

# Distributing flood shelters for disaster risk reduction

## Exploring the practices in Bangladesh from a political economy perspective

Shafiqul Islam

*School of Environment and Science, Griffith University, Nathan, Australia*

Cordia Chu

*Centre for Environment and Populations Health,  
Griffith University, Nathan, Australia*

Leong Liew

*Department of International Business and Asian Studies,  
Griffith University, Nathan, Australia, and*

James C.R. Smart

*School of Environment and Science, Griffith University, Nathan, Australia*

### Abstract

**Purpose** – The purpose of this paper is to inspect disaster risk reduction (DRR) challenges from a political economy (PE) perspective and to explore how PE determinants facilitate or hinder effective DRR in Bangladesh.

**Design/methodology/approach** – A qualitative case study, using semi-structured in-depth interviews, official documents and literature review has been conducted to explore the current process and practices of DRR in Bangladesh. The specific focus is on the distribution of public spending on flood shelters implemented by the Department of Disaster Management.

**Findings** – The study revealed a number of findings, including that the interest and incentives of influencing decision makers matter; formal and informal institutions have influence; and the values and ideas of dominating stakeholders' impact on decisions regarding public spending of DRR in Bangladesh. These PE factors often hinder efficiency by leading to overlapping efforts and inefficient use of scarce resources. DRR planners and practitioners need to take steps to mitigate potential risks from PE processes in the allocations of DRR funding by implementing improved distribution arrangements.

**Originality/value** – Despite many successes in dealing with disasters, Bangladesh faces several challenges, including better governance of funds. DRR challenges can be considered as a problem of PE, which concerns the distribution of resources, and includes how powerful decision makers affect economic choices. Prior research examining the challenges in DRR-related funding distribution from a PE perspective is limited. Therefore, this study attempts to fill this gap in the literature by focusing on the situation in Bangladesh from this perspective. The authors elaborate how PE determinants can function as both barrier and opportunities on the ground in DRR-related fund distribution and in the selection of project locations and beneficiaries.

**Keywords** Bangladesh, Department of Disaster Management (DDM), Disaster risk reduction (DRR), Political economy, Public fund distribution

**Paper type** Research paper

### 1. Introduction

The world is facing severe losses and increased challenges due to several types of disasters, particularly flooding. In response, researchers and practitioners are working for disaster risk reduction (DRR). DRR is the process and practice of reducing disaster risk through effective planning and timely efforts to reduce the causal factors of disasters, considering vulnerability of place and local context (UNISDR, 2005). Effective implementation of DRR is, therefore, challenging for resource-scarce low-income and middle-income countries (LMIC), such as Bangladesh, which is particularly vulnerable to disaster and climate change (IPCC, 2014). The LMICs face a dilemma in terms of how to achieve a balance between development



allocation for rapid economic growth (including poverty reduction) and DRR investments with better governance. In this context, a political economy (PE) angle, specifically the questions around the resource-allocations for DRR, becomes crucial. As such, Bangladesh is an appropriate and interesting case study in this context.

As one of the world's most populous countries, Bangladesh faces significant disaster risk from annual floods, which inundate up to 70 per cent of the country's land-mass (Sovacool, 2017). Despite many successes in dealing with disasters, Bangladesh faces several challenges surrounding DRR, including lack of capacity among actors and institutions (Alam *et al.*, 2011), policy gaps (Choudhury *et al.*, 2019), lack of collaboration, and coordination (Sovacool *et al.*, 2018), lack of better governance (Bhuiyan, 2015) and inappropriate distribution of scarce funds (Islam, 2014; Mallick, 2014). These DRR challenges can be considered as problems of PE (DFID, 2009; Mogues, 2015; Purdon, 2015) because they concern the distribution of resources and interactions among stakeholders (Sovacool *et al.*, 2018). More research is required to improve understanding of how best to address the challenges in DRR from different perspectives, such as different country settings and sectors. Therefore, the main objective of this study is to explore the challenges surrounding DRR in Bangladesh from a PE perspective and to explore practices of the PE nexus in DRR with the hope that this will enable existing obstacles to be better addressed.

By investigating the PE of DRR in Bangladesh, this study intends to make two contributions. First, severe consequences of natural hazards can be exacerbated by man-made factors, such as sociopolitical influence, and thus it is necessary to understand the pathways through which these factors affect DRR (Sovacool, 2017). Existing literature focuses on issues, for example, the assessment of how governments spend less on DRR efforts (Neumayer *et al.*, 2014), and the interplay of sociopolitical actors surrounding political ecology and DRR (D'Alisa and Kallis, 2016). This study aims to enrich this literature by offering a PE analysis on the distribution of public funds for DRR in Bangladesh through an examination of the key PE factors – actors interests and incentives, institutions, values and ideas (DFID, 2009; Sovacool *et al.*, 2018; Williams, 2011) in DRR initiatives.

Second, the literature related to DRR centres around vulnerability mapping and guiding future DRR strategies (Mitchell *et al.*, 2012; Prabhakar *et al.*, 2009; Kato, 2010). DRR initiatives and efforts may lead to competition among influencing actors, and these actors might sway the efforts to advantage their own political and economic benefits (Sovacool, 2017). Therefore, this study aims to examine the empirical, political and economic processes surrounding distribution of funds in the context of DRR in Bangladesh.

Based on an analysis of a mix of original in-depth interviews (IDIs), official documents and a comprehensive literature review, this study explores a number of factors including the presence of interests and incentives of influencing stakeholders, institutions, and the values and ideas (ideological and religious) that potentially underlie decisions regarding the distribution of funds for DRR in Bangladesh. The next two sections describe the conceptual approach, case selection and research methodology. Results, discussion and conclusion follow thereafter.

## 2. Conceptual approach: DRR and political economy

DRR involves multifaceted efforts, including prevention, preparation, response, recovery, rehabilitations and reconstruction (Choudhury *et al.*, 2019). These efforts connect several actors, government institutions, funding mechanisms and development agendas (UNISDR, 2015). Globally, UNISDR and DRR-related guidelines, such as the Hyogo Framework-2005 and the Sendai Framework-2015 outlined ways to reduce vulnerability, to increase resilience and to decrease loss and damages. However, despite the DRR efforts in many countries, a diverse range of challenges rise for each country and context, including lack of capacity among actors and institutions, lack of coordination, inappropriate funding mechanisms and governance failures (Schipper, 2009; Sovacool, 2017, Mallick, 2014).

Some specific contextual examples are struggles in involving multi-level stakeholders in decision making in the Caribbean (Davis *et al.*, 2011), challenges in public sector collaboration and partnership for DRR in the UK (Hemingway and Gunawan, 2018), barriers in disaster risk governance in Africa (Van Niekerk, 2015), and hardship in mainstreaming DRR in various sector of Indonesia (Djalante and Thomalla, 2012). Prior studies have also been concerned with factors affecting the government funding allocation process in different regions and sectors. Among early studies, Cox and McCubbins (1986) argue that politicians generally give priority in distributing public funds to their supporter groups that vote mainly for them. However, Dixit and Londregan (1996) notes that politicians tend to distribute funds to those who are ideologically indifferent to candidates in order to attract swing voters.

Literature argues that the DRR-related funds need to be distributed to disaster-affected people and locations considering their poverty, vulnerability, loss and damages (Sawada and Takasaki, 2017). Disaster fund allocations for alleviating poverty in China (Cao *et al.*, 2016), for reducing disaster losses in Wenchuan (Xie *et al.*, 2018), for the cause that affected community are most in need (Bailey and Harvey, 2015), for house-building for the poor (Freeman, 2004) and for the recovery of the flood-vulnerable population (Muñoz and Tate, 2016) are some of the arguments in the literature. Literature also points out highly populated area are more vulnerable and they need more funds (Hallegatte *et al.*, 2018). The Hyogo framework-2005 and the Sendai framework-2015 also suggest that flood-prone, cyclone-prone or other disaster-prone areas, and locations with high poverty rate, need to receive more funds (UNISDR, 2005).

However, in practice, it appears likely that the distribution of DRR funds is likely to be influenced by PE factors in several ways. The term “political economy”, in a broader sense, deals with the interactions between government and private sector (Gilpin, 2016). It involves the study of the power struggle by which resources are distributed, and how some actors benefit from a particular process at the exclusion of others (Caporaso and Lavine, 2005). The power struggles also compete over DRR-related public funds and thus wider complex environment for sustainable DRR efforts matter in reality (Alam *et al.*, 2011). Similarly, Mogues (2015) has shown that the underlying interests and incentives of influencing actors and institutions within the sector influence decision making regarding fund distribution. By comparing disaster fund spending and election results, Healy and Malhotra (2009) showed that some voters are rewarded by the party in power. Francken *et al.* (2012) also found that in Madagascar governments’ relief distribution is subject to political influences. Other literature also covered PE in DRR-related actions, such as excluding weaker sections of society from relief (Jha, 2015). Therefore, based on the above studies, a PE analysis is well equipped to further explore the challenges confronting the DRR sector in Bangladesh.

Among many issues, PE analysis deals with interactions of influential stakeholders and resource distribution mechanisms (Amable *et al.*, 2019). The PE analysis in this study focuses the stakeholders and resource distribution processes surrounding DRR. DFID (2009) and Serrat (2017) identified three major uses of PE analysis: (a) macro-level country analysis – understanding general sensitivity to country, context and broad PE environment; (b) sector-level analysis – to identify specific barriers to and opportunities for effective delivery of desired outcomes within particular sectors; and (c) problem-driven analysis – to understand and, if possible, resolve a particular problem at the project level. This study conducts a combination of the latter two – (b) and (c). For this Bangladesh case, the PE analytical approach (Mogues, 2015; Purdon, 2015; DFID, 2009) focuses on three factors that influence decisions regarding allocation of scarce resources for DRR. These factors are interests and incentives of influencing stakeholders; the role of formal and informal institutions; and ideological and religious values.

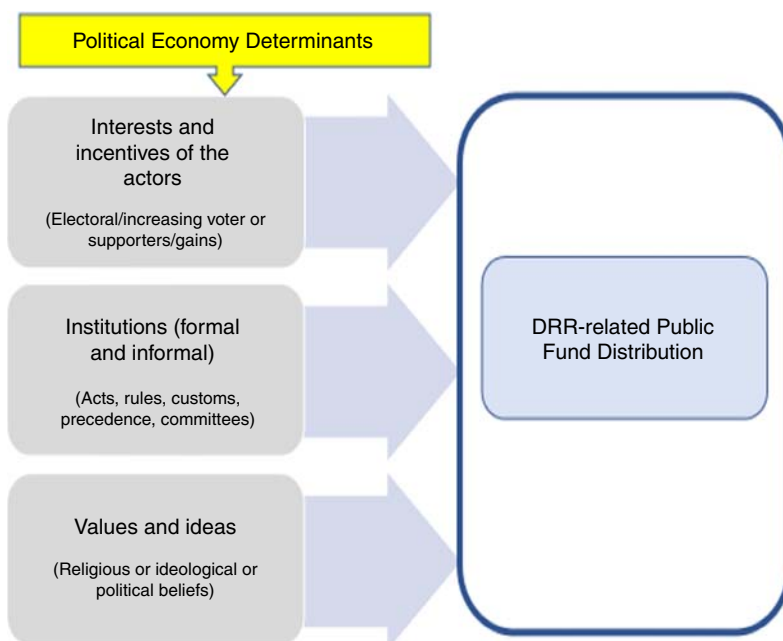
Interests and incentives shape individual and organised group decisions (Laffont, 2000) which depend on personal motivations and opportunities arising from the economic and political relationships (DFID, 2009). In such situations, well-connected and powerful stakeholders can use government mechanisms for funding allocations as an opportunity to grab benefits for themselves excluding others (Sovacool, 2017). Institutions, both formal and informal, comprise the rules, norms, committees and conventions for directing interaction among people (Mogues, 2015); they may thus aggravate power struggle and influence decision-making power (Cleaver, 1998). The values and ideas of influential elites such as ideologies, religious beliefs, cultural values, knowledge, mindsets and local perception impact on decision around public issues, and thus, may facilitate or hinder effective implementation (DFID, 2009; Purdon, 2015).

Based on the conceptual approach (Figure 1), this study focuses on exploring the process and practices of DRR funding distribution in Bangladesh.

### 3. Case selection and research methodology

#### 3.1 Bangladesh

Bangladesh was selected for this case study because of its extreme vulnerability to climate-induced disasters such as flooding. It is a riverine country with low lands that are highly flood-prone (Mirza, 2002). Annual floods inundate about one-fourth of Bangladesh to varying degrees (IPCC, 2014). Floods in Bangladesh were responsible for thousands of deaths, along with large loss of resources in 1974, 1988, 1998, 2004 and again in 2007 (Government of Bangladesh, 2014). Rasid and Paul (1987) demonstrated that Bangladesh is subject to several types of floods: rainwater floods, riverine or tidal flood, flash-flood and



**Sources:** Summarised by authors from Alam *et al.* (2011); DFID (2009b); Kumar Sharma (2011); Mogues (2015); Purdon (2015); B, Sovacool and Linner (2015)

**Figure 1.** Factors that may influence the process of DRR-related public fund distribution (drawn by author based on literature)

cyclonic or storm surge floods. We use the term “flood” in this paper as a catch-all for all types of inundation.

In general, these flood types affect different regions, though some overlapping occurs (Mirza, 2002). District-wise hazards zones have been identified in Bangladesh where almost 53 of 64 districts are vulnerable to different types of floods (Barua *et al.*, 2016). Large volumes of water are sourced from the hills of India and flow to the major rivers of Bangladesh including the Ganga–Brahmaputra basin area and submerge other river banks. Rainwater floods occur because of heavy precipitations, and these affect almost all districts of Bangladesh, most severely in the northern areas of Bangladesh (Choudhury *et al.*, 2019). Flash flooding occurs mainly along the eastern and north-eastern areas of Bangladesh due to presence of hill streams (Choudhury, 2015). Cyclonic floods are caused by tropical cyclones in the Bay of Bengal and affecting coastal regions of Bangladesh (Paul and Mahmood, 2016). Monsoon rainwater floods set in for long periods, whereas flash floods remain for short periods: both cause multifarious loss and damage (Rasid and Paul, 1987). However, some low-land areas, which suffer both from flash-flood or rainwater floods, are subject to vast sufferings and losses (Paul and Mahmood, 2016). In short, flooding causes enormous loss of life, damage to crops and disruption to infrastructure and other property (Figure 2).

### 3.2 Construction of flood shelter in flood-prone areas

The Bangladesh Government has clearly stated national level policies that specify how DRR funds should be allocated, depending on whether a region is disaster-prone or not (DDM, 2016, pp. 6-7). The policies also stipulate that the area size, the population size and



**Figure 2.**  
The river systems  
and geographic  
location of  
Bangladesh

Source: Mirza (2002)

the poverty rate of a location need to be considered when determining which locations will be given priority in receiving funds (Ministry of Disaster Management and Relief, 2012, article 27; Ministry of Disaster Management and Relief, 2010). The Bangladesh poverty reduction strategy papers incorporated disaster management to ensure the safety of children, women and other victims at the time of disasters (Planning Commission of Bangladesh, 2012, pp. 47-48). The National Plan for Disaster Management, 2010–2015 emphasised the construction of flood shelters in flood-prone areas of Bangladesh (Ministry of Disaster Management and Relief, 2010, pp. 10-12). The Disaster Management Act-2012 stipulate the requirement to construct shelters (Ministry of Disaster Management and Relief, 2012, article 21). Following this Act, the Disaster Management Policy-2015 also has detailed the necessity for flood shelters in low-lying lands, river-erosion prone and flood-prone areas (Ministry of Disaster Management and Relief, 2015, policy no. 3.2). The main objective stipulated in the project proposal of the “construction of flood shelter project” is as follows: “contributing to the national economy through reducing disaster risk and loss and damage in flood-prone and river-erosion prone areas of Bangladesh”. Specific goals are “giving shelter to flood-affected people, securing animals and other resources, using shelters as educational institute when there is no flood” (Ministry of Disaster Management and Relief, 2008, p. 1).

Bangladesh has taken many initiatives, efforts, projects and programs for effective DRR. Under the DRR umbrella, this case study focuses on DRR programs that are named “Construction of flood shelters in flood-prone areas” implemented by the Department of Disaster Management (DDM) within the Ministry of Disaster Management and Relief since 2008. So far, 99 shelters have been built and 173 more shelters are currently being implemented (DDM, 2016). This research uses a PE approach to examine why and how the locations for these shelters are selected, which necessarily also determines who benefits from these DDM investments.

### 3.3 Research design and study population

This study applied a qualitative research methodology following an exploratory case study approach (Yin, 2011), which empirically investigates practices surrounding DRR fund distribution for flood shelters. To address research question and objectives, a total of 38 IDIs were conducted with stakeholders in DRR in Bangladesh (Table I) in lieu of covering all key informants around DRR. Participants were purposefully recruited based on their connection to DRR using a snowball-sampling method (Noy, 2008). The study was conducted in Dhaka, in the Sunamganj districts, and the Shalla subdistricts in Bangladesh. The area including the Sunamganj district and Shalla subdistrict is one of the most flood-affected (both flash-flood and river/rain flood) and remote area of Bangladesh (Bangladesh Bureau of Statistics, 2015). In Dhaka, IDIs were conducted with key stakeholders of DRR including central decision makers, officials and researchers. At district and subdistrict levels, IDIs were conducted with community leaders, local

| Participants                                 | Ministry<br>(top-level) | Ministry<br>(mid-level) | Local (district and<br>subdistrict) | Total |
|--|-------------------------|-------------------------|-------------------------------------|-------|
| Decision makers and government officials     | 06                      | 08                      | 05                                  | 19    |
| Political leaders and public representatives |                         |                         |                                     | 06    |
| Community leaders                            |                         |                         |                                     | 03    |
| International organisations                  |                         |                         |                                     | 04    |
| Academic and consultant                      |                         |                         |                                     | 04    |
| Journalist                                   |                         |                         |                                     | 02    |
| Total  |                         |                         |                                     | 38    |

**Table I.**  
Distribution of in-  
depth interviews  
(IDIs) participants

government representatives, local level officials and local politicians connected to disaster or flood shelter-related projects. By utilising two groups of informants from DRR, we were able to compare and contrast different stakeholder's perspectives.

### 3.4 Data collection and analysis

Official documents and policies relevant to flood shelter distribution and statistical reports on sociodemographic data of districts and subdistricts were collected. The researcher also conducted 38 IDIs in Bangladesh in Bengali between April 2016 and April 2018. The duration of most of the interviews was between 30 min and 1 h. The principal researcher translated all interview recordings and transcribed them into text documents. This study received ethical approval from the Griffith University Human Research Ethics Committee (2017/446). Consent was requested and given before each interview.

The study used a qualitative thematic method to analyse the IDI transcripts. By reading the transcript, familiarisation with the data was achieved. Then the transcripts were coded to achieve intercoder reliability. Researchers developed a code list and identified DRR-related themes. Using themes, the framework was developed, and then finalised by considering the findings and emergent themes as per the back-and-forth process of qualitative data analysis. Data were managed by using NVIVO software 11 version.

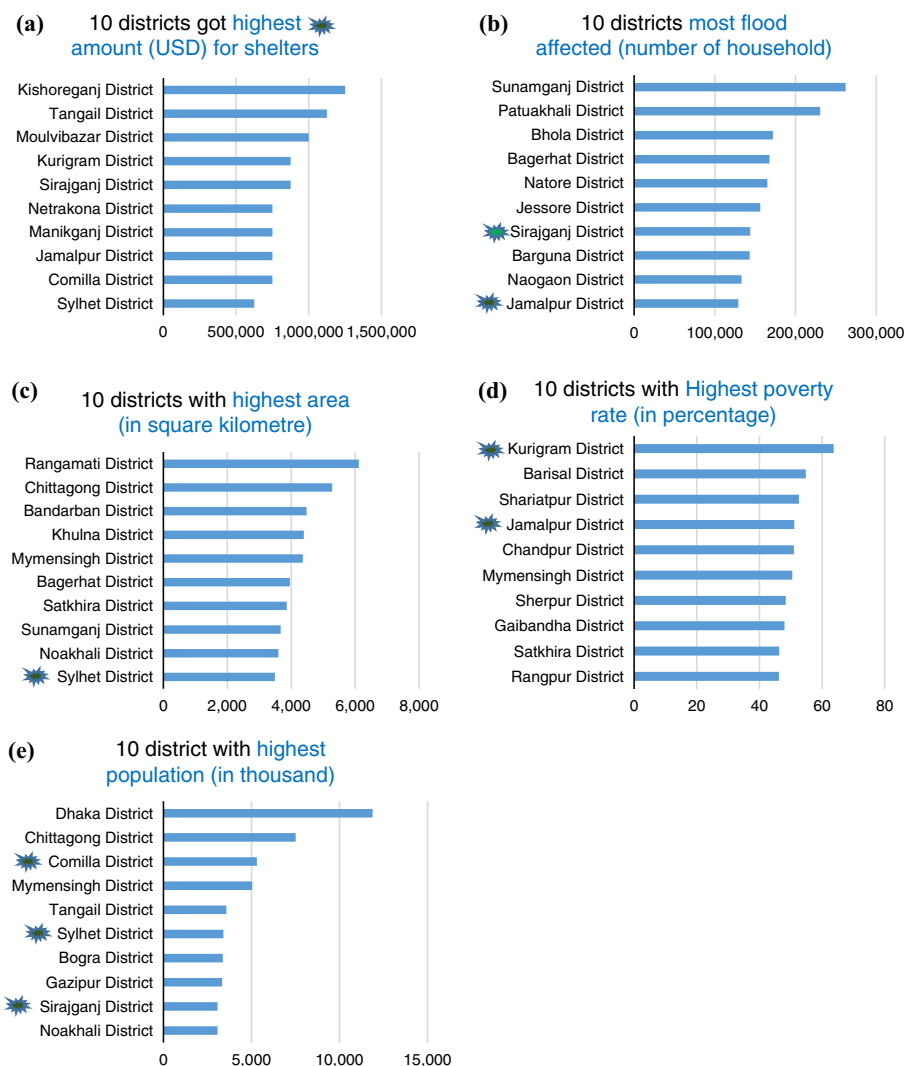
## 4. Results

This section has two subsections. Based on secondary data (collected official documents and other statistical reports), Section 4.1 demonstrates the amount of DRR funding distribution to the districts of Bangladesh with a comparison of district's population size, area, poverty rate and number of disaster-affected households. Section 4.2 based on IDIs illustrates the explored reasons for observed DRR fund distribution.

### 4.1 DRR fund allocation criteria and distribution practices

Inspecting the list of 272 flood shelters and visiting some of the rural shelters, we scrutinised the content of the list, the name, and the title of the projects compared to the location, and objectives of the projects in different districts. Literature (Section 2.1) and current Bangladesh government policies (Section 3.2) clearly stated that allocations of DRR funds need to be based on the size of population, area, poverty rate and disaster vulnerability of the areas under consideration.

However, Figure 3 and Table II drawn from official records of allocation shows that the most highly populated districts, the most poverty-stricken districts, the largest districts by area and the most flood-affected districts often did not receive the greatest number of flood shelters between 2008 and 2017. Some districts such as Kurigram received a portion of total DRR fund allocations that are consistent with policy, whereas some districts such as Sunamganj (most disaster-affected area) did not receive the level of allocation mandated by policy. Similarly, Kishoreganj district received the highest number of shelters deviating from all the mandatory criteria mentioned above. Some discrepancies from stated policy were clearly evident in the location selection of the shelters. The existing guidelines and rules often appear to have been ignored. Moreover, despite local needs necessitating distinct shelter design, low-land areas, hill areas and coastal areas all shared the same design. Therefore, as expected, some of the flood shelters submerged in the flood of 2017. Moreover, in some cases, although the local population argued for building the shelters on higher ground, because of resource shortage, they could not be implemented in that way. The reasons for these kinds of inappropriate allocations are revealed in the IDIs with stakeholders and are discussed in the next sections.



**Notes:** (a) Districts (named in green and highlighted with the star in subsequent sub-plots) received highest number of flood shelters from the project administered by the DDM, compared with districts with (b) highest flood risk, (c) largest area, (d) highest poverty rate, (e) largest population

**Source:** Drawn by the author based on the official documents from DDM, and Bangladesh: Disaster-Related Statistics 2015

**Figure 3.** Districts received highest number of flood shelters compare to the districts with highest populations, area, poverty rate and flood risks

4.2 Political economy in public spending on DRR: stakeholders' views

4.2.1 Exposed interest and incentives of influencing actors in DRR fund distribution. DRR initiatives depend on funding, which is managed, directed and distributed by decision makers including officials of international organisations, national political leaders, bureaucrats, public representatives and local leaders in Bangladesh (Alam *et al.*, 2011).



**Table II.**  
Cross-tabulation  
between highest  
number of flood  
shelters recipient  
districts and most  
disaster-affected  
districts (number of  
household)

| Cross-tabulation<br>District | Disaster-affected households |                   |                   |                   |                     |                     |                     |                     |                     |  | Grand<br>total |
|------------------------------|------------------------------|-------------------|-------------------|-------------------|---------------------|---------------------|---------------------|---------------------|---------------------|--|----------------|
|                              | 0-<br>24,999                 | 25,000-<br>49,999 | 50,000-<br>74,999 | 75,000-<br>99,999 | 100,000-<br>124,999 | 125,000-<br>149,999 | 150,000-<br>174,999 | 225,000-<br>249,999 | 250,000-<br>274,999 |  |                |
| Bagerhat                     | 12                           |                   |                   |                   |                     |                     | 1                   |                     |                     |  | 1              |
| Bandarban                    |                              |                   |                   |                   |                     |                     |                     |                     |                     |  | 12             |
| Barguna                      |                              |                   |                   |                   |                     | 0                   |                     |                     |                     |  | 0              |
| Barisal                      |                              |                   |                   |                   | 1                   |                     |                     |                     |                     |  | 1              |
| Bhola                        |                              |                   |                   |                   |                     |                     | 1                   |                     |                     |  | 1              |
| Bogra                        |                              |                   |                   |                   | 4                   |                     |                     |                     |                     |  | 4              |
| Brahmanbari                  | 0                            |                   |                   |                   |                     |                     |                     |                     |                     |  | 0              |
| Chandpur                     |                              |                   | 3                 |                   |                     |                     |                     |                     |                     |  | 3              |
| Chittagong                   |                              |                   |                   |                   | 9                   |                     |                     |                     |                     |  | 9              |
| Chuadanga                    | 7                            |                   |                   |                   |                     |                     |                     |                     |                     |  | 7              |
| Comilla                      |                              | 5                 |                   |                   |                     |                     |                     |                     |                     |  | 5              |
| Cox's Bazar                  |                              | 2                 |                   |                   |                     |                     |                     |                     |                     |  | 2              |
| Dhaka                        | 12                           |                   |                   |                   |                     |                     |                     |                     |                     |  | 12             |
| Dinajpur                     |                              |                   | 4                 |                   |                     |                     |                     |                     |                     |  | 4              |
| Faridpur                     | 2                            |                   |                   |                   |                     |                     |                     |                     |                     |  | 2              |
| Feni                         |                              |                   | 2                 |                   |                     |                     |                     |                     |                     |  | 2              |
| Gaibandha                    |                              |                   |                   |                   | 14                  |                     |                     |                     |                     |  | 14             |
| Gazipur                      | 5                            |                   |                   |                   |                     |                     |                     |                     |                     |  | 5              |
| Gopalganj                    |                              |                   |                   | 1                 |                     |                     |                     |                     |                     |  | 1              |
| Habiganj                     | 1                            |                   |                   |                   |                     |                     |                     |                     |                     |  | 1              |
| Jamalpur                     |                              |                   |                   |                   |                     |                     |                     |                     |                     |  | 0              |
| Jessore                      |                              |                   |                   |                   |                     |                     |                     |                     |                     |  | 11             |
| Jhalokati                    |                              |                   | 5                 |                   |                     |                     |                     |                     |                     |  | 5              |
| Jhenaidah                    |                              | 2                 |                   |                   |                     |                     |                     |                     |                     |  | 2              |
| Joypurhat                    | 1                            |                   |                   |                   |                     |                     |                     |                     |                     |  | 1              |
| Khagrachhari                 | 0                            |                   |                   |                   |                     |                     |                     |                     |                     |  | 0              |
| Khulna                       |                              |                   |                   |                   | 7                   |                     |                     |                     |                     |  | 7              |
| Kishoreganj                  |                              |                   | 3                 |                   |                     |                     |                     |                     |                     |  | 3              |
| Kurigram                     |                              |                   |                   |                   | 2                   |                     |                     |                     |                     |  | 2              |
| Kushtia                      | 7                            |                   |                   |                   |                     |                     |                     |                     |                     |  | 7              |
| Lakshmipur                   | 2                            |                   |                   |                   |                     |                     |                     |                     |                     |  | 2              |

(continued)

| Cross-tabulation<br>District | Disaster-affected households |                   |                   |                   |                     |                     |                     |                     |                     |   | Grand<br>total |     |
|------------------------------|------------------------------|-------------------|-------------------|-------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---|----------------|-----|
|                              | 0–<br>24,999                 | 25,000–<br>49,999 | 50,000–<br>74,999 | 75,000–<br>99,999 | 100,000–<br>124,999 | 125,000–<br>149,999 | 150,000–<br>174,999 | 225,000–<br>249,999 | 250,000–<br>274,999 |   |                |     |
| Lalmonirhat                  |                              | 1                 |                   |                   |                     |                     |                     |                     |                     |   |                | 1   |
| Madaripur                    |                              |                   |                   |                   | 8                   |                     |                     |                     |                     |   |                | 8   |
| Magura                       | 10                           |                   |                   |                   |                     |                     |                     |                     |                     |   |                | 10  |
| Manikganj                    |                              | 6                 |                   |                   |                     |                     |                     |                     |                     |   |                | 6   |
| Meherpur                     | 7                            |                   |                   |                   |                     |                     |                     |                     |                     |   |                | 7   |
| Moulvibazar                  |                              |                   | 3                 |                   |                     |                     |                     |                     |                     |   |                | 3   |
| Munshiganj                   | 7                            |                   |                   |                   |                     | 2                   |                     |                     |                     |   |                | 7   |
| Mymensingh                   |                              |                   |                   |                   |                     |                     |                     |                     |                     | 6 |                | 6   |
| Naogaon                      |                              |                   |                   |                   |                     |                     |                     |                     |                     |   |                | 6   |
| Narail                       | 3                            |                   |                   |                   |                     |                     |                     |                     |                     |   |                | 3   |
| Narayanganj                  | 12                           |                   |                   |                   |                     |                     |                     |                     |                     |   |                | 12  |
| Narsingdi                    | 3                            |                   |                   |                   |                     |                     |                     |                     |                     |   |                | 3   |
| Natore                       |                              |                   |                   |                   |                     |                     | 2                   |                     |                     |   |                | 2   |
| Nawabganj                    |                              | 5                 |                   |                   |                     |                     |                     |                     |                     |   |                | 5   |
| Netrakona                    |                              |                   |                   | 0                 |                     |                     |                     |                     |                     |   |                | 0   |
| Niuphamari                   |                              |                   | 3                 |                   |                     |                     |                     |                     |                     |   |                | 3   |
| Noakhali                     |                              |                   |                   | 3                 |                     |                     |                     |                     |                     |   |                | 3   |
| Pabna                        | 9                            |                   |                   |                   |                     |                     |                     |                     |                     |   |                | 9   |
| Panchagarh                   | 7                            |                   |                   |                   |                     |                     |                     |                     |                     |   |                | 7   |
| Patuakhali                   |                              |                   |                   |                   |                     |                     |                     |                     | 0                   |   |                | 0   |
| Pirojpur                     |                              |                   |                   | 1                 |                     |                     |                     |                     |                     |   |                | 1   |
| Rajbari                      | 9                            |                   |                   |                   |                     |                     |                     |                     |                     |   |                | 9   |
| Rajshahi                     | 2                            |                   |                   |                   |                     |                     |                     |                     |                     |   |                | 2   |
| Rangamati                    | 0                            |                   |                   |                   |                     |                     |                     |                     |                     |   |                | 0   |
| Rangpur                      |                              |                   |                   |                   |                     |                     |                     |                     |                     |   |                | 0   |
| Satkhira                     |                              | 2                 |                   |                   |                     |                     |                     |                     |                     |   |                | 2   |
| Shariatpur                   |                              |                   |                   |                   | 2                   |                     |                     |                     |                     |   |                | 2   |
| Sherpur                      | 7                            |                   |                   |                   | 0                   |                     |                     |                     |                     |   |                | 7   |
| Sirajganj                    |                              |                   |                   |                   |                     |                     |                     |                     |                     | 2 |                | 2   |
| Sunamganj                    |                              |                   |                   |                   |                     |                     |                     |                     | 0                   |   |                | 0   |
| Sylhet                       |                              |                   |                   |                   |                     |                     |                     |                     |                     |   |                | 0   |
| Tangail                      |                              |                   |                   |                   | 3                   |                     |                     |                     |                     |   |                | 3   |
| Thakurgaon                   |                              | 6                 |                   |                   |                     |                     |                     |                     |                     |   |                | 6   |
| Grand total                  | 125                          | 29                | 23                | 7                 | 50                  | 8                   | 15                  | 0                   | 0                   | 0 | 0              | 257 |

Disaster risk  
reduction

Table II.

Several interviewees claimed that the distribution of funds for DRR was often executed without regard to local needs, but rather reflected the interests, and incentives of the decision makers. One official explained:

[...] sometimes it happens that local MP, and local political, and social elites decide, and influence the distribution of a flood shelter to a specific location. When local elites select the location, they see the interest of local party leaders, the next election issue, and benefits of own relatives.

Allocations from DDM, are intended to address the DRR issues in accordance with specified criteria clearly stated in the policies. However, deviations from criteria-based allocation often were apparent. One local public representative stated:

We have to fulfil or satisfy local, and union-level leaders. Local MPs might have an agenda of trying to convince voters and supporters. So informally, flood shelters distribution and location selections deviate for various reasons other than the issue of real needs.

These practices create gaps between the local government representative or community leaders and national political leaders. Although interviewees stated that the flood shelters are distributed to areas of political supporters. Those areas are also to some degree vulnerable to disaster. However, literature emphasises that these shelters needs to be distributed to the most vulnerable locations where the most affected people could benefit with equality and equity (Islam *et al.*, 2017; Muñoz and Tate, 2016).

Moreover, highly positioned stakeholders can manipulate the government apparatus of the allocation process as a mechanism for capturing project benefits. One of the rural local subdistrict leaders shared his view:

We live in a very rural area; we do not have education, we do not know the procedures how to apply, cannot go to the capital city, and cannot manage funds. So, we receive fewer allocations than the subdistricts where advanced educated, and clever people live. Although our district is the most flood affected region, we receive only three flood shelters whereas other received more than 20 flood shelters.

Consequently, IDIs with respondents from all tiers of the system make it evident that the interests and incentives of powerful influential stakeholders sometimes influence and deviate the selection of location and beneficiaries, deviating from stated policies. These processes lead to the exclusion of vulnerable people and locations, and inefficient use of resources; consequently those practices need to be curbed (Sovacool *et al.*, 2018). Therefore, practitioners should ask the question “whose interest is served really by the effort” and should ensure that the answer is always “affected vulnerable people’s interest”.

*4.2.2 Exposed formal and informal institutions in DRR fund distribution.* Existing rules, policies and norms influence the DRR fund distribution process. Although policies stipulate a comprehensive assessment process and needs based design, these are often not followed when funds are being distributed, and locations and beneficiaries are selected. The planning ministry sanctions approvals; and then ministries implement strategies through local offices. Thus, if there is need for any change because of local requirements, it is very difficult to change or to implement. One DRR consultant shared his opinion on this:

[...] one example flood shelters, the design of which was same for hill districts and for low land districts. The design could not be changed at the final stage of implementation as per local needs because of this top down approach.

Informal norms also influence decisions. Some interviewees also indicated that local leaders are interested only in short-term visible projects, which have an immediate impact rather

than long-term effectiveness. For example, nationally, the DDM funds are managed and distributed by the members of the National Disaster Management Committee and the district and subdistrict level committees. One IDI interviewee stated:

[...] some ministers and bureaucrats are members of the relevant committees, so many of the flood shelters are distributed in their own area. The distribution should have been to the regions that are most vulnerable, and most in needs.

However, one IDI interviewee (an official of DDM) mentioned that:

[...] actually, we do not have vulnerability assessment for disaster or climate change countrywide. Though some pilot projects were accomplished, the countrywide vulnerability assessment for each districts and sub-districts has yet to be conducted.

One may argue that the powerful decision makers thus become able to take the advantage of “not having vulnerability assessment report for all subdistricts” and use their discretion to maximise their own electoral purpose in DRR fund distribution (Adams and Neef, 2019). However, although Bangladesh yet does not have a nationwide vulnerability assessment, it has the list that indicates whether a district is flood-prone or not, and cyclone-prone or not (Bangladesh Bureau of Statistics, 2015). In the absence of full national assessment, these lists can still provide valuable guidance regarding a needs based assessment for selecting a flood shelter location.

Moreover, similar issues also arise at the local level. Socially and economically marginal people often do not have voice in important DRR-related decision making. Social norms work informally (Helmke and Levitsky, 2004). One local government representative expressed his reality:

At the local level, normally, we divide based on needs. However, some exceptions are there. For example, a chairman of the local government is from a village, so he often allocates more for his own village.

Therefore, interviews show that the influences of both formal and informal institutions are apparent in the DRR processes, and these can steer funding allocation away from vulnerable locations and lead to resources being distributed to the areas of dominant elites. That does not mean that some of those who are receiving funds are not vulnerable. However, the more vulnerable disaster-affected people often appear to have been excluded and the power of dominant stakeholders may well be evident through the PE in the distribution mechanisms (Adams and Neef, 2019; Sovacool *et al.*, 2018).

*4.2.3 Exposed values and ideas of influencing stakeholders in DRR fund distribution.* The values and ideas of decision makers impact on the outcomes (DFID, 2009). Political ideas, beliefs and immediate incentives affect decisions (Purdon, 2015). One local government official revealed the practices of DRR in Bangladesh:

Sometimes if the people of the disadvantaged and vulnerable location, which is mostly flood-affected, have different political beliefs, are not supportive of the party in power, they do not receive the flood shelters.

Not infrequently, the number of beneficiaries is increased to satisfy more people with the same political belief as the party in power. As one interviewee from an international organisation said:

We have provided funds for house-building for 10,000 families in the northern area of Bangladesh. The designs of the house buildings were done based on recent flood levels, and probable climate changes. However, in reality, local political leaders divided this fund between 20,000 families. They increased the number of beneficiaries to satisfy more political supporters.

Consequently, the quality and design of the houses will not be up to the desired standard. Moreover, on the implementation side, differences in religious beliefs can also lead to inequalities in fund distribution for DRR. One local level officials shared his opinion:

If the local leaders, public representatives, and Member of Parliament are from a particular religious group, the community of that particular religious group receives priority. For example, if the leaders are from Hindu religion, the temples receive more funds; if the leaders are Muslim, mosques receive more funds.

However, another IDI interviewee (one local political leader) did not agree with this assertion. He noted:

We need more funds to satisfy all affected people and cover all vulnerable locations. As we receive less than the actual requirements, we have to be selective, so some people are excluded.

Overall, however, the IDIs suggest that the values and ideas of leaders and decision makers affect the distribution of funds, and selection of locations and beneficiaries and they sometimes exclude vulnerable locations and people who hold different political and religious ideologies. Although the influence of values and ideas is not visible, they are felt and observed as expressed through the IDIs. Tension between economic, religious, political beliefs; tension between short-term and long-term visions of the future; and tension between local and national domination influence the DRR funding distribution in Bangladesh (Alam *et al.*, 2011; Sovacool, 2017).

## 5. Discussion

This paper aimed to explore the challenges confronting DRR from a PE perspective, using a case of DRR-related public fund distribution, particularly the construction of flood shelters in Bangladesh. National DRR-related policies and guidelines regarding the “construction of flood shelters” clearly state that more funds should have allocated to locations with higher populations, larger area, the highest number of disaster-affected people (low-land areas and riverine areas) and the highest poverty rate. However, the distribution of flood shelters often has not conformed with these criteria (Table II and Figure 3). IDIs with relevant stakeholders suggest it is likely that PE factors have often affected the distribution of funding and selection of location and beneficiaries. These findings suggest how the interest and incentives of influential decision makers, formal and informal institutions, and values and ideas manifest at multiple sites across various stakeholders of DRR in Bangladesh have caused funding allocations to deviate from stated policy.

Through IDIs, this study found that the PE surrounding DRR transcends national and local levels. At the national level, national decision makers through national systems and actions have reoriented efforts towards boosting their political and financial interests and protecting and rewarding their supporters. Moreover, there is a cycle in interactions among the different PE processes. Interest and incentives of powerful decision makers can lead to the use, and misuse of formal/informal institutions and values and ideas and vice versa. Furthermore, because of such PE influences, DRR initiatives, project, programs and interventions undertaken in Bangladesh, such as flood shelters, often result in overlapping and inefficient use of resources.

Literature also similarly argued that PE factors influence the efforts of DRR. Some examples are earthquake management in Turkey (Pelling and Dill, 2010), the influence of elites in DRR governance in developing countries (Hamdan, 2015), exclusion of powerless populations in flood management in Bihar of India (Jha, 2015), interests of the actors in foreign aid for relief (Cohen and Werker, 2008), conflict of interest in decentralisation of DRR for local governments (Scott and Tarazona, 2011), power struggle and inequality in disaster recovery (Sovacool, 2017; Sovacool *et al.*, 2018) and the role of decentralisation in building community

resilience in Bangladesh (Choudhury *et al.*, 2019). Using the case of Bangladesh, this study has contributed the knowledge by demonstrating from the IDIs that contrary to the guidance of existing policies, the PE factors often appear to influence the fund distribution and determine the DRR funding amount and selection of location and beneficiaries.

Now the question remains why these dominating stakeholders do what they do. By potentially manipulating distribution of public fund, as IDIs suggest, dominating stakeholders may seek to maximise personal benefits and electoral gains, increase their support-base and party affiliations (Francken *et al.*, 2012; Scott and Tarazona, 2011; Healy and Malhotra, 2009). Improper distribution mechanisms, lack of better governance in funding and existing practice of not involving vulnerable communities in the decisions perpetuate these malpractices (Sovacool *et al.*, 2018; Choudhury *et al.*, 2019). This suggests that strengthening governance and increasing involvement of vulnerable communities should help to mitigate the incidence of adverse outcomes; implementing such improvements in practice remains challenging, however, for LDICs like Bangladesh.

Alternatively, one explanation why flood shelter funding was not allocated to the appropriate locations is the shortage of funds themselves; fund shortages lead to some deserving locations missing out. That may partly explain why influential decision makers, when confronted with the conflicting needs and scarce funds, apparently allocate more shelters to their electoral areas to satisfy their supporters. If funding resources were not scarce, PE factors would have little influence in Bangladesh. Another possible explanation is that although the PE nexus of DRR can sometimes manipulate projects for the interests of dominant stakeholders, it does not mean that they fully undermine all the benefits of DRR. The findings shown here eliminate an alternative hypothesis on public fund distribution, as Besley and Coate (1997) demonstrated a model in which citizens vote based on their own party-preferences; not thinking about future allocation of funds on specific issues. However, the shortcomings found in this study can be used for improving and learning so that DRR funds are distributed more effectively to vulnerable locations and affected communities.

Lastly, even though pressures from PE factors exist in some Bangladeshi DRR efforts, this does not necessarily mean that such factors are always present. Bangladesh should continue its efforts in DRR, given that many DRR projects seem to be producing a net social and economic benefit despite the complex Bangladeshi PE process surrounding them (Alam *et al.*, 2011). Thus, it is clear that not every DRR project perpetuates inequality, excludes disadvantaged stakeholders, or often benefits the powerful (Sovacool, 2017). DRR practitioners should be aware of adverse outcomes arising from the PE process and as far as practicable within the constraints they face should take appropriate mitigation actions.

While we hold that the results and findings from this case study from Bangladesh remain valid and interesting and that lessons can be learnt from this, it is likely that some of these findings can be generalised to other low-income resource-constrained countries that share the socioeconomic-cultural features of Bangladesh. Notwithstanding this limitation, we argue that this Bangladesh case study sheds light on the existing PE nexus and practices surrounding the DRR-related public fund distribution.

## 6. Conclusion

The PE perspective adopted by this study has revealed key issues, which likely underlie many of the practical challenges encountered in effective DRR implementation. Plans which appear sound on paper can be tremendously challenging to implement in field level contexts, as found in the distribution of DRR-related public funds, and selection of location and beneficiaries. IDIs suggest that PE factors influence DRR in Bangladesh, and they need to be recognised as doing so.

Now the question remains what to do next. The researchers of this study advocate for four measures (revealed in the Results section). The first step is to conduct a countrywide

vulnerability assessment for each district and subdistricts and then to make these vulnerability assessments a mandatory input to funding allocation decisions (Sawada and Takasaki, 2017). The second is to strengthen existing policies and institutions surrounding DRR fund distribution so that the dominant stakeholders are compulsorily bound to follow them strictly (Barua *et al.*, 2016; Bhuiyan, 2015). The third is to place vulnerable groups and the DRR community front and centre in DRR processes. This includes sharing of ideas and knowledge to and from the affected community, and accepting their reactive responses involved in DRR funding mechanisms (Cook and Zurita, 2016; Choudhury, 2015). The fourth step is to ensure coordination and cooperation between the local and national offices, between local government representatives and national politicians strictly following the clearly stated existing policies for DRR fund distribution (Hallegatte *et al.*, 2018; Hemingway and Gunawan, 2018). In this regard, comprehensive planning and prioritising of disaster risk issues can expedite cooperation and coordination to reduce the overlapping and inefficient use of resources, and to ensure distribution of DRR fund to the appropriate locations. These four steps can enhance governance procedures to restrain more blatant expression of self-interest.

The practical insights from PE surrounding local dynamics found in this study should serve as a guide to stimulate policy makers and practitioners and can assist them in taking the steps required to foster effective, systemic and successful DRR implementation. The broader political and economic environment in which practitioners are working should not be put aside. It is necessary to understand these PE nexuses and conduct further research on comparisons between the PE of DRR and the PE of other areas such as climate adaptation or the education sector to assist in furthering our understanding of which conditions are unique to DRR projects. More research on this critical yet delicate nexus surrounding DRR on a case by case basis could identify effective solutions.

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#### Corresponding author

Shafiqul Islam can be contacted at: [shafiqul.islam@griffithuni.edu.au](mailto:shafiqul.islam@griffithuni.edu.au)

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