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Gender and Climate Change

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Gender, along with sociodemographic factors of age, wealth, and class, is critical to the ways in which climate change is experienced. There are significant gender dimensions to impacts, adaptation, and vulnerability. This issue was raised in WGII AR4 and SREX reports (Adger et al., 2007; IPCC, 2012), but for the AR5 there are significant new findings, based on multiple lines of evidence on how climate change is differentiated by gender, and how climate change contributes to perpetuating existing gender inequalities. This new research has been undertaken in every region of the world (e.g. Brouwer et al., 2007; Buechler, 2009; Nelson and Stathers, 2009; Nightingale, 2009; Dankelman, 2010; MacGregor, 2010; Alston, 2011; Arora-Jonsson, 2011; Omolo, 2011; Resureccion, 2011).

Gender dimensions of vulnerability derive from differential access to the social and environmental resources required for adaptation. In many rural economies and resource-based livelihood systems, it is well established that women have poorer access than men to financial resources, land, education, health, and other basic rights. Further drivers of gender inequality stem from social exclusion from decision-making processes and labor markets, making women in particular less able to cope with and adapt to climate change impacts (Paavola, 2008; Djoudi and Brockhaus, 2011; Rijkers and Costa, 2012). These gender inequalities manifest themselves in gendered livelihood impacts and feminisation of responsibilities: whereas both men and women experience increases in productive roles, only women experience increased reproductive roles (Resureccion, 2011; Section 9.3.5.1.5, Box 13-1). A study in Australia, for example, showed how more regular occurrence of drought has put women under increasing pressure to earn off-farm income and contribute to more on-farm labor (Alston, 2011). Studies in Tanzania and Malawi demonstrate how women experience food and nutrition insecurity because food is preferentially distributed among other family members (Nelson and Stathers, 2009; Kakota et al., 2011).

AR4 assessed a body of literature that focused on women's relatively higher vulnerability to weather-related disasters in terms of number of deaths (Adger et al., 2007). Additional literature published since that time adds nuances by showing how socially constructed gender differences affect exposure to extreme events, leading to differential patterns of mortality for both men and women (*high confidence*; Section 11.3.3, Table 12-3). Statistical evidence of patterns of male and female mortality from recorded extreme events in 141 countries between 1981 and 2002 found that disasters kill women at an earlier age than men (Neumayer and Plümper, 2007; see also Box 13-1). Reasons for gendered differences in mortality include various socially and culturally determined gender roles. Studies in Bangladesh, for example, show that women do not learn to swim and so are vulnerable when exposed to flooding (Röhr, 2006) and that, in Nicaragua, the construction of gender roles means that middle-class women are expected to stay in the house,

even during floods and in risk-prone areas (Bradshaw, 2010). Although the differential vulnerability of women to extreme events has long been understood, there is now increasing evidence to show how gender roles for men can affect their vulnerability. In particular, men are often expected to be brave and heroic, and engage in risky life-saving behaviors that increase their likelihood of mortality (Box 13-1). In Hai Lang district, Vietnam, for example, more men died than women as a result of their involvement in search and rescue and protection of fields during flooding (Campbell et al., 2009). Women and girls are more likely to become victims of domestic violence after a disaster, particularly when they are living in emergency accommodation, which has been documented in the USA and Australia (Jenkins and Phillips, 2008; Anastario et al., 2009; Alston, 2011; Whittenbury, 2013; see also Box 13-1).

Heat stress exhibits gendered differences, reflecting both physiological and social factors (Section 11.3.3). The majority of studies in European countries show women to be more at risk, but their usually higher physiological vulnerability can be offset in some circumstances by relatively lower social vulnerability (if they are well connected in supportive social networks, for example). During the Paris heat wave, unmarried men were at greater risk than unmarried women, and in Chicago elderly men were at greatest risk, thought to reflect their lack of connectedness in social support networks which led to higher social vulnerability (Kovats and Hajat, 2008). A multi-city study showed geographical variations in the relationship between sex and mortality due to heat stress: in Mexico City, women had a higher risk of mortality than men, although the reverse was true in Santiago and São Paulo (Bell et al., 2008).

Recognizing gender differences in vulnerability and adaptation can enable gender-sensitive responses that reduce the vulnerability of women and men (Alston, 2013). Evaluations of adaptation investments demonstrate that those approaches that are not sensitive to gender dimensions and other drivers of social inequalities risk reinforcing existing vulnerabilities (Vincent et al., 2010; Arora-Jonsson, 2011; Figueiredo and Perkins, 2012). Government-supported interventions to improve production through cash-cropping and non-farm enterprises in rural economies, for example, typically advantage men over women because cash generation is seen as a male activity in rural areas (Gladwin et al., 2001; see also Section 13.3.1). In contrast, rainwater and conservation-based adaptation initiatives may require additional labor, which women cannot necessarily afford to provide (Baiphethi et al., 2008). Encouraging gender-equitable access to education and strengthening of social capital are among the best means of improving adaptation of rural women farmers (Goulden et al., 2009; Vincent et al., 2010; Below et al., 2012) and could be used to complement existing initiatives mentioned above that benefit men. Rights-based approaches to development can inform adaptation efforts as they focus on addressing the ways in which institutional practices shape access to resources and control over decision-making processes, including through the social construction of gender and its intersection with other factors that shape inequalities and vulnerabilities (Tschakert and Machado, 2012; Bee et al., 2013; Tschakert, 2013; see also Section 22.4.3 and Table 22-5).

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This cross-chapter box should be cited as:

K.E. Vincent, P. Tschakert, Barnett, J., M.G. Rivera-Ferre, and A. Woodward, 2014: Cross-chapter box on gender and climate change. In: *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 105-107.