Maintains

Research supporting social services to adapt to shocks

Shock-Responsive Social Protection in Bangladesh

Literature Review

Madhumitha Hebbar and Shamir Shehab

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List of abbreviations

BDT	Bangladeshi Taka
DDM	Department of Disaster Management
DFID	UK Department for International Development
DMC	Disaster Management Committee
DRM	Disaster risk management
DRR	Disaster risk reduction
EGPP	Employment Guarantee Programme for the Poor
EM-DAT	International Disasters Database
EWS	Early warning system
FFW	Food For Work
G2P	Government to Person
HIES	Household Income and Expenditure Survey
IMDMCC	Inter-Ministerial Disaster Management Coordination Committee
Maintains	Maintaining Essential Services after Natural Disasters
MIS	Management information system
MoDMR	Ministry of Disaster Management and Relief
NDMC	National Disaster Management Council
NGO	Non-governmental organisation
NHD	National Household Database
NSSS	National Social Security Strategy
SOD	Standing Order on Disaster
SPBMU	Social Protection Budget Management Unit
SPFMSP	Strengthening Public Financial Management for Social Protection
SSNP	Social Safety Net Programme
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
VGD	Vulnerable Group Development

1 Introduction

Globally, the number, duration, and size of natural hazards is on the rise. The cost of disaster response is increasing, exerting greater pressure on limited resources. Consequently, there is growing recognition of the need to capitalise on existing resources in responding to various shocks, including natural hazards. This has led to international actors and governments exploring the synergies between social protection and disaster response, given the overlap of objectives, programmes, and systems across the two sectors. These issues are of particular relevance in Bangladesh where the exposure to natural hazards is expected to intensify as the effects of climate change deepen. At the same time, it is important that these considerations are embedded within the ongoing reforms being led by the Government of Bangladesh to build a robust national social protection system.

Maintains is a UK aid-funded operational research programme that will develop a stronger evidence base on how essential social services can adapt and expand to respond to changing needs during and after shocks, while also maintaining existing services. In Bangladesh Maintains is focusing on social protection, and this literature review is designed to support the conceptualisation of the research agenda for Maintains in the country. There is a limited evidence base that can inform the development of a shock-responsive social protection system in Bangladesh, and there are also gaps in our global knowledge. The Maintains research will seek to contribute to two areas identified in the global literature review as requiring an improved evidence base: (i) developing a better practical understanding of what works in particular contexts; and (ii) examining social protection instruments beyond cash as components of a shock-responsive social protection system. The objective of this literature review is to document systematically the existing evidence base around the nexus of extreme poverty, natural hazards, and social protection in Bangladesh. This will help to frame the research agenda for Maintains in Bangladesh over the next two years. The literature review is based on a narrative review[1] of published and grey literature in English.

The remainder of this report is structured as follows:

- Chapter 2 defines key concepts.
- Chapter 3 presents the profile of natural hazards in Bangladesh.
- Chapter 4 examines the impact of natural hazards on household welfare and coping strategies.
- Chapter 5 discusses the country's disaster risk management (DRM) systems.
- Chapter 6 examines the preparedness of social protection systems for shock response in Bangladesh.
- Chapter 7 describes country experiences in responding to shocks via social protection systems.
- Chapter 8 presents conclusions.

[1] See here for how narrative literature reviews differ from other types of reviews.

2 Conceptualising shock-responsive social protection and defining key concepts

2.1 Shocks

Shocks can be classified as either 'covariate' or 'idiosyncratic'. Covariate shocks affect a considerable proportion of the population simultaneously (e.g. hurricanes, floods, conflict), whereas idiosyncratic shocks affect individual households or household members (e.g. the death of a breadwinner or catastrophic illness). Further, covariate shocks can be distinguished by several aspects. The following typologies of shocks will be referenced throughout this review (Barca and Beazley, 2019):

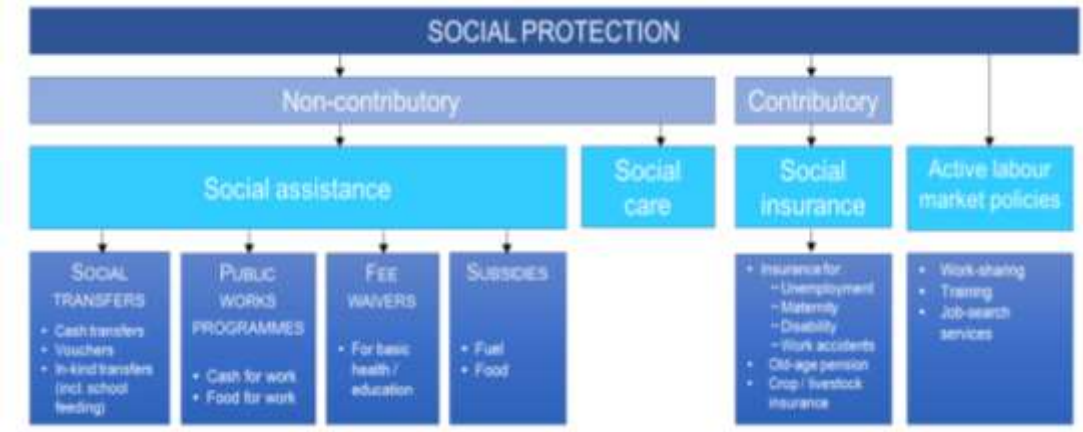
- Type: shocks can be natural, economic, or political. **This review is focused on natural hazards.**
- Onset: shocks can be rapid-onset (e.g. hurricanes or floods) or slow-onset (e.g. drought, economic crisis).
- Size: shocks can be large (i.e. with country-wide affects), or small to medium-sized.
- Recurrence: shocks can be seasonal or occasional.

2.2 Social protection

While countries and international agencies vary in their respective definitions of social protection, this review understands social protection to be the set of public actions that address both the absolute deprivation and vulnerabilities of the poorest, and the need of the currently non-poor for security in the face of shocks and lifecycle events (Oxford Policy Management (OPM), 2017).

This can be achieved through a broad range of social protection instruments, with varying implications for shock responsiveness. Figure 1 presents a typology of instruments most commonly used in the global literature (O'Brien *et al*., 2018).

Figure 1: Typology of social protection instruments from the global literature

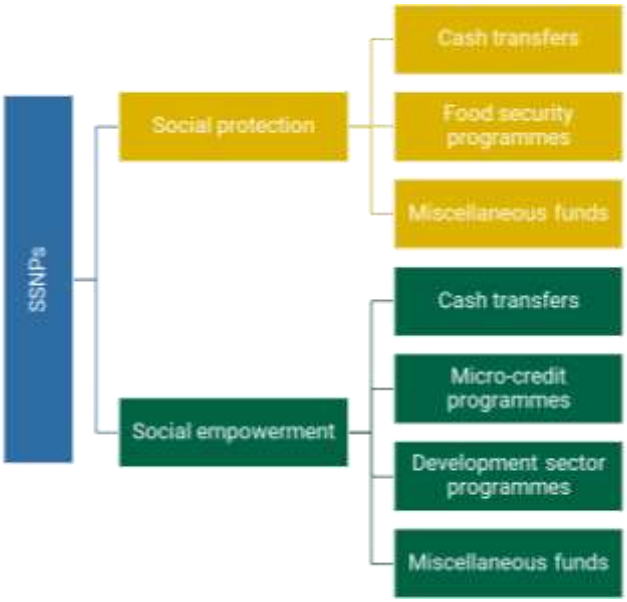


Source: O'Brien *et al*., 2019. Notes: (1) 'Non-contributory' schemes are defined by the International Labour Organization as those that, 'normally require no direct [financial] contribution from beneficiaries or their employers

as a condition of entitlement to receive benefits' (International Labour Organization, 2017). Public works programmes are usually counted as 'non-contributory' even though the recipient contributes labour. (2) Social transfers may be conditional or unconditional. A conditional transfer requires the recipient to adopt certain behaviours (such as ensuring school attendance) to receive the benefit.

Compared to these instruments, the Government of Bangladesh takes a more expansive view of what constitutes social protection. Social protection programmes are termed 'social safety net programmes' (SSNPs) in Bangladesh, and they are classified as illustrated in Figure 2 (Ministry of Finance, 2019). While there are substantial overlaps between this country-level taxonomy and the global taxonomy in Figure 1, the former is more extensive as it covers micro-credit programmes and development sector programmes, such as infrastructure development and health services. While this review acknowledges that SSNPs are broader in scope in Bangladesh, it primarily focuses on social assistance programmes, as these are more commonly used for shock response globally (O'Brien *et al*., 2018). Therefore, throughout this review, the term SSNPs is used to refer to a subset of programmes that encompasses cash transfers (e.g. poverty-targeted household grants, non-contributory old-age pensions, conditional cash transfers); in-kind transfers (e.g. school feeding programmes); public works programmes; and food subsidies.

Figure 2: Typology of SSNPs in Bangladesh



Source: Ministry of Finance, 2019.

2.3 DRM

DRM is the application of policies and strategies to prevent new disaster risk, reduce existing disaster risk, and manage residual risk, which contributes to the strengthening of resilience and the reduction of disaster losses (United Nations International Strategy for Disaster Reduction (UNISDR), 2009). DRM is often viewed as having five focal areas: prevention, mitigation, preparedness, response, and recovery (Baas *et al.,* 2008). Establishing a shock-responsive social protection system relates to preparedness, response, and recovery from a disaster, and therefore potentially intersects with a number of different DRM activities and mechanisms (UNISDR, 2009). These overlaps are discussed throughout the review.

2.4 Conceptualising shock-responsive social protection

While all social protection is geared towards addressing shocks, shock-responsive social protection focuses on covariate shocks (OPM, 2017). This is because covariate shocks present two unique challenges to social protection systems. First, covariate shocks expand the need for social protection for many individuals simultaneously, and thus informal and kin-based social protection (such as village savings schemes, lending to neighbours and family), which function well for idiosyncratic shocks, tend to break down. Second, covariate shocks may themselves undermine the capacity of the social protection delivery systems by affecting staff or damaging infrastructure.

This literature review is based on a conceptual framework for shock-responsive social protection developed by OPM (2015) and O'Brien *et al.* (2018). This conceptual framework encompasses both *ex-ante* measures and *ex-post* measures that mobilise social protection to respond to shocks. The first half of the framework focuses on *ex-ante* 'system' preparedness, and the second half focuses on *ex-post* 'system response'. These are each described in turn below.

2.4.1 System preparedness

The preparedness of social protection systems to effectively respond to shocks depends on the following six main factors:

1. **Institutional arrangements and capacity:** the legislation, policies, and mandates of key DRM and social protection institutions, as well as the organisational structure that affects services delivery in these areas.

2. **The targeting system:** the protocols, processes, and criteria for identifying people and families that should receive social protection or DRM support.

3. **Information systems:** this encompasses socioeconomic, disaster risk, and vulnerability information to enable decision-making before and after a shock, including social registries and beneficiary registries, DRM information systems, and issues related to accessibility, sharing protocols, data collection mechanisms, data relevance and accuracy, and security and privacy protocols.

4. **Coordination mechanisms**: mechanisms and protocols for coordinating the DRM activities before and after a shock – including the coordination of different government agencies, of activities at different government levels, and of humanitarian agencies (the role of the social protection sector is of particular interest).

5. **Financing mechanisms:** strategies and mechanisms for financing DRM activities before and after a shock, including budgetary instruments, contingent credits, and market-based instruments like parametric insurance (protocols for and commitments to financing responses through social protection are of particular interest).

6. **Delivery mechanisms:** the mechanisms in place for delivering cash or in-kind assistance to social protection beneficiaries and/or people affected by shocks.

2.4.2 System response

When policymakers consider the use of a social protection system to address emergency needs, there are a number of strategies that they may employ to scale up the overall level of support that the system provides to vulnerable people. Based on OPM (2015) and O'Brien *et al.* (2018), five main types of response – which can be employed standalone or in combination – can be identified:

1. **vertical expansion** – increasing the benefit value or duration of an existing social protection programme or system;
2. **horizontal expansion** – temporarily extending social protection support to new households;
3. **piggybacking** – utilising elements of an existing social protection programme or system for delivering a separate emergency response;
4. **alignment** – aligning some aspects of an emergency response with the current or possible future national social protection programmes; and
5. **design tweaks** – making small adjustments to the design of a core social protection programme.

2.5 Adaptive social protection versus shock-responsive social protection

The terminology around the nexus between social protection and DRM is evolving, and a common vocabulary has yet to emerge. Some stakeholders frame the discussion in terms of 'shock-responsive social protection', whereas others invoke 'adaptive social protection' – each describing broadly similar concepts. Although some early attempts have been made to distinguish these two terms (CIAT, 2018), a consensus has yet to develop given that country experiences of integrating DRM and social protection are at a nascent stage (United Nations Children's Fund (UNICEF), 2019). Within the policy discourse in Bangladesh, the need to improve linkages between social protection, disaster risk reduction (DRR), and climate change adaptation is articulated as 'adaptive social protection' (Government of Bangladesh, 2017). While this review uses the term 'shock-responsive social protection', as the overarching Maintains research programme is guided by such a conceptualisation, the issues discussed remain relevant for the broader adaptive social protection agenda in Bangladesh. Ultimately, it is important to 'focus on what these terms have in common – increasing attention on the role that social protection can play in advance of, and in response to, covariate shocks for immediate, medium-, and longer-term support' (UNICEF, 2019).

3 Natural hazards

A low-lying deltaic country formed by the Ganga, the Brahmaputra, and the Meghna rivers, Bangladesh is highly prone to natural hazards. Bangladesh ranks 10th in the World Risk Index, which measures disaster risk for 180 countries globally (Day et al., 2019).[2] Between 1980 and 2019, the country faced 252 weather- and climate-related disasters, resulting in 163, 758 deaths and affecting nearly 60 million lives.[3] The Climate Risk Index, which analyses long-term exposure and vulnerability to extreme weather events, estimates a loss of US$ 1,686 million (purchasing power parity) induced by disasters between 1999 and 2018 alone (Eckstein et al., 2019). Box 1 presents some of the recent disasters with national-level impacts.

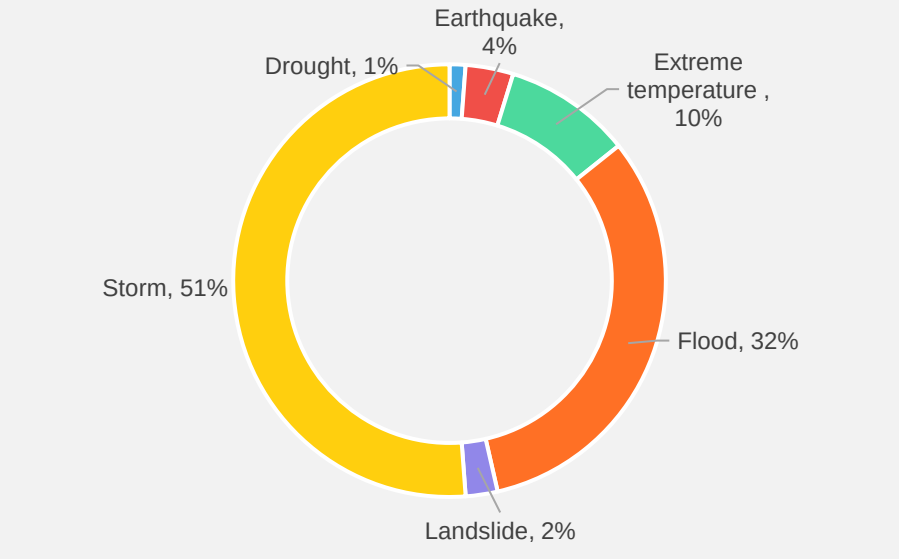
Box 1: Recent disasters and their impacts

- In 2007, Cyclone Sidr resulted in 3,400 deaths and US$ 1.7 billion in losses, and affected over 8.9 million people (Jordan, 2015).
- In 2007, extreme flooding resulted in US$ 1.1 billion in lost assets and 1,110 deaths, and affected 14 million people (Dastagir, 2015).
- In 2009, Cyclone Aila resulted in US$ 170 million in economic damage and 130 deaths, and affected 11 of 19 coastal districts (Akter & Mallick, 2013).
- In 2017, three episodes of flash flooding affected the livelihoods of 8 million people, particularly in the northern districts (United Nations Food and Agriculture Organization, 2017).
- In 2017, landslides in the southeast of the country killed 160 people and destroyed 6,000 housing structures, affecting 80,000 people across five districts (Department of Disaster Management, 2017).

Bangladesh is affected by both rapid- and slow-onset disasters, although the former tend to dominate. Storms and floods collectively account for the majority of the 252 disasters between 1980 and 2019 (Figure 3). These figures must be interpreted bearing in mind that the International Disasters Database (EM-DAT) does not capture more recurrent, seasonal phenomena.

[2] The World Risk Index is a composite measure of the following factors: risk, hazard/exposure, vulnerability, susceptibility, lack of coping capacity, and lack of adaptive capacity.
[3] www.emdat.be/

Figure 3: Type of disasters that have occurred, 1980–2019



Source: EM-DAT, accessed 10 March 2020.

There is considerable geographical variation in the nature of hazards to which specific regions of the country are exposed.[4] As shown in the multi-hazard map for Bangladesh in Figure 4, there is considerable variation across the country in the types of hazards faced. The Government of Bangladesh has classified 40 districts in the country in terms of four primary types of natural hazards: salinity, flood, drought, and flash floods. However, the districts can be exposed to a host of other natural hazards at the same time (Toufique & Islam, 2014). Some of the main geography-specific vulnerabilities are as follows (United States Agency for International Development, 2016):

- **Seasonal drought** during the dry season between October and March is most prevalent in the north-western region of the country, adversely affecting the livelihoods of rice farmers every year. **Salinity** is also a challenge in western Bangladesh, where the Farakka Barrage has drastically increased soil and water salinity.
- Comprising 30% of the geographical area of Bangladesh, the **coastal region** is home to a third of its population and is vulnerable to a range of natural hazards: cyclones, floods, tidal storms, sea-level rise, and salinity.
- **Flash floods** are frequent in several regions, particularly the north-eastern region, which remains most vulnerable in the months from April to June. Additional damage due to accompanying landslides, river erosion, and soil degradation are common.
- **Urban flooding/waterlogging** is common in urban areas of the Ganga Brahmaputra Delta, which includes Dhaka, Chittagong, and Khulna.

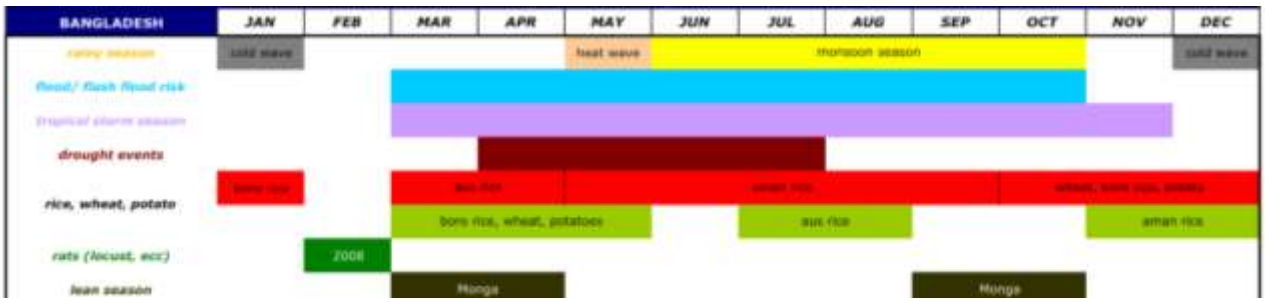
[4] Bangladesh is administratively divided into eight divisions, 64 districts, and 492 upazilas or sub-districts (the second lowest tier in regional administration). Geographically Bangladesh can be divided into four major regions: the northern region, consisting of Rajshahi division and Rangpur division; the eastern region, consisting of Chattogram division, Sylhet division, and the proposed Cumilla division; the central region, consisting of Mymensingh division and Dhaka division; and the southern region, consisting of Barisal division, Khulna Division, and the proposed Faridpur division.

Figure 4 illustrates the intersections between various hazard risks and the cropping calendar across the seasons.

Figure 4: Multi-hazard map of Bangladesh

Source: Haque *et al.* (2019)

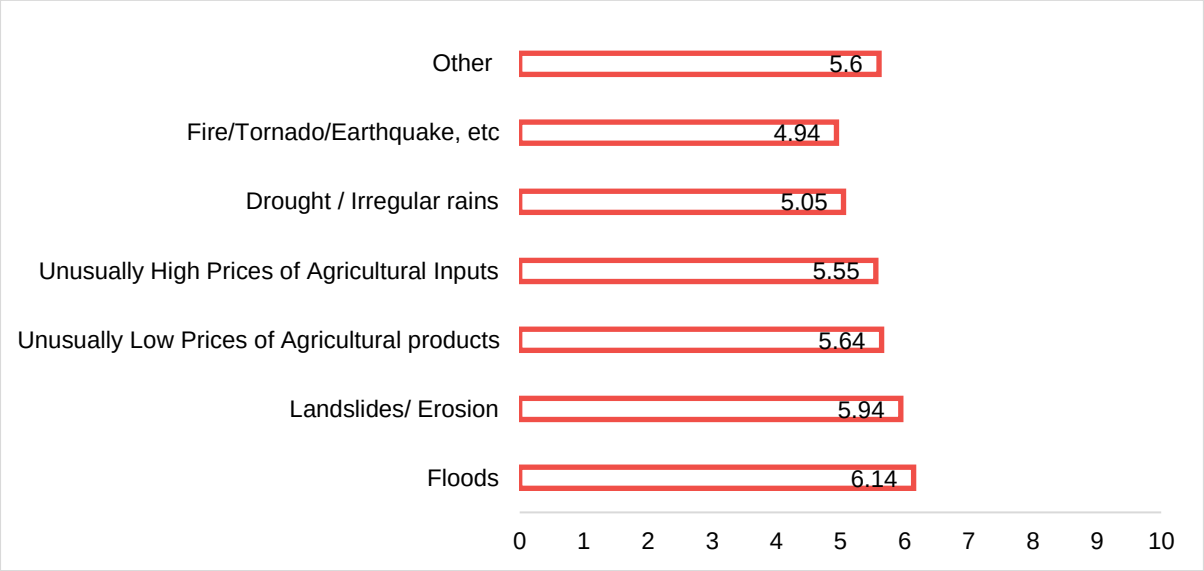
Figure 5: Seasonal hazard calendar



Source: World Food Programme (2011)

At the household level, the exposure to various types of shocks appears to be uniform. Figure 6 presents data from the nationally representative Household Income and Expenditure Survey (HIES) 2016/17 on the types of covariate shocks faced by households in the preceding year. Further, there is no detectable difference between poor and non-poor households in terms of exposure to shocks, although it should be borne in mind that HIES relies on retrospective recall of incidence of shocks.

Figure 6: Households experiencing a covariate shock in the preceding year



Source: Analysis from the HIES 2016/17. Sample size = 46,080.

4 Welfare impacts and coping strategies

Bangladesh has made considerable progress in reducing poverty levels over the last few decades. The poverty rate declined from 32% in 2009/10 to 21% in 2018/19 (Bangladesh Bureau of Statistics, 2019). The country's GDP growth rate increased from 5.6% to 8.1% in the same period, with a per capita real GDP of Bangladeshi Taka (BDT) 66,795 (equivalent to US$ 785). Bangladesh currently ranks 135 out of the 189 countries and territories in the Human Development Index, recording a 30% improvement in its score between 2000 and 2018 (United Nations Development Programme, 2019). These factors enabled Bangladesh to achieve lower middle-income country status in 2015.

4.1 Welfare impacts

This section summarises the micro-economic impacts of natural hazards.

There is considerable evidence that households are unable to absorb the adverse effects of natural hazards in the short term. Del Ninno *et al*. (2001) record that the devastating floods of 1998 led to a loss of assets worth 16% of the pre-flood value for 55% of households, in addition to destroying 24% of the total value of anticipated agricultural production for the year. These losses had significant ramifications for households' food security and health outcomes. Analysing the impacts of Cyclone Aila in coastal districts of Bangladesh[5] among 2,891 rice farmers, Mottaleb *et al.* (2013) find that cyclone-affected households suffered significant loss of paddy income, resulting in a reduction in children's schooling expenditure, which was necessitated by an increase in market expenditure on food. Akter and Mallick (2013) investigate the effects of Cyclone Aila in Shyamnagar district using primary data; they find that both the poor and non-poor suffered income shocks, although the effects were stronger for the latter, given their higher absolute income. Focusing on the impact of recurrent floods on household welfare using HIES data, Karim (2018) finds a significant decline in agricultural income as well as agricultural input expenditure, across both poor and non-poor households.

Floods and cyclones have also resulted in negative wage effects in the short run, particularly in the agricultural sector (Khandker, 2007; Mueller and Quisumbing, 2010). The impact of natural hazards on wages in the non-agricultural sectors are not uniform across contexts: while Khandker (2007) finds that the 1998 floods led to their decline, analysing the effects of riverine floods across Bangladesh between 1979 and 2000, Banerjee (2007) finds that there was a short-term decline in agricultural wages, particularly in times of extreme floods, but less so in districts that were typically flood-prone. Interestingly, the overall relationship between the occurrence of extreme floods and long-term wages is positive, given that abnormally high floods have typically resulted in above-normal harvests of post-flood, dry season crops in Bangladesh.

Empirical understanding of the nexus between exposure to natural hazards, poverty, and resilience is limited. While the short-term impacts of natural hazards on household

[5] Barguna, Barisal Bhola, Jhalokathi, Patuakhali, and Pirojpur districts of Barisal Division; Bagerhat, Khulna, and Satkhira districts of Khulna Division; and Noakhali Comilla, Chandpur, Feni, Laskmipur, Chittagong, and Cox's Bazar districts of Chittagong Division

welfare are widely documented, the long-term consequences for household welfare are less clear. According to Khandker (2007), although the 1998 floods led to a significant decline in household consumption and asset holdings, households were able to restore these to their pre-flood state, which he attributes to the bumper crop in the following season, micro-credit programmes, and emergency relief. Similarly, Mueller and Quisumbing (2011) find that wages stabilised over time. Defining resilience as the ability to bounce back to the pre-hazard steady state or better, Akter and Mallick (2013) find that the relationship between poverty and resilience is less straightforward. Based on pre/post analysis of survey data from 280 households in a coastal community in southwest Bangladesh, they find that although poor households had greater exposure to natural hazards, these households exhibited a higher ability to restore to their pre-cyclone steady state in the context of Cyclone Aila; they attribute these results to pro-poor post-disaster relief and rehabilitation programmes.

It is important to note some limitations of the current literature on the welfare impacts of natural hazards. First, the existing empirical evidence is concentrated on catastrophic events, such as cyclones; knowledge gaps remain in terms of the impact of recurrent hazards described in Chapter 3. Secondly, most studies are confined to the study of short-term impacts in the immediate aftermath of natural hazards; consequently, an understanding of the medium- and long-term consequences is limited. Finally, rigorous analysis of the heterogeneity of impacts by poverty levels and social groups remains scarce.

4.2 Strategies for reducing the impact of natural hazards

Households can employ a range of strategies for reducing the impact of shocks. The key distinction between covariate shocks and idiosyncratic shocks as regards the strategies employed to address them is that insurance against the former cannot be obtained within a community as everyone is affected simultaneously, and therefore the risks cannot be shared. This section examines the coping strategies employed by households to address the impacts of natural hazards.

Borrowing, especially through micro-credit programmes and institutions, plays an important role in coping with natural hazards in Bangladesh. Households are unable to self-insure through savings, and most studies find that borrowing is the most common coping mechanism. During the devastating floods of 1998, borrowing was a major coping strategy employed by households, particularly to smooth their food consumption (Del Ninno *et al.*, 2001). Nearly 60% of households were in debt for a value equal to 143% of their monthly expenditure, with households in the bottom quintile recording higher levels of indebtedness, at 222%. In comparison, government transfers – although widespread – were negligible, at 2% of the monthly expenditure. These findings are confirmed by more rigorous econometric analysis, which shows that 31% of households relied on borrowings to counter the effects of the floods (Khandker, 2007). Similarly, a study of the monsoon floods and flash floods in 2005 in four districts in Bangladesh finds that borrowing remained the most common coping strategy (Sultana & Rayhan, 2012).

There is some evidence of the role of *ex-ante* income-based strategies. For instance, the costs of flood damage increase significantly for households that depend on one to two income sources, but decrease gradually from there onwards, suggesting the role of income

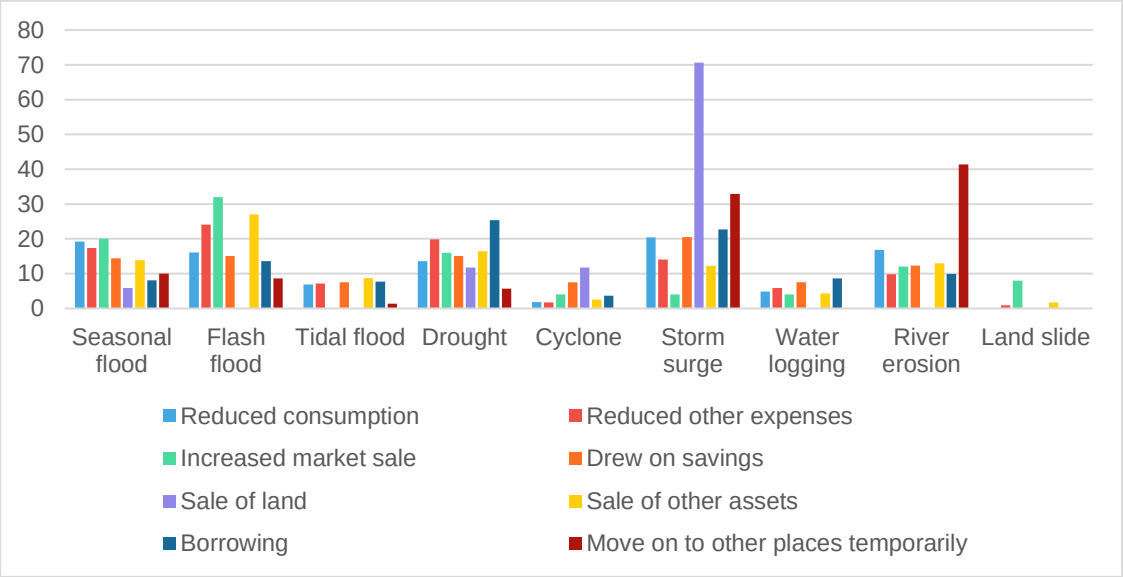
diversification as a coping strategy (Brouwer *et al*., 2007). Mohapatra *et al*. (2012) find that international remittances supported consumption smoothing among households affected by the 1998 floods. Bandyopadhyay and Skoufias (2013) find support for *ex-ante* risk management through occupational diversification in the face of local rainfall variability risks (droughts and floods). However, the authors provide empirical evidence that occupational diversification within households has negative effects on long-term welfare and consumption, as this strategy leads to individuals making sub-optimal occupational choices.

There is mixed evidence regarding the extent to which migration is used as a coping strategy. While most studies agree that seasonal migration is an established form of coping with seasonal floods, there is no consensus on whether natural hazards lead to permanent displacement. Interviews with migrants in the slums of Dhaka in 2008, after Cyclone Sidr in 2007, revealed that many of them had migrated to Dhaka to recover from the losses induced by the cyclone (Poncelet et al., 2010). In the context of Cyclone Aila, male members of a coastal community in southwest Bangladesh migrated to cities immediately after emergency relief work (Mallick et al., 2017). However, a study of the impact on mobility of riverine floods and crop failures between 1994 and 2010 across 14 districts finds that floods in fact reduced migration, either by increasing labour needs at origin, or by removing the resources necessary to migrate (Gray & Mueller, 2012). By contrast, crop failure (due to rainfall deficit) is more likely to induce migration, although this tends to involve local movement rather than long-distance movement (*ibid*.).

Social networks and political connections play an important role in regard to how people access resources and cope with shocks. While poorly educated and resourced slum dwellers are highly vulnerable to external shocks, they still show a surprising capacity to cope with natural calamities (Braun & Aßheuer, 2011). Social capital plays an important role in urban areas with regard to the ability of slum dwellers to find ways to live during floods (*ibid.*). Household members or close relatives with connections and access to the government are less likely to suffer from food shortage (Velazco & Ballester, 2016).

There is some evidence that these strategies may not be sufficient to achieve consumption smoothing, resulting in consumption adjustment, which has adverse consequences for human development. Khandker (2007) finds that 36% of households skipped one or two meals during the flood. Figure 7 presents analysis from the Gender Dimensions of Climate Change Adaptation dataset from 2010/11, which points towards the fact that households affected by natural hazards are unable to smooth their consumption successfully.

Figure 7: Coping strategies adopted by households for the last major environmental hazard (%)



Source: Gender and Climate Change Dataset 2010/11.

5 DRM

5.1 Institutional framework

The DRM approach in Bangladesh has shifted from relief and rehabilitation in the 1970s and 1980s to more comprehensive risk reduction, mitigation, preparedness, response, recovery, and resilience building of communities since the 1990s, following a series of devastating disasters (Emdad & Salim, 2013; Sabur, 2012; Government of Bangladesh, 2016). This section highlights the laws, policies, frameworks, and institutions underpinning the DRM system in Bangladesh.

The Disaster Management Act 2012 is the principal legal document of the Government of Bangladesh that provides the legal and institutional framework for disaster management in Bangladesh. This act defines the organisational structure of disaster management at national and local levels. It also details the responsibilities of all government departments and committees related to the disaster management system (Ahmed *et al*., 2016). In addition to this act, the government has formulated and ratified a number of plans, policies, and strategies which guide the disaster management system in Bangladesh. These include: 1) The Standing Order on Disasters (SOD), first introduced in 1997 and then revised in 2010; 2) the National Plan for Disaster Management 2010–2015 and 2016–2020; 3) the Disaster Management Policy 2015; 4) the SAARC Framework for Action 2006–2015; 5) the Sendai Framework for Disaster Risk Reduction 2016–2030; and 6) the Asian Regional Plan for Disaster Risk Reduction (Government of Bangladesh, 2016).

The SOD, first drafted in 1997 and later revised in 2010, is another important document for disaster management in the country (Hasan et al., 2019). The SOD is endorsed by the Disaster Management Act 2012 and provided the legal basis for disaster management. It primarily sets out the standard operating procedures for ministries, departments, line agencies, local government bodies, and communities regarding their duties and responsibilities during a disaster (Haque *et al*., 2017) .

The National Plan for Disaster Management is a key document for disaster management in Bangladesh. It guides the implementation of the Disaster Management Act 2012 and facilitates the development of annual work plans for different implementing agencies. It primarily focuses on building resilience through DRR (Hasan et al., 2019).

There are three entities at the national level that are responsible for policy formulation on, and the coordination of, disaster management in Bangladesh: the National Disaster Management Council (NDMC), the Inter-Ministerial Disaster Management Coordination Committee (IMDMCC), and the National Disaster Management Advisory Committee. The NDMC is the supreme body for providing overall direction for disaster management; it is headed by the Prime Minister (Government of Bangladesh, 2016). The Ministry of Disaster Management and Relief (MoDMR) is responsible for the overall coordination and acts as a secretariat to the NDMC. The IMDMCC is responsible for ‘implementation, coordination and supervision’ of the relevant DRM policies and is led by MoDMR. MoDMR is also the primary governing body at the regulatory level pursuing comprehensive risk reduction policies (Haque *et al*., 2019).

With the enactment of the Disaster Management Act 2012, the Disaster Management Bureau was replaced by the Department of Disaster Management (DDM). The DDM, under MoDMR, plays an important role with regard to the delivery and implementation of interventions on the ground (Haque et al., 2019). The DDM coordinates research and capacity building, and also ensures that various ministries and departments incorporate DRR considerations into their policies, plans, and programmes. The DDM coordinates and convenes meetings with some of these committees before or after a disaster, when necessary (Government of Bangladesh, 2016).

At the local level – city corporation, district, upazila, paurashava (municipality), union – there are Disaster Management Committees (DMCs), which are primarily responsible for the supervision and implementation of DRM-related policies, plans, and actions. However, the capacity of the DMCs is very weak as regards carrying out their DRM duties (Ahmed et al., 2016). These committees are mandated to hold regular meetings as necessary and have defined roles and responsibilities at different stages of the disaster: a) the risk reduction period; b) the warning period; c) the emergency response period; and d) the post-disaster period (*ibid*.). The Union DMC, which is located at the lowest tier of the administrative hierarchy in Bangladesh, is responsible for coordinating and implementing disaster management activities at the local level. They consist of 36 members representing non-governmental organisations (NGOs), local elites, community representatives, volunteers, and others (Choudhury *et al*., 2019).

While Bangladesh has built a strong institutional framework for DRM, the current system is not without shortcomings. There remain a number of challenges in terms of coordination, monitoring, evaluation, transparency, and accountability across the DRM system (Ahmed et al., 2016). At the national level, the NDMC consists of representatives from different ministries and departments with their own primary responsibilities, which prevents them discharging DRM decisions and actions with priority. This bureaucratic limitation impacts the implementation outcomes at the local level (Ahmed et al., 2016). At the local level, there is lack of coordination among different institutions and committees. Additionally, there are a number of limitations in terms of technical knowledge and management of disaster information at the local level. These issues are compounded by a lack of adequate decentralisation, as the union parishads lack the autonomy to activate horizontal and vertical linkages as necessary. Overall, these limitations undermine the building of long-term resilience in the society, which is prioritised in the national framework and policies (Choudhury *et al*., 2019). A number of other studies (Choudhury & Haque, 2016; Islam *et al*., 2017; Mahmud & Prowse, 2012) have also identified that corruption, nepotism, and politicisation act as major deterrents to operationalising an effective and functional DRM system in Bangladesh.

5.2 Disaster risk financing

The Finance Division under the Ministry of Finance is the key authority as regards allocating the national disaster-related funding across different governmental and non-governmental stakeholders. It allocates a budget for different line ministries at the beginning of each financial year, with a small allocation for the following items: a) a DRR fund; b) an emergency fund for disaster management at the district level; c) a fund for unforeseen incidents, which can be used for various purposes, amounting to BDT 1 billion

(approximately US$ 14.28 million); and d) a fund through the Palli Karma-Sahayak Foundation, which is a 'microfinance wholesaler' and which distributes funds to NGOs (Ozaki, 2016). Additionally, the Bangladesh Bank, the insurance sector, the microfinance sector, and NGOs play a role in DRR, primarily with regard to post-disaster responses (*ibid*.).

Adequate financing of disaster risks through the use of appropriate instruments is a major bottleneck for the DRM system in Bangladesh. There is a very high reliance on foreign aid for the financing of disaster risks. A total of US$ 897 million was spent on procurement for 55 projects during 2000–2013, of which 29 projects were supported by international donors and aid agencies with 61% of financing, with the remaining 39% financed domestically. However, staggering gaps in financing remain. The economic loss due to natural hazards was estimated to be US$ 10 billion during the period 2000 to 2013, while the funding available for relief, rehabilitation, and reconstruction for the period was only US $2 billion (Ozaki, 2016).

5.3 Early warning system

There are four components of an effective early warning system (EWS): (1) detection, monitoring, and forecasting of hazards; (2) analysis of the risks involved; (3) dissemination of timely warnings, which should carry the authority of the government; and (4) activation of emergency plans to prepare and respond (World Meteorological Organisation, 2018). Bangladesh has made progress along these four components, which has contributed to reduced exposure of people to vulnerability. Bangladesh has developed an EWS for, and awareness of, cyclones, and it built as many as 2,000 cyclone shelters between 2007 and 2017, with more than 3,500 cyclone shelters in existence as at 2017 (Wazed, 2017). Furthermore, Bangladesh has strengthened disaster relief and rehabilitation programmes through various SSNPs. These measures have reduced human casualties and losses, which were higher in the early 1970s, the 1980s, and the 1990s than they are now (Khan & Kervyn, 2017; Wazed, 2017). However, there is still significant room for improvement in terms of the accuracy, efficiency, and effectiveness of the EWS in Bangladesh.

The EWS in Bangladesh is primarily designed to address storms and floods, which are the most common type of natural hazards in Bangladesh. The Bangladesh Meteorological Department, under the Ministry of Defence, is responsible for weather forecasts and cyclone hazard warnings. The department sends cyclone forecasts and advisories to different media and the headquarters of the Cyclone Preparedness Programme. This programme then cascades the information to different coastal DMCs at district, sub-district, and union and ward levels. At the lower tier of the Bangladesh local administration, union and ward-level committees send information and advisories to the people who are at risk (Ahsan *et al*., 2020). While television and radio are the most common media by which coastal people receive cyclone warnings, they also receive warnings through 'megaphones, peer groups, door-to-door alerts from the local police, warning-flags, hand-sirens, GO/NGO workers, and mosque-mikes in the event of any imminent hazard' (Ahsan *et al*., 2020).

Cyclone early warnings have significantly decreased the number of cyclone-related fatalities over the last two decades but still several challenges remain for the existing EWS (Ahsan *et al*., 2020). These challenges are mostly related to quality of the Storm

Warning Centre's cyclone forecast, including: a) data updates from the Bay of Bengal are infrequent; b) lack of meteorological expert to produce reliable forecast; c) lack of computing capacity to run advanced numeric atmospheric models, d) lack of ability to verify the accuracy of the predictions and to include the precision level in the warning message (Tanner et al., 2019). Also, though the lead-time has reduced over the years but while on-shore people receive the forecasts as early as 24-96 hours ahead, the off-shore people (fisherman at sea) receive the forecast with 12 hours lead time only. Furthermore, cyclone landfall trajectories have not been accurate in recent years, which poses a challenge for people to take appropriate preparation in the event of storms. Similarly, the flood forecasting system in Bangladesh has made advances over the years but it has major limitations and underperforms because the warning, dissemination, and response of the end-users are all unsatisfactory (Rahman *et al*., 2013).

Similarly, flood forecasting suffers from a number of limitations. The lead time for warning (48 hours) is not sufficient and hinders coordination among various organisations. Flood-prone communities are often not aware of the warning messages, and even when they are made aware, these messages are not easily accessible at the community level due to their technical sophistication (Rahman *et al*., 2013). One study has found that people receive little information about flood onset through the existing warning dissemination media (TV, newspapers, and the radio) (Bhuiyan, 2006).

6 Social protection

Following the framework on system preparedness set out in Section 2.4.1, this section presents the various components underpinning the social protection system in Bangladesh, and their implications for shock response.

6.1 Institutional arrangements, capacity, and coordination

The social protection system in Bangladesh is closely linked to disaster management, having emerged from disaster response programmes. While the initial focus was on poor relief, in the 1970s, the 1980s were characterised by SSNPs aimed at disaster response and rehabilitation (Hasan, 2017). Since the 1990s the social protection landscape has gradually expanded through various categorical programmes (i.e. programmes targeted at the elderly, widows, and people with disabilities), conditional cash transfers, public works programmes, and graduation programmes.

While there is a long history of SSNPs, the social protection architecture is quite fragmented, and a process of consolidation is underway. Currently, there are 125 social protection programmes, accounting for 2.5% of the national GDP. However, the top 10 programmes account for 59% of the total social protection budget (Winstanley, 2019). Nearly 85 programmes are considered too small to have a scalable impact, and many of these programmes have overlapping objectives (*ibid*.). In 2015, Bangladesh initiated a series of reforms through the adoption of the National Social Security Strategy (NSSS) to build an inclusive social protection system which, among other measures, aims to consolidate these programmes. The NSSS is embedded in the lifecycle approach to social protection, reflecting an understanding that social protection should cover risks and vulnerabilities over the lifecycle of an individual from childhood to old age (Government of Bangladesh, 2015).

The programme fragmentation is compounded by the national-level implementation structures, which are quite scattered at present. The 125 programmes are spread across 23 line ministries, making coherent policymaking and programming quite challenging. However, a majority of the budget allocation is concentrated in a subset of ministries: in 2014/15, the Ministry of Finance accounted for the highest share of the SSNP budget (26%), almost entirely allocated to a single programme (civil service pensions). **More importantly, MoDMR is already an integral part of SSNP delivery**, as it had the second highest share in terms of budget allocation in that year, at 20%. Other key ministries – with a budget allocation of at least 3% of the SSNP budget – included the Ministry of Social Welfare; the Ministry of Local Development, Rural Development and Cooperatives; the Ministry of Health and Family Welfare; the Ministry of Food; the Ministry of Primary and Mass Education; and the Ministry of Women and Children Affairs. One of the main goals of the NSSS is to rationalise the number of actors involved, in order to enhance the efficiency of implementation; for instance, it aims to transition all lifecycle-related programmes to the Ministry of Social Welfare by 2026. These social protection reforms are being coordinated nationally by the Central Management Committee, which is a body chaired by the Cabinet Secretary and composed of Secretaries and Additional Secretaries of all 23 line ministries.

In order to contribute to the attainment of the goals of rationalising the actors involved in SSNP and enhancing the efficiency of implementation, the Finance Division of the Ministry of

Finance has undertaken the Strengthening Public Financial Management for Social Protection (SPFMSP) project. The project is assisted by the UK's Department for International Development (DFID) and Australia's Department of Foreign Affairs and Trade. Maxwell Stamp PLC assists the government in implementing the project. **One of the key reforms under the SPFMSP has been the setting up of the Social Protection Budget Management Unit (SPBMU).** The purpose of establishing the SPBMU is to enhance the capacity of the Finance Division to: i) draw evidence-based social protection budgets that responds to efficiency and effectiveness objectives, ii) improve monitoring of social protection expenditure through a functional MIS to be established by the project, and iii) analyse existing policies, procedures, systems and commission studies and research to improve/reform the existing systems'.[6]

The role of social protection in shock response is explicitly recognised at the policy level. In addition to the lifecycle risks, strengthening resilience to covariate shocks is one of the key strategic pillars of the NSSS. The NSSS clearly articulates the considerable role played by covariate risks in Bangladesh and emphasises the need to address them through social protection measures, both in terms of *ex-ante* resilience building as well as *ex-post* response. The NSSS takes a comprehensive view of the covariate risks which need social protection provisions, including natural hazards as well economic shocks from recession and price inflation.

Surge capacity to support the expansion of SSNPs (or their underlying systems) to absorb shocks may prove to be challenging. Current administrative capacity underpinning the SSNPs is weak, with several issues, such as the 'ineffectiveness of local-level committees, a lack of a consistent committee structure, weak coordination among implementing agencies, absence of monitoring and evaluation to feed the programme, and, shortage of manpower in all the implementing agencies' (Hossain & Rahman, 2017). These issues can undermine the timeliness of response, which is a critical factor during natural hazards. For instance (accepting that this information is somewhat dated), the monthly distribution of Food For Work (FFW) during fiscal years 2006/07 to 2009/10 shows that this programme was almost inactive during the periods of seasonal deprivation (March–April and September–November), owing to poor distribution capacity (Coirolo *et al*., 2013).

Currently, SSNPs generally target rural populations, with 85% of social assistance spent on rural communities (Government of Bangladesh, 2020). This reflects the fact that historically the majority of the population have lived in rural areas, and poverty has been concentrated there. However, Bangladesh is rapidly urbanising and income poverty and vulnerability will increasingly be urban. The NSSS mid-term review flagged access to SSNPs for urban populations as an area for further reform. The 2020 Urban Social Protection Strategy and Action Plan outlines a series of programmes: expanding existing social protection programmes in urban areas, labour market interventions, and social insurance to strengthen SSNP delivery in urban Bangladesh.

[6] Strengthening Public Financial Management for Social Protection Project. Details: https://spfmsp.org/

6.2 Key programmes

The nature and coverage of existing social protection provisions determine the extent to which SSNPs can be mobilised to address natural hazards. This is because 'countries with an effective mix of programmes that offer high and equitable coverage of population and needs are better positioned to respond to shocks as they possess a broader toolbox to draw from and build on' (UNICEF, 2019). As discussed in the conceptual framework in Section 2.2, this review is focused on social assistance programmes. Table 1 maps the SSNPs that offer social assistance and outlines their key features.

As seen in Table 1, a core set of social protection programmes with wide coverage has yet to emerge in Bangladesh. With the exception of the Primary School Stipend Programme, most other programmes have a population-level coverage of 1–3%, and, consequently, certain types of shock responses (e.g. vertical expansion) may not yield high coverage during natural hazards. While the categorical programmes have national coverage, the in-kind transfers, public works programmes, and emergency relief programmes are confined to rural areas. As such, adequate social protection provisions are not available in urban areas – this has implications for the use of social protection to respond to natural hazards such as urban floods and water logging.

Another key limitation of the current set of programmes in regard to building resilience is the transfer value. One of the key reasons for the success of programmes such as the Chars Livelihoods Programme and Swapno in building household resilience is the relatively large transfer value and package of support that is provided to households. This is in contrast to the support provided through many SSNPs, where the average benefit size is low and has been falling in real terms (Government of Bangladesh, 2015). Reviewing 24 SSNPs, Osmani (2014) concludes that 'the aggregate amount of benefits is abysmally small in relation to need'. Haider and Mahamud (2017), examining how households spend the old-age allowance and the allowance under the widows, deserted, and destitute programme find that about 60% of the received allowance money is spent on purchasing food, which signals that people still remain in a vulnerable situation even after taking shelter under the umbrella of the social safety net. In addition, transfers and benefits provide low value to the population since they are not tailored to fit local needs and fail to compensate individuals entirely for the losses incurred due to disasters. For the most part, the benefits are insufficient to mitigate losses from shocks, and to increase resilience (Coirolo *et al*., 2013).

As the SSNPs are consolidated a key issue to consider is whether emergency relief programmes indeed constitute social protection. Three programmes – Vulnerable Group Development (VGD), Test Relief, and Gratuitous Relief – play a crucial role in the provision of immediate emergency relief in Bangladesh in the aftermath of natural hazards and food shortages. While these programmes are currently classified as SSNPs in Bangladesh, and while they share common features with the other types of SSNPs shown in Table 1, they cannot be characterised similarly. Unlike other SSNPs which offer predictable, long-term support to households and individuals, these programmes mirror humanitarian response programmes that are activated only *ex-post* a shock.

Table 1: Key features of selected social assistance programmes in Bangladesh

Programme name	Implementing entity	Eligibility	Information system	Delivery mechanism and frequency	Transfer value	Beneficiaries (million)	FY 2019/20 budget (million BDT)	Geographical coverage
Programme type: 1. UNCONDITIONAL CASH TRANSFERS								
Old-age allowance	Ministry of Social Welfare	• Categorical, means-tested • Men over 65 years of age and women over 62 years of age	Paper-based	Cash	BDT 300 per month	4.4	26,400	Rural, urban
Allowance for widowed, deserted, and destitute women	Ministry of Social Welfare	• Categorical, means-tested • Exclusion: VGD card holders, pension holders, recipients of other regular govt. grants	Paper-based	Cash	BDT 500 per month	1.4	8,400	Rural, urban
Programme type: 2. CONDITIONAL CASH TRANSFERS								
Primary School Stipend Programme	Ministry of Primary and Mass Education	• Categorical, universal • Students from grades I–V who meet 85% attendance, attend exams, and obtain 33% marks in each subject; students of grades VI–VIII in specific schools are also eligible	Digital management information system (MIS) exists, but resides with the mobile money service provider	Mobile money, quarterly	Varies by number of beneficiaries per household: 1= BDT 100/mo 2=BDT 200/mo 3=BDT 250/mo 4=BDT 300/mo	14.40	7,223	Rural, urban
Programme type: 3. IN-KIND TRANSFERS								

VGD	Ministry of Woman and Child Affairs	• Categorical, means-tested • No fixed income • Owning less than 0.15 acres of land • Female-headed household, with beneficiary as the only income earner • Between 18 and 40 years of age • Capable of doing physical work • Not a beneficiary of other govt. schemes or VGD beneficiary in the last two cycles	No digitised and centralised MIS	Bank (in case of Investment Component for Vulnerable Development)	30 kg wheat or rice (VGD) or 30 kg fortified rice and cash grant of BDT 15,000 (Investment Component for Vulnerable Development)	14.25	16,989	Rural
Programme type: 4. PUBLIC WORKS								
Employment Generation Programme for the Poorest (EGPP)	MoDMR	• Means-tested • Aged between 18 and 60 years • Without over 0.1 acre of land, or significant number of poultry or livestock • Earning less than BDT 4,000 per month • Not receiving any other SSNP	Yes	Bank account	BDT 200/day	0.83	16,500	Rural
FFW/Work for Money	MoDMR	• Means-tested	Paper-based	Manual, where cash is offered	10–30 kg of rice	1.71 (FFW)/1.58 (Work for Money)		Rural

Programme type: 4. EMERGENCY RELIEF								
Vulnerable Group Feeding	MoDMR	• Means-tested	Paper-based	n.a., in-kind	10-30 kg of rice	8.34	19,569	Rural
Test Relief	MoDMR	• Means-tested	Paper-based	n.a., in-kind	8 kg of rice for 7 hours of work	2.10	15,300	Rural
Gratuitous Relief	MoDMR	• Means-tested	No	Cash	*Ad-hoc*, cash, or in-kind	5.68	5,435	Rural

6.3 Systems

This section discusses the key systems underpinning the implementation of the key programmes discussed above, and their effectiveness.

6.3.1 Targeting systems

Targeting for shock response involves an assessment at two levels: (1) what geographical areas need support; and (2) which households or individuals need support. Social protection targeting systems can inform the targeting of shock response in two ways. First, they may provide a useful method for identifying needy areas, households, and individuals (O'Brien *et al*., 2018). Second, the target population and efficiency of the existing programmes can have implications for their scale-up.

A combination of geographic targeting and household-level poverty targeting is used by social protection programmes in Bangladesh. At the upazila level, resources for each programme are allocated based on poverty maps from 2010. For instance, 45% of the budget allocations of the EGPP flow to upazilas with a poverty rate of 40% or higher (Anwar and Cho, 2019a). However, geographic targeting does not succeed in ensuring that aggregate allocations are pro-poor. For instance, analysis of HIES (2016) and Bangladesh Integrated Household Survey (2015) reveals that the poverty level of a division is not reflected in its proportion of households receiving any social protection benefit – e.g. in Syhlet the poverty incidence in rural areas is 7%, while 37% of households are receiving benefits (PRI, 2019). While many programmes are poverty-targeted at the household level (see Table 1), there is no unified approach to measuring poverty, and programmes differ in the criteria they apply, possibly resulting in overall incoherence (Barkat *et al.*, 2013).

The targeting effectiveness of social protection programmes in Bangladesh has been weak, with errors of both inclusion and exclusion. The EGPP is relatively more pro-poor, as 67% of its beneficiaries are in the bottom two quintiles of wealth (Cho, 2016). Although it is poverty-targeted, 27% of beneficiaries of the old-age allowance are in the top two quintiles of wealth (*ibid*.), and a more recent study of the programme in two upazilas in Khulna district finds that inclusion error is as high as 51% (Haider and Mahamud, 2017). While the pro-poor targeting of the VGD has been improving, with the proportion of beneficiaries in the bottom quintile increasing from 36% to 43% between 2012 and 2015, under perfect targeting 100% of the beneficiaries would be in the bottom quintile (Ahmed, 2018; Anwar and Cho, 2019b). According to another study, similar inclusion errors are found in the allowances for widows, deserted, and destitute women, with 22% of the beneficiaries not meeting the categorical criterion (i.e. widow/deserted/destitute), and an additional 14% failing the socioeconomic criteria (Ministry of Finance, 2018).

While the guidelines for many programmes outline criteria for determining eligibility, there is evidence that the final selection of beneficiaries is influenced by local patronage politics. Across programmes, the local committees at the union and upazila levels play a strong discretionary role in beneficiary selection, especially in the presence of oversubscription and lack of clear parameters for beneficiary prioritisation. Sharif and Rutbah (2017) find that although the EGPP supports poorer households in consumption smoothing during the lean season, the use of discretionary targeting methods when the

programme is oversubscribed implies that access to local politicians is a significant determinant for programme participation, particularly for minority households. The old-age allowance suffers from similar problems, as the Union Parishad chairman exerts a strong discretionary influence on the beneficiary selection (Begum and Wesumperuma, 2013). The beneficiary selection process for the VGD is also fraught with issues of political interference and bribery (Mannan & Ahmed, 2012; Maxwell Stamp Plc, 2017).

A less nefarious reason for exclusion is that the scale of social protection need is significantly larger than the size of provision and the available budget. Consequently, budget-based rationing of programmes is common across programmes, including the VGD (Mannan and Ahmed, 2012) and the EGPP (Sharif and Rutbah, 2017).

An important shortcoming of the current targeting approaches is that they do not account for vulnerability to natural hazards (PRI, 2019). As a result, the extent of overlap between the measures of poverty and the underlying vulnerability to natural hazards is unclear. Therefore, household-level data on poverty collected at programme registration are unlikely to be useful in the targeting of households for shock response, as they do not capture households' socioeconomic condition *ex-ante*. It is argued that there is a need to reform social protection spending more carefully in order to promote climate change adaptation and DRR in disaster-prone and climate-vulnerable areas, and for vulnerable households in those areas (Rashid & Baboyan, 2018).

6.3.2 Information systems

Globally, there is a growing recognition of the potential of digital social protection information systems for shock response (Barca and Beazley, 2019). Depending on how the information system is structured, it can offer a range of possibilities for shock response. For instance, a social registry can be piggybacked upon for the horizontal expansion of existing programmes, as well as for the roll-out of short-term emergency relief.

The social protection information systems in Bangladesh are still nascent, limiting opportunities to rely on them in the short term. The programme beneficiary lists for most programmes remain at the upazila level, without consolidation and centralisation (Massella & Sarker, 2018). More importantly, most programmes rely on paper-based data management systems (Mansur and Khondker, 2017), and therefore are unlikely to support speedy response in the context of disasters. Beyond these fundamental issues, currently there are no mechanisms to store information about non-beneficiaries, preventing response options such as horizontal expansion and design tweaks that involve temporary extension of a programme to non-beneficiaries during shocks.

A series of reforms have been initiated by the NSSS to create robust social protection information systems. The development of a social registry, the National Household Database (NHD), is currently underway. Led by the Bangladesh Bureau of Statistics, the NHD is expected to collect data on the socioe-conomic condition of all households in the country, which will in turn be used to compute a proxy means test score for each household. Alongside the NHD, a single registry which integrates data from individual programme MISs is being conceptualised under the SPFMSP project. The single registry is structured such that each programme MIS feeds into a centralised MIS hosted by the SPBMU at the Ministry of Finance (Government of Bangladesh, 2018). The consolidated MIS is intended to support

robust monitoring of SSNPs, in terms of expenditure as well as benefit rationalisation. The single registry is also planned to be integrated with the NHD, in addition to various other MISs. However, the role of the NHD vis-à-vis programme MISs is unclear.

6.3.3 Delivery mechanism

In terms of shock response, a timely delivery of benefits, whether in cash or in kind, is crucial for ensuring the provision of effective support (Beazley *et al*., 2016). Overall, international evidence shows that electronic payments can be rapidly expanded during an emergency and offer important safeguards in terms of transparency and accountability, but these systems need to be developed and adapted before the crisis (Beazley *et al*., 2016). Moreover, natural hazards can disrupt or damage the infrastructure for delivery (e.g. electricity or internet outages) – meaning manual systems will always have a role to play (O'Brien *et al*., 2018).

Historically, manual, indirect modes of payment have dominated the social protection system in Bangladesh, and this continues to be the case (Maxwell Stamp PLC, 2017). The EGPP is one of the few programmes where cash is transferred directly into the bank accounts of beneficiaries on a weekly basis, and, as discussed below, digital payment systems have been piloted for some programmes. However, for a majority of the programmes, the Chief Accounts Officer of the relevant programme issues cheques to the designated bank. The bank is then responsible for making payments through any of the four following routes: (i) direct credit to beneficiary bank accounts; (ii) credit to beneficiary's mobile wallet; (iii) manual disbursement at a pay point; and (iv) payment through agent banking. A very small set of programmes transfer cash directly into the postal debit cards maintained by the Bangladesh Post Office.

It is important to be cognisant of the relative advantages and disadvantages of different delivery mechanisms before deploying them for shock response. A major challenge to distribution by bank officials is the lack of adequate staff at banks, which often results in insufficient verification and incorrect payments. This also implies multiple trips to the bank for beneficiaries (or their nominees), as well increased financial costs of transport, food, and sometimes for an accompanying person or nominee (Begum and Wesumperuma, 2013). Banks also attempt to manage their workload by designating specific days for SSNP payments; however, beneficiaries can end up missing payments altogether if they do not show up on the designated days, in absence of bank capacity to ensure timely updating of records (Anwar and Aziz, 2019). While modernisation of payment methods may ease some of these pains, certain prerequisites may need to be in place to this end. For instance, in 2017, the Primary Education Stipend Programme transitioned from a system of manual disbursement in schools to the transfer of funds into the mobile accounts of mothers. 79% of the mothers preferred the new system over the old system as it allowed them to withdraw the cash at a time of their preference, without having to travel to the school and wait in long queues. However, the impact of the new system was weakened by uneven access to mobile phone ownership and the digital skills needed to operate mobile phones among women (Gelb *et al*., 2019).

With the support of the UNDP and Australian Aid, the Government of Bangladesh tested two widely used digital payment mechanisms to replace the physical delivery of cash under the initiative 'Social Security Digital Cash Transfers'. This initiative tested

mobile money payments using two leading mobile money vendors in Bangladesh (bKash and Rocket) for beneficiaries of Strengthening Women's Ability for Productive New Opportunities, an SSNP supported by the UNDP. The pilot was evaluated using a randomised control trial approach across 124 Unions in Kurigram and Satkira. The evaluation found considerable cost savings for beneficiaries in terms of time spent travelling to the bank (a 2.7-hour reduction) and cost (BDT 45 reduction) as compared to the control group. The final evaluation report will be submitted to the Central Management Committee of the Government of Bangladesh in 2020 to feed into the redesign of the Government to Person (G2P) payment delivery mechanism for SSNPs (UNDP, 2018).

A key pillar of the NSSS is to strengthen the G2P payment delivery mechanisms used by SSNPs, extending the work on digital payments, and developing and rolling out an advanced G2P payment system where the money is transferred directly from the Government Exchequer (Treasury), using its propriety Integrated Budget Accounting System (iBAS++) and the SPBMU MIS, to the people holding accounts with different payment service providers, such as banks and Mobile Financial Service. The Finance Division, under the DFID-funded SPFMSP, has designed, developed, piloted, and rolled out the MIS-integrated G2P payment system, which prevents leakages and fosters financial inclusion. Under the new system, beneficiaries have the option to choose the mode, timing, location and quantity of payment that they receive as allowances directly from the Treasury. G2P uses the Bangladesh Electronic Fund Transfer Network, while the money is received by the beneficiary almost in real time. More than 2 million beneficiaries of a number of programmes – including the maternity and lactating mothers allowance, the old-age allowance, the widows allowance, the disability allowance, and others – have been receiving their allowances directly at near-zero cost on a regular basis. The newly rolled out G2P payment system of the Finance Division is compliant with the Treasury rules and is aligned with the objective of the NSSS on payment delivery (Bhatnagar, 2019).

7 Experiences of shock-responsive social protection

This section synthesises early experiences of using social protection to respond to natural hazards in Bangladesh.

There is some evidence of the effectiveness of social protection programmes in building adaptive capacity in relation to natural hazards, particularly for those that are explicitly designed to do this. For instance, the EGPP has improved food security among beneficiary households, as demonstrated by increased consumption of meals during the lean season. Consequently, fewer households report insufficient food intake and food-cuts as a coping strategy (Cho & Ruthbah, 2018). Another example is the Chars Livelihoods Programme, which provided a package of support to ultra-poor households comprising asset and cash transfers as well as training. The programme created a certain degree of resilience to shocks among participant households, with an evaluation finding both quantitative and qualitative evidence that being affected by erosion or floods did affect households, but less so for households that had received the full support of the Chars Livelihoods Programme, and so were able to build coping strategies (Jasper *et al.*, 2016).

Another approach to the integration of social protection and DRM is the activation of social protection response based on early warning data. Tanner *et al*. (2019) document one of the early pilots in Bangladesh that triggered cash support to households based on flood forecasts. Implemented by the Bangladesh Red Crescent Society in Bogura district in 2015, 2016, and 2017, this pilot made cash transfers of approximately US$ 60 each to between 1,039 and 1,700 households, based on vulnerability criteria that were refined over time. In 2017, which saw above-average flooding, payments were received by the households three to four days before the population in four targeted districts were forced to move to higher ground on account of floods. Initial assessment of the pilot has been positive, as households that did not receive early assistance were four times more likely to borrow from banks and three times more likely to have had to skip meals as compared to households that received assistance from the pilot.

Despite successes for some particular SSNPs in building household resilience in the face of natural hazards, there is a view that the full integration, coordination, and alignment of social protection, DRR, and climate change adaptation is relatively limited (Arnall *et al.*, 2010; Kundo, 2016). As the three examples above illustrate, those SSNPs that do combine elements of social protection, DRR, and climate change adaptation tend to emphasise broad poverty and vulnerability reduction goals more than those that do not (Arnall *et al*., 2010). For the majority of Bangladesh's SSNPs it is argued that their focus on short-term relief and other limited transfers has not contributed to the creation of sustainable livelihoods support for rural communities and households. This is because, in relation to natural hazards, SSNPs largely address certain *ex-post* vulnerabilities on a short-term basis (Kundo *et al*., 2016). However, there is an evidence gap in this area, because while a number of studies have explored the short-term impacts of and responses to disasters, significantly less is known about the medium- and long-term impacts of floods, cyclones, and other sudden-onset disasters (*ibid.*), or about the role of safety net programmes in reducing negative impacts (Coirolo *et al*., 2013).

In particular, commentators point to the need to adapt safety nets, not just so that they can more effectively respond to immediate needs in the face of natural hazards, but so that they can also better contribute to addressing the medium-term impacts of disasters (Coirolo *et al*., 2013). Assistance is also rarely available in the case of low-severity shocks, such as minor floods, tornadoes, or tidal surges (Coirolo *et al*., 2013).

8 Conclusion

Social protection programmes that are shock responsive can theoretically strengthen the resilience-enhancing features of social protection programmes, by enhancing households' capacity to anticipate, absorb, and adapt to covariate shocks. As noted in the introduction, this literature review has sought to inform the research agenda for the Maintains programme by synthesising existing evidence on the vulnerability to natural hazards, welfare impacts, coping strategies, preparedness of the DRM and social protection systems for integration, and early experiences of shock-responsive social protection in Bangladesh.

Bangladesh is highly exposed to natural hazards. While storms and floods are the predominant hazards, the country faces several other low-intensity hazards. The vulnerability to specific hazards is region-specific and season-specific, with differential implications by livelihoods, indicating that a one-size-fits-all approach to shock-responsive social protection may not be effective.

While the short-term impacts of natural hazards on livelihoods and consumption are obvious, the evidence on the long-term consequences is inadequate. Although households use a range of coping strategies to address natural hazards, they are unable to achieve full consumption smoothing, which can have more permanent impacts on human development in the absence of adequate support through SSNPs. A nascent literature on the nexus between poverty, vulnerability, and resilience suggests that high vulnerability does not necessarily imply low resilience, and vice-versa. The specific links between poverty and (long-term) resilience need to be better understood before adapting SSNPs to incorporate improved shock responsiveness.

There is a strong commitment from the Government of Bangladesh and its partners to strengthen social protection systems and make them more risk-informed and responsive. This commitment is reflected in the key policy frameworks of the social protection and DRM sectors. More importantly, historical precedents have meant that the operational integration of DRM and social protection has preceded policy-level and programme-level integration: the MoDMR leads some of the key SSNPs, creating conducive conditions for future integration.

The maturity of the social protection system in Bangladesh can be described as nascent, being comprised of an array of SSNPs with disparate underlying systems and actors. Most SSNPs have limited population-level coverage. Similarly, most SSNPs have benefit values that can support subsistence goals, but not resilience building. Most programmes are means-tested but there is no unified definition of poverty, which is challenging for the coherent design of scale-ups in response to shocks. The limited development of social protection information systems and payment delivery mechanisms in the country constrains the options for responding to shocks. As the country consolidates these programmes and systems to build a robust nationally owned social protection architecture, it will be important to systematically weave in shock response considerations.

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