

# Gendering Information and Communication Technologies in Climate Change

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## INTRODUCTION

There has been a wide range of literature exploring the relationships between information and communication technologies (ICTs), climate change and gender. The European Union (2018) regards ICTs as a revolution for developing countries. Food and Agriculture Organization (2018) considers ICTs as ‘transformative technologies. He highlights three specific functions of ICTs in tackling climate change: monitoring and measuring the impact of climate change, raising awareness and facilitating dialogue, and fostering ‘networked governance’ (p4). UNDP (2019) also suggests that increasing access to information and education is essential for reducing the unequal vulnerability of women to climate change.

The rosy picture of using ICTs to tackle gender inequalities in climate change interventions has, however, been under strong attack. O’Donnell and Sweetman (2018) criticise ICTs for focusing too much on technical solutions, and too little on the social dimensions of the problems. Castillo et al. (2018) also warn that climate change can magnify gendered and other forms of inequalities when resources and access to goods and services become constrained in a changing climate. Rising inequalities, FAO (2018) suggests, would also intensify the impacts of climate change for all individuals and communities.

Gender can be defined as the social expectations and stereotypes of how men, women, boys and girls, should behave in society. Gender enables some groups of men, and women, to gain access to ICTs, whilst constraining others from doing so (Heeks and Ospina 2010). Variations in levels of control over ICTs, built on unequal power relationships, have tremendous impact on how poor people adapt to changing climate and respond to disasters (Wong, 2019). Understanding the dynamic interactions amongst gender, ICTs, and climate change is crucial to development policies and gender empowerment.

The objectives of this chapter are to offer a systematic review of the complex ‘ICT-climate change-gender’ nexus. Drawing on examples and case studies in developing countries, it aims to identify the gaps in literature and to explore the mechanisms by which gender influences, and is influenced by, the ICT-climate change interactions. It also intends to highlight the positive and negative gendered outcomes of mitigation, adaptation and disaster-planning policies across sectors, such as forestry, agriculture and water.

The structure of this book chapter is as follows: it will first discuss the importance of gender in understanding the interplay between climate change and ICTs. It will then highlight some proposals which attempt to increase women’s visibility in the climate change and ICT policies. After examining the pros and cons of the proposals, the chapter will conclude by offering gender-sensitive interventions that help promote digital inclusion and e-governance.

## BACKGROUND

Rashid (2016) point out that ICTs are not a new phenomenon in developing countries. Many not-so-poor communities already have television, telephone and radio for communication and entertainment. That said, the latest ICTs, such as mobile phones, internet radios, emails, blogs and videos, are potentially interactive and participatory. With these, information can be shared faster and more efficiently between individuals and communities. They reach a wider range of audience and help develop wider networks. In light of this, Kalas and Finlay (2009) suggest these new ICT developments can improve governance by ‘empowering the poor and marginalised to raise their voice for political accountability and concrete action’ (p9).

Gender is defined as the socially constructed roles and socially learned behaviours and expectations of women and men in a particular society (World Bank 2014). Gendered relations involve difference, inequality and power, and that shapes access to, and control over, material and symbolic resources (Phan *et al.* 2019). Gendered relations are ‘contextually specific and often changing in response to altering circumstances’ (Moser 1993, 230).

Gender matters in ICT and climate change research and practice because it highlights the differential access to information. It questions fundamental questions about the nature of information - what is information, who produces information, and how information is used (Roztocki *et al.*, 2019). Onwutuebe (2019) stresses that the access to, and the use of, ICTs is gender-shaped. Gender influences how the benefits, costs and risks of ICTs are distributed between, and within, groups of women and men. For instance, in some Ugandan schools, girls are expected to be discreet and should not run like boys. Influenced by this specific gender norm, along with limited supplies of computers in school, boys race to gain access to computers and the girls are left out (UN 2002, 5). Gender also influences people to make responses to a changing climate. For example, IDS (2008) suggests that it is often men, not women, who decide what investments are made on their farms – such as investments relevant to climate adaptation – since laws and social practices enable men to have control over land, money, credit and tools.

To theorise the ‘ICT-climate change-gender’ nexus, Gurumurthy (2004), Wong and Sharp (2009) and Ospina and Heeks (2010) have offered three different conceptual frameworks. Gurumurthy compares and contrasts five different theories: Liberal, Marxist, Eco-feminist, Third World, and Culture. Wong and Sharp use the ‘agency-institution-structure’ framework to analyse how elderly women negotiate access to cutting-edge water innovations. Ospina and Heeks, in contrast, build on vulnerability and the livelihoods framework to assess the ICT-gender relationship.

This chapter draws on ideas from each of these frameworks. It puts three key climate change policies at the centre of the analysis; they are: mitigation, adaptation and disaster management. By examining the processes of implementing ICT interventions in, as well as their impact on, these three climate change policies, it analyses the role of gender in influencing men’s, and women’s, access to resources. Our analyses are based on four gender perspectives:

*Process of gendered negotiation:* The process explores what, and how, information is created and communicated, and how men and women understand the meanings, expectations and experiences of their gendered roles. Gendered relations are constantly negotiated and contested. They enable some groups of men and women to obtain access to information and to influence the outcomes of climate change, while denying others the facility to do so.

*Gendered outcomes:* Men and women experience the benefits, costs and impact of the ICT-climate change interplay differently because of their differential power positions and social capabilities. The

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