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# Urban flooding in Lagos, Nigeria: Patterns of vulnerability and resilience among women



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#### ABSTRACT

We report findings from a mixed method study of women's gendered experiences with flash floods in the coastal city of Lagos, Nigeria. Drawing on narrative accounts from 36 interviews, a survey (n = 453) and 6 focus group discussions, we investigate the impacts of floods in general and specifically the July 2011 flood event on women's lives, livelihoods, and health. We draw on complementary perspectives from feminist political ecology and social vulnerability theory to understand the ways in which such events are perceived, experienced and managed by women of different socio-economic classes, households, and geographic locations. Thematic and content analyses were used to examine women's perceptions of floods, while descriptive statistical analysis and chi-square test were employed to compare actual impacts. Results show that women in general expressed no concern about gendered vulnerability to flooding as most believed flood impacts were gender neutral. This dominant view however, was not supported by evidence in the post-July 2011 flooding as impacts varied among income groups and neighbourhoods, and gender differences were apparent. Women in the low-income neighbourhood recorded higher impacts and slower recovery compared to other social categories of women and men. All impacts reported were statistically significant between women in low and high income neighbourhoods but most were not significant between women in middle and high income neighbourhoods. Gender relations and roles intersecting with place, class, employment status, and healthcare, were mediating factors that placed low-income women at greater risk of impacts than others. With climate change likely to induce more extreme events, a case is made for collaborative and institutional efforts to systematically boost urban poor women's adaptive capacity through targeted programmes aimed at alleviating poverty and improving women's access to housing, health care and alternative sources of livelihoods.

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#### 1. Introduction

Climate extremes manifested through natural hazards such as floods, cyclones, hurricanes and droughts are already being felt by different populations across the world (Few, 2003; IPCC, 2012). Among the differences that determine how people are affected by and respond to such events is gender (Dankelman, 2002; Brody et al., 2008; Terry, 2009; Babugura, 2010). Gender refers to the socially constructed identities, roles, responsibilities and opportunities associated with being a man or woman (West and Zimmerman, 1987). A number of scholars have highlighted the gender implications of climate-related disasters in terms of preparedness and impacts (Enarson and Morrow, 1998; Anderson,

2000; Sultana, 2010), division of labour (Ikeda, 1995; Enarson, 2001), parenting (Peek and Fothergill, 2008) and post-disaster work and recovery (Fothergill, 1996; Bradshaw, 2002; Enarson et al., 2006). However, there are few studies on how gender roles and responsibilities in everyday life interact with place, socioeconomic status, and environmental conditions to shape different women's and men's perception and experience of climatic hazards, particularly in the urban context.

Dominant narratives on gender and climate change in the 'Global South' tend to portray women as vulnerable victims or responsible caregivers in disaster contexts (Denton, 2002; MacGregor, 2010; Arora-Jonsson, 2011; Tschakert and Machado, 2012), and men as heroes or sexual abusers in post-disaster contexts (Wiest et al., 1994; Walter, 2006). Such narratives tell us little about the variations in the experiences of different groups of women and men. Indeed, evidence from around the world suggests that women are more likely to be hurt or killed in disasters than men (Neumayer and Plümper, 2007) and they are also more likely

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to have low coping capacities (Nelson et al., 2002; Sultana, 2010). For example, women made up 90% of the total number of people killed in the 1991 cyclone disaster in Bangladesh (Aguilar, 2008, p. 2). Also, an analysis of the 2004 Indian Ocean Tsunami, a crossborder event, which devastated Indonesia, India, and Sri-Lanka, revealed that an estimated 60% of victims were women and children (Oxfam International, 2005). Furthermore, in the aftermath of the 2010 flood in Pakistan, more women than men experienced great difficulty coping because they were either overlooked in the distribution of relief or were unable to reach places of relief distribution due to social norms that restricted their mobility (Ariyabandu, 2012). While these cases are insightful, they focus on a simplistic dichotomy between men and women by leaving out other axes of social differentiation (including class, race, ethnicity, and age) and contextual elements such as deeprooted inequalities, patterns of marginalisation, and unequal power relations, that amplify or reduce the experience of disaster for particular groups of women and men (Fordham and Ketteridge, 1998; Enarson et al., 2006). Researchers in the sub-field of gender and disaster have called for a need to go beyond blanket generalisations about men's and women's experience in disaster since such views tend to unify their experiences and actions as homogenous, thereby concealing the highly specific needs or capabilities of different groups of women and men (MacGregor, 2010; Arora-Jonsson, 2011). A few scholars that explored the interaction of gender and disaster with class, age and household structure have offered varying conclusions (Fordham, 1999; Bradshaw, 2001, 2002; Pincha, 2010). They continue to encourage similar works in hopes of a better understanding and response to gender issues in disaster.

We know more about women's and men's experience in disaster but less about the everyday mediating factors that shape high vulnerability or high resilience among different groups of women and men. In simple terms, vulnerability is the susceptibility to harm and resilience refers to the ability to adapt and thrive in the face of threats posed by external events such as climatic hazards (Sapirstein, 2006). In this paper, we focus on the vulnerability and resilience of women because on average more women are affected in disasters than men (Nelson et al., 2002; Neumayer and Plümper, 2007) and women's needs and voices are often ignored in disaster and post-disaster situations (Khondker, 1996). We analyse how different groups of women perceive, experience, manage, and recover from disaster, specifically climate-induced flooding. Our analysis of women's experience of disaster is not done in isolation but embedded in the social relationships they have with men, families, kinships, and the communities in which they live. We argue that an understanding of these issues can produce insights to better inform policies on where gender-specific considerations might contribute to disaster risk reduction and climate change adaptation in vulnerable communities.

Using Lagos, Nigeria's largest commercial hub and coastal city, as a case study, we explore the gendered experiences and perceptions of urban women with climate-related hazards. The majority of studies on gender and climate change in Nigeria, and indeed in Africa, refer mainly to rural women in the agricultural and natural resource sectors but offer little information about women in urban areas (Agwu and Okhimamhe, 2009; Terry, 2009; Omari, 2010; Petrie, 2010; BNRCC, 2011; Okali, 2011). Yet urban centres are home to a large number of women who are already at risk from floods, heat waves and other hazards that climate change is expected to exacerbate (Satterthwaite et al., 2007). At the time of this writing, there is very little work published on the gendered impacts of climate-related hazards in the urban context in Nigeria. We are aware of two papers that suggest floods disproportionately affect women (Adelekan, 2010; Etuonovbe, 2011) but no clear

reasons were given by the authors for the high casualty rate found among women compared to men. In both papers, sex was simply introduced as a variable in post-disaster investigation without any deeper gender analysis. To address this knowledge gap, we draw on social vulnerability theory and feminist political ecology to understand the structural inequalities and gendered risks in everyday life which create a differential experience of disaster between men and women, and also among women of different socio-economic classes and geographic locations in urban Lagos. We argue that by identifying the mediating factors of vulnerability and resilience, policy makers are able to find empirical basis to selectively target the most vulnerable women and therefore concentrate adaptation efforts to where it is needed the most.

In this paper, we conducted a modified gender analysis of the July 10, 2011 flood event that submerged the city of Lagos. The flood was a combination of heavy precipitation and coastal flooding due to high tides coinciding with a low-pressure storm system which raised sea and tidal water levels by over 122 centimetres, thereby overwhelming drainage channels and coastal defences around the Atlantic Ocean and the Lagos Lagoon. During this period, a disaster declaration was issued by the Lagos State government and appeals were made to residents to be calm. By the time the flood subsided, an estimated 100 people died, thousands were displaced and properties worth over 50 billion Naira (\$US 320) million) were destroyed (Oladunjoye, 2011). In our exploration of women's experiences in the disaster, we focus on three Local Council Development Areas (LCDAs): Victoria Island axis, Ajah, and Badia, which are classified as high, middle and low income areas respectively (see Nwokoro and Agbola, 2011). We draw on primary data from fieldwork, relevant news media coverage, existing published literature on gender, disaster, and climate change, and on experiential knowledge of having lived and worked in Nigeria for many years (reference to first author only). We explore gender dynamics in the Nigerian society and highlight ways that geographic location, socio-economic class, household structure and healthcare access come to affect women's experience of flood disasters. The results of this study point towards a need for a more synchronised policy approach on disaster risk reduction and social and health policies to better enhance the coping and adaptive capacity of urban poor women.

#### 2. Women and disaster vulnerability

We combine social vulnerability (Blaikie et al., 1994; Bohle et al., 1994; Adger and Kelly, 1999; Cutter et al., 2003; Cutter, 2005) and feminist political ecology theories (Rocheleau et al., 1996) to develop a dense and rich information about the material, social, and discursive realities of women's experiences in both normal and disaster periods.

Vulnerability to disaster is a function of both physical and social factors. The former includes exposure to risks such as floods and storms surges. The latter involves social and political arrangements that limit or enhance the capacity of individuals or social groups to cope with and adapt to hazard or external stress placed on their livelihood and wellbeing (Adger and Kelly, 1999). Scholars who draw on social vulnerability theory argue that vulnerability is determined by social inequalities rooted in gender, class, culture, race, age, and other power structures, together with situational factors such as where people live, their physical and mental health, literacy status, household size and composition, and resources available to them to cope with crises (Mustafa, 1998; Cutter et al., 2003; Cannon, 2010).

In societies that are more inequitable, women tend to be at higher risks of disaster because of pre-existing disadvantages in social, economic, political, legal, and cultural status and opportunities (Mak, 2005; Deere and Doss, 2006; Seager, 2006; Terry,

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