the plight of New Orleans. The white women joined forces with Women of the Storm and used place-based display to assist with recovery efforts.

> "Women of the Storm reconstruct the despair, agony and remembrance of Hurricane Katrina with gendered symbolic material cultural framing their persistence and continuity was undeniably integral to recovery efforts they reenact the living cultural memory of the dying American city", creatively adapting ritual involving death, rebirth, cultural trauma, memory, gendered collective action (David, 2008).

The persistence of women of the storm made the president released 194.5 billion dollars, emergency funds 4.2 billion dollars for housing recovery funds 3.7 billion dollars for levees up grades on June 8, 2006. Then in Dec. 20 2006, President Bush signed a shared of oil and gas royalties that will be in a trust fund for enhanced flood control, hurricane protection and coastal wetland protection (Deslatte, 2006 cited by David, 2009).

Although the government released relief and reconstruction funds, this effort was undermined by politics, insensitivity and mismanagement. For instance, many people

could not get trailers, as temporary shelter even six months after the disaster and the Republican-controlled state of Mississippi was given 300,000 trailers while only 3,000 was given to Louisiana. The people given trailers complained they were not connected to electricity and six months after the disaster three-quarters of the mobile phones are still not functional ("When the levees Broke". YouTube).

Ecology and Hurricane Katrina

The ecological loss was huge during hurricane Katrina; there was loss of vegetation, as evident in the wilting of trees along the levees caused by a "toxic stew". The surface and underground water were polluted with effluent, chemicals, oil and debris (Gulliot, 2006). The wetlands were reduced, due to loss of sedimentation caused by diversion of rivers and levee construction. The flood water also caused a biodiversity shift--the indigenous trees were taking over by an invasion of Chinese tallow. The Asian tree seeds were transported to New Orleans through flooding, but the new vegetation may not help to reduce the risk of future hurricanes, and as well their adaptability to the climate of New Orleans is frail (Israel, 2010).

Household pets and livestock were lost and not even considered in the allocation of recovery funds or rehabilitation efforts. But non-governmental organizations and animal lovers rose to the challenge (McCulley, 2007). All the recovery efforts are human-centered; the trees were left for natural succession, though NGO's and citizens replanted some trees. Unfortunately the destruction of the forests for rebuilding

may result in carbon emissions going up, so forest restoration is a must and will likely be a long-term resilience enhancement effort (Israel, 2005).

THAILAND

Description

Thailand is a country located in Southeast Asia. It is bordered on its southern coast by two oceans, the Gulf of Thailand on the east and the Andaman Ocean on the west. (Khunwishit & McIntyre, 2013). Bangkok, the capital city, is sinking 10cm annually and currently there is an effort to build levees around the city, which will cost about 3 billion dollars (Kisner, 2008). The economy, which depends on tourism and agriculture, was greatly impacted by the Tsunami of 2004. Statistically, 6% of GDP is from tourism, 10% of the population depends on tourism, while 49% of the population is engaged in agriculture (Kisner, 2008). Thailand has a tropical though erratic climate, subject to both extreme drought and devastating floods.

Fig. 3. Map of Thailand. www. beachpatong.com.

The extreme drought was so severe that the country had to employ the use of aircraft to fire silver iodide so that water vapor would gather around the particles and fall as rain. It is referred to as "royal rain" because this method has been employed by the king of Thailand in the last 50 years, and it has succeeded in saving crops from extreme weather events (Kisner, 2008).

Background Study

The 2004 tsunami affected the west and south of Thailand where the majority are Muslims. Before the tsunami the Muslims continually expressed their discontent with the Thai government, based on perceived discrimination, neglect, and unequal economic opportunities. They made their grievances known through violence,

insurgencies and bombings. The joblessness of the southern Muslim fueled the insurgency, a situation that has been ongoing since 1902 (Teeling, 2006; Steckley, 2011).

The emergency response to the tsunami was quick and nearly 50,000 rescue workers and 200 disease surveillance specialists searched for survivors. There were isolated cases of diarrhea in the shelters that were treated by health care workers, which proved that safe drinking water was of critical importance (Humanitarian Health Action, 2006).

Risk

The poverty rate was higher in the low lying coastal areas of Thailand where 70-80% are low-income farmers. Women were at risk of exploitation, violence, racial discrimination, and the situational vulnerability of widowhood (Khunwishit & McEntire, 2013; Stover and Curshi, 2006).

Fig: 4, Temporary and permanent houses along river canals in Thailand Source: Khunwishit & McEntire, 2013.

Poor people lived in temporary and permanent houses along river canals. Human activities such as intensive fishing along the coast, lack of effective land use planning and implementation increased the risk of hazard in the area. The impacts of the tsunami were aggravated by human activities along the coast, for instance, the establishment of tourism industries, oil extraction, and mining. The increase in intensive agriculture, the destruction of coral reefs for shrimp farming and the use of dynamite to destroy mangroves by fishermen all combined to increase the intensity of the tsunami 2004 (Khunwishit & McEntire, 2013).

Vulnerability

Thailand is highly vulnerable to natural hazards. There were 16,413 wind storms between 2002 and 2009 resulting in 256 deaths and 514 drought events costing 9 million bath (Teeling, 2006). The vulnerability of Thai citizens was at the intersection of class, age, environmental degradation, gender, religion, nationality and physical disability. Government greed for economic gains and lack of enforcement of regulations and effective communication between different levels of government increased the vulnerability of people living on the coastline (Stover & Curshi, 2006; Teeling, 2006). The government needs to address environmental management, gender, ecological ethics and economic issues to reduce this vulnerability.

Unfortunately, on the day of the tsunami, many of the foreigners, because they'd been celebrating Christmas, had slept on the beach, and this resulted in great mortality among the tourists. Muslims were more vulnerable than Buddhists because they were

poor and lived in low lying areas beside the coast and lacked disaster awareness and preparedness (Steckley, 2006). Men on the sea ready for the day's work were also vulnerable because they were by the seashore when the tsunami struck (Kwunishit &McEntire, 2013). The Thais were more fortunate because their grandfathers had told them about the tsunamis that had happened in the past and so they ran to a high place; so none of the Thais who had the information lost their lives despite the devastation of the communities (Steckley, 2006; Steckley, 2011).

Human activities increased the vulnerabilities of the coastal region, due to lack of respect for nature by fishermen, and the built environment. The fact that it was planned in an organic manner mitigated the vulnerability somewhat. The developers and hotel or restaurant owners lived at a distance from the coastal areas and so were able to build strong houses, thereby decreasing their vulnerability (Khunwishit & McEntire, 2013:3).

Women and Vulnerability

Women are among the most vulnerable and poverty makes them even more so--many women work in the tourist industry and lost their jobs. The tourist industries were not planned nor environmental consideration given before their establishment. Gender disaggregated data were not available for the tsunami in Thailand. However, in a survey conducted by Steckley (2011) post-tsunami, she noted that 28% (11) of the people interviewed felt women were more vulnerable, while 5% (1) said the men were, because there were more men in the community before the tsunami (Steckley, 2011). Some of the

women's vulnerability issues raised in the interview are: a) the cultural taboo against swimming for women; b) the responsibility of care for children and the elderly; and c) the work uniform of tight skirts and high heeled shoes.

In addition, the government did not plan an appropriate alternative economic activity for women post-tsunami, in order to dissuade them from the ecosystem-dependent jobs

Before the tsunami the government of Thailand campaigned in favor of tubal ligation and surgical contraception, which many women had done voluntarily. Unfortunately, some of the women lost their children in the tsunami, they are poor now and cannot afford the cost of a reversal. Many did not see a reason to continue to live without a child..

Resilience

Some people ran up the hill because they had prior knowledge of tsunamis, and they knew how to keep safe. Some fishermen ran and hid in the mangroves to avoid the tsunami waves (Chang, 2006:10; Thanawood, 2006). And for the survivors, the emergency response was prompt coming barely six hours after the disaster (Khunwishit & McIntyre, 2013:3). There were ambulances for transportation and removal of bodies, individuals from the communities joined in the search, rescue, relief and cleaning efforts (Teeling, 2006; Stover& Chusri, 2005, 69).

The rich people were able to reconstruct their houses, restaurants and hotels. The Work for Money Program and the government grants were sufficient to meet

immediate needs (Stover& Chusri, 2005:79). The communities with less disturbed mangrove were hardly affected and were able to recover more quickly than communities with degraded mangroves.

Thailand Policy on Disaster

The disaster management policy in Thailand involves emergency responses such as the provision of relief materials, shelter, and financial support to victims. The policy emphasizes the authority of the king and the directors responsible for emergency operations, but it is not explicit about assistance given to provinces or individuals in case of disaster. After the tsunami the government enacted another policy on the establishment of warning centers, though these have been undermined by amendments.

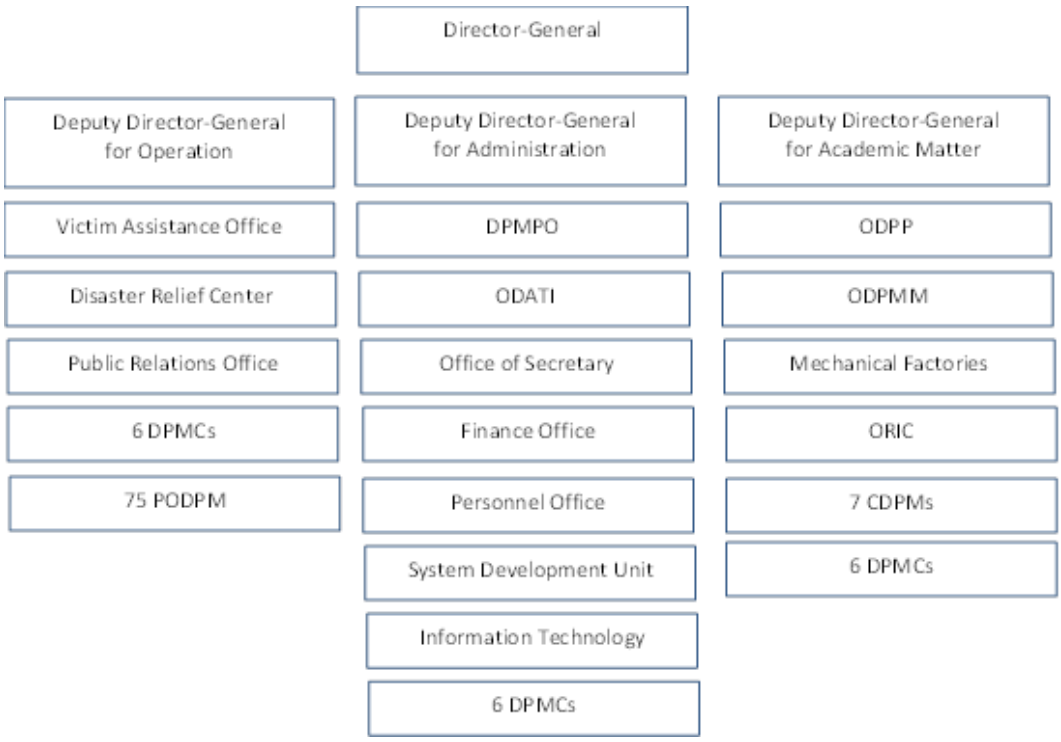

Fig:5. Hierarchy of Responsibilities in Thailand. Source: Khunwishit & McEntire, 2013.

Figure 5 delineates the hierarchy of responsibilities in a disaster; though the summary does not state the responsibilities of each officer. The protocol is strictly enforced--anyone who flouts the protocol will go to jail (1979, Civil Defense Act; 1999 Fire Suppression Act).

Disaster Preparedness and Disaster Risk Reduction

The tsunami of 2004 struck in the morning at about 10 am without warning and with a wave height of about 10 meters, to devastating effect. The Tsunami hit six coastal provinces: Phang Nga, Krabi, Ranong, Phuket, Trang, and Satun. Some 5,395 people died, 2,845 were missing and 58,550 people from 12,480 families in 412 villages were

affected by the flood (Stover&Chusri, 2005). The waves penetrated about 1km inland, measuring up to 5 to 7 meters in a newly established tourist resort in Khao Lak beach, resulting in the deaths of about 200 people (Thanawood, 2006:206). The tourism industry was greatly affected, with about 120,000 job losses. Three thousand homes were destroyed, and 2,900 people were still living in temporary shelters as of September 2005 (fig: 6). The total loss was estimated to be about 2.09 billion dollars in damage, out of which the tourism industry lost 320 million dollars (Teeling, 2006)..

Fig: 6. Coastal Shores in Takua Pa district after the Tsunami, 2004. Source Thanawood *et.al*. 2006.

The emergency relief response was inadequate because of lack of proper coordination among relief organizations, discontinuity of government assistance, and lack of integration among government disaster managers. The surviving tourists received $285 for food, accommodation and assistance to return to their countries.

The landscape changed (Fig7) and about 13% of coral reefs were affected and 80% of these coral reefs damaged. The drinking water was contaminated by sea water, sewage and other waste (NREA: 2005:42.) Healthy coral reefs, sea grass beds, beach

forest and 7,003 ha of land, including soil and water resources were destroyed (Thanawood *et al.*, 2006:206).

Fig:7. Pakarang cape before Tsunami 2004 (left) and after (right) showing beach erosion Source: Thanawood *et al.*, 2006.

A few hours pre-tsunami the elephants were able to rescue 42 tourists and later assisted in clearing the debris (Shears, 2005; Tom & Alana). After the tsunami the government intensified establishment of an early warning center and incorporation of local knowledge (Stover, Chusri, 2005:83). Most of the victims lost identifying documents such as land titles, birth certificates and work permits. (Stover, &Chusri, 2005:77).

Illegal Burmese migrants were arrested and deported during the tsunami relief effort and post-disaster management stage. There was a rapid response to assist survivors with relief materials and compensation of about $500 was given to registered migrant workers and natives (Stover&Chusri, 2005: 78). However, the government was more

concerned about rebuilding the tourist industry at the expense of building a sustainable livelihood for the affected people. The survivors complained of non-release of funds, and inadequate funding for reconstruction (Stover&Chusri, 2005:80). Those who received the relief and compensation felt as if it was a gift rather than a fundamental human right. For all these reasons, the post-disaster risk reduction did not impact the lives of the survivors positively (Stover and Curshi, 2006).

Disaster Reconstruction, Rehabilitation and Recovery

In the recovery stage, people stayed for more than a year in substandard shelters, in poor condition and with no privacy that were meant for use for a few weeks. As of September 2005, 2,900 people still lived in temporary shelters (Teeling, 2006). The conflict between Muslims and the Thai government continues because of delayed relief efforts. For example, 32 of 47 villages are facing land-rights issues. Although people claimed that they had settled on the land before the issuance of deeds the Thai government gave the land to developers (Teeling, 2006). Some Muslims who depend on the ocean for their livelihood became illegal squatters after the tsunami because they refused public housing units created for them some distance away from the ocean (Stover & Curshi, 2005). Their return to the coastline has conflicted with zoning plans, commercial exploitation, and "vested interests". So these people face catastrophic environmental destruction and injustice.

Work-for-pay programs organized for victims was not enough to provide for survivors' families. Victims had to stay in temporary shelters for about a year, with no

milk for children. Women trained in handicrafts had no market for sales. As one woman survivor said:

> "The government has a black heart," a young woman on Kho Khao Island told us. A widow with four children to care for, she felt the government should be more generous and equitable in its distribution of aid. She complained that the Tambon Administration Office (TAO) had given her neighbor, also a widow, the same amount of compensation although she had only one child. She said the TAO was offering baking classes for women, but they were useless because there were no tourists to buy their products." (Stover& Curshi, 2005:80)

Another woman also said that;

> "A 60-year-old woman at the Thung La Ong shelter who had lost her husband and daughter during the tsunami said she had stopped going to government offices to seek assistance because it was too painful having to repeat the same story constantly." (Stover & Curshi, 2005:80)

Some communities also rejected the government assistance because it could not compensate for their loss:

> "The head of a fishing village in Ranong province, said that most of the aid that reached her village had come from private sources, particularly Thai Cement and Michelin. The TAO reportedly gave nothing, but the fisheries department provided 20,000 Baht for registered boats and 14,000 Baht for unregistered boats. Some fishermen, she said, refused to accept the compensation as they felt it was "insultingly low." She praised the generosity of foreign foundations and aid agencies, which, in her words, had "saved the village." They had supplied seeds for planting, rebuilt the village school, repaired water lines and the communal pond, and built a health clinic for young children. But she also complained about the lack of coordination among aid agencies"(Stover & Curshi, 2005:80).

The government withdrew security from families in shelters after three months; the 50 Baht per day was gone and the free soup kitchen closed (Stover & Curshi, 2006). The emergency relief response was inadequate because of lack of proper coordination among relief organizations, discontinuity of government assistance, and lack of integration among government disaster managers. Those given houses were not sure of the ownership and feared they might be forced out as had happened to people who lost their properties before in public coastal areas (Stover & Curshi, 2006).

The environment was degraded from clearing and inappropriate dumping of debris, air pollution because of burning, and cutting of remnant trees for rebuilding during emergency relief operations. Reorganization for renewal was marred by lack of human capacity for zonal coastal planning, environmental assessment, and integrated environmental planning. Mapping for vulnerability and hazards of coastal areas has not been developed, hampering long-term disaster mitigation and planning (Thanawood *et al.,* 2006).

The government is very much interested in rebuilding the tourist industry quickly and cheaply with few regulatory controls (Bishop cited by Teeling, 2006) because it is a key to the Thai economy. This has resulted in haphazard development and survivors being deprived of a suitable livelihood. The situation was so unpleasant that four years after the tsunami some survivors are still living in shelters. One positive development is that the coral reefs are bouncing back and becoming green from natural succession (The Seattle times, 2008). As well, some rehabilitation events were carried out, for example a workshop by NGO's on repairing fishing boats (Stover & Curshi, 2006).

Government policies on building codes in the coastal areas were not enforced before the tsunami, so many poor people did not have the appropriate papers to prove ownership. This made the poor more vulnerable because these papers were necessary to obtain a development permit to get loans and reestablish businesses. It was still impossible eleven months after the tsunami for the poor to rebuild, but the rich ignored this order and rebuilt their business. The rich people also ignored the government policy of a setback of 30 meters from the sea for building (Teeling, 2006; Steckley, 2006).

The vulnerability of the Tsunami survivors is at the intersection of class, age, environmental degradation, gender, religion, nationality, housing, poverty and physical ability, and women's vulnerability was worsened by poverty, some losing their lands to industrialists (Stover and Curshi, 2006).

The Thai government was able to assist 250,000 people and had a long term plan to assist fishermen. As a result, 75% of children affected were able to return to school two weeks after the tsunami, (Teeling, 2006). Unfortunately the conflict between the Thai government and Muslims continues because of the delay in relief efforts (Teeling, 2006). Therefore, the government needs to look into issues of environmental management, gender, ecological restoration, social
justice and poverty to achieve effective reconstruction, rehabilitation and recovery.

Case Study 3: Kenya

Description

Kenya is a drought-prone country with arid and semi-arid land covering 80% of the country (Kapoi &Charles, 2014:346). Kenya has a tropical climate, and the

Turkana region was mostly impacted because of its location in an arid region (fig. 8.). The population of the Turkana people is 855,399 with 445,069 male and 410,330 female (HNSP, 2011). The country felt the impact of the drought greatly because 64% of Kenya's exports are from agriculture which relies heavily on rain. (Alilia &Atieno, 2006:6; Kandji,2006)

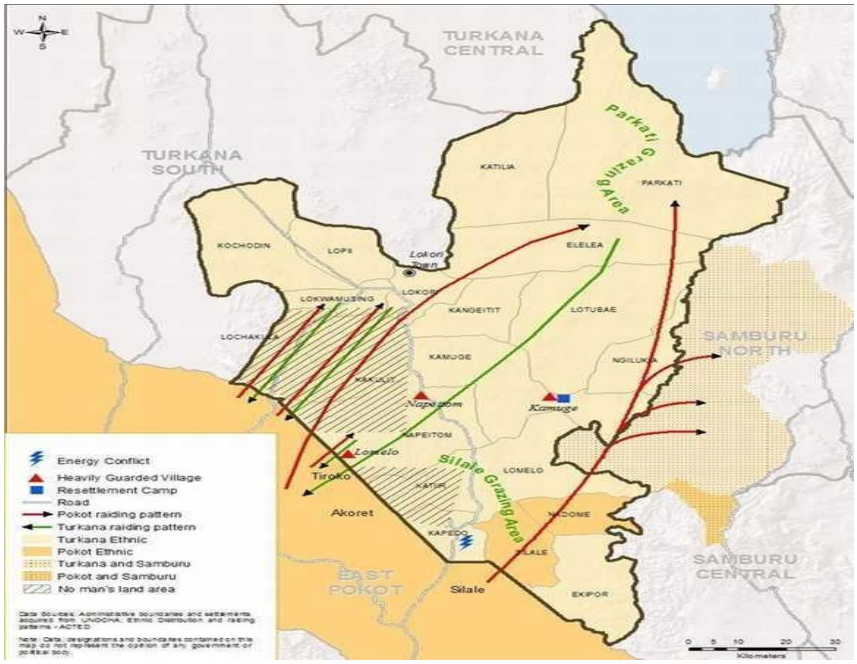

Fig: 8. Map of Turkana Region Kenya. Source: www.acted.org

Background Study

In 2009, about 10 million people, one-third of Kenya's population, was food-deficient due to drought. This and other factors contributed to a low human development index of 0.46 (Practical Action, 2009; UNDP, 2010). Drought is a prolonged dry spell; insufficient rainfall and crop failure ultimately leads to famine. Amantanya Senn noted that, "Famine is the unequal distribution of food and not an aggregate shortage of food"

(Mekonen, 2006). The resulting hunger and destitution that occurred during the famine caused disruption of livelihood and sometimes death (Mekonen, 2006). Drought prolongs scarcity of food, and can be caused by mismanagement of renewable resources, food and policy failure.

Another reason the impact of drought so greatly affected the Turkanas was because the area has suffered political and economic marginalization. Turkana was a closed district for 40 years of British rule in Kenya and because the population resisted British colonialism they were regarded as violent (Anonymous). Therefore, the rural poverty in Turkana 95% Kenya shillings and there was no infrastructural development in the region until about 20 years ago, through the infiltration of evangelical Christians (Anonymous).

The people of Turkana have deep indigenous knowledge of the impacts of drought on their community. Therefore, they named each of the disasters after what happened during the disaster. For instance, the 1960 drought was named "Nomotor' meaning bones exposed because of the high number of dead animals. The drought in 1970 killed human and animals, and it is called "kimududu,' while the 1979/1980 drought was called lopiar, meaning sweeping everything away (Kandji, 2006:1). The spate of drought occurrence in Kenya has reached an alarming rate, the drought cycle was every three years in the 1980's and increased to every year from the 2000's, so the people were not allowed to recover before another cycle of drought (Kandji, 2006; Mateche, 2011; UNDP, 2014). As well, about 15,000 camels, 16 million goats and 6 million cattle were reported to be at risk of death due to drought, and the number of humans affected had increased to one third of the population in 2009 (Mateche, 2011; Practical Action, 2009).

Drought is a serious issue in Kenya because agriculture, which is the mainstay of the people, is rain-fed and a large number of people, especially in the Turkana region, obtain drinking water from rivers. The source of energy supply is hydropower, and the power supply company lost a huge amount of money due to drought, which affected the country's economy (Kandji, 2006:2).

Drought occurs at a fast pace recently, allowing no time for recovery before another one and land degradation, tourism and intensive grazing aggravate the intensity of drought on the fragile climate (IFRC, 2011). The number of people affected by drought keeps increasing due to corruption and a "major conspiracy of government with global food aid industry" by concentrating on food aid response and not finding a long term solution (IFRC, 2010; Kandji, 2006; Mateche, 2011). The seven counties affected by drought have an average poverty rate of 73% with the Turkana region having more than 94% (World Bank, 2008:246). And the drought impacted gender disproportionately, because the number of girls enrolled in school is low compared to boys (Kenya, PDNA, 2010). The drought was a major contributing factor to poverty in the region. As a widow affected by the drought said:

> "When I got married, my husband and I had 500 goats and 490 cattle's. However, the drying up of a reliable water points and eventual wilting of the once green grass in the area has eaten into my herd. As we speak, I am bitter to proclaim that I have only 49 goats and five cows!"(Practical Action, 2009).

Drought was devastating in all the regions of Kenya in 2009. The government declared a national disaster for the country, due to lack of rain and poor harvest. And about 60 elephants were reported dead among other animals. (Wadham, 2009)

Fig: 9. Dead Elephant. Source: Hoffner, 2009.

Kenya Policy on Disaster

The policy on disaster in Kenya is at a developmental stage. The draft focused on disaster preparedness, through education and created awareness of survival strategies and distribution of relief materials. The policy looks multidisciplinary, and 2% of the national budget was proposed to be set aside for disaster.

But Turkana being a unique region in Kenya has its drought policy, which involves early warning and relief distribution. Being a pastoralist community they have disaster mitigation strategies of destocking and pastoralist banking and restocking of animals after drought (Turkana District Environmental Development Plan, 2008-2013). The policy on destocking allows existing stock to match the grazing land this reduces loss through forced migration during droughts to neighboring countries like Uganda, however this causes border conflicts.

Kenya also has a national drought management authority, which focuses on disaster risk reduction and climate mitigation. The authority, however, practice an intensive system of agriculture, like greenhouse cultivation of crops, which may not be socially acceptable and economically affordable to drought-stricken farmers. This policy was designed and implemented in conjunction with international organizations like the United Nations International Strategies for Disaster Reduction (National Drought Management Authority, 2011). The post-disaster needs assessment done by the Kenya government and this organization showed the government needs to focus on these four areas; humanitarian relief, policy and strategy development, emergency preparedness and mitigation and risk financing to reduce drought risk (PDNA, 2011:170).

Recently, an agreement was reached by the Kenyan government and NGO's with the government of Uganda to allow Turkana's herds to graze in their pasture. But herders will have to drop their arms and ammunitions at the border. As a result of these meetings, the Turkanas was able to move 38,000 cattle, 68,000 sheep and goats, 18,000 camels and 12,000 donkeys to Uganda (Zwaagstra, 2009:49).

Risk

Risk includes a prolonged shortage of water, due to brief, erratic rainfall or no rainfall for a long period, making a potable water supply uncertain. Amenities such as schools, hospitals and good roads were scarce in the Turkana region (Annonymous). The frequency of drought and increased population in the area due to development of wildlife tourism industry by the government has exerted pressure on the fragile land (IFRC,

2009). Women are left as sole providers for families as their husbands migrate in search of work or with livestock for pasture (UNDP, 2014). The women trek long distances for 8 to 10 hours to get water and food. The raiders may come and raid the remaining herds when men migrate to neighboring countries and women are helpless because they are armed (McCabe, 2002). Women are uncertain of being able to get food aid or gather enough food for the household. (Practical Action, 2009; McCabe, 2002)

Vulnerability

Gentrification and racial discrimination against Turkana predisposes the region to little access to education, water, food and health care (Mekonon, 2006). The women cannot make any decisions once men have left and cannot even slaughter small animals for food. Also, the women are vulnerable to waterborne disease and hunger because of unaffordable food prices due to drought (McCabe, 2002; UNDP, 2014). Most women in the Turkana region are vulnerable to the risk of an unsecured environment. Women may lose their properties because of the absent head of the household, as well as coping with stress and trauma (Lewis, 2011; HNSP, 2011; UNDP, 2014).

The communal life of the Turkanas suffered dislocation during drought because of transhumance movements. Dislocation is the disruption of everyday life as a result of physical evacuation, which is one of the negative impacts of developments by governments with the promise of a better future for its citizenry. The willingness of the communities to accommodate the "white elephant projects" in the name of development legitimizes the people's dislocation and often predisposes them to disaster (Chakrabarti & Khan: 2010: 3). The deception by the government that the projects will benefit the people and the presentation of the projects as "need-demand-desire" are the driving

forces of dislocation. Pain and suffering usually accompany dislocation, however the dislocation is inevitable in the Turkana region because of the drought. The emotional cost was made worse by the loss of customary rights over property for many, especially for women, for instance, the reduction of a bride's wealth during drought. (Chakrabarti & Khan: 2010: 3)

Gender-based violence was not reported because of social stigma. Also girls were forced to drop out of school to take care of the household. They also lack easy access to health facilities, which meant that many had to engage in unsafe abortions (PDNA, 2011:52).

Resilience

The drought culture has enabled people, especially women, to develop resilience**;** the women dig into the underground water to obtain water for household use and livestock, while the men go on forced migration to neighboring countries like Uganda. (Practical action, 2009).

Ketekete.com.

Fig: 10. Woman scooping up water for goats during drought in Turkana

The women also exchange their valuables for cash or food. In addition, they engage in alternative sources of income like making baskets and other household crafts for sale (Bouwner, 2010; HSNP, 2011). Another way the women build resilience is skipping meals and reducing the quantity of food they eat in order to feed the household (Action Aid, 2009; Lewis, 2011). This strategy may affect their health and wellbeing however; they go so far as to tie rope or cloth around their stomachs to stave off hunger, and claim this makes them strong and when food is available they'll release the cloth (Lewis, 2011). The women and girls also compromise hygiene because the less water is prioritized for cooking and drinking (Action Aid, 2009).

The older women are on pensions, a form of social assistance given by NGO's for Turkana citizens above 55 years. This was also used to start trading (Fig.11), and the cash transfers allow them to take care of their grandchildren (HNSP, 2011).

Fig 11:

Asirite with goat she bought with cash transfer. Margret a blind women showcasing the weave product she made with cash transfer
HSNP(2011)

However, the bride's wealth may be reduced to a bottle of honey instead of a herd of cattle if the bride's family has lost livestock due to drought. But if the bride's family is wealthy despite the drought the groom is paid with a herd of cattle (Saunders, 2006).

Disaster preparedness and risk reduction

The government of Kenya was able to establish a drought early warning center in Nairobi, in 1989, but the government hardly heeded the early warnings and was not proactive in mitigating the effect or developing programs to enhance people's adaptive capacity (IFRC, 2009; Kandji, 2006). The 2009 drought affected about 10 million people, one third of the Kenya population (Practical Action, 2009). The government and humanitarian organizations were only able to give food and water to drought victims with accessible roads (PDNA, 2010). The government strategy is relief response, which has weakened the existing adaptive capacity because the remaining renewable resources are depleting. In the early years, the government established camps restricting forced migration of men because of the decision that all members of the household should be present in order to obtain relief materials (Mc Cabe, 2002; UNDP, 2013).

The Turkana herdsman reduced the risk of losing their lives by adopting transhumance movement and splitting their stock among friends and relatives to reduce the mortality of their herds. They integrated social and economic adjustment into their culture for survival. They substituted goats for cows and practiced opportunistic cultivation, trading, migration and strong community and kinship networks for the survival of the harsh drought conditions (HNSP, 2011). The adaptive capacity is

dwindling, however, and there have been incessant nationwide food crises caused by drought in the last decade (PDNA, 2010). During the drought, all the shallow wells dried up, and the bore holes have limited the amount of water. About 40,000 Turkanans migrate over long distances with dwindling herds to Uganda for water and pasture. Even the water and livestock intervention projects in the Turkana region by NGO's were affected by the drought (Practical Action, 2009; UNDP, 2013).

Disaster Rehabilitation, Reconstruction and Recovery

The Kenyan government, international organizations, and NGO's were slow in their response to the 2009 drought in Kenya. The international organizations and NGO's gave the people food, constructed boreholes, and gave cash transfers and exchanged assets for food (UNDP, 2014; HNSP, 2011; Brown, 2012). The exchange of assets makes people even poorer. All these efforts, repeated over time are not sustainable because there has not been a major effort to mitigate the drought (Brouwer, 2010). Although some NGO's were encouraging opportunist planting and reforestation, the rate at which the drought was happening in recent times limited these initiatives. So there is need to develop a more sustainable strategy for recovery.

Fig: 12 UNDP goat restocking program

The government and humanitarian organizations distribute water to road accessible areas in the Turkana region, and give food, seeds and farm tools to women (Brouwer, 2010; Zwaagstra, 2010). The UNDP also gave some women's group in the Turkana region goats for restocking as part of the recovery effort. (UNDP Kenya, 2013).

The government discovered an aquifer that can take care of the water needs of the country, but unfortunately this was at the same time as oil was discovered. There is a chance that the water source will be polluted by drilling for oil.

CHAPTER 4: DISCUSSION

General

The three disaster areas studied--New Orleans, Thailand and Kenya--had pre-existing vulnerabilities, which included colonialism, racial discrimination, resistance, environmental discrimination and gentrification. New Orleans was a black city that began as a colonial state, where the emancipated slaves were predominant (Enarson &David, 2012). Thailand Muslims were protesting their amalgamation with Thailand by a former colonial master (Teeling, 2006). While the Turkana region was a protected area for 40 years due to resistance to the British colonial government in Kenya (Anonymous).

Although all three are geographically different and different in terms of how developed they are, all have been affected by tourism and industrialization. And the effects of these man-made activities exacerbated the impacts of disasters and the vulnerabilities of the inhabitants.

All three also have a location vulnerability, which makes them disaster culture regions. As a result, they have a disaster subculture of adaption and controlling the disasters (Hannigan and Keunueman, 1978:131). They have intrinsic resilience strategies to adapt to the disaster, and they have good kin networks and connected communities that feel connected to the environment (Brown, 2012; White, 2012).

Poor governance as well as environmental racism and gentrification featured prominently in the disaster management and recovery in all three cases. However, the strengths and weaknesses of each disaster management efforts based on gender differ. There was a structural gender mainstreaming in Kenya because women are left behind in communities after a disaster (HNSP, 2011). Therefore, the government and NGO

humanitarian assistance inadvertently benefitted women, due to this cultural norm. In Thailand, disaster management and recovery efforts were gender blind, however the widows were able to benefit directly (Stover &Curshi, 2006). The disaster management in New Orleans was gender blind too, with a pre-existing vulnerability at the intersection of race, ethnicity, class and poverty, which exacerbated the suffering of women (White, 2012; Enarson, 2012:76).

I suggest that the managers need to integrate proactive disaster management strategies by allowing gender to shape access to resources, and having needs assessments to identify vulnerabilities and inform decisions on resilience enhancement and transformation (Enarson, 2012:37). The age of formulating disaster management strategies without cultural consideration and community input is over. We need more community-oriented disaster management, so that scarce resources can be utilized effectively and recovery periods can be reduced. Disaster risk recovery and reconstruction involve a network of communities, institutions, and NGO's in order to rebuild a resilient community. The actions of each actor will determine the success and resilience of the new emerging community (Hollings, 2013).

Institutions have a key role to play in enhancing resilience for effective recovery because they set the pace of recovery through their policies. For instance, the U.S. has a policy to assist communities in risk reduction and recovery by providing temporary shelter, which can be given or sold to victims and survivors. The U.S also has a policy to give social assistance and reconstruct houses for low-income survivors. Thailand's policies only address rescue operations and the officers that will direct

disaster management, whereas Kenya has an emerging policy on disaster that involves little social assistance to victims and survivors.

Comparing these three governments, we can predict that some victims, based on their geographical location, have a high possibility of recovery and are not likely to become homeless after the disaster. Although, the response in the U.S. was slow, the survivors benefitted more from the government rehabilitation program, though the systemic incapability of FEMA marred the government efforts. The result was the transformation of New Orleans from a black city to a white one, instead of a renewed community according to SERT. The city was transformed after the hurricane Katrina disaster (Adger *et. al*., 2006).

The government of Kenya seems insensitive in their response and mitigating the effect of the drought, but the inherent community resilience assisted the victims to survive the cycles of drought. Hopefully, they will be able to survive until the government taps the newly discovered underground aquifer water resources (Walker *et al.,* 2006).

The humanitarian organizations also have a key role to play; they are supposed to follow the ideology of neutrality established by Samuel Henry. This ideology forms the basic tenets of humanitarian organizations, and this has increased the women's vulnerability (Enarson, 2012). This ideology caused a gender inequity and increased the existing social vulnerability and neglect of women and the ecosystem.

The devaluation of nature is not only about development and exploitation, but also a desire for control of nature, instead of co-existing and cooperating with nature. Rather, humans kill, exploit and suppress nature (Gotlieb, 1997: 4). Many authors believe

that the increase in frequency of disasters is caused by the human desire to control nature. Hurricane Katrina, the 2004 tsunami, and the Kenyan droughts are man-made, borne out of efforts to control nature (Appel, 2007; Kandji, 2006; Thanawood *et.al.* 2006). This ideology of neglect and control of nature also manifested itself in the policies of most of the foremost humanitarian organizations and governments, as they did not have ecological integrity included in their policies. But hurricane Katrina has brought about an emerging interest by NGO's in animal rescue and safety in the U.S.A (Chernovtsy, 2005).

The truth is that intrinsically everything in the environment has a value from an ecological ethics standpoint, everything in an ecosystem is useful, and has the right to exist (Curry, 2010). But humans place little value on the existence of other parts of the ecosystem and this has affected the recovery and reduction of the adaptive capacity of communities to prevent future disaster.

New Orleans

The people of New Orleans, compared to Thailand and Kenya, were supposed to have locations resilience with low vulnerability because of the strong economic base of the U.S. and the government policy of rendering assistance to disaster victims. Normally, it was believed that a community with a strong economic base, values and good social systems is unlikely to be too vulnerable and able to recover easily after a disaster (GarciaAcosta, 2002;63). The reason is that the community has a preexisting intrinsic value of resilience in helping victims with risk reduction and recovery efforts, such as insurance coverage and government assistance. But the reverse was the case for

the New Orleans survivors. The reason may be due to preexisting conditions--locational vulnerability, U.S politics, gender, race and class discrimination (IWPR, 2006). These factors influenced the vulnerability of the victims because vulnerability also depends on the degree of exposure, sensitivity and the economic base of the community (O'Brien, 2007).

The most vulnerable people were at the lowest ebb of the economy due to class, race, and gender intersectionality that predisposed them to poverty (Phillips *et al.*, 2012:5). Therefore, they were not able to evacuate their families and were exposed to the strong surge of hurricane Katrina. Many of the most vulnerable were injured and died (IWPR, 2010). Disaster preparedness and risk reduction, information supposed to assist in reducing the risk, in this case was only useful for the white and the rich people in New Orleans because they were able to evacuate in advance. There was a warning from the National Hurricane Center that the next hurricane in New Orleans would be devastating, but the government made no preparation and no arrangement was made for the socially vulnerable (Long, 2007; White, 2012).

The ideology of equity and fairness promoted by the U.S. did not feature in the disaster management and recovery in New Orleans. Instead, it was marred by racism, classism and gender blindness. The government's ineptitude puts the lives of thousands of people, especially women, in jeopardy. The reasoned response of the federal government and the disconnectedness of the local government from the citizens exacerbated impacts of hurricane Katrina (Enarson, 2012, Belihkir et al., 2007).

Political differences influenced the vulnerability of women in New Orleans; the animosity between the three tiers of government marred the efforts of management and

recovery. The fundamental human rights were traded for egoism and male chauvinism (Belike *at al,* 2007). Since, disasters are happening at an alarming rate, especially in the U.S, there is a need to consider reinsurance of the disaster-prone cities. It will reduce the cost to the government because post-disaster rehabilitation and reconstruction are becoming expensive, and the government may not be able to sustain the efforts of reconstruction in the future.

Women disaster management and recovery

The women that survived hurricane Katrina disaster and the post-disaster management are highly resilient. The women survivors were able to show that they are resilient in adversity, contrary to the notion that they are emotional and the weaker sex. They were able to take care of the household, even in the worst situation when men and adults were dying (Seagers, 2012). Even after re-location, women were able to pull themselves together, feed their children and get them back in school (Reid, 2012). This showed that they were good managers of resources. The notion and consciousness of preserving the environment by Ms. Rose Johnson also show women's concern about the environment (White, 2012). Women have been identified as preservers of nature because they give life.

The oppression and social exclusion based on value hierarchy thinking was demonstrated in the pre-disaster devaluation and denigration of black women in New Orleans and worsened their experience during the disaster (Warren, 2010; Belkier, 2007). The women in New Orleans received low incomes compared to men, the poverty,

stemming from non-payment of wages, segregation and denial of opportunities. The devaluation and denigration increased their vulnerability (IWPR, 2006).

I want to suggest that a living wage payment in New Orleans to all races is a must, and the issue of racial discrimination and employment needs to be addressed. Phillips (2012 *et al.*: 5) noted earlier that the existing social vulnerability is exacerbated by disaster, and this is evident in New Orleans. The pre-existing racial discrimination and the systemic pauperization of blacks, especially black women, increased women's vulnerability during hurricane Katrina. The black women were the most affected economically, socially and emotionally. The highest numbers of people in the Superdome were black women because of their inability to evacuate (Seager, 2012)

Although, women were battered and sexually molested, they were able to cope with the emotional distress and desecration and develop adaptive capacity to cope with the situation. The gender-based violence has often been reported by researchers, especially in tsunami 2004, but the attitude of the government, NGO's and volunteers has been indifference (Saroor, 2010; Enarson, 2012;76). The silence and unconcerned attitude of the government to make policies on gender differentiated needs will continue to worsen the condition of women confronting disaster. The United Nations have included gender differentiated needs in their disaster policy, but the national governments are still resistant (UNDIAC, 2005). Even in the last snow storm experienced in Ontario, Canada, in December 2013 the men and women were stacked together in the same shelter for days (Jamieson, 2014, personal communication). This thinking needs to change, so as to protect women's privacy and reduce their vulnerability during disaster and post-disaster management and recovery.

The gentrification and discrimination suffered by black women in New Orleans showed that women not only suffer discrimination because of color, but the women's problems are multi-faceted. And at different levels of the intersectionality of race, gender, class, ethnicity and poverty, interestingly, the women were able to build kin networks to overcome some of these issues pre-Katrina. The kin networks were disrupted by Hurricane Katrina (Brown, 2012). The black women were disproportionately affected due to the issue of non-recognition and not being accorded their right of citizenship pre-Katrina and it was worsened post-Katrina with the ill treatment meted out to them by the disaster managers and the security officials.

Therefore, these women suffered both environmental and social injustice because many lost their homes and sources of livelihood. And the disaster managers, and insurance companies that were supposed to give assistance failed them (Buckley, 2005). The black women were impoverished by the structured hegemonic governance in New Orleans through stratified wages between black women and other women (IWPR, 2006). Therefore, during the disaster, black women were not able to evacuate from the city and during the recovery stage, they were not able to return home (IWPR, 2010). Their lands were taken over by the rich, part of the post-disaster transformation of New Orleans into a white city (IWPR, 2010; Cienfuegos, 2005).

Cultural change is a must in disaster management and recovery. The existing androcentric and value hierarchical thinking based on dualism that legitimizes the oppression and domination of women and the ecosystem needs to change. We need to change the value placed on women as subordinate and the belief that women need to be subdued due to their irrational emotions. These have become a norm integrated into

disaster culture, and it has negative impacts on women, mitigation and recovery from the impacts of disasters. The oppression experienced by women ranges from being seen as an object, to gender-based violence. Until this thinking change, we are far from achieving a disaster management strategy that is inclusive, and devoid of injustice towards women.

Drawing from the disaster management and recovery strategies and transformation of New Orleans post Hurricane Katrina, I believe it was a strategy by the hegemony to displace the black population, so that they can take over the city (White, 2012; Raeburn, 2007). By doing this they will be able to access resources of the ungoverned space and protect their interest in the oil and gas region.

Ecological Ethics

The U.S. federal government and the parish of New Orleans care less about the ecosystem they're dependant on because they focused only on engineering resilience to control floods instead of the aggressive greening of the ecosystem. It was evident that most of the wetlands were shrinking due to the engineering technology, which didn't take into account that the levees need the support of the surrounding wetland to be effective But nothing concrete was done to restore the loss in ecosystem (Day, 2013).
They believe the devastating impact of Hurricane Katrina was an engineering failure and must be corrected using technology (Bourne, 2014; Day, 2013; Israel, 2005). The fact that the wetlands are disappearing, coupled with the biodiversity shift and loss, makes the engineering resilience an unsustainable option (Israel, 2005; Holling et al., 2002). But the recovery plans by the city of New Orleans and FEMA do not reflect strategies for ecosystem reclamation (McCarthy, 2011; Stafford Acts, 2006).

The city of New Orleans produces 20% of the oil and gas in America, yet they remain a poor state due to the racial discrimination, gentrification and social stratification. Being a black state, Louisiana was not considered for royalties from the oil until after hurricane Katrina (David, 2008). I think these royalties should be partly spent on rehabilitation and reclamation of wetlands. The New Orleans government needs to embark on an aggressive restoration of old indigenous trees and effective ecological succession of the biodiversity loss. Most of the post-disaster management and recovery, so far may not be able to avert or reduce a future hurricane impact. If not, that means we have not heard the last of this type of catastrophe in New Orleans. There is a need for post-disaster, ecological needs assessment and the result integrated into policy design and implementation. Effective restoration of the ecosystem is important to prevent future catastrophic events. The ideology of President Obama's "failure to act boldly turn crisis to catastrophe" (Lakoff, 2010) should be the watchword for restoring the ecosystem, in post-disaster recovery.

Thailand

The communities near the Andaman region in Thailand suffered from locational vulnerability, and the disaster was aggravated by pre-existing conflict and discrimination stemming from the protest by the Muslims in southern Thailand against

the government (Teeling, 2006). However, the Thai government's response to Tsunami 2004 was highly commendable.

The disaster risk reduction response was better than in the New Orleans or Kenya; there were many NGOs, government agencies and medical personnel (Srinivas, 2009; Steckley, 2006). The response, although marred by lack of coordination was able to reduce post-disaster mortality. However, the women in the Andaman region are suffering at the intersection of class, poverty and race. The deportation of Burmese illegal immigrants by the Thai government, especially their women, is inappropriate (Stover &Curshi, 2005). The government ought to have allowed them to recover from the impact of a catastrophic disaster; this action is a kind of environmental racism and injustice. The immigrants were already traumatized and in need of emotional support.

The Thailand government was also interested in material gains from tourism, may account for the immediate response and assistance given to tourists. This type of response is reactionary and not sustainable, because the communities affected did not receive enough support to enhance their resilience to become viable and healthy (Stover & Curshi, 2005). As an example of this negligence, the support center was closed before the survivors could establish a means of livelihood and the government funding promised was not properly implemented (Stover&Curshi, 2005).

Women and Disaster Management and Recovery

Women were more vulnerable to the impacts of the tsunami because of low social capital gains, unpaid reproductive roles and a dress code that did not permit mobility. The housewives and women working in the tourist industry were more affected

than others, then the issue of gender-based violence and raping was not officially reported, because of the stigma (Steckley,2011; Stover&Curshi,2005). I think future disaster management in Thailand needs to note the peculiar needs of women post-disaster. The medical personnel were able to attend to physical needs, but in all the reports there was no attention given to reproductive health (Stover &Curshi,2005). These gendered differentiated vulnerabilities need adequate attention to reduce future risk. Some of the working women are engaged in low-paying jobs because of the ideology of male/female dualism. The women were trained in baking and crafts that are not in high demand, exposing them to poverty(Stover&Curshi,2006). Only the men were taught how to repair boats and fishnets, but the disaster situation can be an opportunity for women to engage in non-traditional jobs to enhance their income. Women need a lot of resources to manage the household, especially single mothers and widows, so the issue of women's empowerment is critical in post-disaster management.

Ecological Ethics

The disaster management policy in Thailand focused on humans and neglected the ecosystem. The mangroves and coral reefs were left for natural succession, not accounting for the activities of fishermen who bomb mangroves with dynamite. According to Gotlieb (1997), any ecosystem destroyed through human activities will need assisted restoration. The ecological blindness of policies needs to be re-visioned in order to do this.

Kenya

The Turkana region had locational vulnerability, but the Turkanans have been able to develop cultural resilience over the years. Their culture and social life is built around their livestock and features an interconnectedness of humans and the ecosystem. Drought disrupts the social, cultural and economic life of both. But the Turkanas have developed cultural resilience by dividing their herds for out-migration (Practical Action, 2009; Zwaagastra, 2010). The prolonged droughts force people to migrate with their animals and suffer dislocation, which also exposes them to conflicts. The resistance to Turkanans entering neighboring regions and the raising of their animals was part of the pain of out-migration that they suffered (Charbarkti & Dhar, 2010; Zwaagstra, 2010).

Despite these challenges the people were able to build resilience by diversification of sources of income, transhumance movement, destocking, finding alternative sources of livelihood and improvement of skills. The government also assisted by trucking water to some areas. (HPSN, 2011; Zwaagstra, 2010). The locked land or protected area of the Turkana region was a great setback for the communities and increased their vulnerability (Anonymous). Most of the communities in the region lack or have little access to social amenities like schools and hospitals and some areas have no electricity (Mokemen, 2006).

Unfortunately, the vulnerability of Turkanas was increased by the government's introduction of tourism to their fragile arid land. This decision by the government and the establishment of national ranges and parks were short-sighted and did nothing to improve people's livelihoods or to build resilience against the drought.

The government is interested in development projects that put further pressure on humans and the ecosystem (Kandji, 2006:19). This decision reflects the hegemonic male domineering attitude and can be likened to Western culture's exploitation of nature. The tourism industry increased the population without increasing measures of mitigating the aridity of the land, causing repetitive cycles of drought, scarcity of food and water (Kandji, 2006:18). An intervention to reduce the impacts of drought by NGO's was reported to be more successful than government intervention (Zwaagstra, 2010).

Due to poor governance, the country's food deficiency increased and one third of the population became food deficient. (Kandji, 2006; Practical, Action, 2009;). The government needs to embark on effective water management and aggressive greening of the Turkana region, instead of concentrating efforts only on emergency response. The government should look into a way of effectively distributing water to inaccessible areas or developing appropriate management of water resources. There was a report of underground water about few years ago, but no policy decision has been made to utilize this appropriately (Kandji, 2006).

Most of the reactionary response and policy implementation and design in combating the menace of drought have too much international input; almost all the policies on drought have the input of the international institutions. There is a need for local knowledge to be incorporated into the policies so that "adaptable" technologies will be developed.

No doubt these decisions are politically-based; one of Kenya's largest trading partner is their colonial master. The sad thing is the discovery of oil at the same time the underground water was discovered; the government and the extraction industries may be more concerned about mining and neglect the needs of humans and the ecosystem.

Tourism packaged as progress was used as a weapon to grab the land in the region, and the Kenyan government proposed to give the royalties from the tourism industry to people in the region, but this was not implemented (Kandji, 2006). Even the high population of wildlife that was used as an excuse to increase tourism to the region is affected by the harsh weather and is dying. About 60 elephants were reported dead in 2009, and other wildlife may have died as well (Wadhams, 2009).

The government needs to be more proactive and transparent and govern the whole ecosystem through mitigation, instead of politicking and employing a reactionary disaster management approach (Kandji, 2006; Zwaagstra, 2010). The current system of governing will expose the Turkana region to further land grabbing, gentrification, suppression, and impoverishment of the fragile ecosystem. The hegemony may get interested in the oil, and they will start disrupting the ecosystem to extract of oil and gas. Thus, while the issue of water remains unsolved, another problem is created. Further intensification on the land may not be sustainable because the adaptive cycle of resilience building and renewal will be hampered.

For an effective resilient system, the growth and accumulation phase is followed by release, which in the case of the Turkana region is drought, and a remnant of the ecosystem is needed for reorganization and renewal. The inaction of the government to implement effective drought management strategies through sustainable ecosystem governance can lead to total collapse of the system, as most tourist areas developed by the government in the global south and global north are disaster prone, a practice that may be termed "systemic, institutionalized genocide".

Women disaster management and recovery

The women in the Turkana region are strong and have high resilience and adaptive capacity to drought judging by their strategies for maintaining a household and livestock after the migration of their husbands (UNDP, 2014; PDNA, 2009). The women in Turkana, Kenya enjoyed structural resilience enhancement because their community is structured to adapt to drought by leaving the women to take care of the household. The women are left behind to obtain food aids, and this gave them direct access to emergency relief and recovery strategies of restocking of goats and alternative trades promoted by the NGO's (HNSP, 2011; UNDP, 2009). In this way they can benefit from structural and cultural resilience enhancement.

Being the head of household in a drought period enabled women to exercise their citizenship, and having their identities recognized by the NGO's bringing intervention to the communities. Women's needs were met and they are well represented in the discussions. These opportunities enabled them to access resources and feel empowered. The issue of cash transfers for alleviating drought impacts sometimes had negative impacts on women. Since, the older women 55 years and above are entitled to the cash they are burdened with the care of grandchildren.

Ecological Ethics

The Turkana people have ecological integrity, although it may be a bit ecocentric because their culture and social life was built around their herd. They also plant trees beside their gardens to reduce evapo transpiration (Practical Action, 2012). The Turkana people have locational vulnerability, and this has engendered them to have

social and environmental values that have influenced their environmental consciousness. Therefore, it became a norm entrenched in the culture to be a pastoralist (Zwaagstra, 2010). They travel long distances and are exposed to risk as a result. They often engage in conflicts with neighboring that countries deny their livestock access to grazing (Practical Action, 2009). The Turkanas also have issues with the raiders that steal the herd, thus, they are ecocentric, and they value their animals and seek to preserve them.

However, due to the location vulnerability to drought the Turkanas allow the livestock to overgraze the grasses and are not able to balance plant and animal dynamics. So this affects the sustainability of their production systems and increased their vulnerability to the hazardous effects of drought. The culture of destocking and reducing the bride's wealth during marriage ceremonies from a herd of cattle to a bottle of honey are part of strategies to enhance their resilience and recovery after drought (Saunders, 2006). The culture of using honey as bride's wealth denigrated women because bride's wealth is normally paid according to the bride's family's wealth. So marriage during drought leaves the bride's family poor.

Currently, some greedy parents also exchange under aged-girls for cows. This has to change; the government needs to use the community approach to discourage girls in the Turkana region from dropping out of school. If the women are educated it will change their chances in life and probably reduce early marriage and unsafe abortion. I reason that allowing married girls and women to come to school and making provisions for child care will reduce the wide gap between gender enrollment in schools.

The people of Turkana use cultural, social and economic resilience to build ecological integrity, with the hope of recovering from drought someday (Kanji, 2006; HNSP, 2011; Saunders, 2006).

CHAPTER 5: CONCLUSION

The disaster management and recovery strategies of hurricane Katrina, in New Orleans, Tsunami 2004 in Thailand and 2009 drought in Kenya was characterized by racial discrimination, gentrification, environmental racism, poverty, social injustice, insecurity and food insecurity. The pre-existing social and cultural vulnerabilities exacerbated the impacts of these disasters.

The poor handling of these disasters stemmed from policy design and implementation failure. The disaster policies are fallible and gender blind. The disaster policy in U.S and Thailand was amended after Hurricane Katrina and Tsunami 2004 respectively. The disaster exposed the major flaws in disaster preparedness, but it was only in New Orleans that inclusiveness and increased funding for the rehabilitation and reconstruction phase of disaster management was implemented.

The disaster policies of the three countries are gender blind. Gender was not regarded as necessary in shaping disaster management and recovery. Meanwhile, the failure of the relief efforts and response from the government stemmed from the haphazard policy implementation. The detailed gender needs assessment was not carried out. Even the post-disaster needs assessment carried out after Tsunami 2004 in Thailand and after the 2009 drought in Kenya were gender-blind in their recommendations of women's needs.

The government needs to develop proactive disaster management and recovery strategies that are inclusive of men and women so that scarce resources can be judiciously utilized to meet the needs of survivors. Gender-based violence, poor shelter design, insecurity and other social injustices meted out to women in a disaster situation

can be averted by carrying out gender disaggregated needs assessment. Although using gender to shape access to resources in disaster management and recovery cannot prevent disaster, it can reduce loss and enhance the resilience of survivors. This will enhance the rebuilding of a healthy and vital community that can mitigate or adapt to future disasters.

Despite the environmental injustice, exclusion, devaluation and neglect experienced by women in New Orleans, Thailand and Kenya, women were able to assist in rebuilding their communities through different resilient strategies. Although theirs socially constructed roles and the material and non-material culture make women vulnerable, they build strength in adversity. Evidently, women are in many ways stronger than men; for instance, women can stave off hunger so as to ensure their household can eat, but most men cannot. Of course, this might be short-term resilience because prolonged hunger will eventually affect women's health. If the proper needs assessments were carried out by disaster managers, they would have been able to know the number of people in the household and ensure adequate food supply, instead of women going hungry.

The disaster areas studied were predisposed to poverty, which made some survivors, especially women, become landless, because some women lost their lands to the new building codes and land grabbers after the disaster. The disaster management should be holistic, and ensure social justice for victims no matter their race, religion or gender. The issue of poverty increased because most people, especially women, lost their jobs and the alternative sources of income proposed to them are not socially and economically acceptable in their communities. The issue of social and economic acceptability of post-disaster empowerment for women is paramount.

Cultural resilience featured prominently in New Orleans, Thailand and Kenya, where people called for pre-existing cultural values, beliefs and norms to build resilience and recovery strategies. The practice of singing and the cultural display of Women of the Storm contributed to recovery in New Orleans. Also, the Turkanans in Kenya integrated ecological ethics into their culture. They valued their livestock and made efforts to rescue them from destruction by drought. In spite of it being the norm for men to migrate at these times, women managed to endure the drought and prevail. This attests to considerable resilience.

While New Orleans, Thailand and Kenya all underwent the adaptive cycle of resilience, the Thais and the Turkanans alone were able to maintain cultural integrity without much disruption. But New Orleans was transformed from a poor city to a rich city through greedy disaster managers and from a black city to a white city because of the inability of poor women to return to their city.

The ecosystem we depend on was hardly considered in the recovery phase, despite the evidence-based stratified damage observed in Thailand, where healthy coral reefs and mangroves were not damaged and protected humans. Compared with the destruction in the areas, the coral reefs and mangroves are unhealthy and damaged due to human activities in Thailand. The ecosystem was left to recover by natural succession, which may happen but will take longer. Ecosystem restoration is needed to reduce the future risk to the communities because the occurrence of disasters is unpredictable. The height, biodiversity and plant population in mangroves determine the ability to withstand wind surges and floods (Forbes & Broadhead, 2008). The neglect of ecological recovery by disaster managers was common in the study areas. It may be attributed to non-integration of research findings into disaster management or the culture of devaluation of

nature. Despite the findings by researchers that the wetlands and mangroves are fast disappearing, the focus of disaster managers was only on humans (Israel, 2014). Disaster managers need to consider ecological ethics in disaster management and recovery because humans need a healthy ecosystem for our survival.

The government and disaster managers need to desist from using only engineering resilience to manage disasters because it is a means of controlling nature which worsen the impact of the disaster. Considering the impact of Hurricane Katrina in New Orleans, integrating ecological resilience building that involves natural and assisted ecological restoration will be a better option. If the mangrove is restored, it adds value to the ecosystem because the roots trap sediments and reduce wetland erosion. Also, the plants that grow among mangroves have nutritional and health benefits to humans and non-humans (Forbes and Broadhead, 2008).

CHAPTER 6: RECOMMENDATIONS

- The disaster management in New Orleans, Thailand and Kenya showed that disaster managers need to incorporate equity, gender equality, feasible economic empowerment and ecological resilience in the disaster policy design and implementation;
- There is a need to develop gender-based needs assessment, so as to meet the needs of both men and women in the relief distribution. The recovery materials and shelters should be allocated based on gender because women face a lot of gender-based violence post-disaster. Gender should be used to determine resource availability and access to resources in disaster management and recovery.
- The post-disaster needs assessment should also include identification of pre-existing social vulnerability and post-disaster vulnerability. This will help shape the decision and ensure equity and justice. There is a need for improved health facilities and social amenities to assist in making life bearable for survivors.
- Reconstruction and rehabilitation of communities should be done with equity and justice, so that the poor women will not be more vulnerable and become homeless after the disaster. Also, the disaster managers caught in fraudulent activities in the management of resources should be punished. The security agents need to be reoriented to handle disaster situations to reduce the high-handedness and not make survivors feel like prisoners of war.

- The government and disaster managers need to create awareness in communities along the coast of the dangers of organic housing development and building close to the sea or ocean. The government should carry out needs assessment before giving approval for the establishment of the tourist industry instead of focusing only on economic gains. It is more efficient and economical to carry out environmental assessment than the reconstruction of community's post-disaster.

- The government needs to consider ecological resilience in disaster management reconstruction and rehabilitation instead of only engineering resilience. The current strategy of relying on engineering resilience exacerbates the impacts of disasters because of the reduction of wetland sedimentation and the technological diversions encourage the erosion of wetland and mangroves.

- The government needs to discourage mono-cropping in coastal areas and encourage multiple cropping so that the land is adequately protected. The government of New Orleans needs to embark on aggressive greening, especially trees that can resist strong waves and in Kenya trees that are resistant to drought.

- The disaster needs assessment should evaluate culture, values, beliefs and norms of the communities in order to offer solutions that are socially acceptable, ecologically adaptable, culturally compatible and technologically adopted by the communities. It will ensure a positive impact of disaster management and recovery for survivors and efficient utilization of scarce resources.

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