



Farmers in a changing climate

Does gender matter?



FOOD SECURITY IN ANDHRA PRADESH, INDIA

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EXECUTIVE SUMMARY

This report presents the findings of research undertaken in six villages in two drought-prone districts of Andhra Pradesh, India, Mahbubnagar and Anantapur¹. The study, carried out by an international team led by FAO, used gender, institutional, and climate analyses to document the trends in climate variability men and women farmers are facing and their responses to ensure food security in the context of larger socio-economic and political challenges to their livelihoods and well-being.



**A farmer's village,
Andhra Pradesh**

This work contributes to a growing body of literature on gender and climate change² and draws inspiration from pioneering work in the Indian context³. Gender is one of numerous important socio-cultural dimensions typically included in climate change vulnerability assessments but it is rarely incorporated in adaptation research and planning. A major contribution of this research is the development of an innovative methodological model for studying gender and climate variability for use in the context of climate change. The research uses gender-sensitive qualitative and quantitative methods and gender analysis techniques to capture the voices of both men and women and quantify the degree to which men's and women's responses to climate variability differ. This research tests the hypothesis that due to gender roles (the behaviours, tasks, and responsibilities a society defines as "male" or "female") and due also to differential gendered access to resources, men and women experience climate variability differently and cope in diverse ways with climate variability and changing climate patterns.

The findings confirm that there is a **strong gender dimension** to the way in which climate variability is experienced and expressed by farmers in their coping strategies to ensure their livelihoods and food security. Women's and men's perceptions of and responses to impacts of dry conditions, as well as their access to resources and support, differ in important ways. These findings demonstrate that gender analysis enhances our understanding of what farmers perceive as risks and how they respond to climatic changes. Such findings are essential for informing policy decisions by ensuring that the experiences of both women and men are embedded into policy design. Recommendations are made for future research and for incorporating gender issues into adaptation to long-term climate change.

BACKGROUND

Of the approximately 83 million inhabitants of Andhra Pradesh, around 60-70 percent rely on agriculture as their primary livelihood (Government of Andhra Pradesh, 2008; Acosta-Michlik et al., 2005). Despite advancements in the socio-economic development of Andhra Pradesh overall⁴, such as having one of the lowest levels of poverty in India at around 15 percent, farmers in rainfed agriculture zones of Andhra Pradesh continue to face numerous development and environmental challenges to their livelihoods, food security, and overall wellbeing (Government of Andhra Pradesh, 2008), including limited employment opportunities, low incomes, environmental degradation, and social inequalities.

These challenges are particularly daunting in the study districts: Mahbubnagar (in the Telangana region) and Anantapur (in the Rayalaseema region). According to the 2007 Human Development Report – Andhra Pradesh (Government of Andhra Pradesh, 2008), both districts are among the poorest in the state, and rank near the bottom of the 23 districts of Andhra Pradesh according to the Human Poverty Index⁵. The Human Development Report also found that the districts perform poorly with regard to gender equality and women’s empowerment, with Anantapur ranking near the bottom and Mahabubnagar in last place for both the Gender Development Index⁶ and Gender Empowerment Measure Index⁷ among the districts of Andhra Pradesh⁸.

Both Mahbubnagar and Anantapur have a history of drought with both districts experiencing drought during approximately 20 percent of the forty years between 1960-1999 (Acosta-Michlik et al., 2005) largely linked to low levels of agricultural output (World Bank, 2006)⁹. Farmers rely on the timely and sufficient rainfall of the annual monsoon, and when that is late, as it was in 2008 and 2009, the consequences for the farmers and their families’ food security can be catastrophic. Poor farming households are the most vulnerable and in times of drought, those who are unable to change their farming practices may face starvation, loss of health and loss of life (World Bank, 2006). In order to ensure their food security as well as their overall wellbeing under the difficult conditions of farming in these drought-prone areas, smallholder farmers diversify their livelihoods (Deb et al., 2002). A common strategy to earn additional income in both Mahbubnagar and Anantapur is to work as a day labourer or migrate for labour. Men and women each play key roles in this process of diversifying livelihoods in order to contribute to food security at the household level.

Poor farming households are the most vulnerable

Adding to the challenges of development and drought, global climate change is likely to pose new stressors to agricultural development and farmers' lives in India as a whole, and drought-prone regions of Andhra Pradesh in particular. Despite there being uncertainties in the projections of climate change impacts, it appears that the increasing temperatures associated with climate change, combined with other pressures such as increasing population, a decline in soil fertility, and a decrease in genetic diversity of popular varieties, may lead to a reduction in crop production in India (Mall et al., 2006). Food security could be negatively affected, not just through declines in yield (Ibid.) but also through more complex pathways (see FAO, 2008). Andhra Pradesh is considered vulnerable to climate change due to high environmental sensitivity, including the amount of safe water, percentage of managed land compared to total land, and ratio of fertilizer use to land area (Brenkert and Malone, 2005). Pre-existing socio-economic vulnerabilities to drought, as described above, compound the vulnerability of Andhra Pradesh's smallholder farmers to climate change.

For decades farmers in Andhra Pradesh have relied on coping strategies – short term responses to overcome immediate threats – in order to get through unfavourable weather conditions, particularly drought. With the added pressures of climate change, these coping strategies may no longer be enough in the long term. Adaptation in the

Adaptation in the agricultural sector is crucial



agricultural sector is a crucial response, both for dealing with the impacts of droughts and long-term climate change and for ensuring progress in rural development. Adaptation means¹⁰ “a process by which strategies to moderate, cope with, and take advantage of the consequences of climate events are enhanced, developed and implemented” (Selvaraju et al., 2006). Specific adaptation steps recommended for Andhra Pradesh include water conservation practices and enhancement of existing anti-drought programmes (World Bank, 2006) as well as enhancing the capacity of communities to adapt (Prabhakar and Shaw, 2008).

This report addresses some of the gaps in understanding how men and women farmers cope with climate variability. It explores how coping strategies are shaped by gender dimensions of power relations, access to resources and equity in decision-making. While the coping strategies identified are not equivalent to climate change adaptation, by demonstrating men’s and women’s abilities to react to changes in the climate, the findings can inform our understanding of what is needed for longer-term climate change adaptation.

There were multiple issues that were beyond the scope of this study but are important for understanding how farmers cope with climate variability, particularly in Andhra Pradesh. For example, the impact of globalization through import competition and stagnating prices has been shown to compound the impacts of drought in Anantapur district, making farmers doubly vulnerable (O’Brien et al., 2004). In addition, changing food systems, which affect farmers’ production and marketing choices (Deshingkar et al., 2003) and land rights (Hanstad et al., 2004; Rao, 2006) are relevant to an understanding of farmer decision-making and responses to climate change, but have not been dealt with here.

Finally, despite the challenges discussed above, there are numerous areas of progress, including the overall reduction of poverty in Andhra Pradesh as described previously, and the increased activity of self-help groups linked to the empowerment of women, as documented by local project partner Andhra Pradesh Mahila Samatha Society (APMSS)¹¹. Future work would examine how local, regional and national resources such as self help groups, targeted, institutional support, as well as increased access to education, information and technology and sustainable agricultural development could improve the overall resilience of smallholder farmers and strengthen their efforts to withstand the overall impacts of changes in climate variability and long-term climate change.