

Unequal Power Relations at the Center of Social Vulnerability to Climate Change: Empirical Insights from Coastal Bangladesh

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ABSTRACT Climate change is a global phenomenon affecting millions of people. Low-income people and communities are particularly at risk because of limited capacities to cope with climate-related stresses. Differential access to social and economic resources determines the level of adaptive potential; thus, the variations in social vulnerability to climate change. This article explores how unequal power relations influence the level of vulnerability in rural agrarian Bangladesh. Using data from the coastal region, it specifically discusses ethnicity, religion, gender, and farm size as the sources and manifestations of power relations in Bangladeshi rural society. I argue that the deeply rooted institutions of power in the country shape access to important resources that might increase adaptive capacity and thus resilience in the context of rapid climate change.

The concept of social vulnerability to climate change (abbreviated herein to “social vulnerability”) is underpinned by the theoretical arguments of political ecology. It provides important insights into how unequal power relations and social stratifications shape climate vulnerability in a given context, including in climate-vulnerable regions in the Global South. In other words, it helps us to understand who is vulnerable and under what conditions. As a useful analytical tool, social vulnerability can claim a diverse intellectual lineage, including scholarship on livelihoods (Scoones 1998), hazard theory (Burton, Kates, and White 1993), global environmental change (Turner II et al. 2003), and resilience (Holling 2001). The common thread shared by these approaches is that the natural event (i.e., disaster) does not alone define the magnitude or distribution of impacts across the population. Rather, social, economic, and cultural processes and characteristics, which create unequal power relations and social stratification, interact with natural events to determine the level of vulnerability associated with the event.

“Power,” as a key determinant of social vulnerability, engages with the political, demographic, economic, and social processes that create and/or contribute to asymmetric power and power relations among different population groups (Leach and Rivera 2021). The important question is: How do unequal power relations determine varying levels of social vulnerability? Scholars have argued that factors including race, class, ethnicity, gender, and income generate differential vulnerabilities within a similar biophysical environment (Cutter, Boruff, and Shirley 2003; Vasquez-Leon, West, and Finan 2003). In this process, power dynamics operate within formal and informal social institutions to influence vulnerability outcomes (Williams 2011). The types of power relations in question are those defined by socioeconomic and cultural differences, such as gender (Carr, Fleming, and Kalala 2016; Tschakert et al. 2010), ethnicity (Roncoli et al. 2009), religion (Orlove et al. 2010), and economic conditions (Tschakert et al. 2010). Unequal power relations in society act as potential contributors to differential and adaptive capacities in the sense that those with more influence have greater access to limited resources and opportunities. The opposite is true for those who live at the bottom of local power hierarchies, who mostly are poor and marginalized, and find themselves at the mercy of local power elites.

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Such unequal power relations characterize rural agrarian societies in many parts of the climate-vulnerable Global South, including coastal Bangladesh, which is at the frontline of global environmental change. The daily rhythm of life in coastal Bangladesh is conditioned by sea-level rise, coastal flooding and

land in the country controls local power (Ahmed and Eklund 2024; Rahman 1981).

Local people often are divided into power elites versus the marginalized with limited power; large landowners versus landless farmers; rich money lenders versus indebted poor peasants;

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erosion, tropical cyclones, rainfall variability, and saltwater intrusion (Ahmed, Eklund, and Kiester 2022).

Although substantial research has been conducted on the impacts of climate change in Bangladesh (Ahmed and Kiester 2021; Momtaz and Shameem 2016) and social vulnerability in general (Alston and Akhter 2016; Cutter, Boruff, and Shirley 2003), there is a need to unpack the role of power asymmetries in the discussion of social vulnerability and adaptive capacities. Using empirical research conducted in coastal Bangladesh, this study suggests that local power relations are manipulated and negotiated, resulting in social vulnerability and unequal access to adaptive resources.

POWER RELATIONS IN RURAL AGRARIAN SOCIETY

In Bangladesh, almost 66% of the country's population lives in rural areas (Bangladesh Bureau of Statistics 2015). Farming and fishing are the major livelihood options for the majority of this population (Bangladesh Bureau of Statistics 2017; Rapsomanikis

and other socioeconomic and cultural divisions. Among the local Muslim and Hindu peoples, this stratification traditionally is grounded in the country's long history with the zamindar system. It traces back to the precolonial and colonial periods, when large landowners controlled large swaths of local lands, labor, and capital. In most cases, zamindars' lands were cultivated by poor peasants who did not own the lands (Barkat, Raihan, and uz Zaman 2001). Zamindars and other hereditary landlords exercised their feudal powers and received social and political protections by contributing revenues to the British colonial government. Although the zamindar system is now outlawed in Bangladesh, its legacy of land concentration continues. Most lands are controlled by a small number of social, economic, and political elites, many of whom live in cities.

Among the Hindus, the traditional caste system governs the social stratification and lingers as the remaining unequal power structure (Tiwari 2010). The upper-caste “Brahmins” control the majority of communal resources, and the low-caste groups work as

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2005). However, the local agrarian society is not homogeneous (Hossain and Lewis 2008; Rahman 1986/2001). The social structure of rural Bangladesh is exceedingly complex (Gankovsky 1974); to understand this complexity, it is important to unpack the dynamic nature of the local society and power structure (Khan 2015).

Unequal power relations are reflected in the fact that some people have greater access to social, economic, and political power, as well as opportunities in their locality because of their privileged status in society. In this context, a deeper understanding of unequal power relations in rural agrarian society provides important insights into how people interact with their biophysical environment and the conditions that influence climate-adaptation outcomes.

Land-ownership status plays a central role because the distribution of power is closely associated with the distribution and control of lands (Barkat, Raihan, and uz Zaman 2001; Rahman 2001). Rural Bangladesh is predominantly patriarchal and class-based (Rahman 1986/2001). Because land is a scarce resource in the country, it has a central role in shaping local power relations and the power structure. Ultimately, whoever holds ownership of the

laborers—sometimes bonded to the land or to an elite. The caste system also involves landlords and “landless” peasantry, which shape the unequal power relations in agrarian societies in many parts of South Asia.

In addition to religion, ethnicity may be a deciding factor of unequal power relations. In Bangladesh, approximately 98% of the population is Bengali; ethnic minorities comprise the remainder (Miah 2018). Almost 20,000 Rakhine ethnic minorities live in coastal Bangladesh in addition to mainstream Bengali people. The Rakhine people are of Indo-Chinese descent and have lived in the region since the early-eighteenth century.

In the patriarchal society of rural Bangladesh, gendered expectations and divisions of labor comprise another aspect that determines unequal power relations (Rocheleau and Edmunds 1997). Research suggests that women are not only inherently more vulnerable to the effects of climate change; they also may face barriers that reduce their adaptive capacity (Ahmed and Kiester 2021; Mersha and van Laerhoven 2016). In Bangladesh, women typically have less education and less access to financial capital, own less than 10% of the land, and receive only 5% of all agricultural-assistance services (Alston and Akhter 2016). They

also have less power and influence over decisions that are made by male household members (Denton 2002). Moreover, women are limited by sociocultural norms that make it difficult for them to travel alone or to enter the busy local market (i.e., bazaar) and public spaces unaccompanied. On rare occasions, households headed by women have broken with gendered norms and obtained increased economic autonomy (Djoudi and Brockhaus 2011). Gendered barriers to climate adaptation also are evident in other parts of the Global South, such as Uganda (Orlove et al. 2010), Ghana (Freduah, Fidelman, and Smith 2019), and Ethiopia (Deressa et al. 2009).

Unequal power relations in agrarian society are fluid and dynamic (Habib and Mizan 2016), and they are continuously influenced by various social, economic, cultural, and political factors. The power relations in agrarian society potentially influence livelihood opportunities and capacities to cope with various social and environmental stresses (Atteridge and Remling 2018). In Bangladesh, unequal power relations and uneven power structures are deeply rooted. With its institutions of discrimination, the system therefore often is predictable. Rahman (1981) found that control over land (i.e., land ownership), ties to administration (i.e., access to public goods), and income opportunities (i.e., both farm and nonfarm income) are the three important variables in rural Bangladesh that explain existing unequal power structures.

STUDY AREA

Coastal Bangladesh has a long history of severe floods, heavy monsoons, cyclones, tidal surges, and river and coastal erosion (McGranahan, Balk, and Anderson 2007; Roy, Hanlon, and Hulme 2016). The region is approximately 47,201 square kilometers, which is 32% of the country’s total landmass. This study focuses on Kalapara Upazila (i.e., a subdistrict, which is a local administrative unit) in the central coastal zone under the Patuakhali district, one of the most southern local administrative units in the country. Encompassing 492 square kilometers, Kalapara has a population of 238,000 (Upazila Disaster Management Committee 2014). Like most areas in rural Bangladesh, communities in Kalapara typically are hierarchical. In most cases, they are strongly patriarchal and highly unequal in terms of access to resources and livelihood opportunities. People in Kalapara engage in diverse livelihoods such as farming, fishing, and forest-dependent activities. However, small-scale farming is the most common form of local livelihood (Ahmed and Eklund 2024).

Because of its geographical location, Kalapara is one of the most vulnerable and disaster-prone areas in the country. People there are no strangers to the devastating impacts of tropical cyclones, which bring destruction and displacement and leave communities grappling with irrecoverable losses, damages, and grief (Miah 2018; Upazila Disaster Management Committee 2014).

RESEARCH METHODS

Kalapara was chosen as the study site because of its (1) vulnerable geographical location and exposure to various weather- and climate-related stresses; (2) local dependency on climate-sensitive sectors, such as farming and fishing; and (3) perennial loss of agriculture lands and farm productivity due to natural hazards. The empirical research was conducted between September 2017 and January 2018. The farmers were selected as respondents because of their dependency on farming; locational exposure;

and farm-level impacts of tropical cyclones, coastal flooding, and rainfall variability.

These farmers were selected by purposive sampling so that their representation reflects the desired criteria described previously. They were distributed spatially throughout 28 villages (locally known as *moujas*) in Kalapara. However, the number of respondent farmers was not distributed evenly across villages. This was largely due to their availability but also because of the spatial concentration of ethnic (i.e., Rakhine) and religious minority (i.e., Hindu) farmers. In contrast, the Muslim farmers, who comprise the local majority, were distributed more evenly across villages in the region.

In Kalapara, a total of 1,049 households reported farming as their main livelihood option (Hoque 2014). Of these, 250 farmers were interviewed using semi-structured questionnaires. Of those 250 interviews, 20 farmers were selected for in-depth case studies: half of whom were male and half of whom were female heads of the household. Some respondents were chosen purposively because they were particularly successful and innovative farmers (i.e., high adaptive capacity). The socioeconomic situations of the other interviewed farmers were particularly precarious. They were selected after the initial interviews were conducted. Once they were selected, further time was requested, depending on their availability, for more in-depth discussions. In all of the cases, respondents were in charge of making decisions for the farm-related activities of their households.

All of these data were collected in various forms, both closed-ended quantitative and open-ended qualitative information. Quantitative and qualitative information was analyzed, respectively, using the Statistical Package for Social Sciences and NVivo, a qualitative data analysis software package, which revealed richer insights from the collected data. Narrative analysis also generated themes and insights from the in-depth interviews.

RESULTS

Access to critical weather- and climate-related information is a key resource that local people need to cope with increasing environmental stresses. In most cases, those who are more socially vulnerable have inadequate or lack access to that critical resource. Access to this information often is mediated by the local power structure and social stratification. The findings of this study highlight the root causes of unequal access to early-warning and critical weather-related information.

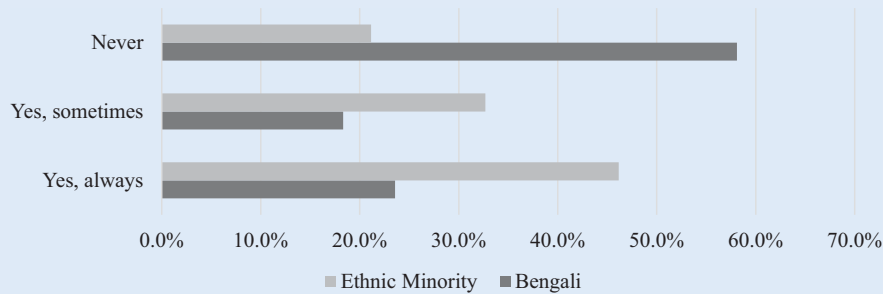
In August–October 2017, farmers in Kalapara experienced a major rainfall event; many of them lost more than 50% of their crops. Although the government issued early warnings, 70% of

Table 1
Access to 2017 Rainfall Information (%)

		Percentage of Interviewed Farmers Who Did Not Receive Any Information
Gender	Female	69
	Male	67
Ethnicity	Ethnic Minority	76
	Bengali	66

Figure 1

Information-Seeking Behavior (%)



respondents reported that they did not receive any information, and there were major variations among the people who did receive the warnings. However, although only 30% of the farmers received early-warning and rainfall information, their access to information was not homogeneous.

Among those interviewed, only 26% of ethnic farmers received the early warning—the lowest rate compared among all groups of

The absence of agriculture extension agents from their ethnic background also complicates communication.

POLICY IMPLICATIONS

Because people are exposed to increasing climate crises in most of the world, various governments, development agencies, and communities spend billions of dollars every year to reduce

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respondents (Table 1). Collected data show that the ethnic Rakhine farmers also sought information more than the local mainstream Bengali (Figure 1).

However, the scenario was reversed regarding receiving the information; that is, the Bengali people received more information but spent less time seeking it. To understand this unequal access to early-warning and climate-related information, the social landscape of disseminating and receiving that information must be described. In the region, most of the farmers shop at the local bazaar, where they interact with agriculture extension agents. The bazaar is a place for social interaction, information exchange, and innovation. Those who go to the bazaar on a regular basis most likely will interact with other farmers and the agriculture extension agents, and they will learn how to access other public and private resources. Rakhine farmers typically are hesitant to go to the bazaar due mostly to their sense of exclusion. Differences in culture, ethnicity, and language play the major role in creating these social barriers.

The situation is even more difficult for Rakhine female household members. Because of gender and ethnicity differences, they feel a sense of insecurity and are hesitant to enter a traditionally masculine and Muslim-dominant space at the bazaar. The local power structure is defined primarily by ethnicity, gender, and religion and is reflected in the profile of the bazaar as a social space as well as who is comfortable engaging in its activities. Rakhine farmers often stay on the sidelines, and this limited public engagement places them on a lower rung of the social structure. The situation is compounded for Rakhine women.

vulnerability and improve adaptive capacity and resilience. Despite these efforts, millions of people—particularly those who are poor and marginalized—experience disproportionate climate impacts due to their limited adaptive capacity. Therefore, it is critically important to understand the root causes of social vulnerability and barriers to adaptation and resilience.

In this context, and using empirical evidence, this article provides important social and cultural insights, and it advances knowledge on the implications of unequal power relations and dynamics in the discussion of social vulnerability, adaptation, and resilience. As a complex problem, overall social dimensions of climate change demand a more nuanced understanding of how society interacts with the environment during crises. The unequal power structure helps us to understand who is vulnerable, under which contexts, and what is necessary to improve their adaptive capacity. The concepts of power relations and therefore social stratification demand increasing priority in the discussion of climate adaptation and resilience.

CONCLUSION

Unequal power structures exist in almost all societies in the world. Moreover, these religious, ethnicity, gender, and income differences stem from existing social institutions and the cultural cleavages that they create. The social, cultural, and economic differences shape the level of resources that people may have or the resources that they can access when necessary. Unequal access to various adaptive resources (e.g., land and farm and nonfarm incomes) is the outcome of the deeply rooted uneven power

structures that exist. Therefore, the climatic impacts in Bangladesh are mediated by gender, income, ethnicity, and religious differences. This article explains that social vulnerability is the outcome of the lack of access to resources as well as restricted social and political power, which ultimately determines who owns what and on what level—in other words, differential adaptive capacities. Although this research was conducted in coastal Bangladesh, the findings provide critical insights into vulnerability and adaptation for other parts of the world that experience similar social, cultural, and environmental challenges.

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DATA AVAILABILITY STATEMENT

Research documentation and data that support the findings of this study are openly available at the *PS: Political Science & Politics* Harvard Dataverse at <https://doi.org/10.7910/DVN/PGUNAP>.

CONFLICTS OF INTEREST

The author declares that there are no ethical issues or conflicts of interest in this research. ■

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