

**United Nations**

**Division for the Advancement of Women (DAW)**

**International Strategy for Disaster Reduction (ISDR)**

**Expert Group Meeting on**

**“Environmental management and the mitigation of natural disasters:  
a gender perspective”**

**6-9 November 2001-**

**Ankara, Turkey**

## **Abstract**

This paper explores the gender dimensions of the complex relationships within the development paradigm that contribute to environmental mismanagement and vulnerability to disasters. While the link between natural disasters and environmental degradation is well established, now there is growing evidence that many conflicts – so far mainly intrastate ones, are the result of environmental resource mismanagement. How does gender play out in this web of relationships? The paper makes the case that Gender is at the core of our social and economic institutions, and therefore crucial in producing the results we observe. Understanding gender roles and how they interface with developments is essential to forwarding our global values and agendas – whether they relate to gender equality, environmental protection, social justice or human rights. The paper suggests that it is important not to miss the opportunity of post-disaster reconstruction and recovery to promote institutional change – which can make way in the future for achieving the goals of environmental management, gender equality and social justice – all of which are required for reducing disaster risk and vulnerability.

## **1. Introduction**

During the twentieth century the world has experienced unprecedented growth in population and standards of living. That both these forces exert strains on natural surroundings is not a revelation, but something that most of us have personally experienced or witnessed during the course of past decades. Many of these increasing stresses on the environment have been shown to make populations more vulnerable to natural disasters. Climate change, spread of arid lands and desertification, pollution of marine and freshwaters and destruction of forests all contribute to changes in ecology of natural resources on which people depend for survival, and make them more vulnerable to weather and other geophysical risk factors (IFRC 1999). More recently, there is also a growing body of evidence relating environmental stresses and competition for natural resources to many of the national and transboundary conflict situations that we are experiencing (McNeely 2000; Homer-Dixon 1994).

How men and women are impacted by, and respond to disasters is directly related to existing gender roles, and relative income and environmental surroundings. The economic status of a country is also a significant factor in determining the vulnerability of a population to disasters (McNeely 2000; Homer-Dixon 1994).



(Blakie et al 1994). Individuals and social groups carry different "vulnerability bundles" and households and communities vary significantly in terms of disaster impacts and access to private and public resources for responding to and recovering from crisis (Cannon, 1994; Wiest et al. 1994).

The components of vulnerability have been variously identified, and include elements of livelihood security and assets, personal health and access to basic needs such as food, water and shelter, and extent of social organization, preparedness and safety nets. In other words, those with access to various forms of capital – financial, physical, social, or human capital are better able to weather hazards. Poor people face may not only face greater exposure to hazards due to factors such as construction material, location and access to information, but also have a lower capacity to cope. (Box 1 – Peru's earthquake)

Gender is a pervasive factor affecting various facets of vulnerability in societies. It shapes division of social and economic resources in a way that women generally have lower access to all forms of capital, and are therefore more vulnerable to disasters than men. So while it can be seen that poor households are likely to suffer most in disasters in



of PTSD (Ollenburger and Tobin 1998). For women, the sources of stress include the increased burdens of caregiving accompanied with an increase in powerlessness. Intense human suffering due to sustained poverty and economic marginalization may condition the onset of disaster stress, and if not effectively managed, can lead to psychosocial incapacitation, either short-term or long-term. Impacts on women of prolonged stress can have particularly large adverse effects on the health and growth of their children.<sup>1</sup>

Every time a disaster strikes, the moral economy binding the family together is challenged. Even though in the immediate aftermath, families and even distant kin and community come together, once the crisis subsides the economic pressures take over. Marital discord is reported to increase in post-disaster situations. Examining the number of injunctions filed in domestic violence cases over the period from 1990 to 1995, Morrow (1997) found a decline right after August 1992 when Hurricane Andrew devastated the southern portion of Dade County Florida, and was followed by a sharp rise through the early months of 1993. Also a random survey of 1,400 homes undertaken by a state agency two months after the hurricane, 35% reported that someone in their home had recently been stressed to the point of losing verbal or physical control (Delica 1998).

There is an increasing tendency for poorer men to walk away from marriages and the



**3. *The link between environment, disasters, and sustainable development from a gender perspective***

**3.1**



greater for poor households and for women. (Box 4 – Bangladesh char lands) To start with, poor households are more likely to be living in degraded environments. In a recent analysis of the distribution of the poor living in either favored or marginal<sup>3</sup> lands in developing countries, showed that in all regions of the world the proportion of poor on marginal lands is greater than that on favored lands. Overall there were an estimated 325 million poor on favored lands, and 630 million on marginal lands (Nelson 1996). These



in the process. Watersheds over which women had control to collect fuel, fodder and water is lost. Local researchers have noted a shift in the process from strong community institutions to a more individual oriented market orientation and a growing willingness to extract unsustainably larger amounts of non-timber forest products (NTFPs) such as medicinal plants or other high value products.<sup>7</sup>

According to many analysts, the structural adjustment policies have, in the process of creating greater inequalities, heightened inequities already experienced by women (Gladwin 1991, Staudt, 1995). However, though the overall pattern may hold, there are many examples in which increased opportunities have emerged for women, as workers in new industries. Though often, the conditions are poor, women may obtain more wage employment that is better than other options. When they are engaged in business, as in west Africa, they use their networks to adjust to, and work with the increased riskiness and challenges faced (Chalfin, 2000).

### **3.3 Growing conflicts driven by competition for natural resources**

Since the 1990s there is growing evidence of conflicts are linked to environmental degradation, and competition of natural resources. (Box 5 – Haiti) as a contributor of disasters. Researchers working on conflicts note that in rural areas, environmental stress and natural resource scarcity<sup>8</sup> create negative social effects, intensify group identity tensions, promote resource capture by social sub-groups, and force others to migrate onto marginal lands or to urban areas (Box 6 – Sudan). These stresses leaves people more vulnerable to natural and men made disasters, and can intensify or trigger violent conflict and social instability (Homer-Dixon 1994). Tropical forests are one of the world's last

found to be weak governance institutions that are not inclusive, open or participatory appears to be a contributing factor, in addition to poverty, and existing group identity conflicts.

Conflicts impact women and men differently depending on the roles and functions each fulfills. In direct conflict situations, women may or may not directly participate in the war, but their livelihoods as with men are reduced. In most cases, they are regularly face the prospect of rape and violence. In other cases, they deal with men leaving and take on additional activities in economic and social spheres.

living in such susceptible areas is nearly 90 percent. Poverty rates in these areas also tend to be much higher than in all rural areas: for all developing regions, 40 percent of people in these susceptible areas were classified as poor. For Central and South American, poverty rates in the susceptible areas are much higher at almost 60 percent<sup>9</sup>.

Natural disasters are much more likely to devastate the very basis of people's livelihoods in rural areas, since they depend more on the natural resource base for all aspects of life - housing, fuel and water, food and income. This makes the already precarious conditions for disaster prone areas and groups even worse. The impacts on women depend on the type of disaster and how it impacted on the communities resource base, as well as the nature of women's activities and how they were impacted. There are a few anecdotal examples in the literature, that describe how women's economic activities were affected by disaster. There is some indication that women may be more impacted because their economic activities include reliance on natural resources for household maintenance (fuel, water, fodder) as well as for income generation. Their recovery is also hindered because they tend to cultivate poorer lands or are engaged in informal sector activities, both of which receive less attention during rehabilitation. It is however, clear from the available evidence is that a breakdown of economic activity is probably the major obstacle to long term recovery from disaster.

### **3.5 Need to better integrate environmental protection/regeneration , and other disaster mitigation for sustainable development**

Most development and aid programs emphasize poverty, but ignore the risk of natural disasters as a major influence on poverty, though there is awareness of the link. One consequence of this omission is the failure to address environmental protection measures or strengthen institutions that manage competition for resources in an inclusive manner, as an integral component of poverty reduction efforts.

In large part, this omission can be traced to the prevailing economic theory known as the 'environmental Kuznets curve'. This theory claims that deteriorating environmental quality accompanies initial stages of economic development, followed by a turning point and improvements in environmental quality at higher incomes. It is however, seldom mentioned that EKC studies generally find turning points occurring at per capita incomes between \$4,000-10,000 per year. Also they deal mainly with emissions of pollutants, and not with resource stocks such as soil quality, forests and ecosystems biodiversity. These results are drawn from experiences of industrialized countries, and given present income levels and development trajectories of developing countries today, it is fair to question if these results will be extended to them, and if any biodiversity can be preserved in the process (Rothman and de Bruyn 1998, Shafik 1994).

There are fortunately, a growing awareness of the economic value of environmental conservation, even in the short run. With the increasing scarcity of water, need for protection of watersheds for a variety of water users is becoming apparent. In the process of such environmental protection, the areas are also being protected against disasters such

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<sup>9</sup> These estimates are based on a CGIAR analysis of land use types prepared by TAC 1996.

as drought and flooding. Similarly protection of coral reef health in Guam by better watershed management, is helping to protect local livelihoods as well as protect against hazard risk for the islands (Cheryl Anderson, personal communication ).

Enabling local communities to better manage natural resources has emerged as top priority on the combined agenda of environmental, social justice and poverty oriented development efforts. Suddenly the rhetoric of local participation is becoming a reality, often out of necessity and recognition that top-down management has failed. However, decades of centralized state control has stripped local communities of many of their traditional institutions for resource management and conflict resolution. Similarly, rights to land are poorly defined, and equitable access, use and ownership rights are being negotiated. Lessons from success stories where community based natural resource management has been effective point to the importance of women's meaningful participation in formulation and implementation of rules (Hesse and Trench 2000).

### **3.6 Importance of social equity, justice, local empowerment**

Social networks and the social capital upon which they are built become key resources in times of hardship, particularly for those individuals and communities excluded from economic and political resource access. Studies of social vulnerability show that often deeper and historical forces are at the root causes of these processes. Ability of local communities and groups to expand their social capital promotes a healthy civil society, and has been shown to reduce grassroots vulnerability. Such changes also promote the protection of local resources from takeover by external economic interests.

Justification for takeover of local resources is made in the interest of production versus protection. In the process however, local communities lose out both in terms of their communities and resource mas hTh0031-0.versufrages (3.6



#### **4.2 Making development efficient, sustainable and equitable, requires incorporating a gender perspective and environmental protection**

Women's participation for growth, equity and welfare is at the core of sustainable poverty eradication



Since the natural resource base is so central in livelihoods of people living in disaster





development. It is however, necessary to educate government functionaries and outsiders who prefer to deal with the prevalent male power structures in communities, so that they not overlook this resource.

During and following disasters, women take on additional responsibilities both in the household and in communities, thereby acquiring new skills. In addition, they also face



gender, class and ethnic differences that are observed, it is possible that women become more dependent on men or on formal disaster assistance.

Even in communities where women are traditionally involved in food production, rehabilitation programs often overlook them and fail to involve them when providing production inputs or training. A drought rehabilitation program in Wollo, Ethiopia, simply treated women as homemakers rather than as farm managers in their training and leadership activities. Men were selected almost exclusively in leadership and training, despite the fact that women headed 20 percent of farm households, including many of the poorest, and not only have need for production training, but also have vital skills to share (Anderson and Woodrow 1998: 125). Such examples are widespread, and show how women's relative position may be worsened by misguided rehabilitation efforts.

One of the promising avenues of relevance in building livelihoods of women and marginalized groups is microfinance with social intermediation. This is a form of microcredit with an added element of developing human and social capital. Such group based micro-credit and other income generation programs for poor rural women, have shown a remarkable capacity to increase women's social capital, and their ability to respond effectively during and after disasters. For example, weekly meetings at the Grameen Bank groups helps members to form and strengthen networks outside their living quarters and kin groups. Membership allowed women to have a more complex web of exchange and visiting networks, allowing them build reputation and social capital. These findings suggest that the social implications of microcredit lending can be as powerful, or even more powerful than, the economic implications for women (Larance 1998).

#### **5.4 Integration of gender perspective in design, implementation, monitoring and evaluation of disaster relief and recovery efforts**

Integrating gender issues in project cycles that deal with disaster risk reduction and mitigation efforts is as much about gender as it is about promoting social equity and justice. It is therefore also about bringing about institutional change in organizations that deal with such issues. This is seemingly a tall order, and one that is better shelved for another day. It is also an unavoidable challenge that will need to be addressed if the problems of environmental degradation and unsustainable development that have been described in this paper, are to be addressed.

Gender inequality in societies is mirrored in the organizations that are supported by these societies. Quite irrespective of the stated objectives, the broader institutional environment shapes the gendered “substructure” or organizations, which in turn produce gender-inequitable outcomes (Rao et al 1999). The relevance of gender issues in dealing with development is only rarely apparent to practitioners. It can easily get confused with

“tyranny of the urgent” override longer term development concerns. Relief and rehabilitation offers an opportunity to redress social and economic inequalities, and gender analysis could provide a common frame of reference – and a common challenge for a new way of seeing and doing things, which may turn crisis into an opportunity (IDS 1996).

## **6. Conclusions and recommendations**

How men and women are impacted by, and respond to disasters is shown to be directly founded on existing gender roles, and relative socio-economic status in predisaster situations. From a sociological perspective, both the poor and women are more likely to be underprivileged, and therefore more vulnerable. Within this, a gender perspective shows that since women shoulder a combination of productive, reproductive and household maintenance responsibilities, and have access to relatively fewer resources than men, they consequently face greater challenges and stresses during and after disasters. Though the specifics vary in each situation over the range of disaster situations, and variation in status of women, the overall outcomes are surprisingly similar in developed and developing countries alike around the globe.

An understanding of the social and gender dimensions of disaster risk, brings the interface between development and disasters into clear focus. Structural adjustment programs of the past two decades have created increased competition for natural resources, with a resultant tendency to marginalize local populations at the expense of capital inflows into rural areas. Without an adequate framework for social equity or environmental protection, the outcomes are often literally disastrous. These failures in development can clearly be seen as a source of increased disaster vulnerability, and better disaster mitigation and recovery can be seen as instruments of sustainable and equitable development. Incorporating women’s role in economic development from this perspective becomes common ground for both effective development and effective disaster mitigation.

Lessons drawn from the earlier work on gender and development are equally relevant for disaster mitigation and recovery. In particular, recognizing and supporting women’s economic contribution and empowerment has been found to be more critical to achieving development and welfare objectives rather than focusing on them relief and welfare alone.

Disasters offer opportunities by pointing out existing vulnerabilities and for setting changes in motion. They also offer opportunities for improving women’s economic status that may not be available under ‘normal’ circumstances. This is because men often migrate out of rural areas, and women are faced with a need to expand their capabilities and responsibilities. Existing experiences, though few available in detail, show that building on women’s resources and capabilities improve not only their status, but development for the entire community. Work done in the aftermath of natural disasters and conflict situations has shown that women’s knowledge of their communities and their social networks are an asset and need to be more fully utilized in community based



disaster risk reduction and recovery. Building and supporting these networks assists women in dealing with future disasters. In the few available cases, where women's input and issues are incorporated in recovery, the results are excellent and indicate sustainability and high levels of overall effectiveness. However, an extra effort is required, given the general ease with which women's involvement in program design and implementation can be overlooked.

Gendered vulnerabilities during and after disasters are mirrored in day to day inequities in different societies. As a result efforts to address them cannot be separated, one from the other. Lessons from organizations that have been successful in implementing gender mainstreaming can be usefully applied in order to make planning and implementation of such efforts to be meaningful.

Finally, protection of the natural resource base as part of promoting sustainable livelihoods is crucial both for mitigating disasters and for reducing post disaster stress for women. Rural women still rely to a great extent on natural resources for meeting household needs for fuel, water and fodder. In addition they are also more likely than men to be farming on hillsides and on poor quality soils. Community based strategies that involve women in planning and decision making, have been found to be effective. These lessons need to be better documented, and compiled in such a way as to provide guidance for program planners. Related to this, is the issue of improving land ownership by women, and its relevance for reducing disaster vulnerability, and improving ability to recover from disasters.

Challenges of incorporating gender equality in indigenous movements for improving resource access, is another area whose relevance to the disaster risk reduction and environment management goals, will need to be explored further. Improving local communities' rights to natural resources is a0011 cu03

BOX 1  
Social Forces in Distribution of Vulnerability to Disaster  
in Peru

Following Peru's 500 year earthquake of May 1970, there was an outpouring of aid. However, it was mostly cities that were rebuilt, as survivors throughout the country struggled to rebuild their towns and villages. Roads, airports, electrical and water services were better than before the earthquake, but little aid reached the rural majority. They had to rebuild for themselves. The maldistribution of aid and inefficiency of aid agencies following the tragedy gave rise to the saying: 'first the earthquake, then the disaster'.

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It can be suggested that much of the devastation and misery caused in Peru by the earthquake was a product of the historical processes set in motion that subverted the generally effective adaptations by people to many environmental hazards over a long period of time. Thus, the accentuated vulnerability which the region exhibited is a socially created phenomenon, a historical product brought into being by identifiable forces

*Anthony Oliver-Smith, 1994*

BOX 2  
Gendered Vulnerability in aftermath of a hurricane in the USA Ge9u by

BOX 3

BOX 4  
Increase in Female Headship and Poverty in Disaster Prone  
Areas of Bangladesh

Regular flooding and loss of land through riverbank erosion is endemic in Bangladesh, annually affecting more than one million people. Calamities like cyclones tear families apart through sudden death and separation; in contrast, flood erosion strikes at the family's resource base, often forcing relocation.

A substantial difference in household organization is evident between interior and erosion prone (*char*) lands. Most pronounced is a much higher rate of female headed households in the *char* lands -- nearly three times as in the non-eroded lands. Most of these are *de facto* female headed households, where men have migrated in search of wage work.

Those displaced from their land and homes may attempt to assert their rights to newly accreted land. But despite tenancy laws that provide them first claim, they seldom gain access to such land, are more likely to become captive labor, grateful for

BOX 5

Poverty, Environmental Degradation and Urbanization in  
Haiti

Haiti is one of the most widely cited examples of an environmentally induced political crisis. Decades of rapid population growth pushed Haiti's poor farmers into marginal lands, stripping the country of its forests and topsoil. They migrated by the thousands to the cities, where overcrowding and poverty provoked protests and riots. The instability weakened President' Aristide's government and encouraged the 1991 military coup. It has been argued that the coup would not have occurred had the rural farmers been able to earn a living off the land.

Though the risk of conflict as a result of environmental degradation and population growth is not inevitable. Preventing these will require controlling the growing inequities within countries, and between urban and rural populations.

*Geoffrey Dabelko et al., Panel on 'Land, Water, People and Conflict, March 22, 2000. Woodrow Wilson International Center.*

BOX 6  
Environmental Refugees in Sudan

If you are a *naziheen* in Sudan, you know personally, the link between ecological disruption and political and social violence. The term was coined in the early 1980s to cover a new pattern of migration caused by environmental crisis. Before the advent of this type of migration, migrants were simply referred to as *igleemiyeen*, or rural people. The term is specific for the drought displaced people, and differentiates between migrants and refugees and also is distinct from the terms used for the refugees of the southern conflict.

Why is that these traditional producers of food are the most seriously affected by drought and famine? One explanation is that farmers in the eastern and western regions are no longer able to produce the traditional crops of millet and sorghum due to land degradation. These farmers are also being displaced by large scale mechanized farms that receive government subsidies as part of its 'bread basket' policies.

Drought is not infrequent in Sudan, yet famine occurred because the population was vulnerable, and unable to employ preventive measures to minimize effects of drought. When the rains failed, the mechanized farms cut back planting and amount of paid work. The pattern of development has proved disastrous to poor farmers and promoted environmental degradation.

The number of *naziheen* in Sudan today may be more than 3 million, about half of whom have migrated to Khartoum where they live in miserable squatter settlements. In contrast to international refugees, eg, from Eritrea, none of the *naziheen* qualify for support from UNHCR (United Nations High Commission for Refugees).

Nazih woman are particularly vulnerable. Wearing their traditional clothing, eg, from the Nuba region, immediately makes them target of abuse by both police and by men. Even in homes nazih women face greater risk of violence than in their places of origin, in the face of the greater social and economic hardships faced by these families.

*Fatima Babiker Mahmoud, in Mohamed Suliman (1999) and Mark Duffield, 1990.*

BOX 7

Building Capacity to Cope with Disasters in Pakistan

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