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Putting Research Knowledge into Action

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Women's vulnerability to climatic and non-climatic change in the Eastern Gangetic Plains

Climate change poses critical challenges for farmers across South Asia, and vulnerability often takes on a gendered dimension. Findings from IWMI's research conducted in Madhubani, Bihar, India, and in Dhanusha and Morang of the Nepal Terai (Madhesh) substantiate previous literature on the region by showing how men and women are differentially affected by climate change. However, another set of findings, outlined in this policy brief, show how gendered vulnerability stems from a diverse set of climatic and non-climatic causes, and is not always direct, and policy responses should be tailored accordingly.

Key messages

- Patterns of agrarian stress and the resultant vulnerabilities are determined by a range of historically specific political, economic and social processes as well as climate stress. All these factors shape the opportunities for adaptation to climate change.
- Migration, which is in part a response to climate stress, creates new forms of vulnerability, not only for migrants but also for those left behind—who are often women. The resultant vulnerability is manifested in higher workloads, difficulties accessing state services from a gender-biased bureaucracy, and challenges in ensuring the safety and welfare of the family.
- It is crucial to explore how gendered vulnerability to climate change is intricately connected to other axes of inequality – namely class and caste. In this context, women or men cannot be understood as singular categories, but are divided according to their position in the agrarian structure.

Context

As in many other parts of the Eastern Gangetic Plains, the social structure in the selected villages of Nepal and India is highly stratified, and landownership is highly skewed (see Box 1). Within households, patriarchal social relations remain entrenched, whereby women bear a significant portion of the work burden in agriculture, receive lower wages, and face unequal property ownership and inheritance rights. Economic decision making within households is still largely the male domain, and women's participation in the public sphere is curtailed, although there are differences amongst some *adivasi* (tribal) communities.

Key findings

Climatic and non-climatic stressors

- Farmers are aware of a number of climatic changes that have occurred in recent years. These include an increase in extended dry spells and late monsoons, more frequent extreme precipitation events, greater winter chilling and elevated temperatures in the summer. Farmers generally perceive climate change in terms of the greater unpredictability it has unleashed, and its stress on agriculture.

- What is often overlooked are the broader non-climatic pressures which are equally significant, leading to a broader pattern of agrarian stress. The increasing cost of inputs, such as diesel and good quality fertilizer, and bottlenecks and delays in their supply, have also put a considerable strain on agriculture. Due to inflation, marginal farmers and landless households, once partially dependent on agricultural labor, are no longer able to subsist on the previous wage rate, which drives them to seek work outside of the sector. Lack of human resources and limited collective action for farming activities are other stressors.

Adaptation strategies

The process of adaptation to these climatic and non-climatic stresses is stratified along class lines.

- Wealthier households are able to invest, for example, in their own bore wells and pump sets to cope with seasonal water shortages. Marginal and tenant farmers cannot afford the investment, while tenants, in particular, often have limited incentives to invest due to insecure land tenure and because landlords take half of the harvest as rent.

- For most of the marginal cultivators and tenants, the primary adaptation strategy is to diversify their livelihoods through wage labor. This also provides households with a source of cash income, the demand for which is rising in an increasingly monetized economy, with the rising cost of living that includes essential household commodities and agricultural inputs.

- In the context of limited local off-farm labor opportunities, marginal and tenant farmers are becoming more dependent on migrant labor, and the subsequent social changes are the most significant cause of gendered vulnerability in relation to climate change and agrarian stress.

Box 1. Landownership in three districts of Nepal and India.

Three-quarters of households in Dhanusha District, Nepal, and in Madhubani, India, are either cultivators with less than 0.5 ha of land, landless laborers or tenants, most of whom are from marginalized castes. In a study site in Morang District, Nepal, with a tribal or *adivasi* majority, most large landowners are absentee landlords, with 43% of farming households renting all or some of their land and an additional 31% being landless laborers.

Climatic changes such as an increase in winter cooling and fog are significant concerns for farmers, yet they are compounded by political and economic stresses (*photo*: Research team).

Although marginal farmers engage in wage work locally, there are insufficient jobs to absorb the large pool of farmers and landless laborers requiring supplementary employment, so migration is increasingly the norm (*photo*: Research team).

Migration, climate change and vulnerability—all linked

In the context of male out-migration, an effect of climatic and non-climatic stress, there is evidence that women are taking on new labor responsibilities on the farm as well as off the farm to keep their households afloat throughout the year, with curtailed access to capital and social support systems. This vulnerability is particularly acute for women from marginal and tenant farming households.

- *Increased workload*: The workload is particularly high for women in households where men are away on a more permanent basis. Out of this group, it is not viable for the poorest households to hire laborers from outside to compensate for the loss of male labor.

- *Direct vulnerability to climate change*: In the wake of extreme climatic events, it is often the poorer female-headed households that are most vulnerable. They also have very limited access to social support networks. Similarly, migration of adult male family members often means that they lose a regular source of cash income. Before out-migration, many men used to engage in casual off-farm labor during times of agrarian stress. During the 2012 drought in Bihar, *Dalit* women (whose husbands had migrated for work) were obliged to work as menial farm laborers for landlords in order to meet immediate income requirements. Due to their low bargaining power and temporary high demand for work, wages were highly exploitative and as low as USD 0.4 per day.

- *Constraints to investment*: Women can invest in new livelihood activities, such as livestock rearing, to cope with the effects of climate change following male out-migration. However, the investment path is laden with barriers. In-laws sometimes control the cash that can be spent, and it is difficult for women to access credit because the majority do not have landownership or tenancy certificates. In Nepal, some do not have citizenship papers. The in-laws either possess such documents or the households simply do not have any.

- *Access to irrigation:* In the case study areas, irrigation user groups remain the domain of men, despite women taking a much greater role in agriculture as a result of male out-migration. Their interests are, therefore, often not adequately represented on committees. Women from marginal farming households that do not have their own equipment (see Box 2) face difficulties in accessing tube well and pump rental markets. Some women noted that they do not have access to the networks and contacts of their husbands; they sometimes face harassment from other female community members and feel uncomfortable approaching male neighbors to seek access to water or other resources.

Box 2. Farmers' access to water.

In Dhanusha, 19% of cultivators with more than 2 ha of land area own pump sets and wells, while only 5% of small cultivators (9% of partial tenants, and no pure tenants, own wells or pumps). Similarly, in Madhubani, 18% of the total 'medium' and 'large' cultivators own wells or pumps, while only 8% of partial tenants and no pure tenants owned these assets. Marginal and tenant farmers have to access water through renting pump sets and tube wells in groundwater markets which are often highly monopolistic. Without access to social networks and a weaker bargaining power, women from these households often face the greatest constraints in accessing water.

What can policymakers do to help women adapt to climatic and non-climatic stressors?

- There is a need to move beyond tokenistic methods of inclusion such as seat reservations in water management institutions, and to instead opt for capacity building in leadership development and administration skills in fields that are not traditionally the female domain. There is also a need to increase women's participation in the public sphere.
- Governments in the Eastern Gangetic Plains must remain engaged in debates over future land and tenancy reforms, seeking to find long-term political solutions to skewed landownership and exploitative landlord-tenant relations. Ensuring land rights to marginal farmers is critical for equitable adaptation, particularly when poorer women are the most vulnerable to change.
- Promotion of low-cost and renewable technologies can lower the cost of irrigation, making it more viable for marginal and tenant farmers, including female-headed households. However, this must be supplemented by feasible credit solutions, and appropriate linkages such as access to markets and spare parts.
- Opting for solutions such as collective ownership of land or irrigation resources can offer a potential solution for women farmers, who can overcome some of the scale and investment constraints to accessing year-round irrigation through cooperative farming.
- Media can play an important role in taking up the perceptions and experiences of men and women farmers from different social groups to policy implementers and policymakers.

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Front cover photo: Research team

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Publications Unit, International Water Management Institute, PO Box 2075, Colombo, Sri Lanka
Tel: +94 11 2880000 Fax: +94 11 2786854

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