DISASTERS AND THE CYCLE OF POVERTY: UNDERSTANDING URBAN, RURAL, AND GENDER ASPECTS OF SOCIAL VULNERABILITY

Kathy Lynn, Associate Director
Resource Innovations, University of Oregon's Institute for a Sustainable Environment
September 2005

INTRODUCTION

Poverty is almost always a cycle of one sort or another. If you are low-income and have little to save, then you have little to invest. Low investment means low productivity, and low productivity leads to continued low-income. A poor society may lack the capital to invest in order to become more productive over time. A poor society may suffer from poor health, which decreases income and thereby makes it difficult or impossible to access resources to achieve health goals. Similarly, a poor society is often vulnerable to natural disasters that contribute to keeping it poor over time. As a practitioner in the area of social capacity building, I offer, in this paper, a few examples examining the cycles of poverty in relationship to natural disaster risk.

International development programs intended to meet the needs of the poor are challenged by the ongoing consequences from disasters. Significant loss of life, damage to infrastructure and housing, and disease following disasters further increase the needs of the poor and reduce their capacity to recover. While disasters affect all populations, poor and underserved communities and citizens generally lack the resources to take pro-active steps to reduce their risk, and do not have resources to recover or rebuild in a safely. Catastrophic losses from disasters illustrate that they are a symptom; a microcosm of the cycle of poverty that increases the vulnerability of a population to losses.

This paper examines the impacts natural disasters have on poor communities all over the world, and the ways in which poverty and social vulnerability exacerbate disaster risk. In which ways are poor and underserved communities more at risk to natural disasters than high capacity communities and wealthier nations? What factors need to be considered in order to target appropriate assistance to socially vulnerable communities at risk from natural disasters?

Structure of this Paper

We cannot reduce the risks poor communities face from natural disasters without addressing poverty. To address poverty reduction and disaster mitigation objectives, this paper seeks to highlight the connection between the cycle of poverty and risk from natural disasters. The paper begins by illustrating the nature of disaster risk faced by poor communities in developing countries and in the United States. The paper then examines how various aspects of social vulnerability (urban poverty, rural poverty and gender) comprise disaster risk. A series of examples highlight impacts to vulnerable populations and the strategies undertaken by individuals, communities, non-governmental organizations, and governments to build capacity to reduce disaster risk through community organizing and economic development at a local level. Finally, the paper provides a series of recommendations to consider in implementing poverty reduction measures, including the role of capacity building in helping to alleviate poverty and reduce risk from natural disasters.

DISASTER RISK AND POVERTY: THE GLOBAL CONTEXT

The cycle of poverty and connection to disasters is evident in historic and present losses and impacts from disasters in developing countries and poor communities all over the world. From 1990 to 1998, 97% of deaths related to natural disasters occurred in developing countries (World Bank 2001). Altogether, 90% of all victims and 75% of all economic damages accrue in developing countries (Thouret and D'Ercole 1996). There is further evidence that women and children in developing countries lack significant capacity to prepare for, respond to, and mitigate the threat of natural disasters. Increasing the capacity of poor communities around the world to be more resilient to natural disasters is dependent on addressing root causes of poverty.

There are, however, strategies in place to address poverty at a global scale. The 2000 United Nations Millennium Summit resulted in the Millennium Development goals; eight targets to provide guidance for achieving development in the international community, national governments and, in particular, the United Nations. All of these targets touch upon areas which are closely linked to vulnerability to natural hazards, such as eradicating extreme poverty and hunger, achieving universal primary education, promoting gender equality, and ensuring environmental stability and partnerships for development (UN ISDR 2005). The connections between the cycle of poverty and natural disasters are highlighted by the Millennium Development Goals and provide a framework for measuring change and understanding what poor communities need to reduce disaster risk and increase capacity for local action.

Natural Disasters Risk in Developing Countries

The trend during the last three decades shows an increase in the number of natural hazard events and an increase in the number of people affected (ISDR 2004). As the worlds' population continues to grow and develop in areas exposed to natural hazards (such as hurricanes, floods, wildfires, and earthquakes), so does the risk of potential loss of life, property, and natural and cultural resources. In the last 2 decades, more than 1.5 million people have been killed by natural disasters (UNDP 2004). According to the International Federation of the Red Cross and Red Crescent Societies (1993) people in low-income countries are four times more likely to die in extreme natural events than people in high-income countries.

While media attention often focuses on deaths resulting from disasters, the long-term economic and social impacts may have equally devastating consequences. Worldwide, for every person killed, about 3000 people are exposed to natural hazards (UNDP 2004). This highlights the fact that for every death highlighted in the news, thousands of people will struggle to recover their losses, rebuild or find new homes, and deal with the long-term consequences of the disaster. Sadly, their story is not always told and it becomes too easy for the general public to 'forget' the losses that occurred from a disaster.

Another contributing factor to increasing natural disaster risk in developing and developed countries alike is climate change. A 2001 report by the IPCC states, *"The rising socio-economic costs related to weather damage and to regional variations in climate suggest increasing vulnerability to climate change. Preliminary indications suggest that some social and economic systems have been affected by recent increases in floods and droughts, with increases in economic losses for catastrophic weather events. However, because these systems are also affected by changes in socio-economic factors such as demographic shifts and land-use changes, quantifying the relative impact of climate*

change (either anthropogenic or natural) and socio-economic factors is difficult." As new and emerging research continues to illustrate the long-term affects of climate change, disaster mitigation and poverty reduction programs must take into account the variations in weather and future impacts resulting from climate change.

Poverty and Disaster Risk in the United States

It is difficult to compare the extent of poverty and need among underserved populations in the United States with the needs of citizens in developing countries all over the world. However, there is a subset of America's population that experiences poverty and hunger, as well as extreme risk from natural disasters. Impoverished populations lack the resources to prepare for, respond to, or recover from catastrophic events. Many people living in hazard prone areas rely on insurance coverage to help in the recovery phase, but poor U.S. citizens may not have insurance, may not own their own homes, and may lack any form of insurance that will assist them in the aftermath of a disaster. There is growing evidence that the populations hardest hit by Hurricane Katrina are low-income, minority citizens. The three states hardest hit by Hurricane Katrina– Louisiana, Alabama, and Mississippi– are among the poorest states in America. Among those who are most economically disadvantaged are people of color, specifically African Americans (Democracy Now 2005).

EXAMINING DISASTER RISK: FACETS OF SOCIAL VULNERABILITY

Nature does not direct impacts on one segment of a population over another. Poor or rich, young or old, a natural disaster will disregard income, political affiliation, social boundaries, and religious differences. Settlement patterns, however, do result in increased risk of some populations over others. Poor people may be displaced into less desirable areas (such as floodplains or on steep slopes) or live in homes and communities that lack building codes or enforcement to regulate development in high-risk areas.

Risk and vulnerability assessments help allocate resources to areas with the greatest potential for losses from natural disasters. These assessments consider the vulnerability of the population and resources along with the likelihood of the disaster occurrence. Risk assessments are based on existing scientific knowledge of the potential for disaster occurrence and data on population and economics that can help forecast potential knowledge. However, these assessments do not always consider social vulnerability as an element of risk.

A 2002 UNDP report defines social vulnerability as: *"…the degree to which societies or socio-economic groups are affected by stresses and hazards, whether brought about by external forces or intrinsic factors – internal and external – that negatively impacts the social cohesion of a country."* While the UNDP report examines capacities and vulnerabilities of Small Island Developing States, its framework provides an understanding of social vulnerability that helps identify the populations that may be at greater risk from losses resulting from disasters. The report goes on to state: *"Social vulnerability is characterized by increased growth in criminal activities, growing rates of HIV/AIDS infection, growing rates of children dropping out of school, declining age of prison population, declining public health, rotting public infrastructure and migration of skilled professionals. These occurrences are symptoms of negative social processes resulting in increased social vulnerability."*

Examining the coping ability of various populations at risk to disasters is one approach to identifying elements of social vulnerability. Indicators of individual vulnerability may include income, employment earnings, age, gender, disability, household type (e.g., single-headed household), household value (and ownership or non-ownership), ethnicity, and literacy. Indicators of community vulnerability may more broadly include geography (urban and rural communities), infrastructure, utilities, local economics and markets, and even politics and governance. Failure to consider indicators of social vulnerability and the needs of underserved populations can result in intensified and long-term consequences from disasters.

There are numerous social vulnerability indicators that can be examined to better understand how social vulnerability affects disaster risk. Urban poverty, rural poverty, and gender are elements of social vulnerability that are examined below. While these elements by no means encapsulate all facets of social vulnerability, they help to illustrate the key challenges facing policy-makers and planners, as well as illustrate opportunities related to poverty alleviation and reducing disaster risk.

Urban Poverty

Urban communities all over the world (in rich and poor countries) have suffered extreme losses, both economic and human, from natural disasters. Urban communities experiencing poverty will continue to face increasing risk from disasters. Urban developments may lack building codes or enforcement, may be developed in high-risk areas (such as floodplains or on steep slopes), and are densely populated by people that do not have the ability to invest in mitigation measure for their homes. Disaster risk continues to grow as rapid urbanization increases as a result of the drive for economic growth and social improvement (UNDP 2002).

An example of significant losses in a poor urban area from a disaster is the 2001 Gujarat earthquake. A 7.7 magnitude quake centered in northwest India killed at least 20,000 people and injured many thousands more. The following summary (provided by Enarson 2002) illustrates the relationship between disaster losses experienced during the earthquake and social vulnerability pervasive in the region. _"Although Gujarat is one of India's most prosperous and industrialized states, more than 60% of the population earns a living from the land, and poverty is widespread. The earthquake destroyed or damaged more than a million homes, leaving some 600,000 residents homeless months before the coming monsoons. Damage to public facilities was extensive. Of 1,359 schools in Kutch, 992 were destroyed; 300 youngsters were crushed when their schools collapsed on them during a Republic Day parade. Damage to hospitals and clinics took the lives of many patients and medical staff, and the four district centers for mentally and physically disabled residents were destroyed (Mistry, 2001)."_

The 2002 UNDP report "Reducing Disaster Risk" stated, _"During this decade, population increase will occur most rapidly in urban areas in the countries of Africa, Asia and Latin America and the Caribbean, with more than half of the world population becoming urban by 2007."_ This report also states, _"urbanization does not necessarily have to lead to increasing disaster risk and can actually, if managed properly, help reduce it."_ Increasing support to countries experiencing rapid urbanization via better planning, safer building standards, and economic development can help in mitigating losses from disasters while also meeting objectives for poverty reduction.

Rural Poverty

Rural poverty also contributes to increased disaster risk. According to a 2004 UNDP report, about 70% of the world's poor citizens live in rural areas. While rural areas may lack the dense population that contributes to the disaster risk and potential for losses in urban areas, poor rural communities may also face severe consequences in the event of a disaster. Rural areas often lack essential infrastructure services such as communication and transportation that play a key role in facilitating early warning and evacuation capabilities in the event of a major disaster. Following are examples of how rural poverty exacerbates disaster risk in the United States.

Wildfire and Rural Poverty in the United States

The financial and social costs of wildfires are rising annually in the United States. Between 2000 and 2003, wildfires destroyed over 4,000 structures across the country and cost the federal government over $4.7 billion in fire suppression (NIFC 2004). In 2004, wildfire consumed over eight million acres across the United States — well above the ten-year average (1993 to 2003) of over 5.5 million acres (NCDC 2004).

A recent research project (NNFP and Resource Innovations 2005) used the concept of community capacity, a community's ability to protect itself, respond to and recover from wildfire, to introduce socioeconomic indicators as an element of wildfire risk. Utilizing socioeconomic information, as well as ecological factors, this study investigated, through a geographic information systems (GIS) approach, whether communities most at risk from wildfire are able to access and benefit from federal programs established to serve these communities. In other words, are the dollars, assistance, and fuels reduction projects benefiting the areas that are most at risk throughout the country (and in those communities whose risk is exacerbated by poverty and social vulnerability?)?

The research focused primarily on using available data to examine the relationship between poverty and populated areas at risk to wildfire. Research indicated that there is a relationship between poverty and federal land ownership, with more poor households being located in close proximity to federal lands. In addition, a higher percentage of poor households are located in wildland areas that are not considered part of the Wildland Urban Interface – the areas for which federal agencies and the U.S. Congress have prioritized the majority of funds for activities under the National Fire Plan. The research also indicated that in the one state that provided data on protection capabilities, poor households are more likely than non-poor households to be located in areas with low or no fire response capabilities.

This research project also led to the discovery that there are significant gaps in information and data necessary to answer this question, including data regarding the ecological conditions of federal lands, wildfire protection capability in and around communities, and the federal expenditures under the National Fire Plan -- is unavailable and/or inadequate. In addition, the data available at a national level does not consider socioeconomic factors as an element of risk.

This research is a first step in documenting the importance of socioeconomic information in wildfire policy and implementation in the United States. The lack of information regarding wildfire risk, including ecological conditions, socioeconomic indicators, and resource allocation, led us to focus our recommendations on improving federal agency understanding and use of socioeconomic factors through national inventory and monitoring efforts. Specific recommendations include developing a

method for measuring community capacity in the context of wildfire and using this methodology to redefine the concept of risk for implementation priorities at the national level, as well as in state, regional, and local planning and risk assessments. Federal land management agencies also need to improve systems for monitoring National Fire Plan expenditures and the datasets that support the prioritization of these funds.

Often, grants and programs rely on local financial matches to guarantee community participation. While it is important to have the understanding and involvement of the public, such programs may exclude people or communities without the financial resources, time, or skills to meet program requirements. Elderly and disabled citizens may not have the physical capacity to contribute labor; minorities may feel uncomfortable about engaging in traditional public participation processes; and impoverished citizens may not be able to take time away from their jobs and families to become involved. Understanding social and economic dynamics of communities is critical to providing assistance that will help communities protect themselves from wildfires and other natural disasters, and respond to and recover from catastrophic events.

Other rural and geographically isolated populations at increased risk to impacts from natural disasters are Native American Tribes in the United States. In 2004, Resource Innovations at the University of Oregon examined the needs of Tribes in Oregon, Washington, and Idaho (many of whom have rural populations) in relationship to wildfire protection and prevention. The purpose of the study was to communicate findings to Tribes, agencies, and organizations that allocate funding and provide technical assistance for fire protection. Many Tribes, particularly in the Northwest, face high risk from wildfire and are challenged by economic instability.

One of the primary findings of this study was related to the need for greater involvement and input on the part of tribal governments and tribal members in planning, policy development, and implementation of fire management programs. Tribal control of fire management activities varies from Tribe to Tribe, based on the level to which Tribes have (or have not) consolidated to control programs or services formerly delivered through the Bureau of Indian Affairs (BIA) as trustee. Under the 1975 Indian Self-Determination and Education Assistance Act (ISDEA) and subsequent "self-governance" policies, Tribes reserved the right to take control over their own affairs and make decisions that affect both Tribal members and assets. Therefore, in terms of fire management, Tribes may be more successful in implementing Tribal goals if they have greater control of relevant resources, programs, and services. The Indian Forest Management Assessment Team for the Intertribal Timber Council reinforces this point in terms of Tribal forestry: *"Tribes with a greater degree of control over their resources have forests and forestry that align better with Tribal goals and vision than those with less autonomy"* (IFMAT 2001).

Self-determination and control over management of natural resource, emergency management, and other civic programs bears a strong relationship to the extent to which community knowledge is valued and input is utilized in projects implemented in many developing countries.

Gender

Understanding gender issues in the context of disasters is critical to disaster management. There is a growing body of literature that cites the importance of gender mainstreaming and addressing women's issues in all phases of disaster (GDN 2004). The emerging consensus, as summarized by Salvano 2004: *"Gender equality is not a separate topic, but rather a cross cutting element that needs to be considered*

in an integrated manner in ALL development projects or activities if we are to achieve sustainable development in our societies." **Gender mainstreaming**, defined as a strategy for promoting gender equality, involves ensuring that perspectives and attention to the goal of gender equality are central to all activities - policy development, research, advocacy/ dialogue, legislation, resource allocation, and planning, implementation and monitoring of program and projects (OSAGI 2005).

In 2001, an expert group convened in Turkey to discuss Environmental Management and the Mitigation of Natural Disasters as part of the UN Division for Advancement of Women and the International Strategy for Disaster Reduction. This meeting resulted in a series of recommendations related to using a "gender-sensitive and cross-sectoral approach" for research, policy development, budgeting and financing, legislation, human rights, training, education and capacity building, and media and communication. Recommendations were also developed for focusing on gender issues in community involvement related to disaster mitigation programs.

When gender-based inequalities interact with poverty, some women and girls are at especially high risk (UN/DAW 2001). Two examples follow: 1) early warning systems may fail to reach women (Enarson 2004); women in poverty may not have radios or televisions, or time to listen to available radios or engage in community activities where information may be transferred. Additionally, information may not reach women in sex-segregated societies. 2) Vulnerability assessments may exclude women's knowledge; an assessment conducted by an external organization may not take advantage of knowledge and experience of women (Enarson 2004). Women may have pressures related to their families and jobs that do not allow them the time to participate in community assessments.

There are, however, an increasing number of resources available to disaster managers and organizations working on women's issues, poverty, and disaster risk. A few examples are highlighted below.

In 1997, an international coalition of researchers, practitioners, and government representatives formed the Gender and Disaster Network (GDN): an educational project initiated by women and men interested in gender relations in disaster contexts. The goals of the GDN are to document and analyze women's and men's experiences before, during, and after disaster, situating gender relations in broad political, economic, historical, and cultural context; work across disciplinary boundaries to support collaborative research and applied projects; foster information sharing and resource building among network members; and to build and sustain an active international community of scholars and activists.

In 2003, women's community-based organizations in the Dominican Republic, St. Lucia, El Salvador, and Dominica entered into a two-year pilot project to map disaster risk from hurricanes, floods, landslides, and fires in their communities. With training in basic research methods, the community women used interviewing, photo essays, risk mapping and other techniques to assess vulnerabilities and capacity. This information was then compiled into community vulnerability profiles, written guidelines for conducting vulnerability research with women's community-based organizations, and a bilingual, practice-oriented guidebook for working with women to reduce risk in the Caribbean. Some of the community researchers went on to work with other women's groups in their region as informal community vulnerability educators (Enarson 2003).

In August 2004, members of the Gender and Disaster Network convened in Honolulu, HI for *Gender Equality and Disaster Risk Reduction: An Action Workshop for Social Change.* Participants in this workshop made new connections between gender, development and disaster, and met to dialogue about women's grassroots work to prevent disasters, existing and needed tools and resources, organizational capacity needed to engender disaster work, and to contribute to a new gender and disaster sourcebook of educational materials. This workshop resulted in the Honolulu Call to Action: collaboratively developed by workshop participants and presented at the World Conference on Disaster Reduction in Kobe, Japan in January 2005.

Researchers and practitioners are increasingly working together to provide materials and information on gender mainstreaming in the disaster management field. An article on planning gender-sensitive post disaster reconstruction (Enarson 2001) provides guidelines for livelihood, temporary and permanent housing, training and education, physical and mental health, and empowerment for women and in the post-disaster environment. After the 2004 Asian Tsunami, the Gender and Disaster Network acted collectively to develop a "Gender and Disaster Broadsheet" and distribute it to governmental and non-governmental organizations working on disaster response.

RECOMMENDATIONS

Poverty reduction strategies must include measures to reduce disaster risk and address all aspects of social vulnerability. Following are a series of recommendations for consideration in developing programs related to poverty reduction and disaster management. These recommendations are drawn upon research conducted for this paper and the author's experience in working on issues related to disasters and social vulnerability.

1. **Focus assistance on a multi-objective approached related to poverty alleviation and reducing disaster risk.**

Strategies for disaster mitigation and poverty alleviation cannot be based on monetary compensation. There are some countries that may have a low per capita income, yet have the resources and capacity to meet the basic needs of their population. For countries and communities that lack the resources, knowledge and capacity to reduce disaster risk or implement poverty measures, assistance must be more robust than just financial investment. Investment in economic development and capacity-building may ultimately lead to a society that has a greater ability to meet basic needs and reduce vulnerability to natural disasters and other economic, ecological, and social pressures.

2. **Embed decisions about funds for disaster mitigation within regular budgets for disaster management.**

Annually, billions of dollars are spent on responding to, recovering from, and rebuilding after natural disaster events. Increasing investment in disaster mitigation can also support poverty reduction goals. As the United Nations, international non-governmental organizations, and governments around the world develop and implement poverty reduction policies and programs, there is an opportunity to integrate actions that will reduce disaster vulnerability among people in poverty, and, simultaneously, build their capacity for economic development.

3. Utilize the Millennium Development Goals to help measure progress in poverty alleviation and disaster risk reduction.

A 2004 UNDP report stated, *"Meeting the Millennium Development Goals is severely challenged in many countries by losses from disasters. Disaster losses can 'setback social investments aiming to ameliorate poverty and hunger, provide access to education, health services, safe housing, drinking water and sanitation, or to protect the environment as well as the economic investments that provide employment and income."* There is a need to assist developing countries in creating integrated disaster risk reduction and poverty alleviation programs in order to achieve the Millennium Development Goals.

This recommendation can also be accomplished by integrating disaster mitigation within sustainable development programs. With an international focus on sustainable development, there is an opportunity to integrate disaster mitigation programs in a wide-range of development activities, from housing and infrastructure to community and economic development.

4. Use Indicators of Social Vulnerability and Social Capacity in Disaster Risk Assessment, in additional to traditional physical and economic indicators of risk.

Traditionally, disaster risk is considered in terms of the potential for an event based on past occurrences, the population and resources exposed to the disaster, and the resources available to mitigate losses. This assessment, while necessary, will not necessarily lead decision makers to provide appropriate levels of assistance to populations that may feel much more significant impacts because due to other aspects of social vulnerability.

A practical way of assessing progress toward reducing disaster risk among vulnerable populations is by including indicators for social vulnerability in formal disaster risk assessments. This will serve two functions: 1) it will help identify vulnerable populations at-risk and target appropriate assistance to those areas; and 2) indicators of social vulnerability and capacity will help measure changes over time to the level of risk among socially vulnerable populations. Understanding factors such as poverty, gender, race, and other aspects of social vulnerability that may contribute to the vulnerability of a community can help identify strategies to reduce disaster risk and benefit poverty reduction programs. Specific examples of how indicators can measure progress and lead to direct action include understanding the literacy of a population to help direct communication strategies and evaluating social networks to teach people and organizations about opportunities for mitigation and response.

5. Include Class Analyses in Gender Mainstreaming

There are many programs worldwide aimed at illustrating and mainstreaming gender issues in development policy and programs. Women are now engaged in all levels of government and decision-making and there are opportunities for women to take leadership roles in the field of disaster management. A connection not always made, however, is the need to consider poverty and class as part of the gender discussion. Bringing a stronger class analysis to gender mainstreaming in the context of disaster mitigation will help identify whether or not women in poverty are being actively engaged in preparedness and mitigation, response, and long-term economic recovery.

6. Use a Capacity-Building Approach in Poverty Reduction and Disaster Mitigation Programs

A capacity-building approach can begin by utilizing the social, human, and cultural capital that exists among the populations at risk. Populations that may be typically underserved may have valuable contributions to make through their knowledge, leadership, and experience within the community.

The United Nations Development Program defines capacity as *"the ability of individuals, organizations and societies to perform functions, solve problems, and set and achieve goals."* While this definition is broad, it underscores the need for some kind of institutional body that can move toward common objectives, monitor progress and collectively achieve a set goal. A more specific definition of community capacity states that it is *"the collective ability of residents in a community to respond to external and internal stresses, to create and take advantage of opportunities, and to meet local needs"* (American Forests 2001). Finally, Mitchell (1999) describes the capacity to survive and recover from the effects of a natural disaster as, *"the physical magnitude of the disaster in a given area and the socioeconomic conditions of individuals or social groups in that area."*

Another dimension of capacity is the willingness and ability of diverse groups to work in collaboration; bringing together public agencies, citizens, community-based groups, women's groups, faith organizations, and other grassroots organizations can ensure that the needs of the underserved are not ignored in policy and implementation and build long-term capacity not reliant on external resources. Creating networks between diverse agencies and organizations can ultimately increase the provision of services to all citizens and help ensure that all people are equal participants in creating safer, stronger communities.

> *"The impact of [this magnitude] on people and property is entirely due to the limited capacity resulting from lack of resources, and poverty at all levels"* (Ariyabandu 2000).

Understanding the capacity of individuals, communities, and nations to prepare for, respond to, and recover from natural disasters is a key tenet of this paper. A capacity-building approach with communities, institutions, and countries can result in increased opportunities for success in implementing poverty reduction and disaster mitigation strategies.

This discussion of capacity, along with all of the recommendations, is intended to better frame the opportunities to integrate disaster mitigation and poverty reduction strategies. If policies reflect the connection between alleviating poverty and reducing disaster risk through a capacity-building approach, then perhaps disaster mitigation programs will be designed to build the capacity of a community to self-organize, identify realistic solutions, and work together to implement these critical programs.

REFERENCES

Ariyabandu, Madhavi Malalgoda. 2000. Impact of hazards on women and children: situation in South Asia. Paper presented at the Miami conference on Reaching Women and Children in Disaster, June 2000. Available through the Gender and Disaster Network: http://online.northumbria.ac.uk/geography_research/gdn.

Briceño, Sávano. 2005. Gender equality and disaster risk reduction. Statement to the UN Commission on the Status of Women for International Women's Day. Available through ISDR: http://www.unisdr.org/eng/media-room/statements/stmts-2005-8-march-sb-gender.doc

Democracy Now. 2005. Dozens Dead as Hurricane Katrina Slams into Gulf Coast: A Look at Extreme Weather, Oil Development and Who Gets Hit the Hardest http://www.democracynow.org/article.pl?sid=05/08/30/1354242

Enarson, Elaine. 2001. 'We want work;' rural women in the Gujarat drought and earthquake. Natural Hazards Center Quick Response Report #135. Available through the University of Colorado: www.colorado.edu/hazards/qr/qr135/qr135.html.

Enarson, Elaine. 2001. Promoting Social Justice in Disaster Reconstruction: Guidelines for Gender Sensitive and Community-based Planning. Disaster Mitigation Institute.

Enarson, Elaine. July 2004. Working with Women in Disasters: Practical Lessons about Gender Equality and Disaster Risk Management. Compiled with contributions from the UN Division for the Advancement of Women Expert Group Meeting.

Enarson, Elaine with Marta Gonzáles, Lourdes Meyreles, Betty Hearn Morrow, Audrey Mullings, and Judith Soares. 2003. *Working With Women at Risk: Practical Guidelines for Assessing Local Disaster Risk.* Available through the Gender and Disaster Network: http://online.northumbria.ac.uk/geography_research/gdn/resources/Working%20w%20Women%20English%20.pdf.

Enarson, Elaine and Betty Hearn Morrow. (eds.) 1998. *The Gendered Terrain of Disaster: Through Women's Eyes.* Westport, CT: Greenwood Publications. Available in paperback through the International Hurricane Center, Florida International University (www.fiu.edu/~lsbr).

Gender and Disaster Network. 2005. Gender Equality in Disasters: Six Principles for Engendered Relief and Reconstruction. http://online.northumbria.ac.uk/geography_research/gdn/

Gender and Disaster Network. 2005. Selected Resources on Gender and Disaster. http://online.northumbria.ac.uk/geography_research/gdn/wot_bibliographies.htm

International Federation of Red Cross and Red Crescent Societies. 1993. World Disasters Report.

Lynn, Kathy. November 2003. Wildfire and Rural Poverty: Disastrous Connections. Natural Hazards Observer.

Martine, George. December 1999. Population, poverty and vulnerability: Mitigating the effects of natural disasters, Part 1. Sustainable Development Dimensions. Food and Agriculture Organization of the United Nations.

National Climatic Data Center. December 2004. http://www.ncdc.noaa.gov

National Interagency Fire Center. June 2004. http://www.nifc.gov

Natural Hazards Center (NHC) Research and Application Workshop Panel Proceedings. (July 2004) Community-Based Hazards Management in Grand Bayou, Louisiana: Post-Disaster Recovery and Coastal Vulnerability (S04-5).

Thouret, J.C. et d'Ercole, R. (1996), « Vulnérabilité aux risques naturels en milieu urbain : effets, facteurs et réponses sociales », p 408, in *Cahiers des sciences humaine*s, vol 32, n°2, « Croissance urbaine et risques naturels dans les pays en développement », pp 407-422

United Nations Development Programme. May 2002. Draft final report: Vulnerability and Small Island Developing States. University of the West Indies Centre for Environment and Development.

United Nations Development Programme. 2004. Reducing Disaster Risk: A Challenge for Development. Available at: http://www.undp.org/bcpr/disred/english/publications/rdr.htm

United Nations Division for the Advancement of Women. 2001. Environmental Management and the Mitigation of Natural Disasters: A Gender Perspective. Final report of the Expert Group Meeting in Ankara, Turkey (November, 2001) including papers and action recommendations. All documentation available online from the Division for the Advancement of Women: http://www.un.org/womenwatch/daw/csw/env_manage/documents/EGM-Turkey-final-report.pdf

United Nations Economic and Social Council. 2002. Environmental Management and the Mitigation of Natural Disasters: a Gender Perspective. Secretary-General's Report from the 46th Session of the Commission on the Status of Women (4-15 March). Available through the Division for the Advancement of Women: www.un.org/womenwatch/daw.

United Nations International Strategy for Disaster Reduction (ISDR). 2004. *Living With Risk: A Global Review of Disaster Reduction Initiatives.* Available through ISDR: http://www.unisdr.org/eng/about_isdr/bd-lwr-2004-eng.htm

United Nations International Strategy for Disaster Reduction (ISDR). 2005. The link between Millennium Development Goals (MDGs) and disaster risk reduction. Available at: http://www.unisdr.org/eng/mdgs-drr/link-mdg-drr.htm

United Nations Office for the Special Adviser on Gender Issues and the Advancement of Women. 2005. Gender Mainstreaming. http://www.un.org/womenwatch/osagi/gendermainstreaming.htm

World Bank. October 2000. Poverty in an Age of Globalization. Washington DC.

World Bank. 2001. World Development Report Indicators. Washington DC.