

Chapter 15: Disaster risk reduction strategies in fragile and complex risk contexts

15.1

Problem statement

The Sendai Framework definitively articulates the shift from managing disasters to managing risk. This provides a powerful impetus for the “traditional” DRR community, seeking to redress practice that has for many years seen ex ante action articulating the complex risk drivers from which disasters materialize eclipsed by action responding to the manifestation of disasters. Translating this shift into informed, systems-based decision-making, investment and practice in all contexts and at all scales, and reflecting this in local to national strategies, is arguably the principal preoccupation of this community.

Growing understanding of the complex risk environments in which disasters occur has raised questions for DRR policymakers and practitioners who frequently operate in complex contexts, be this in relation to complex health crises,⁴²⁵ or natural hazard-related disasters in contexts of environmental or economic stress, or armed conflict,⁴²⁶ for example; or a combination of several or all of these. Contexts in which humanitarian response⁴²⁷ and DRR⁴²⁸ are implemented are therefore more complicated and challenging than is often acknowledged or represented in policy and programmatic documents. This leads to questioning how to effectively design DRR strategies that adequately reflect and address the complexity of the context in which disaster risk manifests, and the diversity of disasters themselves.

425 (Lo et al. 2017)

426 (Peters and Peters 2018)

427 (Hilhorst et al. 2019)

428 (Harris, Keen, and Mitchell 2013); (Peters 2018)

The expanded remit of the Sendai Framework allows the DRR community to think beyond natural hazards and to engage with complex, systemic risk. This needs to be operationalized in combination with the other post-2015 frameworks, which include mechanisms, practitioners and tools better suited to dealing with other threats, hazards and shocks. In addition to those dealing with sustainable development, climate change, good urbanization and financing development, the New York Declaration

for Refugees and Migrants represents an issue that is also closely related to disaster risk in fragile contexts; all of these operate alongside threat-specific frameworks at the national level. Calls for greater emphasis on coherence in implementation across the global frameworks feature prominently in discussions on resilience.⁴²⁹ And notable assessments seeking to better understand the complexity of risk have emerged, including for example OECD resilient systems analysis.⁴³⁰

15.2

Empirical examples of disaster risk reduction in fragile contexts

Multiple interacting risks within a system, or complex risk, are present within all contexts, and the manifestation of this complexity is unique to each specific context. At different times within a given context, different combinations of risks may become more or less salient. For example, particular vulnerabilities in WASH systems may be expressed when health systems in a politically unstable country falter during a rainy season. Even within a given context, there are many ways that DRR can respond to the complex interplay among risks, which also points to the necessity of adaptive management. While complex systems are challenging to address, much less understand, the application of a nuanced understanding of systemic risk to local to national DRR strategies provides for expanded opportunities to achieve the goals set forth in the Sendai Framework.

The following diverse set of examples from Bangladesh, Iraq, Somalia and South Sudan show how disaster risks materialize and are managed in the context of new and emerging hazards and threats that comprise complex risk environments. While no context is simple, the examples are set in particularly complex situations, illustrating how DRR has been adapted to engage more fully with environmental, climatic, economic, social and political challenges, including conflict, environmental fragility

and climate change, political upheaval, human displacement, economic shocks and health crises. The examples are not exhaustive, neither do they reflect traditional representations of DRR strategies, but they do touch on aspects of DRR policies, strategies, frameworks and interventions that have been drawn from direct experiences of the DRR community. They illustrate how disaster risk has been constructed – and reduced.

⁴²⁹ (Peters et al. 2016)

⁴³⁰ (OECD 2014a)

⁴³¹ (Wilkinson et al. 2017)

⁴³² (Adapted from input from UNDP)

⁴³³ (Case study adapted from input from GFDRR, IDMC and UNHCR)

A theme that runs through all the cases is the challenge of conflict. Upsurges in violent conflict have been shown to slow, undermine or stall DRR strategies and their implementation. With little in the way of practical policy guidance on how to navigate changing conflict contexts, many countries find the legislative approval of DRR laws halted – as was the case for Fiji and Nepal.⁴³¹ In other contexts, increased insecurity can lead to DRR programmes being temporarily suspended. This has been the case in the Central African Republic (CAR). The violent conflict and political crisis that began in 2013 has provoked humanitarian impacts that have led to large-scale human displacement, degradation of the education system, negative impacts on sanitation and access to water, and food insecurity.

Due to the security situation in CAR, the implementation of development projects and programmes

has been temporarily suspended. Development partners have focused their attention and financing on the emergency situation at hand. These factors have delayed the creation of strategies and policies for DRR, but in spite of these challenges, the CAR government has established a reflection committee focused on DRR whose primary mission is to coordinate activities and create a plan for a national strategy. The first draft of NSDRR has taken the current political crisis into account. Additionally, armed conflict features among the types of risks and disasters mentioned in the strategy. Finalizing, validating and implementing the national strategy depends on financing, which is sorely needed.⁴³² As evidenced in CAR, despite the difficult operating environment, advances in DRR in policy and practice, are feasible – as the cases below demonstrate.

15.2.1

Human displacement in the context of recurrent disasters and conflict

In Somalia, the forced movement of people, most of which results in internal displacement rather than cross-border flight, can be a cause and a consequence of disaster and conflict. The regular occurrence of drought- and flood-related disasters, and outbreaks of conflict regularly drive people to flee their homes, sometimes more than once, and Somalia consistently has very high levels of annual new displacement movements.

Case study: Somalia

Somalia is a highly disaster-prone country. It is susceptible to drought, riverine and flash flooding, and with its long coastline, storms and cyclones coming in from the Gulf of Aden and the Indian Ocean. It has also been affected by decades of conflict and political instability and insecurity.⁴³³ This includes attacks by armed groups, such as al Shabaab, and clan violence that can erupt over scarce natural resources such as water points and grazing areas. Unique and highly impactful combinations of disaster and conflict have materialized in Somalia, shifting from year to year. These dynamic situations

of complex risk have induced large-scale human displacement, which has added to the complexity of the country's disaster risk and vulnerability.

As of July 2018, there were an estimated 2.6 million IDPs in Somalia against a backdrop of multifaceted conflicts and intensified competition for resources due to climate-related disaster events. According to the UNHCR Protection and Return Monitoring Network, some 642,000 new internal displacements were recorded between January and July 2018, with flooding the primary reason for displacement in

43% of cases, followed by drought in 29% of cases and conflict in 26% of cases. However, it should be noted that while there is usually a primary reason, displacement occurs often as the result of a combination of risk drivers, including economic pressures. These mounting pressures ultimately trigger people to leave their homes. Displaced people living in poorly resourced displacement camps or informal settlements are more likely to be displaced again by disasters.

Somalia has endured several severe drought episodes in recent decades. In 2011, the worst drought in 60 years resulted in 260,000 deaths and affected 13 million people in the Horn of Africa. The drought combined with the political situation resulted in large-scale famine, and led to large-scale displacement, disruption of basic services and impoverishment. In early 2017, conditions in Somalia manifested as a major drought with high famine risk; half the population was made acutely food insecure. Almost 1.3 million new displacements were recorded in 2017 due to conflict and disasters, with 84% of IDPs citing drought-related reasons for their displacement. Thanks to a massive scale-up in humanitarian assistance, famine was averted, but it remains a looming risk in the future.

Humanitarian efforts have not been simple or straightforward. Large parts of the drought-affected rural areas in southern and central Somalia were controlled by al Shabaab and were inaccessible to the government and most humanitarian organizations and international actors. To assess drought impacts under these circumstances and guarantee the personal security of staff, humanitarian actors relied on remote assessment methods that combined remote-sensing technologies and social media analytics. This was combined with information received from partner networks and limited household surveys conducted by a field presence in Somalia to determine the extent of drought impacts and humanitarian needs.

In addition to drought, Somalia is also highly affected by floods. Combined with conflict and insecurity, these have led to continued population displacement internally and across borders. In early 2018, widespread flash flooding in the Horn of Africa destroyed extensive areas of farmland, damaged health facilities, disrupted schools and destroyed more than 15,643 houses in Somalia. Among the areas suffering the impacts of flooding were overcrowded IDP settlements. Many of the thousands of people displaced in the Shabelle river basin in the south of Somalia were people who had previously been displaced by drought and were living in makeshift shelters unable to withstand heavy rain. Flooding in these settlements further displaced people along riverine areas. The detrimental impacts of the flash floods on the Somali population also included rising cases of acute watery diarrhoea, cholera, contaminated drinking water and higher food prices. Tropical Cyclone Sagar, which struck the north of the country in May 2018, further intensified the already burgeoning humanitarian needs of the affected population.

Repeated disaster- and conflict-induced displacement in Somalia have led to an increase in urbanization, as large numbers of people relocate to urban centres to access humanitarian aid and other assistance. Demographic shifts contribute new layers of risk by adding additional stress to already strained key sectors such as land, housing, health, education, water supply, sanitation and livelihood. Further, in Mogadishu, displaced persons arriving in the city tend to live in informal settlements where they are susceptible to forced evictions, and subsequently face displacement anew. They are often displaced to still worse locations, creating a positive feedback loop of displacement and suffering. In response, drought assessment and recovery frameworks are increasingly including the urban sector as a priority area; according to some assessments, the urban sector accounted

for the second-highest recovery needs after agriculture.⁴³⁴

Attempts have been made to model disaster displacement risk in the Horn of Africa. These show that socially created situations of vulnerability, along with the concentration of people in areas exposed to hazards, have a large impact on displacement risk. In fragile and conflict-affected settings, special attention has been paid to create interventions aligning short-term, urgent, life-saving assistance and protection of the most vulnerable with longer-term sustainable solutions for Somalia to strengthen its resilience and address the root causes of underlying vulnerabilities. A comprehensive drought impact needs assessment (DINA) improved the understanding of the dynamics and drivers of recurrent emergencies, and a Recovery and Resilience Framework proposes long-term durable solutions for building the resilience of the drought-affected population.⁴³⁵

Somalia has recently taken steps to formalize DRR measures and is currently working on a NAP. It is also part of the IGAD Drought Disaster Resilience and Sustainability Initiative (IDDRSI), for the period of 2013 to 2027, and has its own national plan within this process. IDDRSI explores the interlinkages between

disasters and conflict, in the context of drought and the impacts on traditional livelihoods. It also discusses forced displacement as a cause and consequence of this, across borders and within countries.

Somalia also relies on pre-existing networks and expertise already established in the country to formulate its DRR strategies. Technical experts (e.g. agronomists, meteorologists, veterinarians and water engineers), funded by international organizations, have worked on issues related to drought and its effects on pastoralism and agriculture for many years. They have been using the knowledge of and working with communities and local governments, sometimes informally, for decades.⁴³⁶ There are also multiple examples of cooperation between humanitarian and development organizations to: distribute food and non-food items and cash; treat malnutrition among children and pregnant or lactating women; increase the availability of improved water by repairing and rehabilitating water points; promote good hygiene practices; provide water treatment materials; and distribute livelihood inputs for agriculture, animal husbandry and riverine fishing. In addition, vulnerable communities are being supported to develop community-level drought preparedness and response plans.

Despite a complex situation of natural hazard risks and conflict-related displacement, Somalia continues to work towards formal risk reduction planning and climate change adaptation measures as essential tools to build and sustain socioeconomic

development. In doing so, it also leverages networks of long-term humanitarian and development partners in the country, to build capacity, provide technical support and humanitarian assistance when needed.

434 (Adapted from input from GFDRR)

435 (UNISDR and Internal Displacement Monitoring Centre 2017)

436 (FEWS NET 2018)



Rohingya Camps in Cox's Bazar
(Source: Mohammad Tauheed, Flickr)

Since August 2017, violence against Rohingya communities in Rakhine State, Myanmar, has resulted in 727,000 people⁴³⁷ – mostly women and children – fleeing their homes across the border to Cox's Bazar District, Bangladesh.⁴³⁸ This exodus brings the total number of displaced Rohingya

population to about 919,000, vastly outnumbering the people living in the host communities. The displaced Rohingya population account for about one third of the total population in Cox's Bazar, an area that was already densely populated and facing severe development challenges.⁴³⁹

Case study: Cox's Bazar, Bangladesh

The displaced Rohingya people in Cox's Bazar, Bangladesh, are sheltered in makeshift settlements in extremely congested areas, including in the Kutupalong "mega-camp", which quickly became the largest refugee camp in the world. The camps have minimal access to basic infrastructure and services, and are prone to natural hazards, especially cyclones, floods and landslides. Setting up the camps has led to rapid deforestation, further increasing the vulnerability of the displaced Rohingya to the effects of monsoon rains. Relocation of households most at risk from landslides and flooding is under way, but there is insufficient suitable land available

to accommodate even the highest-risk category of people.

An assessment of medium-term needs and a risk assessment identified priority investments to improve DRM and public service delivery to the displaced Rohingya population and host communities. These investments address health, education and emergency response. The Health Sector Support Project helped to further develop disease surveillance and outbreak response capacities of the Ministry of Health and Family Welfare. Activities to strengthen disease outbreak response include vaccination campaigns

and disease-specific diagnosis and treatment services, as well as mechanisms for responding to the health impacts of possible disasters, such as the spread of cholera and diarrhoea as well as other water- and vector-borne diseases and an increased risk of drowning and injuries associated with storms and flooding.

Activities for the ongoing Reaching Out-of-School Children Project are specifically designed to ensure safe and equitable learning opportunities for all 300,000 crisis-affected children and youth in the region, including refugees and host communities. Interventions include the renovation of primary schools, procurement of learning materials, awareness-raising regarding GBV and promotion of psychosocial well-being activities to overcome the shock of violence and forced resettlement. In view of the high risk of disaster, the renovation work will include physical measures to ensure safe learning environments for children.

The Emergency Multi-Sector Rohingya Crisis Response Project aims to strengthen the capacity of the Government of Bangladesh to respond to the Rohingya crisis by improving access to basic services and building disaster and social resilience of the displaced Rohingya population. Project interventions include: improving access to clean water supply and sanitation; improving access to multipurpose disaster shelters, evacuation routes and disaster response capacity; improving public service infrastructure;

strengthening GBV support services; implementing a community services and work programme to engage displaced Rohingya population in the delivery of small works and services in the camps; and institutional strengthening activities for government institutions responsible for managing the crisis.

In parallel, host communities in the Cox's Bazar District are being supported through existing projects addressing: multipurpose disaster shelters that support disaster preparedness; improving municipal governance and basic urban services in participating urban local bodies; supporting fiscal transfer systems; improving collaborative forest management; and increasing benefits for forest-dependent communities.⁴⁴⁰

Project-based initiatives in Cox's Bazar, while providing valuable support to affected communities, may be limited in their ability to secure longer-term risk reduction outcomes for affected communities, the host community of Cox's Bazaar and the newly arrived Rohingya. The political sensitivities associated with issues such as permanent resettlement, citizenship and rights, from the perspective of the host States (Bangladesh and Myanmar), mean that international agencies have significant challenges in supporting DRR responses. Supporting responses that assure the dignity of affected populations, capitalizing on the resources and capacities of the refugees themselves are still more challenging.⁴⁴¹

The Bangladesh Cox's Bazar case study illustrates that there is not an easy solution to the broader risks facing residents of Cox's Bazar. Continued governmental engagement and capacity will be essential to longer-term risk reduction. Incremental

gains can be made at the community level by supporting the host community and the newly arrived, and addressing the needs of the whole community through education and social welfare initiatives.

437 (ISCG 2018)

438 (International Organization for Migration 2018)

439 (Adapted from input from GFDRR)

440 (Adapted from input from GFDRR)

441 (Wake and Bryant 2018)

15.2.2

Reducing disaster risk with an arid and changing climate and the impacts of conflict

South Sudan is exposed to natural hazards such as drought, which often become disasters.⁴⁴² Changes in weather patterns and climatic shocks are particularly impactful in contexts like South Sudan where livelihoods are largely based on animal husbandry, agriculture, fishing and trade.⁴⁴³ South Sudan is also heavily affected by war and violence. South Sudan became independent from Sudan in 2011 after a 22-year civil war.

Case study: South Sudan

After only two years of peace, South Sudan's post-conflict transition has been mired in political instability, power struggles and a new civil war since 2013. The combination of natural hazards and war has had dire consequences for the South Sudanese people. After experiencing years of drought and war, in April 2017, the United Nations declared that South Sudan was suffering from famine, which affected at least 100,000 people.⁴⁴⁴

Despite the protracted nature of conflict in South Sudan, State and non-State actors recognize the need to build longer-term resilience while balancing the need to address more immediate humanitarian demands. South Sudan launched its National Adaptation Programme of Action in 2017, outlining its most urgent climate adaptation needs. With this in place, State and non-State actors are now beginning discussions about a road map to develop South Sudan's NAPs to address longer-term CCA priorities. The national DRM policy, in its final stages,

recognizes the need to reduce disaster risks and adapt to a changing climate. In parallel to these policy processes, civil society is working with local communities to integrate CCA, DRR and ecosystem management approaches.⁴⁴⁵

This includes community-led wetland management practices to preserve necessary ecosystem services to mitigate the impacts of floods and drought. Similarly, a VCA tool is applied, which is typically used in non-conflict settings, to identify appropriate strategies to understand prevailing risks and inform the design of appropriate risk reduction measures.⁴⁴⁶ In addition, a report about the state of the environment was issued in mid-2018, which will guide the various government departments and non-State actors on sustainable management of the natural resources for DRR.⁴⁴⁷ Despite these efforts, more work is required to better understand how to support coherence and complementarity between climate and disaster resilience policy and programmes, including in ways that are conflict sensitive.

The situation in South Sudan shows the impact of compounded risks to the population of natural hazards and armed conflict. Nonetheless, the government response is to continue to build longer-term resilience, beginning with the most urgent disaster hazards and climate change impacts, while also meeting immediate humanitarian needs.

⁴⁴² (Adapted from input from IFRC)

⁴⁴³ (Overseas Development Institute and Humanitarian Practice Network 2013)

⁴⁴⁴ (IFRC 2018a)

⁴⁴⁵ (Wetlands International 2019)

⁴⁴⁶ (IFRC 2018b)

⁴⁴⁷ (UNEP 2018)

⁴⁴⁸ (Adapted from input from UNDP)



Mosques, houses and streets that were ruined during the war in Mosul
(Source: Photographer RM / Shutterstock.com)

Extreme drought in Iraq has been brought about by environmental, development and political factors, with cascading consequences.⁴⁴⁸ Climate change has been intensifying drought and drying up water resources in the region, with the drought situation exacerbated by increased upstream water usage,

including new dams along the Euphrates and Tigris Rivers beyond Iraq's borders. The flow of river water into Iraq has dropped by about 50% in recent decades, and is expected to decline by another 50% as upstream water usage and drought from climate change increase.

Case study: Hawr al-Huweizah, Iraq

The problem of drought in Hawr al-Huweizah, Iraq, has emerged recently, after water supplies from the Islamic Republic of Iran ceased and water flows from the Mashrah and Kahla Rivers reduced. They are fed by the Tigris River, which is under water stress due to reduced in-flows and increased abstraction. The Ahwar marshlands of southern Iraq, which were named as

UNESCO World Heritage Sites in 2016 due to their cultural history and unique natural characteristics, are among the ecosystems affected.

Drought and intense water scarcity in the country have led to an increase in desertification, a decline in green areas and agricultural land, and an increase in livestock mortality.

Agricultural production is expected to decrease significantly as pastures and fields are degraded. The expected impacts on livelihoods have the potential to drive the rural Iraqi population to migrate to cities and urban communities as they seek alternative livelihood opportunities to generate household income. Adding to these challenges, the disruption of electrical power systems will have a direct impact on the availability of electricity for households as well as industrial usage and infrastructural activities, such as sanitation. Without functioning sanitation systems, the risk to the Euphrates and Tigris Rivers of contamination (from multiple types of waste) and decreasing water quality of already-scarce water resources, is high. Additionally, scientists and environmentalists have warned of the possible collapse of the Mosul Dam, the largest dam in Iraq, and assessments have indicated that the overwhelming flooding that would ensue would lead to a severe loss of life.

Iraq's security situation also plays into the complexity of risk factors facing the country, with armed attacks having destroyed cities throughout the country, leading to death and displacement of civilians from the northern regions to central and southern Iraq. This has affected the economic and social life of the population, including through destruction of civil and governmental buildings and the disruption of public services, especially those related to health and education. Reconstruction is hindered by chemical pollution from conflict, and around 7 million m³ of debris that must be transported and examined to ensure it is free of radiation or toxic chemical agents.⁴⁴⁹

Iraq has taken several measures specifically to address drought and desertification. These measures include CCA activities, such as the implementation of an integrated water resources management (IWRM) system, and the use of modern irrigation methods, such as sprinkler irrigation and drip irrigation. The

country has taken measures to enforce environmental legislation related to water usage and consumption and increased the monitoring of its water, air and land resources through monitoring and control stations, including seismic monitoring stations, meteorological stations and radiation measurement stations.

Iraq has also made progress on actions related to DRR more broadly. DRR has been integrated into national development plans, and nationally appropriate disaster mitigation actions are obtaining approval for implementation. The priorities of the National Strategy for Disaster Management are based on the priorities of the Sendai Framework, but they employ measures specific to the priorities of action in Iraq, that is the environment, the climate, and the economic, social, cultural and political situation.⁴⁵⁰

Iraq's National Disaster Risk Reduction Strategy describes the security context and includes actions to reduce security risk. In addressing systemic risk, the national strategy also includes a variety of programmes and plans to combat poverty and enhance societal resilience to reduce the risk of disasters and cascading impacts. Communities at particular and persistent risk of disasters include communities located near rivers, in close proximity to flood-prone dams, in low-lying areas prone to flooding during heavy rains, along seismically active zones and in areas affected by conflict. DRR activities include: awareness-raising; improvement and development of legislation and laws; formation of national committees and special forums on DRR; and regional and international cooperation in support of national and local plans and programmes.

Iraq faces a challenging set of risks, notably drought and water scarcity, that are compounded by the direct impacts of armed attacks and the contaminated residue and social dislocation that result. It has taken these as the foci for its national strategy and risk reduction measures, addressing IWRM and the security context, as well as the environmental, climatic, social, cultural and political context. Reflecting the specificities of context, Iraq thus aims to address systemic risk through a range of socioeconomic measures that extend beyond the traditional concepts of DRR.

15.3

Implications of complexity for addressing disaster risk

The above case studies illustrate the complex nature of the interaction of natural hazard risks and other environmental, social, political and economic conditions and variables. These “wicked problems” are challenging to understand, in part because it is difficult and even unproductive to determine where a disaster risk begins and ends in a complex world. Isolating one factor – disaster risk – in a complex interaction is artificial, because people experience natural hazards combined with other conditions and from the vantage point of their vulnerabilities and capabilities. The case studies also illustrate how different organizations focusing on DRR address complex risk in different ways; there is no single, correct approach to achieving DRR in complex risk contexts.

While complexity plays out in unique ways in each specific context, themes have emerged from the

case studies above that are common to complex systems of risk. These themes include: the importance of addressing a wide range of vulnerabilities where risks combine; considering particularly vulnerable persons and groups and engaging them in the risk reduction process; engaging long term across sectors and at multiple levels; and adapting to a rapidly changing and dynamic context.

15.3.1

Addressing a wide range of vulnerabilities where risks combine

DRR policies, strategies and projects operating in complex systems of risk must address a wider range of vulnerabilities than traditionally considered in the purview of DRR, because these vulnerabilities interact to form disaster risks. For example, several of the case studies illustrated how disaster, conflict and human displacement interact to create systems of complex and cascading risk (also discussed in Chapter 2). In Somalia, sudden- and slow-onset hazards and events compounded by protracted conflict have led to continued population displacement internally and across borders. The IDMC Disaster Displacement Risk model for the Horn of Africa affirmed that socially created situations of vulnerability along with the concentration of people in areas exposed to hazards have a large impact on displacement risk. In CAR, Iraq, and for the Rohingya population, the ongoing crises and repeated disasters have led to large-scale population displacement.

These population displacements, including people who are displaced more than once, present multiple challenges to DRR. Population shifts to already overcrowded IDP settlements, refugee camps and urban centres can overwhelm institutions and services that are already extended to or beyond capacity, particularly in situations of political

449 (Adapted from the Government of Iraq contribution via the UNISDR Regional Office for Arab States)

450 (Adapted from the Government of Iraq contribution via the UNISDR Regional Office for Arab States)

instability or crisis. Cascading effects of disasters, conflict and displacement can lead to the deterioration of education, sanitation, health, food and water systems, and services, potentially leading to health crises such as cholera or diarrhoea, and intensified competition and conflict over scarce resources. Such cascading impacts are symptomatic of the failure to address a sufficiently wide range of risks and vulnerabilities, and can deepen vulnerabilities and amplify or create new risk.

Several case studies indicate that a wider range of vulnerabilities must be addressed by DRR in these complex contexts. Examples include, programmes addressing underlying vulnerabilities associated with drought and famine in Somalia, or support to the Government of Bangladesh to build its capacity to respond to the Rohingya crisis through meeting immediate basic needs, as well as strengthening the social resilience of the displaced Rohingya population.⁴⁵¹

In Iraq, the National Disaster Risk Reduction Strategy addresses the persistent security threats facing the country, as well as risks stemming from floods, drought, and toxic and non-toxic remnants of the war, which create health risks and impede the extension of basic services. National and regional DRR policies across contexts must formally and explicitly recognize the interlinked risks of disasters, conflict and displacement with an eye to present and future conditions. Both current, and a range of likely future, conditions, should inform the design of immediate humanitarian and long-term development strategies.

In Afghanistan, another country facing complex risk, a multi-hazard risk assessment was completed in 2017. Afghanistan's NSDRR recognizes that decades of conflict have undermined coping mechanisms and protective capacity in the country. In addition to an assessment of risk from five different hazards (avalanche, earthquake, floods, drought and landslides), the vulnerability analysis section refers to years of conflicts as a factor that determines the degradation status and higher vulnerability of infrastructure and public facilities.⁴⁵² In CAR, the first draft of NSDRR has taken the political crisis

and its negative repercussions into account, explicitly featuring armed conflict as a type of risk and disaster.

15.3.2

Considering particularly vulnerable persons and groups

In discussions about vulnerability (see Chapter 3 of this report), it is clear that individuals and groups experience unique combinations of risk and are thus in need of specific considerations. Groups that tend to have more concentrated vulnerability and critical needs include women and girls, youth and children, elderly, lesbian, gay, bisexual, transgender and intergender communities, disabled and differently abled, and otherwise religiously, ethnically, socioeconomically, and geographically disempowered and marginalized groups. Providing assistance and support to the most vulnerable people and communities reduces the added vulnerability that can result from disaster impacts.⁴⁵³ In Afghanistan, socioeconomic inequalities are deepening, and this compounds disaster impacts and increases the vulnerability of particular groups. Afghanistan's NSDRR commits to promoting equitable economic growth as well as to principles of social inclusion and environmental conservation as a way to address disaster risk for particularly vulnerable groups, in addition to targeted capacity-building activities.⁴⁵⁴

These needs are magnified in places affected by conflict, political instability and violence, where vulnerable groups also include large numbers of victims of violence and those at heightened risk of violence. Disaster and conflict often lead to a higher rate of GBV, putting women, girls and lesbian, gay, bisexual, transgender and intergender communities at heightened risk in these contexts.⁴⁵⁵ There are several examples of projects focused on addressing violence-related vulnerabilities. In Bangladesh, a dedicated project has been designed to ensure safe and equitable learning opportunities for all 300,000 crisis-affected children and youth in the region, including refugees and host communities.

Programming includes awareness-raising regarding GBV and promoting psychosocial activities to overcome the shock of violence and forced resettlement. In Somalia, GBV is addressed by combining economic empowerment interventions for

women with integrated clinical, psychological and legal services for GBV survivors at the community level, as well as institutional strengthening and capacity-building.⁴⁵⁶



People who carry water rest under a tree in the refugee camp in Baidoa, Somalia
(Source: Mustafa Olgun/shutterstock.com)

Several of the case studies highlight the acute vulnerability of IDPs, refugees and host communities to disaster risks. In Bangladesh for example, the displaced Rohingya people are sheltered in makeshift settlements with minimal access to basic infrastructure and services, which makes

them particularly vulnerable to natural hazards such as cyclones, floods and landslides. The quick establishment of makeshift shelters has caused deforestation, further increasing vulnerability to the effects of monsoon rains; as evidence by flash flooding and landslides in 2018. Rains “caused over 130

451 (Adapted from input from GFDRR)

452 (Afghanistan, State Ministry of Disaster Management and Humanitarian Affairs and Afghanistan National Disaster Management Authority 2018)

453 (IFRC 2015); (Gaillard et al. 2017); (Gaillard, Gorman-Murray and Fordham 2017)

454 (Afghanistan, State Ministry of Disaster Management and Humanitarian Affairs and Afghanistan National Disaster Management Authority 2018)

455 (IFRC 2015); (Gaillard et al. 2017); (Gaillard, Gorman-Murray and Fordham 2017)

456 (GFDRR 2019)

landslides, damaged 3,300 shelters and affected 28,000 refugees” near Cox’s Bazar, with women the most at risk of disaster impacts.⁴⁵⁷ The emergency relocation of refugees affected by the flooding has been challenged by a lack of suitable available land. In other contexts of cross-border displacement, it was highlighted that newly arrived refugees in some contexts may be less adapted to their host country’s climate, and they may face increased vulnerability to weather extremes during their adjustment period.⁴⁵⁸

Where livelihoods are heavily dependent on stable ecosystems, DRR processes should include concerned communities in the analysis of vulnerability and development of appropriate responses. In South Sudan, international actors are working with local communities to integrate CCA, DRR and ecosystem management approaches to preserve necessary ecosystem services and mitigate the impacts of floods and drought.⁴⁵⁹ In Bangladesh, a sustainable forests and livelihood project for host communities is improving collaborative forest management and increases benefits for forest-dependent communities. In Somalia, vulnerable communities are being supported to develop community-level drought preparedness and response plans.⁴⁶⁰

15.3.3

Engaging long term across sectors and at multiple scales

Resolving systemic risk is not achieved quickly. It requires long-term engagement across sectors and at multiple levels. The probability that recurrent emergencies will persist is high, even with well-planned and executed strategies. However, over time and with dedicated attention and often incremental action, complex disaster risks can be managed and reduced. Aligning DRR efforts with other international platforms, international and local humanitarian and development partners, the private sector, national and local governments, and local communities and governance structures provide opportunities to coordinate across sectors and at

multiple levels of governance. Coordinated, collaborative action allows for organizations to play to their strengths and not extend beyond their own institutional capacity while also creating synergies and positive exchanges among actors. Harmonized efforts also lessen the possibility that different groups inadvertently duplicate efforts or fall short of meeting even immediate life-sustaining needs. Complexity demands that all actors must act together as partners on the front-line systemic risk reduction.

In the case of Bangladesh, a Joint Response Plan was prepared between the Government of Bangladesh and development partners, and in Somalia, a DINA complemented rather than duplicated the Humanitarian Response Plan already in place. In Afghanistan, the National Afghanistan Strategy for Disaster Risk Reduction calls for DRR to be mainstreamed into development planning, sectoral plans, capacity-building, CCA, livelihood security, gender mainstreaming, community empowerment, and response and recovery management. It aims to improve coherence and integration in efforts to reduce the risks posed by disasters, climate change, conflict and fragility, with other development imperatives, and places this at the centre of the pursuit of the achievement of the outcome and goals of the post-2015 international agreements and frameworks, including the SDGs.

The coordination among humanitarian and development actors in Somalia has resulted in data sharing, integrating lessons learned on improving efficiency, and ensuring that funds are not diverted from emergency needs.⁴⁶¹ Likewise, new policies are particularly successful when they build upon pre-existing networks and expertise that are already established in the country, including international and local humanitarian organizations, technical experts and local governments. This coordination can be carried out in formal and informal capacities. In Afghanistan, *shuras*, or traditional informal community-based approaches to hearings and judgments, serve multiple purposes, such as providing assistance during disasters as well as local-level conflict resolution mechanisms.⁴⁶² Conversely in the case of Iraq, more formal structures of cooperation,

including established international coordination mechanisms and partnerships, are more likely to facilitate solutions to meeting the country's needs for funding, technological capabilities and capacity-building.

15.3.4

Adapting to a rapidly changing and dynamic context

Situations of complex risk are inherently dynamic, and can change rapidly in unanticipated or unpredictable ways. Because risk within this perspective is understood as polycentric, no one risk takes priority over the others. The removal of a specific risk may not fundamentally alter the system, and the manifestation of one risk has the potential to trigger other risks within the system. The speed of change, uncertainty surrounding that change and the multitude of possible changes in a complex context have particular implications on long-term engagement and the need to deliver on commitments and goals. In contexts affected by political instability and social unrest, security may suddenly and dramatically change the operational context, altering the ability to effectively design, plan, and implement strategies and programmes.

In Somalia, the environmental and security context rapidly evolved throughout implementation phases, necessitating flexible and adaptable programming.⁴⁶³ Ongoing attacks by armed groups and clan violence combined with drought- and flood-related disasters has necessitated shifts in programming. Becoming more adaptable through budgetary measures, such as merging the budget into a single-line item, allows for programmatic shifts between categories when certain activities were prohibited by a sudden change in the security situation.

Likewise, monitoring systems need to be based on target ranges rather than fixed targets to remain adaptable to rapidly changing environments. Technology can be used in particularly insecure and dangerous operating contexts, for example in large parts of the drought-affected rural areas in southern Somalia which are controlled by al-Shabab militia and inaccessible for government counterparts and most humanitarian organizations.⁴⁶⁴ As presented in the case study in section 15.2, the use of remote assessment methods that combine remote-sensing technologies and social media analytics has been extremely useful. This information can then be combined with information received from partner networks and limited household surveys conducted by a vendor with field presence in Somalia.

Environmental conditions also have the capacity to deteriorate rapidly or to oscillate among extremes, particularly when combined with environmental degradation and climate change impacts. For example, Somalia is vulnerable to flash floods and drought, both of which are connected to a suite of associated risks. In Bangladesh, the sudden and large-scale nature of the Rohingya refugee crisis led to deforestation and increased risk of flash flooding and landslides. The impacts of climate change, which increase the risk factors for extreme and unpredictable weather patterns and events, also contribute to environmental fragility. For example, in 2018 the Climate Centre (Red Cross Red Crescent) noted that Turkey is currently hosting approximately 3,400,000 Syrian refugees while at the same time experiencing its hottest summer in 47 years. Widespread heat-waves stretch humanitarian and health systems and point to the necessity of preparing institutions to reach the most vulnerable.

Infrastructural conditions may also cause a rapid change in complex risk. In Iraq, the Mosul Dam is located in the city of Mosul, which is highly affected

⁴⁵⁷ (OXFAM 2018)

⁴⁵⁸ (IFRC and UNDP 2014b)

⁴⁵⁹ (Wetlands International 2014)

⁴⁶⁰ (GFDRR 2019)

⁴⁶¹ (GFDRR 2019)

⁴⁶² (Afghanistan, State Ministry of Disaster Management and Humanitarian Affairs and Afghanistan National Disaster Management Authority 2018)

⁴⁶³ (Adapted from input from GFDRR)

⁴⁶⁴ (Adapted from input from GFDRR)

by conflict and at risk of collapsing. The tenuous security situation makes DRR activities more challenging. If the dam were to fail, the security challenges would have the potential to affect disaster response and recovery.

15.4

Conclusions

Disaster risks emanate from development pathways, manifesting from the trade-offs inherent in development processes. In some ways, this has always been well recognized. What is new in today's increasingly interconnected society is the diversity and complexity of threats and hazards, and the complex interaction among them, which result in "an unprecedented global creation of risks, often due to previous socioeconomic development trends interacting with existing and new development dynamics and emerging global threats."⁴⁶⁵ There are distinct characteristics that need to be addressed and understood – aspects of interconnectivity, transboundary, transitional, transformational elements and simultaneity – in addition to facets of intensity, duration, frequency and rate.⁴⁶⁶ But there are also opportunities that arise, as risks are merely a description of possible outcomes.⁴⁶⁷ The exploration of the multidimensional nature of risk is improving and garnering greater attention in efforts to understand and manage risk. Answering and addressing these challenges calls for a more systemic approach to acknowledging the complex threats, risks and opportunities facing and resulting from development.⁴⁶⁸

The expanded scope of the Sendai Framework is a starting point, and must be reflected in the breath of national and local DRR strategies. So should the risk-informed development approach called for in the Sendai Framework, through the systematic integration of risk information across all sectoral planning processes. Delivering DRR is possible in any context, but the scope of what is viable and appropriate will change depending on the context. And for some, such as those affected by armed conflict and fragility, what this looks like is still to be learned.⁴⁶⁹ There remains a dearth of practical and policy advice on how to devise and implement DRR strategies for complex risk contexts, including where violent conflict forms part of the broader environment in which DRR takes place. As such, this is an area that warrants further attention to attain Target E of the Sendai Framework.

Taking a broader and more nuanced approach to understanding how threats, hazards and shocks interact reflects the growing move towards utilizing systems thinking, grappling with complex risk and engaging with uncertainty. In many respects, the DRR community is leading the way, as illustrated by the initiation of GRAF, for example. This will require adopting "good practice principles in risk-informed development" such as inclusive and transparent, phased and iterative, flexible and adaptive, continuous learning and reflection approaches.⁴⁷⁰ Making development choices that support development trajectories that harness benefits for reduced complex risk, avoid risk creation and better manage residual risk, must be the way forward.

⁴⁶⁵ (United Nations Economic and Social Commission for Western Asia 2017)

⁴⁶⁶ (Opitz–Stapleton et al. 2019)

⁴⁶⁷ (World Bank 2013)

⁴⁶⁸ (Opitz–Stapleton et al. 2019)

⁴⁶⁹ (Harris, Keen and Mitchell 2013); (Peters 2018)

⁴⁷⁰ (Opitz–Stapleton et al. 2019)

Part III

Conclusions and recommendations

Conclusions

As Chapter 10 has illustrated, regional cooperation is key to knowledge-sharing and capacity-building among countries with similar risk profiles and regional concerns, as well as to providing mechanisms for managing development funding and providing risk financing for their member countries. Regional platforms for DRR and other innovative regional multi-stakeholder partnerships play an important role in DRR awareness and cooperation. Intergovernmental organizations in most hazard-prone regions have developed cooperation on DRM, but a more active promotion of regional and national risk reduction is a role they could take on more strongly, for example by focusing on: (a) regional risk assessment and reduction, (b) the needs of SIDS, small countries and least developed countries for practical support in building capacity and risk information systems, and (c) risk financing mechanisms.

The enabling environment at national level is essential to performing integrated risk governance at national, subnational and community levels; addressing aspects of the authority of local governments to plan for, and carry out, essential DRR actions. This requires a review of the enabling legislation and the institutional frameworks, which often encourage working in silos rather than cross-sectorally and vertically from local to national levels. The enabling frameworks at national level are also the principal mechanism to ensure that the needs of vulnerable groups and the principles of equality and participation are integrated, especially for women and youth.

At national level, most countries identified in the research do not have coordination mechanisms among DRR, CCA and development planning. Some

examples have been given of Pacific countries where the institutional structures are being built across these areas, and reinforced at the regional level with the 2016 FRDP.

On the issue of creating DRR strategies and plans according to the principles of the Sendai Framework, there are many different approaches at national level, ranging from stand-alone plans and strategies to full mainstreaming into development plans (Chapter 11). Target E of the Sendai Framework does not necessarily require additional separate plans, but it does require countries to review existing DRR strategies in light of the Sendai Framework and ensure that local strategies dovetail with national level. Target E, to be met by 2020, is a small indication of what is required to accomplish the goal and outcome of the Sendai Framework. It is a stepping stone towards achieving this by 2030.

Integration of DRR into development planning strategies and frameworks at national level remains a challenge for many States (Chapter 12). Again, there are good examples of countries implementing this at national level, but so far, there has been insufficient time and information to determine whether these measures are affecting the outcomes of development planning, in particular to prevent the creation of new risk.

Integration of DRR into CCA policies and plans at national level is a new endeavour for most countries. The evidence gained from country practices is that it has not been undertaken by many countries so far (Chapter 13). Given the very threat to humanity posed by climate change, it is imperative that a more integrated approach is adopted to adapt to and mitigate climate change, together with broader development efforts preventing the creation of new risk and reducing existing risk. It must also be recognized that there are particular challenges for countries where effort to reduce other disaster risks, for example geophysical risk, are considered of greater priority. As called for in the Sendai Framework, all countries must assure adequate attention to the reduction of natural and man-made hazards and related technological, biological and environmental hazards and risks.

A major challenge in integrating DRR with CCA and development planning is that faced by national and local governments in managing systemic risk in urban areas (Chapter 14). The dynamic, multidimensional nature of interrelating risks in urban areas require systemic approaches, that seek to understand the nature of interacting systems and adopt integrated risk governance adapted to the local context.

Fragile and complex contexts, especially where there is significant internal and cross-border migration due to war, famine and social disruption, present a particular set of challenges for local and national risk reduction and for integrated risk governance (Chapter 15). The risk context and landscape are constantly changing, demanding flexibility and agility from national and local level processes so as to be able to accommodate new and emerging risks.

Recommendations

The key recommendations arising from Part III are that integrated risk governance, or policy coherence, is the key to effective risk reduction at national and local levels, with the following issues highlighted:

- It is urgent that all **Member States give attention to establishing and aligning national and local DRR strategies with the Sendai Framework**, not only because 2020 is fast approaching, but because these provide the foundation and enabling environment for so much of what is required to achieve the outcome, goal and targets of the Sendai Framework and the 2030 Agenda.
- Developments in climate science that were not available at the time of the development and adoption of the Sendai Framework in 2015, call for far **greater urgency and ambition in our actions** than was previously understood. This reinforces the need to treat risk as a systemic issue, taking into account short- and long-term time frames. Based on the findings of the

2018 IPCC SR1.5, make clear the need for **DRR strategies to integrate CCA and mitigation centrally within risk reduction at national and local levels**.

- **Coherent and integrated national and local plans** are also the means by which Member States can best meet combined commitments made under the 2030 Agenda, the Paris Agreement, AAAA, NUA, and other agreements of a thematic, sectoral or regional nature. The multidimensional nature of these commitments, and more importantly the underlying risks they address, require systems-based approaches, including in assessing needs and making national and local decisions about the most effective use of available resources.
- It is recommended that governments and national stakeholders, with strong engagement of the private sector and civil society down to community level, **review national and local enabling frameworks for equitable and sustainable development, climate change and risk reduction**. The objective is to identify the enablers and opportunities, as well as the barriers to integrated risk governance, which may come in the form of legislative mandates, institutional structures, capacity, resources, social equality/vulnerability, gender roles, people's awareness and habits of thinking about risk. This could also be described as an **integrated risk governance assessment**, taking into account multiple hazards (man-made, natural and mixed) and related risks, the way hazards, vulnerability and economic activity interacts with the environment and with each other within and among complex systems, and the need to adapt policy and implementation to **enable systems-based approaches to risk reduction**.

