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Challenging Boundaries:
A gender perspective on early warning in disaster and environmental management

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ABSTRACT

A gender perspective on early warning in disaster and environmental management requires that many boundaries be challenged. Amongst these (and this is not an exhaustive list) are boundaries set by gender relations themselves; by diverse (and sometimes competing) academic and institutional domains (hazards, disasters, development, resource management, North-South, etc.); by models of disaster management which incorporate apparently discreet stages; and by formal and informal structures and systems.

This paper refers to examples from developed and developing areas to address some of the challenges faced by taking an holistic and sustainable approach to environmental management. It argues that the relative scarcity of studies incorporating a gender analysis points to a real need in both research and practice.

INTRODUCTION

The stated objectives of this Expert Group Meeting are to assess the link between environmental management and natural[1] disasters from a gender perspective with a focus on the specific phases of natural disaster mitigation; these have been presented (in the DAW Aide-memoire given to Meeting contributors) as: prevention, response, and reconstruction/recovery. As prevention of natural disasters is frequently difficult or even impossible, this term will be extended to include mitigation – an often more realistic and achievable target. This paper examines in particular the prevention/mitigation phase for which the stated objective is to assess and analyse capacities of women and girls in natural disaster prevention/mitigation, including information networks and interactive information systems (early warning systems, disaster preparedness, community involvement); women's representation in the decision-making process at all levels; capacity and vulnerability assessment and capacity-building (logistics, infrastructure, early warning).

It should be said at the outset that this is a demanding task because of the relative lack of attention that these areas have received[2]. While some work has been carried out on gender aspects of *environmental management*, comparatively little research has been completed on gender aspects of *natural disaster management* and even less on *warnings* and the specific the mitigation phase. Furthermore, the linking

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[1] The pros and cons of a focus on *natural* disasters are discussed below.

[2] This paper does not provide an exhaustive review of the literature. There may be a number of case studies on this topic which are not mentioned here and which have yet to be amalgamated into a comprehensive bibliography.

together of the previously separate areas of environmental and disaster management represents a new expanded field of enquiry and action but one which fits well into an holistic sustainable development paradigm.

The Importance of a Preventative Approach

A stated emphasis on the importance of a preventative approach now has broad-based support. The Red Cross – most often associated in the public mind with disaster/emergency *response* – is also working towards a shift to preventative action and a capacity-building culture. In "Vulnerability and Capacity Assessment: an International Federation Guide" they quote UN Secretary-General Kofi Annan:

> "We must, above all, shift from a culture of reaction to a culture of prevention. Prevention is not only more humane than cure; it is also much cheaper… Above all, let us not forget that disaster prevention is a moral imperative, no less than reducing the risks of war." (IDNDR 1999a quoted in IFRC 1999).

Further support for the stated objectives of the Expert Group Meeting lies in the recognition by the Red Cross that the "challenge of reducing vulnerability and enhancing capacity requires an intimate knowledge and understanding of the local reality." (IFRC 1999b: 12). Their "Strategy 2010" document suggests National Societies should:

> "Work with the capacities, skills and resources of vulnerable people, empowering them to take charge of their own lives. Use and continue to develop the tools and abilities to understand vulnerability and to identify local capacities. Recognize that men and women will often play different roles in the home, the community and society, and develop sensitive programmes that acknowledge their specific vulnerability and capacity, set in the broader context of ethnicity, race and religion." (IFRC 1999b: 12).

The practical application of these policies is seen, for example, in the construction of cyclone shelters in Orissa (see Box 1) where shelters were estimated to have saved around 40,000 lives in October 1999 when a super cyclone killed 10,000. Not only is this a part of a *preventative* programme but it is specifically designed to develop local people's skills and management *capacities*, including those of *women* (Schmuck 2001).

BOUNDARIES

However, incorporating a gender perspective on early warning in disaster and environmental management will be demanding and requires that many boundaries be challenged, beginning with the boundary between the major categories of disaster management and environmental management. The increasing emphasis on sustainable development practices may be making the connections more obvious but significant divisions remain. Amongst these, the following will be discussed briefly below[3]: academic and institutional domains; gender relations; models of disaster management incorporating discreet stages; and formal and informal structures and systems. However, it must be emphasised that these representations are considerably oversimplified for the purpose of clarity.

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[3] Other boundaries exist which also deserve attention however the list has been limited to ensure this paper is of manageable proportions.

Diverse academic and institutional domains

Disaster management, environmental management, warning systems and gender analysis are all separate areas of academic interest, policy concern and institutional responsibility. Many researchers and practitioners work for the most part in one area only, having ministerial commitments, professional identity, particular methodologies, and even their own journals. A selection of the major distinctions is discussed below: hazards, disasters, development, resource management, North-South distinctions.

Hazards

The traditional emphasis in this field has been placed on ('hard') scientific, technical and engineering approaches to the identification and mapping of hazards and hazardous areas, and to the solution of problems. Flood hazards, for example, are examined in terms of hydrology and meteorology, and mitigation is dominated by engineering solutions. The major attention and resourcing for flood warning systems are at the forecasting end (rather than the dissemination end), focusing on the use of e.g. satellite technology to forecast approaching weather systems and technological hardware for the delivery of warning information to other parts of the (official) warning system[4]. The social context, including gender dimensions, for warnings has really only relatively recently appeared on the hazards agenda and many forecasting and warning professionals would see it as largely irrelevant and outside their sphere of influence or capability. Experts (mostly male) dominate this field and little attention is given to the role of NGOs and citizen groups in developing informal warning systems[5]. Cheryl Anderson (see Box 8) has noted, in the Pacific Islands/ENSO context, that:

> M]en predominantly conduct the climate-related sciences and modelling. There are no women who head the meteorological services in the Pacific Islands, and very few women who staff these offices. The heads of most other related governmental agencies---water, agriculture, fisheries, disaster management, planning, and health---are men. Distribution of the information goes first to the Met Services, who further distribute the information in-country, mostly to the heads of agencies. … Women do not have as much access to the information, in general, as men. … Without access to information, they cannot minimize risks associated with their regular activities. (Anderson 2001).

The picture is unlikely to be radically different elsewhere. Perhaps because of its major reliance on technology, hazards research has been dominated by and has focused more on the developed rather than the developing world. While significant advances have been made in reducing fatalities in the North through the use of warning systems, the transfer of such 'hi-tech' models from North to South is problematic.[6]

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[4] Some of these issues are discussed further in the following selected references: Ketteridge and Fordham 1997; Parker, Fordham, Tunstall and Ketteridge 1995; Penning-Rowsell and Fordham 1994; Fordham and Haggett 1996; and various papers in Parker 2000.

[5] See Parker 1999 for an example of where traditional hazard warnings research has begun to extend the boundaries.

[6] The following hazard/disaster limitations and strengths were noted by Fordham (2001b):

Limitations
- An emphasis on the physical hazard agent;
- A lack of sensitivity to sociological and political processes;
- A preference for technical/technological solutions;
- A focus on the exceptional event rather than everyday vulnerabilities;
- A preference for top-down decision-making practices;
- A focus on the individual unit of analysis and quantitative methodologies;
- Gender-insensibility.

(Recent) Strengths

Disasters

In disaster research (particularly within sociology and anthropology), somewhat more emphasis has been placed on the socio-cultural context of disasters including community functions, organization and patterns of human behaviour, but a gender analysis has been largely absent until relatively recently (e.g. Neal and Phillips 1990; Blaikie et al 1994; Peacock et al 1997; Enarson and Morrow 1998; Fordham 1998). In the more specific area of warning system design and practice there have been even fewer investigations of gender.[7] For example, although Drabek (2000; 1969) acknowledges some differences between women and men in terms of warning receipt and subsequent behaviour, these are analysed more in terms of the implications for efficient organizational and system functioning and under-analysed in terms of underlying causes and gender relations in particular. In a paper discussing both present and absent perspectives in disaster research, Hewitt (1998) asks rather bleakly:

> But where does organizational sociology lead when it takes improving the effectiveness and centralized administration of agencies and expert systems as its focus? Can it offer any advice, other than a more totalising penetration of government and powerful interests into everyday life, a greater surveillance and militarization of public and private space? (p. 90).

Quarantelli, (1998) in the same volume, notes (p. 260) the lack of congruence between the topics and the literature used by scholars who all, nevertheless, call themselves disaster researchers, and surmises it may be a result of a North-South/disaster-development divide. Whilst excluding, on theoretical grounds, famines, epidemics and droughts from the umbrella term 'disasters', he recommends a closer examination by disaster researchers in the North of empirical data and theoretical ideas from the South (p. 261).

Disaster research overlaps with the next category, development, but distinct differences can be observed based on, what might be called, mainstream disaster work's focus on the developed world, compared to a developing world focus in the development area. There has also been something of a differential focus on urban and rural respectively although this distinction is not as strong as it once was.

A further overlap, but still within distinct boundaries, occurs between 'natural' and anthropogenic (often called 'man-made') hazards and disasters. The former examines such things as floods, earthquakes and other geophysical/meteorological hazards/disasters while the latter focuses on such things as pollution, conflict, and terrorism issues. There have been many discussions of the often inappropriate use of the descriptor natural'[8] but these are not presented here. The Worldwatch Institute, which claims that more people worldwide are now displaced by natural disasters than by conflict, gives some justification for a focus on the natural while admitting that they are increasingly to be regarded as unnatural due to human influence. In the 1990s, natural catastrophes, including hurricanes, floods, and fires, affected more than two billion people and caused in excess of $608 billion in economic losses worldwide - a loss greater than during the previous four decades combined. But more and more of the devastation wrought by such "natural" disasters is unnatural in origin - caused by ecologically

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- An awareness of hazardous conditions and processes;
- A recent focus on vulnerability analysis;
- A commitment to building community resilience and sustainability.

[7] See Alice Fothergill's (1996) overview of gender in risk and disaster research. In particular, the sections on Preparedness Behavior (pp. 37-39) and Warning Communication and Response (pp. 39-40).

[8] See Ball 1975, 1979; O'Keefe et al 1976 for some early discussions and Blaikie et al 1994 for some more recent arguments.

destructive practices and an increasing number of people living in harm's way (http://www.worldwatch.org).

Environmental justice issues fall within the remit of this latter group. It is surprising perhaps that the technological disasters and broad environmental management issues that are the focus of an environmental justice approach attract a different group of researchers, NGOs and citizen groups (in fact, the distinction is present in this Expert Group Meeting!). The divide is also unfortunate for the development of gendered disaster research and action because women have been far more prominent in the environmental justice movement and there is clearly much to be learned here.

Development
Development researchers and practitioners also work on disaster and environmental management issues but with a largely developing world focus. Gender was for long absent as an analytical variable in much development research although appearing earlier than in the mainstream disaster literature. Two early (1970) exceptions to this were Ester Boserup's "Woman's Role in Economic Development" which made women's work and economic role more visible, followed by Joan Rivers' early (1982) "Women and Children Last: An Essay on Sex Discrimination in Disasters", which identified the nutritional vulnerability of female children leading to higher incidences of malnutrition in girls in famines as a result of "sex discrimination intrinsic in most societies" (p. 265). Development studies and practice makes a major focus on disaster aid and relief provision, refugee management, health issues and poverty. In theory they bridge disaster and development issues but in practice the divide often remains. Disasters demand immediate relief and generate the need to return the affected area to 'normality' and the 'tyranny of the urgent' (BRIDGE 1996) can oust or demote gender and other fundamental social issues, overturning long-term development programmes. Equally, development programmes are sometimes planned and undertaken without ensuring they do not exacerbate hazardous conditions or make people more vulnerable to disasters (Fordham 2001b).

There has been some crossover between development and 'mainstream' disaster research and practice in the evolving vulnerability paradigm (see for example Hewitt 1997; Blaikie et al 1994; and the Radix[9] website) in which the focus is on the underlying root causes of hazards and disasters and their differential impact on marginalized social groups – including women. While researchers and practitioners tend to align themselves primarily with either disaster or development, this is partly a reflection of a North-South focus (see below).

Resource management
Included under this heading are such things as land, range and ecosystem management, watershed science, fishery and wildlife biology, forest sciences, and renewable/non-renewable energy resources, amongst others. Some examples where there is an obvious link between environmental resource management (or degradation) and hazard reduction/enhancement are:
- Inappropriate floodplain development which may necessitate inappropriate or environmentally damaging structural flood defences
- Inappropriate environmental management leading to an increased bushfire/wildfire risk
- Inappropriate development on steep, unstable slopes leading to an increased landslide risk

The Worldwatch Institute reported recently:
> "By degrading forests, engineering rivers, filling in wetlands, and destabilizing the climate, we are unravelling the strands of a complex ecological safety net…We have altered so many

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[9] Radix – Radical Interpretations of Disaster www.anglia.ac.uk/geography/radix

natural systems so dramatically, their ability to protect us from disturbances is greatly diminished." (Abramovitz 2001).

A number of researchers, NGOs and government departments are now taking note of the gender dimensions of resource management[10]. The FAO, for example, has a Women and Population Division which works (partly) to eliminate legal constraints to women's access to resources, stimulating growth with equity, while reducing rural poverty and achieving food security (see FAO website for further information). FAO's work on gender and natural resources emphasises the role of women farmers, using traditional methods, in effectively conserving soil fertility. They argue that, "given access to appropriate resources, they practice fallowing, crop rotation, intercropping, mulching and a variety of other soil conservation and enrichment techniques. Over the years, rural women have developed practices for the efficient and sustainable use of the resources available to them. For these reasons it is important to build upon and enhance their skills in land and water management strategies and involve them in protecting and sustaining land and water resources." However, they also note that "current processes are undermining women's ability to use and conserve scarce land and water resources sustainably. Privatization, population pressure and the dissolution of customary land tenure have reduced the amount and quality of land available to rural communities. More and more people are obliged to use land ill-suited to continuous cultivation. This increases the rate of environmental degradation and deprives them of their livelihoods." (FAO no date).[11]

Also of relevance to this paper is the women, environment and development (WED) discourse in which women are represented as both the main victims (and initiators) of environmental degradation (as a result of cultural practices which place women in the forefront of day-to-day environmental management) and also as obvious contributors to environmental conservation (as a result of women's seemingly natural bond with nature and the environment) (see Shiva 1988). These constructions are clearly problematic, and have been criticized for their essentialism and universalising of women's experiences, however they are still widely held beliefs. Shah and Shah offer a more complex understanding of gender relations, and inter- and intra-community dynamics (Shah and Shah 1995) in their case study of forest and environmental management in Gujarat. They argue strongly for context-specific analyses to understand "whether and why men, women or mixed communities come together to form common interest groups around natural resource conservation" (Shah and Shah 1995: 79)

North-South distinctions
Development theorists and practitioners working in and on the South have formulated innovative environmental and disaster strategies and methodologies which have value to countries of the North. Participatory approaches, which go beyond token consultative practices, have grown out of recognition of the shortcomings in top-down, expert outsider systems. The latter have underplayed the social and environmental impacts of projects and programmes; ignored pre-existing networks and knowledge, better suited to local conditions; and undermined local economic structures. Why is it that expertise seems to travel in one direction only – from North to South (Fordham 2001b)? While links are increasingly being made between those who work mainly in and on either the North or the South, significant divisions remain to be overcome.

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[10] See Rocheleau et al (1996) for a 'Feminist Political Ecology' perspective.
[11] See also the FAO Global Information and Early Warning System on Food and Agriculture (GIEWS) http://www.fao.org/WAICENT/faoinfo/economic/giews/english/giewse.htm

Gender relations

> "There is a general lack of awareness among both women and men about how gender issues affect environmental issues. This has been a major obstacle to feminist environmental advocacy since UNCED. While many of the recommendations in Agenda 21 relate to the connections between gender and the environment, more gender-specific data are urgently needed. Such data are necessary to evaluate women's situation as compared to that of men in relation to specific environmental concerns." (Women's Environment and Development Organization (WEDO) 2001).

It has been widely noted that women and men experience everyday life differently. Traditional gender roles have resulted in many women having to cope with multiple responsibilities in the home, at the workplace and in the community but that these many demands on women leave them with less time than men for political involvement, and without a voice in the decision-making processes that impact their lives and their environment (see WEDO 2001).

Some have put forward the proposition that women have a unique knowledge of and a special relationship with the environment and that there are critical connections between the domination of nature and of women – e.g. the ecofeminist position. However, ecofeminist perspectives such as those by Shiva (1988) have been critiqued for representing women as a universal and biologically determined category. While women may disproportionately bear the costs of environmental degradation, this does not mean that women and nature have a 'special relationship'. Rocheleau et al (1996) present a more political analysis in which they argue:

> "there are real, not imagined, gender differences in experiences of, responsibilities for, and interests in "nature" and environments, but that these differences are not rooted in biology per se. Rather, they derive from the social interpretation of biology and social constructs of gender, which vary by culture, class, race, and place and are subject to individual and social change." (p. 3)

Gender bias plays a major role in influencing resource allocation. "Attitudinal barriers are deeply rooted in patriarchy-based socialization, where men are considered superior to women— a systematic disempowerment that has left women with little presence in decision-making bodies, resulting in the exclusion of their issues and concerns from the policy agenda" (WEDO 2001).

Disaster Management[12] is itself a masculine gendered domain (Enarson and Fordham 2001; Fordham and Ketteridge 1998; Enarson and Morrow 1998) in which women's roles are often invisible (Fordham 1998). Despite being active in all disaster phases, the actions and knowledge of women are largely unrecognised,[13] undervalued and/or relegated to informal levels which accrue less status or regarded as intrinsically of lesser value (e.g. seen as "hysterical housewives" (Neal and Phillips 1990: 252). For discussions of the gender dimensions of disaster and disaster management see Gender and Disaster Network (www.anglia.ac.uk/geography/gdn); Enarson and Morrow 1998; International Journal of Mass Emergencies and Disasters Special Issue on Women and Disasters (1999 Volume 17, No. 1).

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[12] Although both 'emergency management' and 'disaster management' have their academic and institutional adherents, for the purposes of this paper, the term 'disaster management' will be used. There is no place here for a full discussion of the rationale for this decision.

[13] Bari and Bari (2000), reporting on the drought situation in Sindh, Pakistan, reinforce the point that disasters have differential impact on people, especially women and note that "it was disheartening to notice the obvious neglect of gender in drought management efforts by the government in this area".

Models of disaster incorporating discreet stages

Disaster managers and researchers alike have divided up disasters according to a series of stages. Typically, four phases are used in characterizing the disaster process: preparation (sometimes also called 'planning'), response recovery and mitigation. However, there are many variations on this basic model. Kettteridge and Fordham (1998) defined 6 stages as useful when dealing with flood evacuation in the UK: pre-flood preparedness, the flood emergency stage, evacuation, emergency accommodation, the return, and the longer term to recovery (p. 121). Fothergill (1996) used 9 stages in a typology constructed to explore gender and disaster: exposure to risk, risk perception, preparedness behaviour, warning communication and response, physical impacts, psychological impacts, emergency response, recovery, and reconstruction (p. 34). While Neal (1997) has argued that current uses of disaster periods lack conceptual clarity. He specifically points to the fact that disaster phases are mutually inclusive and multidimensional, and that they should incorporate multiple perceptions of the event (disaster managers, emergency responders, victims, etc.).

This paper, although focusing on the prevention/mitigation/warning phase, supports this conclusion and underlines the difficulty of separating out discrete stages in the disaster process – warning issues are inextricably linked to response issues.

Formal and informal structures and systems

There is a considerable body of research and practice on warning system design and operation[14] much of which has been directed at the understanding and improvement of formal or official warning systems. These tend to operate in a top-down fashion and some notable failures have arisen through lack of knowledge of the social dynamics of the receiving groups (e.g. transmission of warning information in a language not understood by local ethnic minority groups; transmission through only selected radio stations which are not accessed by minority ethic/cultural groups; transmission by written word which excludes the illiterate, and those for whom the dominant language is not their first language.). There has been (and in many ways still is) an emphasis on technological solutions with much of the system resourcing located at the hi-tech forecasting end rather than the (social) dissemination end (assuming the typical linear system). This resource imbalance has had the effect of improving forecasting and monitoring capability without necessarily improving overall system effectiveness because the weak link is in reaching the at-risk communities and enabling an effective response. However, a more bottom-up process would start with the diverse needs of a socially disaggregated hazard-prone location, working with local people themselves to design a flexible system that is context-specific, providing what users want rather than what expert system managers might prefer.

Some research has also identified the role of informal or unofficial warning practices but much is anecdotal. Alice Fothergill's review of the hazards literature related to gender issues reports that some research findings show women to be more likely to receive warnings – because of their existing informal social networks – and more likely to act upon them – linked to their assumed heightened risk perception. However, some caution must be exercised before assumptions are made concerning the completeness or general validity of these findings. The majority of the studies she reviewed came from mainstream hazards research; carried out by mostly North American scholars on western/developed world locations; in which quantitative surveys dominate; and in which gender – as an explicit analytical variable – was largely (although not totally) absent.

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[14] This paper cannot provide a comprehensive review of standard warning literature.

Several of the illustrative Boxes give examples of warning/prevention/mitigation successes and failures, many of which are discussed in the next section. However, we still know too little of women's role in either formal or informal warning systems in either the developed or developing world.

CAPACITIES OF WOMEN AND GIRLS IN NATURAL DISASTER PREVENTION/MITIGATION

This paper examines in particular the prevention/mitigation phase for which the stated objective is "to assess and analyse capacities of women and girls in natural disaster prevention/mitigation, including: information network and interactive information system (early warning systems, disaster preparedness, community involvement); women's representation in the decision-making process at all levels; capacity and vulnerability assessment and capacity-building (logistics, infrastructure, early warning)" (DAW Aide-memoire).

The research we have so far provides us with mixed and sometimes conflicting evidence. While some research (largely from and on the North) shows women to be more likely to be in receipt of, and act upon, warnings, thus making them less vulnerable, and more likely to be active in emergent community disaster; other research (largely from and on the South) shows women to be disadvantaged in terms of access to warning/prevention information and decision making power. However, in terms of capacities, there are examples of the positive contributions already made by women (in the South and the North) to disaster mitigation/prevention and environmental management, and the strategies for increasing their future involvement and removing the barriers to this. Several of the Illustrative Boxes in the Appendix give positive examples.

Information networks and interactive information systems
Women can be 'out of the loop' as far as official or formal information networks are concerned. Kristina Peterson's work shows how women in poverty do not have access to formal organizations or officials except through the welfare or court systems. "These women network with others at places like the laundromat, welfare offices, senior centers, or the bus stop" (Peterson 1997). She points out that successful disaster response outcomes occur when organizations and agencies meet women in their own environment. Research in the UK (Fordham 1999; Fordham and Ketteridge 1998) supports this and shows how some poor women in Scotland do not go through accepted emergency management channels but contact social services for information and help, rather than the police, when disasters strike.

Bangladeshi examples (see Box 4) illustrate the dangers of gendered warning systems which transmit information from men and to men without an understanding of the social context of gender relations and that do not link early warning to appropriate and suitable response behaviour (D'Cunha 1997; Baden et al 1994). In the 1991 cyclone and flood, warnings were passed from men to other men in public places and many women did not receive them. Even when women received warnings they were constrained by cultural norms that restrict women's freedom of movement in public. Furthermore, conditions in cyclone shelters were not suited to women's needs and thus impacted negatively on a positive response. Although the situation is becoming better understood, improvement is slow (see Box 1 for an example of improvements in shelter issues).

A more positive example comes from Brazil (see Box 6) where women have used radio to mobilize and organize at the local level and increase their participation in sustainable development initiatives. There is a network of around 350 women's radio programmes, reaching some of the remotest parts of the country. However, the universal usefulness of this communication method is questioned by

evidence that warning dissemination preferences have been found to be different between men and women in a case study in South Africa (see Box 5). In this context, technically preferred methods include the use of radio and while men seem to support this, women farmers with additional care responsibilities cannot schedule a fixed time to listen to the radio. They prefer a more interactive system available in locations that they frequent e.g. schools (Archer 2001). The differences between case studies underline the need to make warning/prevention/mitigation decisions and plans context-specific. Clearly we need to know more about how women do and can develop sustainable communication networks.

Women's representation in the decision-making process

Although there are differences of degree between and within cultures, generally speaking women do not participate in decision making arenas on an equal basis with men (in the same way as the poor do not participate on an equal basis with the rich, people of colour do not participate on an equal basis with those who are white, and the disabled do not participate on an equal basis with the able-bodied) principally due to their pre-existing, subordinate positions in society. Active intervention is needed to ensure marginalized groups are not just present but visible and empowered. Without a conscious and sustained effort, power relationships reproduce themselves, irrespective of how 'participatory' or 'democratic' a setting is," (Connell 1999: 82-3; Fordham 2001b). This is so at all scales – down to the household. Box 7 is an example of where a failure to incorporate an understanding of gender relations at the household level meant that an apparent enhancement of local community power in environmental management, did not translate into power-sharing for women.

Research in the Pacific Islands and Peru (see Box 8: "Warning systems and "slow-onset" disasters") shows how women's exclusion from decision-making structures in government agencies and services impacts further down to reduce preventative action (Anderson 2001). In one Peruvian fishing village, warnings went just to those perceived to be directly affected; the men received advance warning of an El Nino event which would mean fishing would be poor but this information was not conveyed to the women whose responsibility it was to manage household budgets. With this information women could have budgeted differently and prevented disaster-induced hardship.

Increasingly projects are geared towards participatory and inclusive planning and the work of Redd Barna in Uganda is illustrative of this (see Box 9). However, this largely positive example of community based planning, was later found to have stimulated a male backlash against those women who had apparently profited by the process (learning to speak out in public, attending meetings and participating in the local community planning process). Sarah Henshaw reports a further example of unintended gender consequences in Nicaragua (see Box 14). These kinds of gendered repercussion are probably more common than we know, as they often require post-project appraisals and evaluations to come to light.

Capacity and vulnerability assessment and capacity-building

Oxfam acknowledge the positive benefits of a women-centred approach:

> "Involving women in disaster preparedness is a tried and tested strategy for reducing the impact of disasters. Women are engaged in house construction, in preventing the pollution of drinking water, in vaccinating animals, in cultivating flood-tolerant crops that grow quickly after a disaster in storing essential food supplies, and in maintaining tube wells. Women are often involved in making decisions about community-level emergency stores, and shelter management." (Oxfam 2000).

To this end, a number of analytical frameworks have been developed (see March et al 1999) to aid gender-sensitive planning or project design. There is no space to discuss these in detail here but of particular relevance for our purposes are Capacities and Vulnerabilities Analysis (CVA) (Anderson and Woodrow 1998), which acknowledges people's strengths and abilities and not just their susceptibility and exposure to hazard and disaster; and Social and Gender Analysis (SAGA) or Socio-Economic and Gender Analysis (SEGA) approaches which attempt to re-insert women and other exploited and oppressed social groups into development processes "as 'agents' of transformative change, rather than as 'beneficiaries' of it." (Connell 1999: 85-6). These reflect a shift from welfare-based strategies to more transformative approaches, grounded in the need to examine not just women's position but gender *relations* and social relations more broadly.

> "We need a clear idea of who fits into the primary social, economic, political and cultural categories and how these categories interact (or not) when it comes to making community decisions. For example, are members of a particular social group – village women, an ethnic minority, a sub-clan, a caste, landless tenant farmers, farm labourers – present but not truly engaged? Are the opinions which they publicly voice truly their own? Do they say the same things when their husbands or wives or village elders or employers or other authority figures are not present?" (Connell 1999: 83).

These analytical frameworks provide tools for examining a more complex reality. However, the targeting of women specifically (rather than men or women and men) in disaster or development programmes has now come into question. Some positive examples have emerged of women's empowerment (see Box 13) but also, as we have seen in the section above, sometimes improvements in women's situation have received hostile responses from men. The prevailing attitude in development thinking and practice – with which disaster and environmental management thinking has yet to catch up – is shifting to a more masculine-friendly position. Andrea Cornwell (1997; 2000) has argued for a rethinking of gender and participatory development, to more directly address issues of power and powerlessness in the broadest context – which must necessarily include men. She argues that focusing simply on women's activities can obscure important dimensions of their livelihood strategies such as "vital relations of interdependence between women and men" (*ibid* p. 10). The question then becomes perhaps not *whether* to include men and masculinity in the analysis but the *degree of centrality* they should assume (Fordham 2001a)

Box 12 is indicative of a guarded approach to improvement in women's life chances. Here the German Red Cross have sought to protect Bangladeshi women's lives in cyclone situations without making fundamental changes to social relations: "Our intention is not to change the social structure of the community but to help the people protect their lives." This they do by always addressing the men first. Clearly there are complex social dynamics in operation which need to be planned for and thought through before projects and plans are implemented but unequal and gendered social relations that reduce women's life chances and livelihood prospects are recognized as key contributors to the underlying root causes of disaster and environmental vulnerability. The FAO (1999) assert that poverty is a leading cause of environmental degradation and disaster vulnerability. They refer to the situation of women farmers in the developing world, trying to eke out an existence on marginal lands, with little education and no access to agricultural resources, who are often driven to adopting crops and practices that may harm the environment (leading to soil erosion, polluted water and declining yields). They further note that, as women rarely own the land they cultivate there is little incentive for them to make environmentally sound decisions, while their lack of access to credit hampers them from buying technologies and inputs that might be less damaging to natural resources. These negative factors set up

a cycle of declining productivity, increasing environmental degradation and food insecurity for the future (FAO 1999).

Leach et al (1995) suggest the following elements[15] as usefully contributing to an analytical framework for gendered dimensions of environmental change: *Divisions of labour and responsibility*: i.e. the identification of gendered responsibilities and labour and work routines. They draw attention to the common mismatch between gendered responsibilities and rights[16] - those who have responsibility for carrying out the work may not be the same as those who have rights and decision-making power. *Property rights*: rights to land and other resources/property are a critical mediator of gender-environment relationships – insecure rights may force women to pursue short-term livelihood needs, compromising sustainable land management. *Institutions*: the gendered nature of positioning in households, communities and other institutions. *Wider political economy*: the need to understand the way the micro-political economy of gendered resource use articulates with the macro-level political economy. These are also relevant dimensions of a gendered disaster management and will be used to partly structure the recommendations below.[17]

CONCLUSIONS AND POLICY RECOMMENDATIONS

ITDG (2001) expresses clearly the dominant disaster management situation when it says conventional disaster management focuses on response rather than prevention/mitigation; on large catastrophes rather than small and medium scale disasters (even though these disasters may have a larger cumulative impact than the spectacular but occasional large catastrophes); and on national and international rather than local organizations. Furthermore, the primary responsibility for managing disaster risk at local level lies with municipal governments, community organisations and NGOs, rather than national and international organizations and yet such organisations often have very limited institutional capabilities for disaster risk reduction. Importantly, it also notes that where disaster management focuses on risks rather than on emergencies, and when it builds on the existing coping strategies of vulnerable social groups, it can become a vehicle for facilitating sustainable development.

In addition, it is a common misperception that everyone is equally affected in a disaster event. There is little understanding of the way disasters interact with pre-disaster social relations and have differential impact on people according to class, race, age, ethnicity and gender. Gender is a critical dimension in all social relationships and thus it would be surprising if it did not also appear so during disasters. Women's generally subordinate position in relation to men impacts on women's experiences of disasters in terms of risks and exposure to risk, preparedness, access to information and recovery from disasters (Bari and Bari 2000). Poverty (and women form the majority of the world's poor) is a leading cause of environmental degradation and disaster vulnerability (FAO 1999) and thus focusing solely on disaster response rather than *root causes* is to treat the symptom not the disease.

Moreover, as has been noted above, a gender perspective on environmental management *and* natural disaster mitigation represents a newly expanded field of enquiry and action although the need for such a connection is clear and urgent when seen in the context of sustainable management and development. That there is such a lack of studies, on the gender implications in particular, points to a real research need. Much of what we know of gender issues in environmental and disaster management is anecdotal

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[15] They also identify 'Ecology' as an emerging theme and useful element but, while acknowledged as important in a general analysis, it has been excluded here for reasons of space and focus.
[16] See Joekes', Rocheleau's and Heyzer's papers in the same 1995 IDS Bulletin.
[17] See also related issues in the Kenyan case study by Wangari et al (1996).

and comes from the observations of individual researchers whilst engaged primarily in other research. There is a lack of disaggregated statistics or general reporting by sex (this makes it difficult to do retrospective gender analyses on secondary data as it was often not thought useful to disaggregate in this way). Thus we come back to the absence of a specific analysis of gender in current research and points to the need for situated, critical, reflexive and participatory research and ways of working that accept and use different forms of knowledge (Fordham 2001a) to empower women and enhance their capacity to play an active role in their communities, in policy-making and in achieving sustainable development.

Recommendations[18]

While some general proposals can be made for the development of a gendered warning and mitigation strategy for disaster and environmental management, any recommendations must be locationally and socially context-specific. There is no single ideal type of preventative structure or warning system appropriate to every locale or impending disaster situation. Planning must start with the specific needs of a diversity of social groups, in a particular geographical, historical and socio-political setting, and the integration of local-level knowledge and practices into larger scale systems. As an example of the latter, Margaret Buchanan-Smith asks: "how can aggregated data about weather patterns and rainfall be made specific enough and thus relevant to local-level EWSs? And how can global, regional or even national EWSs [Early Warning Systems] make the best use of a wealth of very detailed and often location-specific data from a local-level EWS to improve their aggregate forecasts?" (Buchanan-Smith 1997: 2). Thus, it is not a question of replacing all national systems by local ones (and *vice versa*) or replacing all formal systems with informal ones, but rather warning systems must be designed to serve specific objectives and ultimately should be judged against those criteria.

In terms of wider sustainable development issues, changes must be made to eliminate constitutional, legal, administrative, cultural, behavioural, social and economic barriers to women's participation in ecosystem management and control of environmental degradation; their decision-making role in environment, disaster and development fields must be increased; and mechanisms at the national, regional and international level to assess the impact of development and environment programs on women must be enhanced (see WEDO).

On the basis of the foregoing, a preliminary set of recommendations can be proposed. In order to deal with issues of scale and relevance, these are set out according to the following subheadings: wider political economy, policies and plans, a gendered strategy at the institutional level, and prevention, warning and environmental management.

Wider political economy:

- Integrate a gender dimension into the existing social system, rather than focusing on solving isolated problems
- Highlight, acknowledge and deal with root causes[19] of environmental and disaster vulnerability (e.g. access to power structures, and resources); this means do not regard disasters as separate from the everyday – disaster vulnerability and capacity is embedded in everyday social relations

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[18] The recommendations that follow have drawn partly on a number of existing policy documents which, in the interest of clarity, are not acknowledged separately but have been listed in the references.

[19] See Blaikie et al 1994 for a discussion of the root causes of disaster vulnerability.

- Improve women's livelihood opportunities to reduce poverty and economic dependence
- Improve women's socio-cultural status to ensure respect and reduce gender-based discrimination
- Incorporate an approach based on women's human rights

Policies and plans (organizations):

- Identify gender-based problems and correct differential impacts of policies on women and men
- Indicate actions, measures and institutional policy measures to solve them
- Produce action plans to create the necessary institutional conditions to introduce a gender perspective
- Produce proposals for the incorporation of a gender approach into strategic guidelines
- Construct a training plan, including measurable targets
- Make preparations to avoid or deal with any male backlash

A gendered strategy at the institutional level:

- Introduce a gender dimension into existing social dynamics rather than creating parallel structures
- Improve institutional support for integrating women into management processes
- Sensitize, motivate and train in gender issues
- Develop/commission adequate methodologies for gender training and didactic material.
- Recruit more gender sensitive female managers and field staff
- Adopt/maintain a participatory approach (by implementing a process of dialogue, joint work and consultations with both women and men)
- Develop a cooperative relationship between various institutions and NGOs
- Strengthen grassroots women's groups and their interaction with the institutional system
- Ensure meeting hours are flexible and childcare facilities are available
- Recognize gendered positioning in households and its effect on women's ability to receive or act upon environmental and/or disaster warning information
- Recognize the gender dynamics in communities and not assume homogeneity of need or access to resources

Prevention, warning and environmental management

- Increase the amount of targeted research to examine the experiences, contributions and needs of women in environmental and disaster management
- Ensure warning dissemination methods serve diverse needs and situations
- Commission and deliver warning and environmental management information that the *users* actually want, rather than that which the *generators* of the information want or feel the users should have
- Target specific social groups for warning information to ensure women's needs and circumstances are recognized
- Provide the necessary support for women to act upon warnings
- More work needs to be done on ways of recognizing and measuring coping strategies, and on using qualitative information which is often accorded low credibility by information users and is, therefore, overlooked. P. 4

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Worldwatch Institute www.worldwatch.org

Box 1: Community Based Disaster Preparedness in India: The "Orissa Disaster Mitigation Programme" (ODMP) by Hanna Schmuck, Disaster Preparedness Delegate for the German Red Cross in India and Bangladesh

Orissa has a 480 kilometres long coast stretching over the six districts Balasore, Bhadrak, Kendrapara, Jagatsinghpur, Puri and Ganjam along the Bay of Bengal. On the average every five years a cyclone hits the coast accompanied by high winds, tidal waves and floods. The most devastating cyclone in living memory occurred in October 1999 with wind speeds around 300 km/h and a seven metres high tidal wave flooding up to 20 km inland. According to Government sources, the so-called super cyclone killed 10,000 people, devastated the lives of millions and uprooted 90 million trees. However, aid agencies working along the coast estimate a higher death-toll. The cyclone had also a disastrous impact on the infrastructure and thus on the overall economy of Orissa, which is the poorest state of India.

When the super cyclone hit Orissa, there were only 23 cyclone shelters of the Red Cross under the Orissa Disaster Mitigation Programme (ODMP) where people could seek rescue. While each is designed for about 1,500 people, they were occupied by about 2,000. Thus, according to the Orissa governments' new Relief Commissioner, the Red Cross shelters saved around 40,000 lives. Equipment of the shelters such as megaphones, red blinking lights, generators, First Aid kits, water containers etc. insured that at least none of the persons staying there died

(Photo: Hanna Schmuck)

The ODMP is funded by the German Red Cross (GRC) and the KfW (Kreditanstalt für Wiederaufbau/German Bank for Reconstruction) and started in 1994 with social mobilisation and training, followed by the construction of 23 multipurpose cyclone shelters between 1996 and 1999.

The concept of community mobilisation

A 12-member Disaster Preparedness Committee (DPC) has been formed for each cyclone shelter; this Committee is responsible for the proper use and maintenance of the shelter. In addition, the DPC has generated a fund at the community level for shelter maintenance and minor repairs and is recruiting about 25 people as a Task Force (TF). The TF members are trained on Disaster Preparedness and Management, First Aid and Search and Rescue at the shelter sites or at the Disaster Preparedness Training Centre in Bhubaneswar. By June 2001, 2,319 people had been trained in Disaster

Preparedness and Management. Among these are also women, to whom special attention is paid. They are encouraged to form Self-Help Groups (SHGs). At present, there are 73 SHG groups with 1,978 members in total.

A longer version of this paper can be found in Newsletter 6 of the Disaster and Social Crisis Research Network:
http://www.anglia.ac.uk/geography/d&scrn/newsletter/newsletter6/index_nl6.html

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Box 2: Commonalities and diversities in living with disasters – From a gender perspective

Men and women respond to disasters differently. Some observations from South Asian situations are given below in support of this point.

As in the day-to-day life, there is a clear gender division of labour in responding to disasters too. The gender division of labour leads to major differences between men and women in preparation, responding, and recovering from disasters.

As case studies from Pakistan and Nepal record (Livelihood Options for Disaster Risk Reduction, ITDG, 2000), in preparation for floods women take action to preserve food items, seed material for continuity of livelihoods. The domain of raising the bunds to prevent flood waters entering homesteads, taking women and children to safety seems to be the responsibility of men.

At the same time it can also be noted that in facing disasters there are shifts in division of labour and responsibilities. As reported in the case study in Sri Lanka on drought (ITDG 2000), during the non-drought periods women secure water requirements of the household mainly accessed through a common well in the village, which tended to dry up during times of drought. With the onset of drought, households depended on water through bowsers provided by the local government authority, or on men ferrying plastic gallon (5 gallons or more) containers on push bicycles, or tractors. The responsibility to ensure a regular supply of water to the household shifts from women to men during the drought season in this case.

Madhavi Ariyabandu, Programme Manager- Disaster Mitigation ITDG South Asia, Colombo, Sri Lanka
Posted 12 October 2001 to United Nations Division for the Advancement of Women online forum on "Gender equality, environmental management and natural disaster mitigation"

Box 3: Warning system design

The tools of communication that are selected in warning systems and the support that is provided for acting on the warning both need to be designed with the access and scope of action of the final user. I.e. in some very poor countries, or localities, radios are still a luxury - communal radios and TVs in the local meeting ground (often the local café or coffee drinking place). Radios and TVs are therefore not always found in the homes of some families. In some countries (Bangladesh among others), women who are confined to the house, or family plot, have no access, radio, TV or otherwise to warning information. This may seem self-evident, but there are many examples of how this is not considered- most warning programs being designed as one-model fits all and mass oriented.

A classic failure of many warning systems has been the inaction on the part of the person or group who is warned of an impending threat - local perceptions of risk, reluctance to leave one's few possessions, disbelief (lack of credibility of authorities issuing the warning), have been some of the factors which impact on the success or failure of the warning system. Also need to be considered are: the language which is used for communicating the message and local politics, which can often affect (positively and negatively) the message.

Therefore, not only is there a need to develop gender/culture/economic status sensitive warning systems, but also ensure that the other key elements are in place, in particular, focused information, education and public awareness programs and the necessary support for women and children to act on the warning (preparing to leave an area about to be hit by a cyclone can mean taking with you some very cumbersome assets which are basic to survival in "normal" times).

Fainula Rodriguez, International Institute for Disaster Risk Management, (IDRM), Philippines
Posted 15 October 2001 to United Nations Division for the Advancement of Women online forum on "Gender equality, environmental management and natural disaster mitigation"

Box 4: Warning failures

Studies in Bangladesh show that women suffered most following the 1991 cyclone and flood. Among women aged 20-44, the death rate was 71 per 1000, compared to 15 per 1000 for men. Since emergency warnings were given mainly by loudspeaker and word of mouth, women's lower literacy does not explain these findings. Other factors lay behind women's higher mortality. In a highly sex-segregated society, warning information was transmitted by males to males in public spaces where males congregated on the assumption that this would be communicated to the rest of the family - which by and large did not occur. Those who heard the warning ignored it because cyclones occurring after the 1970 disaster had not caused much devastation. In the ensuing procrastination, women who had comparatively less knowledge about cyclones and were dependent on male decision-making, perished, many with their children, waiting for their husbands to return home and take them to safety. Those reaching shelters found them ill designed and insensitive to gender and culture specific needs. Not only were large numbers of men and women huddled together - a rarity in a culture of seclusion - but the shelters lacked separate toilets, water, toiletries like sanitary pads, thus reducing privacy levels. This especially enhanced the discomfort of menstruating, pregnant and lactating women. Women's saris restricted their mobility. Women were malnourished compared to men and physically weaker.

Sources:
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"Bangladesh cyclone response fails to meet women's needs" http://www.ids.ac.uk/bridge/dgb1.html from BRIDGE Report no. 26: Background Paper on Gender Issues in Bangladesh, by S. Baden, A.M. Goetz, C. Green and M. Guhathakurta, commissioned by ODA, August 1994

Box 5: A 'gendered warning system' example from the Northern Province, South Africa

We're finding that women farmers (particularly those who are not the head of the household) prefer seasonal climate forecast information to be made available through the extension officer or school, rather than the radio (preferred by male interviewees). The farmers state that in attempting to balance farming, childcare and other domestic responsibilities, they are less able to schedule a fixed time to listen to the radio. They also prefer information to be provided on site, in an environment where queries can be handled immediately, and discussion can take place. This confirms a growing sense in the climate impacts and applications community that women are a crucially under-served clientele.

Emma Archer, IRI/PSU/NOAA, USA/South Africa
Posted 11 October 2001 to United Nations Division for the Advancement of Women online forum on "Gender equality, environmental management and natural disaster mitigation"

Box 6: Women's control of communications media

In Brazil, women use radio to mobilize and organize at the local level. More than 10,000 community radio stations have been established around the country and numerous programs on social issues are broadcast by commercial, educational and religious radio stations.

Ten years ago, aware of the importance of promoting a channel for women to voice and share their visions, CEMINA (Communication, Education and Information on Gender), an NGO based in the city of Rio de Janeiro, started a local radio program. This daily space enabled the group of women that initiated the project to build a methodology that soon became very popular among women's groups and radio communicators all over the country. Over the years, CEMINA has expanded the radio project by helping other women's groups start similar projects.

Today, this network includes some 350 women's radio programs. The women's radio network is considered one of the most effective initiatives in Brazil to advocate UNCED. It has played a critical role in mobilizing women and fostering their participation in local sustainable development initiatives.

Many of the radio programs initiated by women are the only ones that reach the most remote areas of the country, including the Amazon Region. For example, some of the villages that the Radio Program Natureza Mulher (Nature Woman) reaches by short- wave radio are otherwise connected to the outside world only by rivers—the letters that the listeners of the programs write can take weeks to reach Brasilia, the capital of Brazil, where the program originates.

Source: www.cemina.org.br
See WEDO: http://www.wedo.org

Box 7: "Communities" must be treated as gendered units

Bina Agarwal's (1997) study of the Joint Forest Management programme in India shows this celebrated participatory success story to be gender exclusionary and inequitable in its failure to ensure women's participation. It was through committee membership rather than citizenship that access was gained to forest benefits, where membership comprised one person per household but with the gender-blind assumption of intra-household equity. A shift to a community focus simply meant that the policing role transferred from Forest Department staff to household men and thus women were silenced from voicing their concerns by cultural taboos. This underlines the point that increases in local power may not automatically translate into power for women (Lind cited in Cornwell 2000: 12). Furthermore, it highlights the problems of treating "communities" as ungendered units and "community participation" as an unambiguous step toward enhanced equality.

See: Bina Agarwal 1997 "Re-sounding the alert – gender, resources and community action" World Development Vol. 25 No 9 pp. 1373-80

Source: Cornwell 2000

Box 8: Warning systems and "slow-onset" disasters. Research focusing on forecasting methods and impacts from climate variability (specifically an El Niño-Southern Oscillation warm event) in a Peruvian fishing village.

After a strong El Niño event, it was discovered that the fishermen (all male) had been warned about the upcoming event, and knew that the fishing would be poor to non-existent for the next several months. The women in the village did not receive any warnings about the upcoming conditions, *because the climate forecasters issued warnings to those who would be directly impacted*. The result of the ENSO warm event was increased poverty, unemployment, and harsh economic conditions. The women in the village manage the household budgets. Had they known about the onset of ENSO, they would have saved more household funds and budgeted expenses differently to prepare for the event. For some reason (socio-cultural), the men never discussed the warnings with their wives and continued to "blow their money in bars" without regard to their future situation.

… [M]en predominantly conduct the climate-related sciences and modeling. There are *no women* who head the meteorological services in the Pacific Islands, and very few women who staff these offices. The heads of most other related governmental agencies---water, agriculture, fisheries, disaster management, planning, and health---are men. Distribution of the information goes first to the Met Services, who further distribute the information in-country, mostly to the heads of agencies. … *Women do not have as much access to the information*, in general, as men. … Without access to information, they cannot minimize risks associated with their regular activities.

Cheryl Anderson, University of Hawaii Social Science Research Institute, USA
Posted 11 October 2001 to United Nations Division for the Advancement of Women online forum on "Gender equality, environmental management and natural disaster mitigation"

Box 9: Male backlash in Uganda

The first extract below shows a seemingly exemplary participatory approach to community based planning, but the second identifies a serious backlash evident in a subsequent evaluation. This points to the need in project design and implementation to understand the sometimes-subtle distributional effects, to be gender inclusive, and to plan for potentially negative responses in some community members.

1. "Coping with conflict: the case of Redd Barna Uganda"*
BRIDGE Issue 9: Gender and Participation
(http://www.ids.ac.uk/bridge/dgb9.html)

Differences in status and associated power between women and men, old and young, richer and poorer, make grassroots planning difficult if the aim is to represent the diversity of perspectives and interests in a community. Since 1994, Redd Barna Uganda has acknowledged such differences within communities and adapted participatory approaches to provide innovative ways of incorporating a gendered perspective into community-based planning. Through a process of trial and error Redd Barna has adapted and modified participatory rural appraisal and planning (PRAP) techniques to ensure that gender and age-specific needs are systematically expressed, discussed and resolved. In so doing, it has managed to use participatory methodology to challenge gender and age power relations, which were previously accepted as the norm.
To ensure space for groups within the community to articulate their different concerns, Redd Barna divides the community into five discussion groups (older and married women, older men, younger men, younger women and children). By having their own separate analysis, groups are enabled to voice their concerns in a comfortable environment without being ridiculed or ignored. At the end of each day's discussion, an 'issues matrix', which maps each group's priority areas, is completed. Each group then analyses the impact of other group-specific concerns on their own group and on the wider community, which guarantees marginalised group access to dominant group audiences (for example, older men). Greater understanding and tolerance of other community members' positions and concerns flows from this process. Facilitators use the matrix to encourage groups to analyse which issues matter for other groups in their community and why. Groups then prioritise possible solutions, and results are compiled and presented at regular community meetings (usually monthly). Eventually, communities devise a final matrix as an aid to feed into a community action plan (CAP) (Mukasa and Mugisha, 1999).

2. Evaluation

Redd Barna Uganda sought to create spaces where gender and generation specific issues could be tackled within a broader participatory planning process (p. 19). Although successful in many ways in allowing women the space to speak out, a review later illustrated the threat this represented to the men and the backlash that had followed (some women were beaten by their husbands for spending more time at PRA meetings than on domestic work and older women gave younger women domestic chores to do if they wanted to go out.

Source: Cornwell 2000

*Redd Barna Uganda is one of the country programmes of Redd Barna, the Norwegian Save the Children NGO

Box 10: The development of women in riverine communities in Pakistan

Oxfam's PATTAN initiative, which grew out of the 1992 floods in Pakistan, aimed at using the disruptive nature of the disaster to develop institutional structures to increase the capacity of women and men to reduce their vulnerability to future disasters. One example of this was the introduction of the concept of joint ownership of houses in which, in the event of divorce or separation, whoever wants to retain ownership/occupation must pay the other half the value of the house. This had a considerable impact on the women and the community generally, increasing cohesiveness and security and generating pride and confidence in the women (p. 60).

Source: Farzana Bari in Fernando and Fernando 1997

Box 11: Women's public education and awareness programs

During the 1997-98 ENSO warm event, there were three locations out of seven in our study that had a few women who participated on the ENSO task forces to mitigate drought. These women were responsible for developing truly wonderful public education and awareness programs. Information was carried village-to-village. Public service announcements appeared on radios and television. The drought impacts were severe, but would have been much worse without the penetration of information that resulted in conservation programs and public health programs. The campaign to treat water before drinking (where rivers had dried considerably and ground-water was limited and/or suspect) actually reduced the recorded incidence of reported diarrheal disease significantly. From this example, it seems that targeting women with forecasts and warning may have some direct bearing on reducing the impacts of hazards.

Cheryl Anderson, University of Hawaii Social Science Research Institute, USA
Posted 11 October 2001 to United Nations Division for the Advancement of Women online forum on "Gender equality, environmental management and natural disaster mitigation"

Box 12: Lifting the veil: women in Bangladesh speak up

In Cox's Bazaar, Bangladesh, the German Red Crescent is developing preparedness with women's needs specifically in mind. Shafiqa Begum, a Red Crescent social worker, looks after ten women's groups in the vicinity of the Dangorpara cyclone shelter. Here women learn what the warning signals mean, and how to save children, animals and household equipment when a cyclone is approaching. In this area, local men often remain at sea for several days while the women stay at home with the children. In the event of a cyclone, the women have to make up their minds before it is too late and leave their homes with their children to take refuge in the shelter building, all without male company – an impossible idea by the standards of this traditional muslim society. However, cross-gender relations have been improving since the Red Crescent took upthe cause of the women in this strictly muslim area.

German Red Cross delegate Dr Purnima Chattopadhayay-Dutt says: "Our intention is not to change the social structure of the community but to help the people protect their lives." As a consequence, the project staffs always address the men first. It took much persuasion to make key persons of the community … see the high risk women and children are exposed to during cyclones. But in the end

they did allow the women of their families to join the training courses and planning workshops. Today, the women are no longer afraid to express their ideas and suggestions for improvements openly.

Each family contributes 5 thaka monthly to the Village Disaster Preparedness Committee. This fund is to help survivors through the first days after a cyclone and to provide for minor repairs to the shelter building. Even without natural disasters many families have to fight for survival every day. In order to improve the women's opportunities, the Red Crescent also arranges their participation in training courses where they learn a craft or plant cultivation or first aid. Women have put these skills into practice and have grown mahogany saplings for sale in the market.

Adapted from: "Living with Cyclones: disaster preparedness in India and Bangladesh" 1999 Bonn: German Red Cross

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Box 13: Disasters can be great liberators!!

While witnessing a very vocal meeting of rural women in village Srirampur, Orissa, about a year and a half after the cyclone of 1999, I was informed by the NGO there (Church's Auxiliary for Social Action) that before the cyclone, women would rarely come out and interact on social issues, let alone interact with outsiders. This changed after the cyclone, because relief packages of most NGOs, and even the government, were targeted at, or through, women. That phase really empowered them, made them amenable to interacting on social issues, and also increased their self-esteem and their status within their families and society!

Anshu Sharma, SEEDS, India
Posted 16 October 2001 to United Nations Division for the Advancement of Women online forum on "Gender equality, environmental management and natural disaster mitigation"

Box 14: Male backlash in Nicaragua

As I began a project rebuilding houses for families affected by Hurricane Mitch I worked primarily with women. This was for two reasons, one, as a woman it was easier to relate to women, and two, I followed the lead of experienced NGOs working in the area who were working primarily with women. I had spoken to the American Red Cross and Save the Children USA, who had told me that they were putting their houses in the name of the women. They were also, like WFP, giving food assistance directly to women. This was all because giving to the women theoretically empowered women and ensured that the family as a unit could partake in the assistance.

Tensions began to rise, as the men had nothing to do except build houses. Building houses was fine, but finding a job to sustain the family after the aid had gone was close to impossible. Houses became symbols of the men's ability to provide for the family. Typically, rural men's roles in Nicaragua dictate they provide for their families. Some farm, some migrate to work others farms, some go into the cities. After Hurricane Mitch many men worked on rehabilitation and received food aid in exchange for their work. Yet, in many cases, women went to pick up the family rations from distribution points and cooked the family meals. Many men spoke of their "payment" being given to women and couldn't understand why.

As the houses neared completion, I spoke with the families about the land titles. Women's names were going to appear on the titles, and they were going to be considered the owners of the houses. As I understood that many men did not stay year around, and knew that all of the women had worked on building the houses, it seemed good to give the houses to women. Yet, once the titles were handed over and signed, men started permanently disappearing (not sending money home) and two women showed signs of violence. I had not analyzed the potential impact on the community as a whole, even though I thought I understood the individual gender roles.

I learned that understanding gender roles means looking at the roles of both men and women, and the impact a potential project can have on the community as a whole. I know that the signs of violence I saw were not unique after Hurricane Mitch, and that the impact of focusing aid on women is equally damaging for the community as focusing aid on men was 15 years ago.

Sarah Henshaw, World Food Programme
Posted 15 October 2001 to United Nations Division for the Advancement of Women online forum on "Gender equality, environmental management and natural disaster mitigation"

Box 15: Foregrounding Gender Concerns in Disaster Management : Some Present Initiatives and Future Directions

In recent years, there have been a number of notable initiatives in South Asia that reflect a more gender-sensitive approach to disaster management. For example:

In Bangladesh: active recruitment of female volunteers and female field workers by the Cyclone Preparedness Program of Bangladesh and the Bangladesh Red Crescent Society (BDRCS), respectively; formation of male and female micro-groups at the village level engaged in decision making on disaster issues; and training of women in the community on local initiatives on disaster management.

In Pakistan: introduction of co-ownership of houses by husband and wife in the reconstruction work after the 1989 floods by a NGO called Pattan .

In India: introduction of joint ownership of houses by husband and wife in the post-earthquake reconstruction in Latur (Maharashtra) funded by a World Bank loan

Such initiatives catalyzed by community-based NGOs, existing local women's organizations or external organizations assume special significance in two contexts: (a) where formal, slow, top-down bureaucratic relief and reconstruction may result in inequitable and unsustainable results, failing to address the felt needs of vulnerable communities, ignoring local resources and capacities and in some cases even increasing people's vulnerabilities and (b) the paradigm shift away from relief and reconstruction towards disaster resilient development

In highly sex-segregated societies such as fore-mentioned ones, the induction of female staff working closely with the community of local women and notions of co-ownership and shared responsibility of men and women, help engender and enrich the culture and practice of disaster organizations. More significantly, this unleashes a new social dynamics of women operating in the public sphere and

crossing their traditional boundaries, some becoming role models for other women in the community-a possible first step towards more empowering gender equations.

Jean D' Cunha 1997 "Engendering Disaster Preparedness and Management" Asian Disaster Management News Vol. 3, No. 3 November (See http://www.adpc.ait.ac.th/infores/newsletter/1997/theme-3.html)