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Bangladesh, Climate Volatility

Bangladesh: Gender Gaps in the Context of Climate Change

The rapidly changing climate has the capacity to expose the vulnerabilities of a country. Agriculture dependency and gender roles in the household contribute to environmental and social challenges in Bangladesh in the face of climate volatility. Although regional conditions threaten the safety and well-being of the majority of urban and rural residents, women are more extensively impacted. By acknowledging the gender dimension of these issues within community-based adaptation and education, women can be empowered to play a more involved role in the economy and food insecurity can thus be mitigated.

Bangladesh is a South Asian country located in the Northeastern region of the subcontinent, bordered by India and the Bay of Bengal. Characterized by a tropical monsoon climate, flat land positioned close to sea level, and complex river systems including two major rivers — the Ganges and Brahmaputra — the 147,540 square kilometer region has an agricultural-dependent economy. One of the most densely-populated countries in the world with around 161 million people living in an area smaller than the US state of Michigan, Bangladesh is subject to significant demographic stress that affects resource availability, economic development, and household stability. Heavily focused on the issue of food insecurity, the parliamentary government gives priority to increasing agricultural production in rural areas in addition to the common issue of malnutrition throughout all social strata. The challenges of the rapidly changing climate, coupled with the social and economic pressures of the growing population are only intensifying. With over 63.37% of the Bangladesh population made up of rural residents, the majority of the country's inhabitants are distanced from marketplace activity where infrastructure, social services, and income stability are more adequately supported (*Bangladesh - Rural population [% of total population]*). The quantities of arable land for crop cultivation are declining due to poor climate adaptability and land degradation from intensive farming practices. According to the Ministry of Food and Disaster Management (MOFDM), around 1% of the country's farmland is lost annually due to infrastructure development.

The typical family in Bangladesh must adapt their lifestyle to their economic capacities, agricultural limitations, and regional conditions. With over 32 million families and an average of 4.11 members in each household (*Bangladesh: HIES: Average Household Size: Rural: Economic Indicators: CEIC*), the average person has relatively low standards of living. Housing is constructed on the basis of a low-income, high-density area where single story dwellings are common. Despite programs implemented

for the urban poor, housing conditions are primarily dictated by climatic and geographical characteristics. Dietary standards show 80% of energy consumption derives from cereals, roots, and tubers. Rice constitutes 70% of total calorie intake (1. *INTRODUCTION*), and nearly two-thirds of the daily diet consists of rice, some vegetables, and pulses. Malnutrition exists among the poor — primarily women and lactating mothers due to poverty, inadequate nutrition information, inaccessibility to healthy foods, and gender inequity. Cooking practices are often unhygienic and transmit germs, as community members typically eat hand-mixed, uncooked mashed food and salad to supplement their meals. In addition, the majority of households use traditional, polluting cookstoves that use fuel like firewood and cow manure for heat; according to the World Health Organization, this exposure to indoor air pollution is associated with an average 107,000 fatalities annually, especially in women and children who often manage the household fuel. The health of family members is also threatened by the poor water quality in rural and urban households. Although water from improved sources serves 98% of Bangladesh's population, 80% of private piped-water taps sampled were contaminated with E.Coli and around 13% contained arsenic levels above unsafe health standards (*Bangladesh: Access to Clean Water Will Reduce Poverty Faster*). Water safety is further aggravated by salinity-intrusion from the changing climate, especially in coastal areas where about one-third of households must use contaminated water sources in times of disaster. Increased levels of salinity and drought conditions limit the supply of water accessible to families. Women, who carry the load of domestic responsibilities, must walk longer distances to obtain this water while risking their health and safety in the process. This time-consuming task reduces their capacity for daily economic productivity and income earning.

Although health facilities in Bangladesh are accessible and widely used by public and private sectors of the system, health insurance is almost nonexistent. Health financing is underfunded, as only 2.64% of GDP covers health; this is the lowest rate in the South Asian region (Joarder et al.). Due to this sparsity in health finance coverage, approximately 9% of households face catastrophic payments in relation to health budgets, 5.6% face impoverishment, and 7% are subject to financial distress with health management (Joarder et al.). Similarly, the quality of education is relatively low. Literacy levels among youth indicate that Bangladeshi school systems are not preparing students with foundational skills essential for development and future learning. Most children in the country are failing to acquire basic reading fluency, demonstrated by 2018 statistics from a USAID-funded assessment by Save the Children, where 44% of students were unable to read their first word by the end of 4th grade (*Education: Bangladesh*). This inhibits economic growth in Bangladesh, as most youth workers lack the fundamental skills for productivity in a knowledge-oriented economy. Gender disparities are apparent, with 42% of girls leaving school before reaching grade 10, while the overall dropout rate was 38% in 2017 (*Education in Bangladesh*).

Limited economic mobility among females in the working class and the lack of education leave women with fewer options. In response to climatic issues, women are less resilient; the primary sources of income for women include garment work and domestic service, so they may be forced to relocate in times of disaster to maintain a living. Service-sector employment in urban areas requires low-skill levels, but is beyond the range of most rural women. On the other hand, men often work in small businesses, fishing practices, and rickshaw pulling, and thus are not forced to migrate long distances as they can easily pick up new jobs. Although agriculture serves as the primary source of living in rural areas for generating

employment, it usually fails to guarantee a reliable income. The trend in agricultural income has decreased significantly over time, especially considering that resources are allocated to other areas of the economy to promote growth in non-farm sectors. Rural non-farm employment in Bangladesh is nearly 50% more than all urban employment together, based on findings from a World Bank 2010 labor force survey. However, a number of rural non-farm activities remain linked to agriculture and depend on efficient farming practices along with produce for trading and food preparation. An emerging concern is the lack of rural development and climate adaptability because the growth of rural activities is stagnated by the dependence on agriculture.

Due to its geographical location and the rapidly changing global climate, Bangladesh is at the forefront of the climate crisis. The country experiences diverse climatic changes including sea-level rises, increased tropical cyclones, excessive salinity in agricultural areas, recurrent droughts, drastic variations in precipitation, and frequent flooding due to its low-lying delta and vast river systems. Because the economy depends on agricultural stability and the topography consists of flat, low-lying land relatively close to sea-level, a changing climate is one of the leading determinants of household food security in Bangladesh. The frequency of cyclones, droughts, floods, and other natural disasters is increasing, posing threats to food consumption and dietary diversity as the calamities collectively damage crops. Since the floods of 1998, the general supply of rice, vegetables, and other foods has dwindled. To mitigate their losses, poor rural residents have resorted to selling their assets, most often land or livestock. A large fraction of the population is situated close to rivers where property costs are cheaper. Because they are unable to pay for flood protection due to the lack of financial resources, the poor are pushed further into poverty. Roughly 16% of household income is lost every year due to flooding, with property assets comprising nearly 89% of the losses (Brouwer et al.). Resource-limited households are subject to the challenges associated with rising temperatures, sporadic rainfall, disease outbreaks, and unhealthy livestock from pests, which all compromise food security.

Although a wide demographic of the population is affected by climate change, women are uniquely challenged. With over 60 million people in Bangladesh living below the poverty line, women account for 74% of this population; they constitute a significant proportion of the poor populations in both rural and urban contexts (Tanjeela and Rutherford). Women are most vulnerable to the effects of climate change in regard to poverty, food insecurity, and water crises. Identifying the relationship between gender inequality and poverty is fundamental in defining vulnerabilities among affected communities in an agricultural-dependent region. Climate issues are interconnected with a variety of socio-cultural and economic factors. The socio-economic vulnerabilities of Bangladeshi women are fully exposed when their family's food security and livelihood lessens; the primary responsibilities for managing household duties, agricultural and non-agricultural practices, and maintaining a ready supply of water and energy traditionally lie in the hands of women. Their earnings provide access to credit, education, agricultural production, and the household income level, along with other aspects of food security. However, the role of women in society is often undermined: they have an active influence on the food budget but are denied adequate social, economic, and political power. Due to the deeply rooted patriarchal institution among the Bangladeshi people, females are secluded from mobility potential and economic influence. As a result, women suffer from food insecurity, social dislocation, and increased poverty.

The exclusion of women in positions of influence shapes the gender element of climate change, especially in rural communities where the majority of women are prohibited from engaging in public matters. To address this, a variety of programs have been initiated to encourage female involvement. Community-based disaster preparedness and disaster management programs can reinforce principles of resilience among communities where women play active roles and redefine gender roles in the agricultural labor force. Although traditional patriarchal views fail to consider women as valuable assets in the farming community, a number of programs (e.g ALCCCA project - Assistance to Local Communities on Climate Change Adaptation) have revealed that women are active in the response systems prior to and following natural calamities; a number of women were highly aware of the environmental problems relevant to their country. In addition, the Cyclone Preparedness Program (CCP) benefited women and adolescent girls as it effectively raised disaster awareness and encouraged local women to transfer to safe places following a warning, despite prior unwillingness to abandon household assets and move to cyclone shelters. Despite these efforts, women remain significantly disadvantaged in holding public influence among their communities.

To combat the gender disparities in mainstream activities regarding climate adaptation, it may be useful to consider a more inclusive growth strategy. In areas where funding is not directly distributed to local areas

by the federal government, resources are limited to money that has trickled down from indirect national funds. This makes it a challenge to address growing economic gaps between men and women. Instead, efforts can be diverted to supplying resources at the local level through a more specialized approach of community-based adaptation, which would involve responding to climate concerns while allowing women an active role in community planning. Furthermore, a more inclusive approach to local action against climate vulnerability would reshape the outlook on education. Community planning involves examining how adversity endured from the changing climate affects the lives of those in the area, disproportionately women. It may be beneficial to participate in initiatives that receive firsthand funding. Currently, Bangladesh is receiving aid from a variety of NGOs and research organizations dedicated to building the adaptive capacities of countries challenged by climate crises. Projects like Action Research on Community Adaptation in Bangladesh (ARCAB) are working to track the course and effects of climate change on vulnerable communities by creating a collaborative platform for research partners. Economic empowerment programs like UN Women are instigating efforts for gender equality in regions across Asia and the Pacific and are aiming to promote the resilience of women in the face of natural disasters. Despite the initiatives in place, women are deterred from holding public influence in comparison to their male counterparts. As a supplemental strategy to mitigating the economic and social practices that marginalize women, it could be effective to target young girls in the efforts to normalize gender balances. This could entail developing programs that directly involve youth, particularly girls in an educational or community setting. These initiatives would encourage girls to explore income-generating opportunities, utilize available resources, and understand how to adapt their future to a changing climate. As gender roles are heavily integrated into Bangladesh culture, the struggles of women and girls within the patriarchal institution are easily disregarded and often go unnoticed. Promoting a general understanding among the youth populations would not only challenge these traditional gender norms but empower girls — and also boys — to maximize their potential.

Empowerment begins with education. It is important that both boys and girls are educated about not only how to prepare for and respond to climate crises, but also of the challenges associated with being a woman in a developing country threatened by climate. Considering that educational institutions are often inaccessible for families who are distanced from urban life or are not close to school grounds, the youth-centered initiatives would accommodate those under such circumstances. Education could incorporate business courses, from microfinance practices used in rural communities to financial management methods used in all sectors of the economy. Developing an understanding of how members of a community interact with the economy from an early age would set the foundation for success and expand the opportunities for those living in an area where resources are limited by regional conditions. Microcredit, or the provisions of small loans to low-income borrowers, currently serves as a fundamental approach to entrepreneurial growth for many women in Bangladesh. Integrating lessons regarding these operations into the curriculum would provide foundational understanding for young girls to eventually become financially independent. According to a 2019 study conducted by the International Journal of Financial Studies (IJFS), the majority of microcredit users are illiterate or less educated women; among different education attainment groups tested, most of the respondents were illiterate (58%) or involved in schooling up to a primary level of education (21.67%). When analyzing how microcredit borrowers may more efficiently transform their businesses into income-generating activities through sufficient knowledge in this area, it is important that they are provided with access to this education early on. Both microfinance programs and general education should be supplemented with advisory techniques regarding how to efficiently manage finances and self-employ. A profit-bearing business would potentially enable a comfortable lifestyle for the average Bangladeshi woman, promote social mobility among the female population, and empower them in their community. Educating young girls in this area would encourage them to explore their individual capabilities rather than conforming to intra-household gender roles where the husband has principal authority over money management and decision-making.

Acknowledging power dynamics in educational practices may serve as a vital first step in redefining the role of women and girls in climate change adaptation and disaster management. In the context of climate change, gender is a primary factor in determining community representation in public spaces where evacuation systems, relief measures, and disaster-related decision-making occur. Gender inclusion in community decision-making would not only redefine women as proactive agents in bringing change but benefit the economy by fostering resilience nationwide; women can more largely contribute to relief and stability approaches. Education promotes awareness, which nurtures growth on a societal level.

As a country vulnerable to climate change, Bangladesh is faced with a social, political, and economic issue that impacts its people: gender inequity. Climate volatility not only involves agricultural and economic conditions, but also intensifies the disparities between male and female adaptability. In a region characterized by rural poverty, agricultural dependency, and limited economic mobility, the climate crises that shape the lives of Bangladeshi people further aggravate gender gaps. From imbalanced domestic responsibilities to a lack of female influence in community matters, a large sector of the population is undermined. By challenging this societal norm through innovative educational programs and business initiatives that target youth — specifically girls — in the developing economy, the people of Bangladesh

can redefine traditional thinking. Addressing the true nature of gender relations in the context of climate change can empower women and benefit communities vulnerable to environmental challenges.

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