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Challenges of Local Government Institutions in Responding to Climate Change Induced Natural Disasters in Rural Bangladesh

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ABSTRACT:
Local government institutions (LGI) play essential roles in reducing climate-induced disaster risks in vulnerable rural communities. As one of the most vulnerable countries to climate change, Bangladesh has formulated national policies to deal with climate change and natural disasters. It adopted the Climate Change Strategy and Action Plan (BCCSAP) in 2009 to address climate change challenges. Despite policymakers' good intention in formulating this policy, the effective implementation throughout the country largely depends on the extent to which LGIs can undertake actions. This paper discusses how LGIs in Bangladesh's vulnerable rural areas face challenges in mobilizing limited financial and human resources for local adaptation actions. It analyzes Bangladesh's laws on local governments and local council minutes to better understand how LGIs are legally empowered to implement the BCCSAP. We then discuss our field observations and interviews with LGI members in a disaster-prone subdistrict. One of our findings is that LGIs had overlapping legal authorities regarding disaster responses. Also, LGIs tended to focus on food security for disaster victims. Our analysis on local council minutes shows that local council decisions were largely biased toward male council members' proposals. Another finding was that all LGIs experienced severe understaffing, council members' limited capacity for project governance, and arbitrary revenue collection practices.
KEYWORDS: *Climate change, natural disaster, local government institution, gender equity, Bangladesh*

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I. INTRODUCTION

The IPCC 5th Assessment report (2014) stressed that local government institutions (LGIs) play vital roles in achieving international and national climate adaptation goals (IPCC, 2014). Several studies similarly argued that effectively run LGIs can better coordinate actions among local stakeholders than central government agencies (Agrawal, 2010; Ahmed et al., 2014). LGIs can play crucial roles in driving communities to better adapt to local climate challenge incidences (Ahmed et al., 2014; Björkdahl and Somun-Krupalija, 2020; Chhartre and Agrawal, 2009; Corbera and Brown, 2008), empower first responders (Karim and Thiel, 2017) and mitigate inequity issues (Christensen et al., 2012). In other words, disaster management and resilience-building activities may become more effective when local governance structures actively participate and cooperate (Choudhury et al., 2019).

There is a growing consensus that natural disasters reinforce many pre-existing stressors, including underlying political and socio-economic conditions that affect people's coping capacity (McAdam, 2013). In some social settings, disaster vulnerabilities mean differently for males and females (Alam and Rahman, 2014; Alston, 2015; Eastin, 2018; Heslin et al., 2019; Ikeda, 1995; Rashid and Shafie, 2013). In other circumstances, the composition of stakeholders determines the effectiveness of disaster responses as diverse participants often defy consensus (Bell et al., 2011). In coping with these localized pre-existing stressors, national disaster policies in developing countries have recognized the importance of having local institutions to establish linkages between local adaption and national policy actions (IPCC, 2014; McSweeney and Coomes, 2011). Hence, successful policy implementation requires a better understanding of local governance situations and needs regarding disaster responses.

In recent decades, Bangladesh has captured global attention as it is particularly prone to climate change-induced natural disasters, such as flooding and sea level rise. The country is largely situated in a low-lying river delta with two-thirds of its land less than 5 m above sea level, and 61% of 160 million people or about 96 million people are vulnerable to flooding (GED, 2015). These people have experienced extreme climatic events, particularly floods, cyclones, riverbank erosion, and drought (Haque et al., 2019). The World Bank (2016) reported that economic losses of natural hazards hamper the growth of the country's gross domestic product (GDP) annually by 0.5 to 1% (World Bank, 2016).

In addition to economic impacts, Bangladesh's disaster vulnerability has been exacerbated due to some social and cultural constraints, such as gender discrimination. Several studies found that women in rural areas are more vulnerable to disasters than men due to discriminatory social norms and practices (Alston, 2015; Rashid and Shafie, 2013). Bangladesh experienced a bitter lesson when a super cyclone in 1991 claimed 140,000 people's lives in its southeastern coastal areas, of which 90% was women (Ikeda, 1995). However, in recent decades, due to a large amount of investment in cyclone shelters and other infrastructure developments, the number of victims has decreased at a remarkable rate (Haque et al., 2012). This much said, there are still a number of gender related constraints, including women's reluctance to use cyclone shelters.

Bangladesh has adopted several policies, including the National Adaptation Program of Action (NAPA) of 2005 and the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) of 2009 (MOEFC, 2005; MOEFC, 2009). It also revised the standing orders on disasters (SOD) and adopted the Disaster Management Act of 2012, aligning with the BCCSAP (Minlaw, 2012). The BCCSAP has six strategic pillars to respond to climate change: (1) food security, social protection, and health, (2) comprehensive disaster management, (3) infrastructure, (4) research and knowledge management, (5) mitigation and low carbon development, and (6) capacity building and institutional strengthening (MOEFC, 2009). Some actions under these pillars are delegated to local government councils. As studies indicate that these local government councils, especially in rural areas, have chronically suffered from financial resource scarcity and unskilled management (Huque and Panday, 2018; Panday and Chowdhury, 2020). Even though local councils mostly depend on central government's budget (Christensen et al., 2012; Huque and Panday, 2018), national appropriation tends to address urban needs. Since 2010, few central government initiatives have funded rural local councils for climate change adaptation programs (FD, 2019).

Past studies noted this governance gap between central and local governments (Choudhury et al., 2019; Christensen et al., 2012; McSweeney and Coomes, 2011; Plessis and Kotzé, 2014). Christensen et al. (2012) examined Bangladesh's comprehensive disaster management program and found that the central government did not respond to local needs in rural areas. However, we do not know much about how local councils can mobilize locally available economic and social resources to address local climate challenges. In mobilizing local resources, what are the legal and operational difficulties local councils face? How is gender equity addressed in the legal context?

This paper attempts to find the answer to these questions. It mainly focuses on (1) how local councils implement adaptation initiatives in response to the BCCSAP and (2) what challenges local councils face to allocate and manage available local resources. In this study, the terms local government institutions (LGI), local institutions, and local councils are interchangeably referred to elected local councils (*Parishad* in Bengali) at district (*Zila*), subdistrict (*Upazila*), and the grassroots (*Union*) levels. These terms are described in the laws on local governments. Before discussing the results of our investigation on the above questions, we first explain about the study area's disaster vulnerability. Then we elaborate on our research methodology and results, explaining legal mandates, operational procedures, and challenges of the local councils corresponding with the BCCSAP strategic pillars.

II. METHODOLOGY

The Study Area:

Our selection of the study area is largely based on Bangladesh's vulnerability profile that the Ministry of Environment, Forest and Climate Change (MOEFC) (MOEFC, 2009), Islam (2011), and Haque et al. (2019) developed. The studies identified Fulgazi *Upazila* (subdistrict) of Feni District (Figure 1) as highly vulnerable to multiple hazards like cross-boundary floods/flash floods and high-risk tropical cyclones (Figure 2).

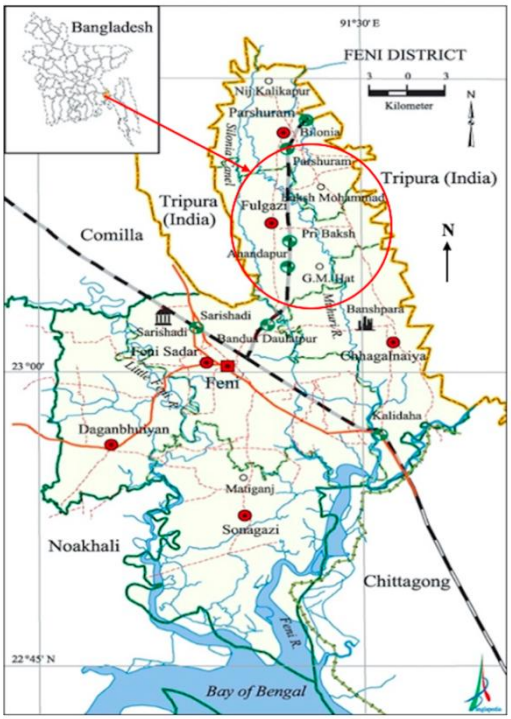

Figure 1. Study area location (Banglapedia, 2015)

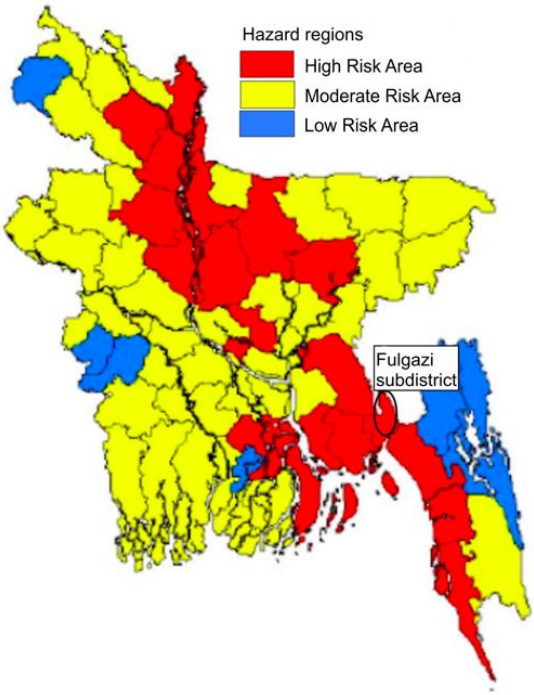

Figure 2. Multiple hazard map of Bangladesh (Islam, 2011)

According to the Fulgazi Subdistrict Relief and Disaster Management Office, flash flood inundation in the subdistrict and adjacent areas occurs both in rainy (July to September) and summer seasons (April to June), while other parts of the country have floods only in the rainy season (personal communication, March 20, 2018). A high frequency of flash floods along with the intensity has made this subdistrict particularly vulnerable. Flash floods occur due to the overflow of three cross-boundary rivers, namely, the Muhuri, Silonia, and Kohua, which originate in the Tripura territory of India (Banglapedia, 2015). Flash floods have heavily damaged farming, which is essential to about 54% of the residents (Banglapedia, 2015). Geographically, the study area is a low-lying area with 249 millimeters of average annual rainfall and 30.2 degree Celsius of average temperature (BBS, 2019).

With an area of 102.19 km^2, the Fulgazi subdistrict had a population of 119,558, of which about 50% was female (BBS, 2013). People without land ownership comprised approximately 35% of the total population. Unpredictable flood inundation forced farm owners to keep their land either fallowed or leased to brick-manufacturers (Haider, 2017). In this subdistrict, local government councils, i.e., *Upazila Parishad* and *Union Parishad*, incorporated disaster response and recovery programs as part of their development activities.

This study area has one subdistrict council called Fulgazi *Upazila Parishad* and has six administrative subunits called *Union Parishad* in Bengali (*Parishad* means a council). Each *Union Parishad* has nine elected members and is headed by an elected chairman (Minlaw, 2009). By law, the council should consist of three female members. This local institution is responsible for making local development and disaster management plans.

Data collection and analysis:

Our data sources are Bangladesh's local government laws in the Bengali language and the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) of 2009. Following Ahmed et al. (2014), we identified three relevant aspects of local governance for our research:

1. Legal obligations and responsibility for disaster management,
2. Local council jurisdictions to implement the BCCSAP,
3. The institutional authority of resource mobilization.

Here, we found the following three laws most relevant to rural area's local governance: the *Zila Parishad* Act (2000), the *Upazila Parishad* Act (1998; amended in 2011), and the Local Government (*Union Parishad*) Act (2009). We examined how these laws stipulate the responses, responsibilities, and authority of local councils. We considered how actions under the BCCSAP apply to LGIs.

Regarding our second objective, we examined local council records of development projects in the study area. Considering women as the most disadvantaged group due to gender disparities in climate change vulnerability (Eastin, 2018), we focused on gender-based service deliveries. From July 2017 to June 2018, the corresponding author observed decision-making meetings and project allocation processes at *Upazila Parishad* and *Union Parishad* councils in the study area. We collected information from local council members to identify development projects from 2014 to 2018. In April 2018, we interviewed all elected women members of local councils in Fulgazi subdistrict (i.e., 18 women members from 6 *Union Parishad* councils, and one from *Upazila Parishad* council) and seven elected male representatives (six male Chairmen from six *Union Parishad* councils and one Chairman of *Upazila Parishad*). We organized two group discussion sessions with female and male members of six *Union Parishads* separately. The discussion sessions were conducted on two consecutive days. A women's session was conducted at the courtyard of a woman member, and a men's session was conducted at the Fulgazi *Upazila Parishad* meeting room so that they could explain opinions without any influence of their counterparts. Each session lasted about an hour. We asked the women respondents individually about (1) how many of their project proposals were adopted in the final decision of the council and (2) what kind of challenges they faced in adopting their project proposals. We also asked the Chairman of each council about (1) the extent to which they adopted women's recommendations in the council and (2) what challenges the council faced in implementing council decisions. We noted their opinions in plain paper, and a summary based on their discussion was presented at the end of the discussion to check if they agreed with it. The council members' names are not mentioned here. We followed the Bangladesh government's ethical guidelines to obtain permission from interviewees.

III. RESULTS AND DISCUSSION

Laws, jurisdictions, and authority of LGIs to implement the BCCSAP:

Concerning legal obligations and responsibilities, Article 59 Section 2(c) of the Bangladesh Constitution makes the local government institutions responsible for preparing and implementing all public services and economic developments (Minlaw, 1972). Accordingly, Article 60 authorizes LGIs to mobilize local resources for action with the power to levy tax and collect revenue. Article 18A makes LGIs responsible for local natural resources management and environmental protection, including biodiversity, wetland, forest, and wildlife conservation (Minlaw, 1972). The following five administrative tiers are responsible for implementation:

1. City corporation in the metropolitan area,
2. *Pourashava* (municipality council),
3. *Zila Parishad* (district council),
4. *Upazila Parishad* (subdistrict council),
5. *Union Parishad.*

The functions and responsibilities of these LGIs are legally defined. City corporations and *Pourashavas* are responsible for urban development. The other three shown in the legal framework of local government institutions (Figure 3) are responsible for rural development.

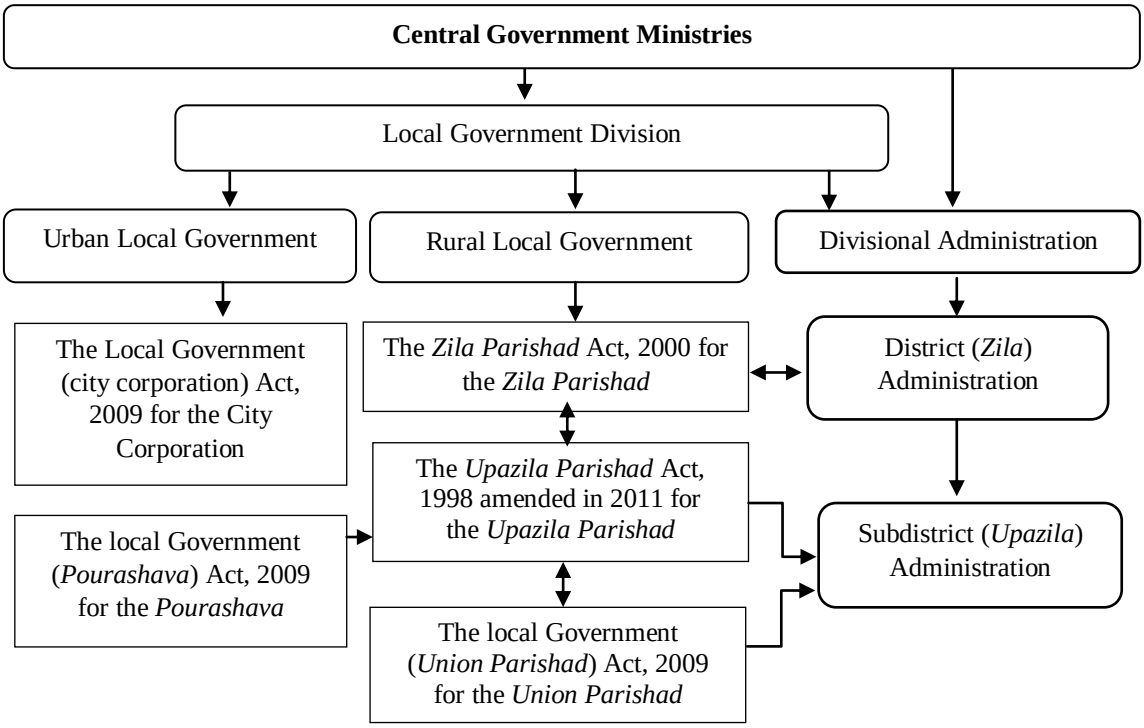

Figure 3. Legal framework of local government institutions in Bangladesh

Each local council in rural areas is administered under the specific law. The *Zila Parishad* Act and the *Upazila Parishad* Act govern the district and the subdistrict councils, respectively. The *Union Parishad* Act governs the smallest local council affairs. Under these laws, each council can establish standing committees for advising council members on disaster prevention and post-disaster responses, among other outstanding matters (e.g., wetland conservation, welfare for women and children). By law, there are seven standing committees in a *Zila Parishad* council (Minlaw, 2000), 17 in an *Upazila Parishad* council (LGD, 2011), and 13 in a *Union Parishad* council (Minlaw, 2009). Each standing committee can consist of 5 to 7 elected council members to assist the council in planning, implementing, and monitoring development projects. A rural LGI can establish an emergency relief fund equivalent to 1% of its total annual budget (LGD, 2013a; LGD, 2013b). The laws allow each LGI to collect revenue locally to deliver services and implement development projects.

The *Zila Parishad* council is responsible for resource management, education, commercial licensing, welfare, public health, public works, and general affairs (e.g., religious issues, ethical and moral issues). Regarding disaster prevention and mitigation, the council is responsible for planting trees for erosion control and managing public space, village forests, and wetlands (Minlaw, 2000).

The *Upazila Parishad* council has responsibilities for rural socioeconomic development, coordination of development works, natural disaster response, and rescue. It also promotes food production, engages in infrastructural and socioeconomic development, supports women and children, and undertakes climate change adaptation and disaster management (LGD, 2013b).

Regarding disaster management, the *Upazila Parishad* council takes immediate post-disaster responses. *Upazila Parishad Manual 2013* spells out actions for immediate responses, including rescue, relief, and emergency medical support (LGD, 2013b). The council is also expected to conduct impact assessment and recovery works for damaged infrastructure (e.g., roads, drainage, and levees), agriculture and public health concerns (e.g., sanitation, drinking water). For example, in the study area, when the flash flood of 2017 damaged 200 farmers' crops, the Chairman of the *Upazila Parishad* council distributed 20 kilograms of paddy seeds and 20 kilograms of fertilizer to each household. The Chairman also ordered to repair muddy unpaved roads that connected each *Union* to the subdistrict headquarters.

The *Union Parishad* council plans local development, manage natural resources, issue local business permits, and provide birth/death certificate services. It also identifies the landless climate victims for resettlement in cluster villages and places them under the central government's social safety net programs (Minlaw, 2009). Section 18 (1)(e) of the National Disaster Management Act (2012) conferred primary responsibilities upon the *Union Parishad* and the *Upazila Parishad* councils for immediate responses to natural disaster events (Minlaw, 2012).

In connection to the Bangladesh Climate Change Strategy and Action Plan (BCCSAP), local government institutions are expected to take partial responsibilities for (1) food security, social protection, and

health, (2) comprehensive disaster management, (3) infrastructure, (4) research and knowledge management, and (5) capacity building and institutional strengthening (MOEFC, 2009). The BCCSAP has not engaged local councils for mitigation and low carbon development actions, although local environmental protection actions correspond to this aspect. However, as mentioned above, local councils have acted mainly on their own without support from the central government's climate change fund.

Among the above five responsibilities in the BCCSAP, local councils in the study area tend to focus on food security, although it is somewhat interconnected to the other four. Here farmers grow rice as the main cash crop in three seasons called *aus*, *amon*, and *boro* in Bengali. In the *aus* season, they plant seedlings of paddy in March-April and harvest in June-July. On the other hand, in the *amon* season, farmers plant seedlings in June-July and harvest in November-December. In the *boro* season, seedlings are planted in December-January for harvest in May-June. Villagers do not engage in crop farming during the lean season, particularly February, May, August, September, and October. In these months, farmers endure a shortage of cash income and food. To address this vulnerability, the Fulgazi *Upazila Parishad* and other LGI councils temporarily employ villagers (of whom 60% are women) to maintain local roads, drainage, and irrigation canals. On this point we examined Fulgazi *Upazila Parishad* council's project lists from 2014 to 2018, and found that the council had funded these infrastructure and food security-related activities almost every year for flood-affected farmers. During our field observation in April 2018, the Fulgazi *Upazila Parishad* Chairman said that these works were needed as the flash flood often damaged farmlands. Farmers then faced the scarcity of seeds to resume farming. The council distributed dry food, food grains, and water disinfectants among flood-affected people along with the employment.

As the *Upazila Parishad* council never received a budget allocation from the central government's climate change fund, local councils needed to collect revenue from local sources. The laws define how councils can collect revenue and spend budget. In connection to BCCSAP's food security aspect (Pillar-1), the *Upazila Parishad* Act allows the *Upazila Parishad* council to spend 5% of the annual budget for agricultural promotion and food production and 25% for physical infrastructural development (LGD, 2013b). The *Union Parishad* council can spend 12% to 20% of its budget for pre- and post-disaster infrastructural developments (Pillar-3). Regarding BCCSAP's capacity-building (pillar-4), 5% to 7% of council's budget can be spent for capacity building and income generation for vulnerable people. In response to BCCSAP's pillar for comprehensive disaster management, only 1% of *Union Parishad*'s budget can be allocated. This budget can be typically spent for emergency relief response to climate-induced disasters (LGD, 2013a). The *Union Parishad* council can also spend 5% to 10% of its revenue for promoting fisheries and livestock activities and 10% to 15% for other agricultural developments, which also respond to the BCCSAP's first pillar (i.e., food security).

Local councils also manage an annual appropriation from the Ministry of Local Government, Rural Development, and Cooperatives (MOLGRDC). According to the Fulgazi *Upazila Parishad* Chairman we interviewed, it is the only additional funding source to support local activities. One action the *Union Parishad* and *Upazila Parishad* councils have undertaken in the study area was tree planting along levees and rural roads to reduce flood-related soil erosion. These councils collaboratively acquired and distributed seedlings of different tree species (e.g., mango, jackfruit, neem) among school children to plant in the subdistrict. One 45-year-old male Chairman in a *Union Parishad* council said in our interview that the council provided disaster preparedness training to young volunteers at ward.

Regarding health care issues, one *Union Parishad* in the study area distributed primary health care equipment (e.g., stethoscope, emergency medicine containers) to remote community clinics. The *Upazila Parishad* implemented training programs on primary health care for mothers and health hygiene and sanitation for adolescent girls. The *Upazila Parishad* held courtyard meetings with men and women in every ward regarding countermeasures against domestic violence and child marriage. These measures meant to correspond to BCCSAP's first strategic pillar.

Regarding capacity building under the BCCSAP, *Upazila Parishad* and *Union Parishad* councils undertook skill development projects. Some projects distributed supporting materials for school children (e.g., school bags, lunch boxes, sporting items). Skill training included trade-wise income generation (e.g., handicrafts, tailoring) among vulnerable women. The *Upazila Parishad* provided training programs to LGI council members for land management and land laws to mitigate local land conflicts. It also organized an essay writing competition and fire drill for school children on world environment day and disaster preparedness day to raise awareness of natural disaster preparedness.

Regarding the revenue collection for local governance, local councils mainly depend on collecting property taxes and service fees. Section 51 of the *Zila Parishad* Act authorizes the *Zila Parishad* council to impose a tax on the transaction of immovable properties, holdings of private businesses, and commercial advertisements. The council can charge fees on issuing a license for commercial activities. Section 42 of the *Zila Parishad* Act allows the council to collect revenues from leasing waterbodies for recreational activities, toll roads, and ferry accesses (Minlaw, 2000). Section 35(2) of the *Upazila Parishad* Act allows the council to

receive 1% of the central government's property tax revenue and a 2% from land development fees in the subdistrict (LGD, 2013b). The *Union Parishad* council also imposes a tax on local holdings, business entrepreneurship, and recreational activities (Minlaw, 2009). Besides, it charges fees on issuing licenses for intra-union small business operations (e.g., shops, restaurants) and permits transporting goods within its jurisdiction. The *Upazila Parishad* administers inter-union licenses, whereas the *Zila Parishad* is in charge of inter-subdistrict licenses and permits. These revenue-generating legal provisions can enhance local councils' financial capacity to implement actions under the BCCSAP strategic pillars.

Section 90 of the *Union Parishad* Act and section 59 of the *Upazila Parishad* Act empower LGIs to hear and resolve small conflicts over the use of local resources like land, water, and village forests (LGD, 2011; Minlaw, 2009). These conflicts occur at both inter- and intra-community levels, which hamper councils' project implementation. The Chairman of one *Union Parishad* council in the study area told us in the interview that his council had a particular day in a week for conflict resolution meeting. The standing committee members facilitate the process. He also told us that more than half of the conflicts were related to irrigation water use in the dry season, water access, and land use for draining floodwater in the rainy season.

Challenges:

After analyzing LGI laws, project documents, and our interviews, we identified four particular challenges below to the effective implementation of council's decisions:

1. Legally framed gender underrepresentation in local government councils
2. Unequal resource allocation in the decision-making process
3. Lack of guideline on effective resource mobilization
4. Understaffing

Regarding *the first point on* gender representation, we identified that women have one-third representation by law. The *Zila Parishad* Act (2000) divides a district into 15 electoral areas, in which one *Zila Parishad* council consists of 15 male and five female council members (Minlaw, 2000). Section 6 of the *Upazila Parishad* Act allows a woman to hold the *Upazila Parishad* council's vice-chairman position, and one-third of the membership is reserved for women (LGD, 2011). Section 10 of the *Union Parishad* Act also allows a woman council member to represent three electoral areas that are considered reserved wards (Minlaw, 2009). On the other hand, the act allows a male council member to represent one electoral area as a general ward. This legal arrangement can secure women's representation as a minority voice. It also gives male members an excuse to focus on male-centered agenda.

In better understanding *the second challenge of* unequal resource allocation, we analyzed the development scheme allocation process at one *Upazila Parishad* council and six *Union Parishad* councils in the study area. For this we examined council meeting minutes and decisions from 2014 to 2018. As discussed above, all decisions at local councils must take a vote by law and gain at least 51% of council members' approval. We found that the *Upazila Parishad* council approved 365 schemes from 2014 to 2018, of which women council members proposed 35 schemes (9.6%). During this period, women members submitted 54 schemes in total. At six *Union Parishad* councils, 262 development schemes passed, of which women members proposed 64 schemes (24%). In total, women members at these *Union Parishad* councils submitted 216 schemes. These schemes focused on (a) repairing and constructing local roads, (b) installing drains and fishponds, (c) reclaiming wetland areas for school sports grounds, and (d) distributing sports materials and educational instruments to primary schools. Few projects focused on women's benefits alone (e.g., tailoring, handicraft making, poultry farming).

We asked 19 women council members at both *Upazila Parishad* and *Union Parishad* councils in the study area about this bias in decision making. Every woman member expressed her discontent about how development projects were approved. A 50-year-old woman member of the *Upazila Parishad* said that her male counterparts were dubious about women's project management capability in remote rural areas. One 45-year-old male Chairman in a *Union Parishad* council stressed that the council's approval was based on members' headcounts, not on the number of electoral areas or the number of people they represented.

Regarding the third challenge about guidelines, we observed that council members arbitrarily collected revenue. In principle, a significant part of council's revenue comes from the lease of water bodies and lease of local marketplace or from road tolls, local business taxes, and residence certificate fees. However, the *Union Parishad* Act and the *Upazila Parishad* Act do not clarify what businesses activity categories can be taxed. The tax-collecting staff of the council, therefore, largely rely on their discretion in collecting taxes. This vagueness has often led to corruption and a shortage of revenue. One 50-year-old Chairman of a *Union Parishad* council acknowledged in our interview that his council could not record taxable amounts and revenues because of the absence of a uniform documentation format. Also, current laws do not allow local councils to look for new taxable sources, affecting their financial resource mobilization.

The fourth challenge or understaffing led to a series of delays in service deliveries by *Union Parishad* and *Upazila Parishad* councils. In the study area, one 45-year-old Chairman of a *Union Parishad* council acknowledged about the ad hoc nature of logistic activities and a lack of expertise among council members on administrative works and project planning. Section 62 of the *Union Parishad* Act allows a *Union Parishad* council to appoint a secretary and an account assistant-cum-computer operator regardless of the volume of jobs, population, and area (Minlaw, 2009). Rule 2(g) of the *Upazila Parishad* Service Rules 2010 says that an *Upazila Parishad* council can hire a stenotypist-cum-computer operator, a driver, and a support staff (LGD, 2013b). Many local councils hire untrained temporary staff daily. One 50-year-old Chairman of a *Union Parishad* council said to have merely one secretary for all logistics and administrative works, collecting fees and taxes. The Chairman also reported to have nine *graam policemen* (a group of community people appointed to maintain law and order in each village). These policemen were responsible for 30,000 people, including the time of flood responses. Understaffing has prevented these councils from fully procuring revenues.

IV. CONCLUSION

Our examination of Bangladesh local government laws and council minutes has shown that local councils in rural areas have legal mandates and authority to respond to flooding and other natural disasters as part of BCCSAP actions. The LGI mandates are rooted in the Bangladesh constitution and LGI laws. The constitution empowers local councils to manage natural resources. LGIs are delegated to provide public services, promote gender sensitive developments, and protect the local environment. The BCCSAP requires LGIs to address its pillars for comprehensive disaster management and low carbon development. We observed that local councils implemented programs for (1) food security and social protection, (2) infrastructural development, (3) environment and disaster management, (4) public health and social welfare, and (5) capacity building. Our field observation and analysis on local councils' minutes showed that the *Union Parishad* and *Upazila Parishad* employed local people (of whom 60% are women) to maintain and repair damaged local roads, drainage, and irrigation canals in agriculturally lean periods. Poor residents received food, seeds, and cash from local councils. In addition, LGIs provided emergency relief, tree planting, disaster preparedness/income generation training for local volunteers. LGI laws authorize local councils in rural areas to collect revenues from tax, lease, and fees. However, arbitrary revenue collection practices led to corruption and a shortage of council budget as well as understaffing.

Regarding challenges to the effective implementation of council decisions, our analysis of council minutes found that gender underrepresentation, which was enshrined in LGI laws, affected council decisions. LGI laws allow women to occupy one-third of council seats even though women comprise half of the study area population. In order to approve a project proposal, 51% of the vote is required. However, as a minority, women faced challenges to get 51% of support. From 2014 to 2018 only 9.6% of women's proposals were approved by *Upazila Parishad*, and 24% by *Union Parishad* in the study area. These represented less than one-third of the total resource allocation.

We also found that local councils needed clear guidelines for revenue collection and human resource management. LGI laws are not clear what businesses and activities are taxable by each council, leaving much room for revenue collectors to use their own discretion. This situation has led to corruption and stagnated the growth of local businesses. Huque and Panday (2018) and Panday and Chowdhury (2020) similarly observed unclear revenue collection provisions in local government laws. The arbitrary tax collection may undermine local councils' capacity to mobilize financial and human resources. Much more policy intervention and substantial funding from the central government is necessary for addressing local climate challenges in the future. For this, it is critical to mend the local-central disconnect in terms of resource mobilization and long-term capacity building.

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CONFLICT OF INTEREST STATEMENT

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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REFERENCES

[1]. Agrawal, A. (2010). Local institutions and adaptation to climate change. In: Mearns, R., and Norton, A. (eds.) Social Dimensions of Climate Change: Equity and Vulnerability in Warming World. World Bank Publications. Washington, D.C., U.S., pp. 173-198.

[2]. Ahmed, N., Boex, J., Monem, M., and Panday, P. (2014). Policy study on the local government system in Bangladesh: A comparative analysis of perspectives and practices. Upazila Parishad Governance Project (UPGP) and Upazila Governance Project (UZGP). Dhaka. Published by European Union-DANIDA-SDC-UNDP-UNCDF. pp. 9-12. https://www.bd.undp.org/content/bangladesh/. Accessed on 30 June 2020.

[3]. Alam, K., and Rahman, M.H. (2014). Women in Natural Disasters: A Case Study from Southern Coastal Region of Bangladesh. International Journal of Disaster Risk Reduction, 8: 68-82.https://doi.org/10.1016/j.ijdrr.2014.01.003.

[4]. Alston, M. (2015). Women and Climate Change in Bangladesh. Routledge.

[5]. Banglapedia. (2015). National Encyclopedia of Bangladesh: Feni District. Asiatic Society of Bangladesh, Dhaka. February 16. http://en.banglapedia.org/index.php?title=Feni_District. Accessed Apr 1 2020.

[6]. BBS (Bangladesh Bureau of Statistics). (2013). District Statistics 2011 Feni. Bangladesh Bureau of Statistics, Statistics and Informatics Division, Ministry of Planning, Dhaka. Government of Bangladesh. pp. 13-15.

[7]. BBS (Bangladesh Bureau of Statistics). (2019). Statistical Yearbook 2019. Bangladesh Bureau of Statistics, Statistics and Informatics Division, Ministry of Planning, Dhaka. Government of Bangladesh. pp. 23-25.

[8]. Bell, A., Engle, N., and Lemos, M. (2011). How does Diversity Matter? The Case of Brazilian River Basin Councils. Ecology and Society, 16 (1): 42-60. www.ecologyandsociety.org/vol16/iss1/art42/

[9]. Björkdahl, A., and Somun-Krupalija, L. (2020) Gender Equality and Local Governance: Global Norms and Local Practices. In: Cheema, S. (ed.) Governance for Urban Services. Advances in 21st Century Human Settlements. Springer, pp.107-126. https://doi.org/10.1007/978-981-15-2973-3_5

[10]. Chhartre, A., and Agrawal, A. (2009). Trade-offs and synergies between carbon storage and livelihood benefits from forest common. Proceedings of the National Academy of Sciences of the United States of America, 108 (42): 17667-17670.

[11]. Choudhury, M.U.I., Uddin, M.S., and Haque, C.E. (2019). Nature brings us extreme events, some people cause us prolonged sufferings: The role of good governance in building community resilience to natural disasters in Bangladesh. Journal of Environmental Planning and Management, 62 (10): 1761-1781. https://doi.org/10.1080/09640568.2018.1513833

[12]. Christensen, K., Raihan, S., Ahsan, R., Uddin, A., Nasir, M., Saleh, A.C., and Wright, H. (2012). Financing Local Adaptation: Ensuring Access for the Climate Vulnerable in Bangladesh. ActionAid Bangladesh, Dhaka. https://www.preventionweb.net/publications/view/31480. Accessed on 31 July 2020.

[13]. Corbera, E. and Brown, K. (2008). Building Institutions to Trade Ecosystem Services: Marketing Forest Carbon in Mexico. World Development, 36 (10): 1956-1979. https://doi.org/10.1016/j.worlddev.2007.09.010.

[14]. Eastin, J. (2018). Climate Change and Gender Equality in Developing States. World Development, 107 (2): 289-305. https://doi.org/10.1016/j.worlddev.2018.02.021.

[15]. FD (Finance Division). (2019). Bangladesh's Citizens Climate Budget Report 2018-19. Ministry of Finance, Government of Bangladesh, Dhaka. Available at: https://mof.portal.gov.bd/. Accessed on 2 February 2020.

[16]. GED (General Economic Division). (2015). Accelerating Grow, Empowering Citizens The 7th Five Year Plan FY2016-FY2020 General Economics Division, Planning Commission. Government of the People's Republic of Bangladesh, Dhaka. 1207, Bangladesh. Available at: http://www.plancomm.gov.bd/. Accessed on 2 May 2020.

[17]. Haider, M.A. (2017). Fulgazi te Jotrototro Itbhata: Humkir Mukhe Fosholi Jomi o Poribesh [Brick Kilns Everywhere in Fulgazi: Croplands and Environment are at Threat]. Daily Sangram; April 27. https://dailysangram.com/page/village-town/2017-04-27. Accessed on 2 April 2020.

[18]. Haque, M., Pervin, M., Sultana, S., and Huq, S. (2019). Towards Establishing a National Mechanism to Address Losses and Damages: A Case Study from Bangladesh. In: Mechler R., Bouwer L., Schinko T., Surminski S., Linnerooth-Bayer J. (eds) Loss and Damage from Climate Change. Climate Risk Management, Policy and Governance. pp. 451-473. Springer. https://doi.org/10.1007/978-3-319-72026-5_19

[19]. Heslin, A., Natalie, D.D., Robert, O., and Arianna, M.C. (2019). Displacement and Resettlement: Understanding the Role of Climate Change in Contemporary Migration. In: Mechler et al. (eds.) Loss and Damage from Climate Change, Climate Risk Management, Policy and Governance. Springer, pp. 237-258.

[20]. Huque, A.S., and Panday, P.K. (2018). Local Government Institutions and Governance in Bangladesh. South Asia Journal, Special Issue 2018(October), pp. 127-133. Retrieved from http://southasiajournal.net/wp-content/uploads/2016/02/Final-SAJ-Special-2018.pdf. Accessed on 2 February 2021.

[21]. Ikeda, K. (1995). Gender Differences in Human Loss and Vulnerability in Natural Disasters-A case study from Bangladesh. Indian Journal of Gender Studies, 2 (2): 171-193.

[22]. IPCC (Intergovernmental Panel on Climate Change). (2014). Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. New York, U.S.: Cambridge University Press.

[23]. Islam, M.M. (2011). Vulnerability Analysis of Bangladesh Due to Multiple Natural Hazards Using GIS Technique. Proceedings of the Conference on Engineering Research, Innovation and Education 2011 CERIE 2011, January 11-13, 1129-1134. Sylhet: ResearchGate. https://www.researchgate.net/publication/264534814. Accessed on 30 May 2020.

[24]. Karim, M.R., and Thiel, A. (2017). Role of community based local institution for climate change adaptation in the Teesta riverine area of Bangladesh. Climate Risk Management, 17: 92-103. http://dx.doi.org/10.1016/j.crm.2017.06.002.

[25]. LGD (Local Government Division). (2011). Upazila Parishad (Songshodhito) Aain 2011. In Bengali [The Subdistrict Council (Amendment) Act of 2011]; Ministry of Local Government, Rural Development and Cooperatives, Government of Bangladesh, Dhaka. https://lgd.portal.gov.bd. Accessed on 15 July 2019.
[26]. LGD (Local Government Division). (2013a). Union Parishad (Unnoyon Porikolopona) Bidhimala [The Union Council (Development Planning) Rules 2013]. Local Government Division; Ministry of Local Government, Rural Development and Cooperatives; Government of Bangladesh, Dhaka. Gazette Notification No SRO 18-Ain/2013, January 23; 611-617. https://lgd.portal.gov.bd/. Accessed on 15 July 2019.
[27]. LGD (Local Government Division). (2013b). Upazila Parishad Manual 2013 [The Subdistrict Council Manual 2013]. Local Government Division. Ministry of Local Government; Ministry of Local Government, Rural Development and Cooperatives; Government of Bangladesh, Dhaka. pp. 102-103.
[28]. McAdam, J. (2013). Climate Change, Forced Migration, and International Law. Oxford University Press, UK.
[29]. McSweeney, K., and Coomes, O.T. (2011). Climate-related disaster opens a window of opportunity for rural poor in northeastern Honduras. Proceedings of the National Academy of Sciences of the United States of America. 108 (13): 5203-5208.
[30]. Minlaw (Ministry of Law). (1972). The Constitution of Bangladesh. Legislative and Parliamentary Affairs Division, Ministry of Law, Government of Bangladesh, Dhaka. http://bdlaws.minlaw.gov.bd/act-367.html. Accessed on 11 July 2019.
[31]. Minlaw (Ministry of Law). (2000). Zila Parishad Aain 2000. In Bengali [The District Council Act of 2011]. Legislative and Parliamentary Affairs Division; Ministry of Law, Government of Bangladesh, Dhaka. http://bdlaws.minlaw.gov.bd/act-841.html. Accessed on 15 July 2019.
[32]. Minlaw (Ministry of Law). (2009). The Local Government (Union Council) Act of 2009]. Legislative and Parliamentary Affairs Division, Government of Bangladesh, Dhaka. http://bdlaws.minlaw.gov.bd/. Accessed on 20 July 2019.
[33]. Minlaw (Ministry of Law). (2012). The Disaster Management Act of 2012. Laws of Bangladesh. Legislative and Parliamentary Affairs Division; Ministry of Law; Government of Bangladesh, Dhaka. http://old.bdlaws.minlaw.gov.bd. Accessed on 15 July 2019.
[34]. MOEFC (Ministry of Environment, Forest and Climate Change). (2005). National Adaptation Program of Action (NAPA) of 2005. Ministry of Environment, Forest and Climate Change, Government of Bangladesh, Dhaka. https://unfccc.int/resource/docs/napa/ban01.pdf. Accessed on 20 July 2019.
[35]. MOEFC (Ministry of Environment, Forest and Climate Change). (2009). Bangladesh Climate Change Strategy and Action Plan (BCCSAP) of 2009. Ministry of Environment, Forest and Climate Change, Government of Bangladesh, Dhaka. 76pp. https://moef.gov.bd/. Accessed on 20 July 2019.
[36]. Panday, P.K., and Chowdhury, S. (2020). Responsiveness of local government officials: insights and lessons from participatory planning and budgeting. Asia Pacific Journal of Public Administration, 42 (2), 132151, DOI: 10.1080/23276665.2020.1742753.
[37]. Plessis, A.D., and Kotzé, L.J. (2014). The Heat is On: Local Government and Climate Governance in South Africa. Journal of African Law, 58 (1): 145-174. DOI:10.1017/S0021855314000047.
[38]. Rashid, A.K.M.M., and Shafie, H. (2013). Gender and Social Exclusion Analysis in Disaster Risk Management. In: Shaw, R., Mallick, F., and Islam, A. (eds.) Disaster Risk Reduction Approaches in Bangladesh. Disaster Risk Reduction (Methods, Approaches and Practices). Springer, pp.343-363. https://doi.org/10.1007/978-4-431-54252-0_16.
[39]. World Bank, 2016. Bangladesh: Building Resilience to Climate Change. Retrieved from https://www.worldbank.org/en/results/2016/10/07/bangladesh-building-resilience-to-climate-change. Accessed on 7 February 2021.