29
Legal and Policy Responses to Loss and Damage Associated with Climate Change

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Abstract

Due to inadequate mitigation and adaptation efforts, loss and damage associated with climate change is now a reality. Some recent studies reveal the empirical evidence on loss and damage resulting from the adverse impacts of climate change. Therefore, the adverse impacts of climate change have imposed additional challenges for the global legal community to address loss of life, property, traditional livelihoods, values, culture, heritage and territory and damages including ecology. A plaintiff and defendant can be identified persuasively in respect of a claim related to loss or damage resulting from climate change, but in a specific case, the legal community will find it difficult to pin such loss or damage on climate change. Empirical data can lend a hand in this regard, but the problem lies in choosing the appropriate legal avenues to address the claim.

Loss and damage associated with the adverse impacts of climate change are a major emerging challenge for the global community: they demand contemporary legal and policy frameworks with specific substantive and procedural mechanisms. Mitigation and adaptation can prevent and reduce loss and damage, but a specific regulatory regime is needed in order to deal with residual loss and damage resulting from climate change. Hence, states parties to the United Nations Framework Convention on Climate Change (UNFCCC) decided to establish the required institutional arrangements such as international mechanisms to address loss and damage associated with the impacts of climate change. Following efforts to conceptualise loss and damage associated with climate change, this paper looks at substantive and procedural mechanisms for addressing loss and damage within the contexts of conventional international law and the emerging legal regime of climate change, with the ultimate objective of exploring potential legal and policy responses to loss and damage.

A. Introduction

Climate change and its adverse impacts and vulnerabilities are now a reality.[1] Vulnerability as the consequence of climate change will be most severe for the developing world, in other words, those areas which are both least responsible for climate change and least able to deal with its effects.[2] Thus, the most vulnerable are the people living in least developed countries (LDCs), Small Island Developing States (SIDSs), and African countries. Although past and current global emissions of greenhouse gases (GHGs) originated in developed countries,[3] LDCs like Bangladesh face the vulnerabilities of climate change disproportionately. As such, the very nature of climate change exacerbates the inequities associated with proportional contribution to the causes, and suffering from the consequences.[4] The adverse impacts of climate change, including increased frequency and intensity of disasters and slow-onset processes like sea-level rise and saline water intrusion, have continued to devastate the lives and livelihoods of millions of people and inflict huge economic losses, particularly in developing countries.

In accordance with figures from the international disaster database of the Centre for Research on the Epidemiology of Disasters, the number of disasters in first seven years of the 21st Century doubled in comparison with 1987–1997. Developing countries, where more than 95% of deaths from natural disasters in the past 25 years have occurred, bear the brunt of this increase. According to the global reinsurance company Munich Re, direct economic losses (averaging US$100 billion per annum in the first decade of this century in relation to national income were more than double in low-income countries, compared with their high-income counterparts. On average, 250 million people are affected by disasters annually – up by more than 30% in just a decade.[5] Moreover, the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA) estimated that, in 2008, over 20 million people were displaced by disasters.[6] Bangladesh, an LDC, faced two

1 IPCC (2007:5): "Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level".
2 Stern (2006); IPCC (2007).
3 Preamble, United Nations Framework Convention on Climate Change (UNFCCC).
4 Khan (2010).
5 Zakieldeen & Warner (2012).
6 UNOCHA (2009).

consecutive floods in 2007, which caused economic damage in the amount of approximately US$1.1 billion, followed by Cyclone Sidr in November 2007, which killed 3,500 people and led to estimated economic damage of US$1.7 billion.[7] Moreover, in 2009, Cyclone Aila hit Bangladesh's western border with India and caused the initial displacement of 201,982 people, with a further 60,000 people having since migrated to other areas of the country in search of employment.[8]

Climate change impact and vulnerability, particularly current extreme weather events, bring up the serious legal question of liability for the damage caused, based on proportional contribution to climate change. The disproportionate contribution to the cause of climate change shifts the burden to the industrialised countries to take the entire responsibility for the adverse impacts and vulnerabilities of such change, in accordance with causal liability. In the absence of the required response to climate change, advocacy groups, public authorities, communities and individuals are coming up before the judiciary to seek compensation for loss and damage resulting from climate change, and for judicial direction to compel those entities responsible to act in response to climate change through the required mitigation and adaptation measures. Decisions also have begun to emerge through different judicial forums as a means of compelling decision-makers to address the issues for future action and to make those responsible liable for the harm caused to the climatic system.[9]

In the context of climate science, the relative contributions by different states towards climate change can be estimated based on the cumulative contribution and, as such, each state should be liable proportionally. Thus, each state's proportion of liability can be estimated by its cumulative contribution in relation to other states' cumulative contributions. Taking into account this simple legal equivalence, although one can convincingly establish substantive arguments to apportion liability and to compensate for climate-induced loss and damage based on the rules of customary international law, there are often no certain procedural means to pursue this legitimate claim further.[10] In response to demands for broad, system-changing solutions to the climate crisis and to address the loss and damage associated with climate change, contemporary legal and policy frameworks with spe-

7 Khan et al. (2012).
8 ActionAid et al. (2009).
9 Khan (2010).
10 (ibid.).

cific substantive and procedural mechanisms are required to deal with this shortfall.

Very recently, states parties to the United Nations Framework Convention on Climate Change (UNFCCC) decided to establish the institutional arrangements required, such as an international mechanism to address loss and damage associated with the impacts of climate change.[11] The international climate regime, which began in 1992 with the adoption of the UNFCCC, is still struggling to set up governance mechanisms for mitigation and adaptation with respect to climate change. However, even if adequate mitigation measures are taken now, given the levels of GHGs that have already been released into the atmosphere, some climate change impacts and the associated loss and damage are inevitable. While adaptation measures can reduce loss and damage resulting from climate change to some extent, there will be a certain unavoidable degree of loss and damage, for which a separate framework is needed. Clearly, an agreed framework within the UNFCCC process for addressing loss and damage is still a long way off.[12]

Nonetheless, UNFCCC states parties from developing countries are enthusiastically negotiating the establishment of an international mechanism to this end. Indeed, the inclusion of an "international mechanism" in the Doha Decision on loss and damage[13] marks an important window of opportunity for the further development of such mechanisms. Against this backdrop, this paper explores the legal avenues for addressing loss and damage associated with climate change within the context of customary international law and the UNFCCC. The first part of this paper attempts to conceptualise the issue of loss and damage associated with such adverse impacts, and provides legal arguments for a liability regime whose ultimate objective is exploring the potential legal and policy frameworks. The second part of the paper examines the scope and limitations of conventional international law in this context. The concluding section scrutinises the development of the UNFCCC process, and proposes some policy guidance for establishing national, regional and international mechanisms to deal with loss and damage associated with the adverse impacts of climate change.

11 Decision 3/CP.18, para. 9.
12 Al Faruque & Khan (2012).
13 Decision 3/CP.18, para. 9.

B. Loss and Damage Associated with Climate Change and the Liability Regime

An appropriate conceptualisation of *loss* and *damage* associated with climate change will provide the necessary guidance for identifying the entities responsible for such change, including the private sector and for developing the liability regime. So, conceptualisation of loss and damage is the prerequisite for structuring the required legal and policy frameworks. The first step in framing this discussion is to properly identify the issues and challenges related to loss and damage associated with climate change. Under the UNFCCC, the issue of loss and damage was discussed from the beginning, but state parties only finally agreed to establish a work programme on loss and damage in 2010 and recognised the complexity of the subject matter.[14] The 2010 Cancun Decision at COP16[15] distinguished the need to strengthen international cooperation and expertise in order to understand and reduce loss and damage associated with climate change.[16] Under the agreed work programme, a series of expert workshops organised by the UNFCCC Secretariat throughout 2012 and the 2012 Doha Decision at COP18[17] noted the importance of enhancing knowledge and understanding of the comprehensive risk management approaches to address loss and damage associated with the adverse effects of climate change, including slow-onset impacts. COP18 also reflects an agreement on comprehensive, inclusive and strategic responses needed in order to address loss and damage associated with the adverse effects of climate change, taking into account regional, national and local capacity, context and circumstances, and the involvement of relevant stakeholders.[18] Moreover, COP18 invited all parties to identify options and design and implement country-driven risk management strategies and approaches, including risk reduction, and risk transfer and risk-sharing mechanisms.

Thus, in order to understand loss and damage associated with climate change, the context of a highly vulnerable country like Bangladesh can provide some food for thought. Bangladesh experiences frequent natural disasters such as floods, tropical cyclones, storm surges and droughts, which cause loss of lives and livelihoods and damage to infrastructure and econo-

14 Decision 1/CP.16, para. 26.
15 At the Sixteenth Conference of the Parties to the UNFCCC (COP16).
16 (ibid.:para. 25).
17 At the Eighteenth Conference of the Parties to the UNFCCC (COP18).
18 Draft Decision-/CP.18, para.'s 2 and 5.

mic assets.[19] The frequency and intensity of these natural hazards has already increased in Bangladesh;[20] hence, the context of the frequency and intensity of these events might be considered as climatic impacts. Although it remains a challenge to try to segregate climate-induced hazards, in general, the increased frequency and intensity of natural disasters such as floods, droughts, cyclones and associated storm surges, heat stress and other extreme hydrometeorological events can be considered as sudden-onset events associated with climate impact on Bangladesh. On the other hand, a rise in sea level and the salination being detected in coastal regions can be considered as slow-onset events or processes. In terms of slow-onset processes, the Cancun Decision also listed impacts such as rising sea levels, increasing temperatures, ocean acidification, glacial retreat and related impacts, salination, land and forest degradation, loss of biodiversity, and desertification.[21] Therefore, the rise in sea level as a slow-onset process and extreme weather events as rapid-onset events are considered in this article to understand loss and damage within the geographical context of Bangladesh.

The 2009 Bangladesh Climate Change Strategy and Action Plan recognises that the rise in sea level would lead to the submergence of low-lying coastal areas, the intrusion of saline water from coastal rivers into groundwater aquifers – reducing the availability of fresh water and damaging the Sundarban's mangrove forest – and drainage congestion inside coastal polders, which will adversely affect agriculture.[22] It is worth mentioning that the average land elevation is about 7.62 m above mean sea level, whereas for coastal and offshore islands it is about 1.5 m above mean sea level. As such, major portions of the waterways are under tidal influence.[23] Therefore, increasing rates of sea-level rise would cause permanent inundation, drainage congestion, salinity intrusion and frequent storm surge inundation.[24] As a result, a rise in sea level and the resulting salination would adversely affect the coastal agrarian economy and will force communities to migrate to search for alternative livelihoods due to a loss of territory and traditional livelihoods. Nevertheless, the experience of recent cyclones and storm

19 GPRB (2009:para 3).
20 UNDP (2011).
21 Decision 1/CP.16, para. 25.
22 GPRB (2009:para. 21).
23 Mondal (2009).
24 (ibid.).

surges would provide considerable gestures for demonstrations of actual and potential loss and damage associated with sea-level rise in Bangladesh.

Cyclone Aila, a sudden-onset event which hit coastal areas of Bangladesh in May 2009, caused the death of 193 people, damaged infrastructure, houses, institutions, cultivated land and crops,[25] and displaced over 100,000 people.[26] Aila affected an area of about 1,200 km and the livelihoods of millions of people were simply destroyed in the affected areas. Particularly due to storm surge, most of the areas including agricultural land were submerged by salty water and, as a result, saline water intrusion and being waterlogged for a long time brought about a loss of crop productivity. Consequently, initially displaced people could not return home due to a loss of their traditional livelihoods. Moreover, the slow-onset process of salination caused further harm to livelihoods and prevented displaced people from returning home. These displaced people migrated to urban areas and other countries such as India in search of alternative means of making a living. This gradually increased the number of forced migrants, when some of them failed to adapt to ecological changes. Finally, about 123,000 people migrated due to Aila-related impacts, and an additional 23,000 migrated at a later stage due to failed efforts at ecological restoration, i.e. desalination of soil in which to grow crops.[27]

In a recent study, which consulted people from Aila-affected areas, 81% of respondents reported high salinity levels in their soil, compared with just 2% 20 years ago. One adaptation that farmers had employed was to plant saline-tolerant varieties of rice. This worked until 2009, when Aila hit and caused a sudden and drastic increase of the salt content in the soil. Almost all of the farmers lost their complete harvest that year. Two years later, rice yields were still extremely poor. From 2009 to 2011, the total loss in respect of rice harvests was US$1.9 million in only four villages surveyed. These findings exemplify a case where seemingly successful measures to adapt to slow-onset processes are not strong enough to avoid loss and damage when the situation is aggravated by an extreme weather event.[28] Although empirical data suggest that extreme weather events such as Aila have grown in frequency and intensity, scientific experts are divided on how to quantify the extent to which climate change has contributed to the destruction caused

25 Mehedi et al. (2010).
26 McAdam & Saul (2010:239).
27 Mehedi et al. (2010).
28 Rabbani (2012).

by Aila.[29] However, if not at a macro scale, a few micro-scale disasters and related data can establish the causal relationship between intensity and frequency of extreme weather events and climate-induced loss and damage. Some recent research studies[30] reveal the evidence of the plight of the coastal fishermen in Bangladesh under a climate-change-induced rise in sea surface temperature (SST) which is devastating the lives and livelihoods of these fishermen.

One such study, titled "Livelihood of Coastal Fishermen in Peril: In Search of Early Evidence of Climate Change Induced Adverse Impacts in Bangladesh",[31] reveals that increasing SST fulfils one of the major preconditions of the formation of an increased number of depressions and low-pressure systems in the Bay of Bengal. Since the SST of the Bay of Bengal has been unusually high, one finds a scientific link between rising SST with increasing episodes of rough sea conditions, the latter having serious livelihood implications on especially the impoverished fishers of Bangladesh. With increasing SST, they can hardly survive one unusual year: how would they be able to sustain their livelihoods for generations to come?[32] Another recent study assessed the relevant data on tropical storms in the Bay of Bengal, including cyclones and depressions, during the period 1985–2009:[33] the evidence also revealed an increasing frequency of cyclones. Furthermore, the Bangladesh Climate Change Strategy and Action Plan 2009 acknowledged that rough weather along the coast might prevail for longer durations in future, adversely impacting on fishermen's livelihoods.[34]

A media report published in October 2010 provides further related data on the frequency of rough sea events in the Bay of Bengal, stating that 10

29 McAdam & Saul (2010:239).
30 Ahmed & Neelormi (2007/2009); Chowdhury et al. (2012).
31 Ahmed & Neelormi (2007/2009).
32 (ibid.). Using data on the frequency of rough sea events in the Bay of Bengal in 2007, the study argued that the year had been unusually rough. Of 22 incidences of low pressure and depressions in the Bay of Bengal, 12 had occurred during July and mid-November, the peak of the fishing season along the south-eastern coastal region. The apparent high energy in the sea affected the entire coastal zone by bringing in unusually high tides and frequent rough seas. The latter effect was so pronounced that the Port Authority issued a total of 89 warnings through the year, 12 of which were issued during July and mid-November. Moreover, the latter were higher than level 3 or above, which marks a potentially dangerous situation.
33 Chowdhury et al. (2012).
34 GPRB (2009:39).

cyclones and 50 incidents of formations of low pressure and depressions in the Bay of Bengal occurred from mid-2010 to 2012, as a result of which about 30 million people were affected.[35] This report stated that, this was because of the rough weather influenced by a depression in the Bay of Bengal. In reference to the incidence of a depression on 11 October 2010, the said report stated further that over 100 fishers were feared missing as 10 fishing trawlers had not returned to land, while 7,000 trawlers were kept near the coast for safety.[36] Unfortunately, coastal fishers go missing quite regularly due to frequent depressions in the Bay of Bengal. Moreover, because of increased storms due to climate change, coastal fishers cannot go fishing for several days and, hence, they lose their traditional livelihoods. Storms also cause damage to property and other coastal fishers' assets. The disruption of settlements and the reduction of livelihood opportunities can also cause displacement.

The latter 2010 newspaper report and the aforementioned scientific arguments offer proof of the causal link between increased SST and global warming, which causes harm to the lives and livelihoods of millions of coastal residents in Bangladesh. The Fourth Assessment Report by the Intergovernmental Panel on Climate Change (IPCC) also recognises that "altered frequencies and intensities of extreme weather, together with sea-level rise, are expected to have mostly adverse effects on natural and human systems."[37]

Therefore, the increased frequency and intensity of rough sea events in Bangladesh, which cause the loss of lives and livelihoods as well as damage to property and other assets owned by coastal fishers, provide some important contexts of loss and damage associated with climate change. The above contextual analysis on sea-level rise and saline water intrusion, as well as the implication of micro-level disasters such as frequent rough sea events, provides factual evidence of actual loss and damage. Thus, a particular climate-related incident or a series of incidents from a specific country can provide some insights for conceptualising the loss and damage associated with climate change. However, it is necessary to consider country by country and case by case. Certainly, some similarities may be found across countries

35 *BD News*, 12 October 2010, available online at http://bdnews24.com/bangladesh/2005/09/19/over-200-trawlers-with-over-3500-people-aboard-missing-in-bay-of-bengal.-1st-ld, last accessed 15 January 2013.

36 (ibid.).

37 IPPC (2007:58).

and across cases that will be useful for influencing policymakers at the global level to adopt a common definition of *loss and damage associated with climate change*; however, providing a definition is a very difficult task – especially taking into account the complexity of the issues related to loss and damage. However, certain studies and experts have recently provided a few broader definitional outlines of *loss* and *damage* associated with climate change; these should also be useful to discuss in order to explore potential mechanisms for addressing such loss and damage.

C. Definition of Loss and Damage

The Loss and Damage in Vulnerable Countries Initiative[38] provided a working definition of *loss* and *damage* related to climate change, and stated that *loss* and *damage* represent the actual and/or potential manifestations of climate impacts that negatively affect human and natural systems. It further considered *damage* as "negative impacts that can be repaired or restored (such as windstorm damage to the roof of a building, or damage to a coastal mangrove forest from coastal surges which affect villages)."[39]

On the other hand, *loss* is characterised as negative impacts that cannot be repaired or restored, such as loss of geologic freshwater sources related to glacial melt or desertification, or loss of culture or heritage associated with potential population redistribution away from areas that become less habitable over time with climate change.[40]

Distinguished adaptation specialist, Saleemul Huq, also recently provided some views on loss and damage along these lines:[41]

38 The Loss and Damage in Vulnerable Countries Initiative is a project initiated in order to move forward the debate on loss and damage for the benefit of LDCs and other vulnerable states parties, while the Government of the People's Republic of Bangladesh requested assistance from the Climate and Development Knowledge Network (CDKN) to help build a common understanding around loss and damage and provide insight into what it entailed for vulnerable countries. CDKN has appointed a consortium of organisations, which includes Germanwatch, the UN University Institute for Environmental and Human Security, the International Centre for Climate Change and Development, and the Munich Climate Insurance Initiative.

39 Germanwatch (2012).

40 (ibid.).

41 Huq (2012).

> It is still not clear what the difference is between the two terms, "loss" and "damage." One way of thinking of this difference is to consider "loss" to mean the "complete loss" of something (e.g. human life or biodiversity, or land that goes under water, etc). These losses are in fact irrecoverable.
> "Damage," in contrast, can be considered to refer to "partial loss" or "partial damage," such as to infrastructure and human livelihoods, which can be repaired.
> These distinctions are of course not watertight compartments, as there will still be some overlaps between loss and damage, but it is worth keeping these terms separate in this context.

Doreen Stabinsky and Juan P. Hoffmaister also provided a brief definition with an overview of approaches to loss and damage, as follows:[42]

> [T]he phrase 'loss and damage' refers broadly to the entire range of damage and permanent loss "associated with climate change impacts in developing countries that are particularly vulnerable to the adverse effects of climate change"[43] that can no longer be avoided through mitigation nor can be avoided through adaptation. There are multiple approaches to address those damages and losses, some which may have synergies with adaptation efforts, while others will require taking action through new arrangements and stand-alone approaches.

Roda Verheyen, an eminent legal expert, provided a definition of *loss and damage* in the following way:[44]

> [i]n legal terms, loss and damage are not separate concepts. Rather, loss is a specific term to describe a particular type of damage such as loss of earnings or loss of office. Damage is a legal concept equated with "tort" or "liability", which often leads to a claim for damages, with monetary or in kind compensation as a remedy, but it is also the generic term for harm afflicted to a legal entity or person or other systems (e.g. a particular ecosystem) which may give rise to a legal claim.

There are some common elements found in the aforementioned definitional views, such as that *damage* can be repaired or restored, but *loss* is considered irrecoverable damage, i.e. complete loss that can no longer be avoided through mitigation or adaptation. With regard to approaches to address such damage and loss, one suggestion is to have synergies with adaptation efforts, while others will require taking action through new arrangements and stand-alone approaches. In terms of legal definitions, *damage* equates with "tort" or "liability" and pleads for a claim for damage, with monetary forms of

42 Stabinsky & Hoffmaister (2012).
43 (ibid.), but no source indicated in the original for this citation.
44 Verheyen (2012).

compensation as a remedy. Also, remedial measures can be offered for ecological harm and monetary compensation can be awarded for loss of infrastructure and property. However, the resettlement and rehabilitation of forced migrants is a complex consequence of damage or loss, and questions also remain on non-economic losses. These elements or definitions can be scrutinised, taking into account the facts from Bangladesh discussed above, to conceptualise the loss and damage associated with climate change and compensation and remedy in response to such adverse consequences.

The contextual analysis on intensified cyclones such as Aila and frequent rough sea events in the Bay of Bengal provides evidence of actual loss and damage, including loss of life and property, ecological damage, loss of traditional livelihoods, displacement and migration, and loss of territory, values and culture. Moreover, forced migration means people lose their freedom to choose a profession, and they face challenges with new lodgings, drinking water, food, sanitation, security, and so forth. In terms of the loss of property, monetary compensation can be awarded; in terms of ecological damage and loss of livelihood, remedial measures can be useful. Also, displacement and migration can be dealt with by way of appropriate resettlement/relocation and rehabilitation measures, with the greatest challenge being relocation to another country. Then the question arises as to how death and non-economic losses such as the loss of territory, values, heritage and culture are to be compensated. However, we need to think of who will compensate, who will be compensated, and what the compensation mechanisms would be. Thus, we now turn to a discussion on a liability regime.

D. Climate Justice and a Liability Regime

In its Preamble, the UNFCCC recognises that the largest historical and current global emissions of GHGs originated in industrialised countries,[45] which is the cause of anthropogenic climate change. Hence, the ultimate objective of the UNFCCC, as set forth under Article 2, is to stabilise GHG concentrations in the atmosphere at a level that would prevent dangerous

45 The UNFCCC also notes that the largest share of historic and current global emissions of GHGs originated in developed countries, that per capita emissions in developing countries are still relatively low, and that the share of global emissions originating in developing countries will grow to meet their social and development needs.

anthropogenic interference with the climate system. The UNFCCC also called for meeting such targets within a time frame sufficient to allow ecosystems to adapt naturally to climate change. Thus, Article 4(2) compels developed nations to take measures related to mitigation and adaptation. Moreover, Article 4(4) requires developed countries to assist their developing country counterparts – who are particularly vulnerable to the adverse effects of climate change – in meeting the cost of adapting to such adverse effects. Furthermore, the UNFCCC states parties adopted the Kyoto Protocol with its legally binding commitments for a reduction in GHG emissions, particularly for developed countries, and also to finance adaptation.[46]

While there is a struggle to extend the Kyoto Protocol for a second commitment period, states parties to the UNFCCC started a process to develop another instrument. The latter is to be adopted by 2015 and implemented by 2020.[47] Therefore, the UNFCCC climate regime is still exploring the framework for mitigation and adaptation measures along with the relevant finance, technology and capacity-building. However, while the global community is exploring the mechanisms for mitigation and adaptation, loss and damage resulting from climate change has become a reality.

The findings of an analysis on loss and damage in LDCs and other vulnerable countries today suggests that communities are observing and experiencing changes in climate stresses, in both extreme weather events and slow-onset climatic changes.[48] Research reveals that communities are experiencing significant loss and damage to quality of life, livelihoods, food and livelihood security, as well as secondary loss and damage in the form of stress on the social fabric – essential to adaptive capacity and resilience.[49]

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46 In 1995, at the First Conference of the Parties (COP1) in Berlin, the states parties agreed on legally binding commitments, in acknowledgment of the inadequacy of voluntary commitments under the UNFCCC to reduce GHGs. In accordance with the Berlin Mandate, therefore, states parties to the UNFCCC initiated further negotiations for legally binding instruments. This led to the Kyoto Protocol being adopted at the Third Conference of the Parties (COP3) in Kyoto, Japan, in 1997.

47 Decision 1/CP.17.

48 See the Loss and Damage in Vulnerable Countries Initiative, available at http://www.lossanddamage.net/empirical-research, last accessed 17 January 2013: "Case studies in Africa, Asia and Oceania illustrate the effects of climate change beyond adaptation. The case studies look at several climate threats, such as drought, flooding, changing rainfall patterns, cyclones and sea-level rise. The case studies are conducted by the UN University, Institute for Environment and Human Security, in cooperation with local research institutions in Least Developed Countries".

49 Government of the Gambia (2012).

The current low ambition levels of emission reductions are taking us to a 4°C warmer world, and it would be a question of survival of millions of people in the world. Consequently, actual and potential loss and damage associated with climate change raises the question of liability and immediate response to loss and damage based on causal liability.

The context of climate justice, taking into account the legal commitments under the UNFCCC and the Kyoto Protocol as well as by way of historical responsibility, shifts the burden causally to developed country states parties to take the entire responsibility for climate change. Legal commitments oblige developed countries to reduce GHG emissions and to facilitate the implementation of adaptation measures to counteract the adverse impacts of climate change. From the adaptation perspective, developed countries should take on the responsibility of reacting to the consequences and preventing further deterioration. Technological and financial resources should be provided, based on proportional contributions to climate change and the relevant state's respective capacity.[50]

It is worth mentioning that, in its Preamble, the UNFCCC recognises states parties' responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or to areas beyond the limits of national jurisdiction.[51] Therefore, in response to unavoidable loss and damage resulting from climate impacts, the states responsible for atmospheric pollution should also provide compensation and remedial measures. In the context of climate science, the relative contributions by different states to climate change can be estimated based on their cumulative contributions and, as such, each state should be liable proportionally. The breach of an international obligation can be derived from international treaties or customary law, and may be committed through an act of commission or omission.[52] Treaties that are relevant exclusively to loss and damage associated with climate change are the UNFCCC and the Kyoto Protocol. Thus, state liability and attributed wrong can be identified under

50 Khan (2010).

51 The Preamble to the UNFCCC declares the following: "States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction".

52 ILC (2001).

the UNFCCC. However, the literature predominantly considers that the states parties' primary obligations under the UNFCCC are too vague, and that the compliance system under the UNFCCC and the Kyoto Protocol is too weak to exclude the application of general international law on state responsibility.[53]

The compliance mechanism of the UNFCCC suggests a consultative process. The Kyoto Protocol entails reporting, monitoring and compliance within its own mechanism, and any binding requirements demand amendment to the Protocol's provisions. As such, the UNFCCC and the Kyoto Protocol prefer self-governing dispute settlement mechanisms and bar member states from seeking legal remedy outside the UNFCCC process. Thus, even if, in terms of climate change, contentious state liability and attributed wrongful acts are present in the UNFCCC regime, the UNFCCC does not provide the procedural means to lodge claims for climate-induced loss and damage. The notion of *climate justice* presented a challenge to the global legal community to protect the rights violated by atmospheric pollution. The current literature, however, predominantly suggests that a violation of international law could be based on the so-called No-harm Rule.[54]

E. No-harm Rule and Customary International Law

A widely recognised principle of customary international law is the No-harm Rule, which obliges a state to prevent damage and to minimise the risk of damage to other states. This principle was first applied in the *Trail Smelter* case.[55] The basis of the case was that a Canadian smelter's sulphur dioxide emissions had caused air pollution damages across the border in the United States (US). The arbitral tribunal decided that the government of Canada had to pay the US compensation for the damage that the smelter had caused along the Columbia River Valley in the US. The no-harm principle employed in *Trail Smelter* case was subsequently confirmed by different decisions of international courts and tribunals.

In the 1949 *Corfu Channel* case, the International Court of Justice (ICJ) observed that there were "general and well-recognised principles" of inter-

53 Schwarte & Byrne (2010).
54 (ibid.).
55 *United States v Canada*, United Nations, Reports of International Arbitral Awards, Vol. III, 1906, 1982.

national law concerning "every State's obligation not to allow knowingly its territory to be used for acts contrary to the rights of other States."[56]

A 1996 advisory opinion of the ICJ on the legality of the threat or use of nuclear weapons stated that –[57]

> … the existence of the general obligation of states to ensure that activities within their jurisdiction and control respect the environment of other states or of areas beyond national control is now part of the corpus of international law relating to the environment.

The No-harm Rule was also restated and accepted by both parties – Hungary and Slovakia – in the *Gabčikovo* case decided by the ICJ in 1997.[58]

The No-harm Rule has also been incorporated into international law and policy documents. Principle 21 of the Stockholm Declaration, for example, provides as follows:

> [S]tates have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction.

This principle is also included in the 1992 Convention on Biological Diversity,[59] the 1985 Vienna Convention for the Protection of the Ozone Layer,[60] and UN General Assembly Resolution 2996.[61] It has also been reiterated in the UNFCCC.[62]

F. No-harm Rule and State Responsibility

A state's failure to comply with the No-harm Rule is an internationally wrongful act that gives rise to an obligation to take responsibility. A state's breach of obligations not to cause damage, to prevent harm, or to minimise the risk of harm occurring, would constitute an internationally wrongful act, which entails the international responsibility of that state. Atmospheric pol-

56 1949 ICJ Rep. 4.
57 (ibid.:241, para. 29).
58 The *Gabčikovo* case (1997 ICJ Rep. 7, in particular at 41).
59 Article 3.
60 Preamble, para. 2.
61 XXVII, 15 December 1972.
62 Preamble, para. 9.

lution clearly falls within the purview of the No-harm Rule of international law. However, international law will not support a conclusion that a state emitting GHGs and, thus, contributing to global climate change should be held responsible for damage occurring per se simply because it has emitted such gases.

A state's behaviour has to be found contrary to a specific standard of care. Once this duty of care is defined, if a state fails to take proportionate measures to minimise the risk of foreseeable damage, the No-harm Rule is breached.[63] The problem with damage from climate change is that it is diffuse and hard to trace back to any particular state's actions. The general rule under international law, however, appears to be that states that are jointly responsible for a wrongful act are jointly and separately liable. There exists a relatively clear estimate of different countries' relative contributions to the tons of GHGs emitted globally. It has, therefore, been suggested that, because of the cumulative causation of climate change, each actor should only be held responsible for its share of the overall wrong.[64]

Bangladesh, in the context of climate vulnerability and related loss and damage, can convincingly establish substantive arguments under public international law that one or more states are responsible for wrongful acts based on causation and liability. While the substantive law may provide a clear basis for the claim of the climate victim community of Bangladesh, there are often no procedural means to pursue it further and enforce compliance under public international law. The ICJ is the UN's principal judicial organ, and has been described as the guardian of the international legal community as a whole. It may hear contentious disputes concerning an alleged breach of an international obligation if – and to the extent that – the states concerned have accepted such obligation.[65]

There is no governing authority that automatically addresses the legality of an act or situation at international level. This reflects the fundamental principle of international relations that states are sovereign and free to choose the methods of resolving their disputes. In practice, political pressure and diplomatic negotiations remain the primary tools in the international arena to influence state conduct.[66] However, the international community has committed itself to increasing efforts to develop international law on liability

63 Schwarte & Byrne (2010).
64 (ibid.).
65 Article 36, Statute of International Court of Justice.
66 Schwarte & Byrne (2010).

and compensation for the victims of pollution damage. In 1972, states committed to develop international law on liability and compensation for environmental damage.[67]

Moreover, in 1992, through the Rio Declaration at the Earth Summit, states parties agreed to increase their efforts in this regard:[68]

> States shall develop national law regarding liability and compensation for the victims of pollution and other environmental damage. States shall also cooperate in an expeditious and more determined manner to develop further international law regarding liability and compensation for adverse effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction.

Therefore, in the context of climate-change-induced loss and damage, the global community should develop contemporary and comprehensive legal and policy frameworks with appropriate institutional arrangements under the UNFCCC with compensation approaches based on the broadly accepted 'The Polluter Pays' Principle.

G. UNFCCC Processes in Response to Loss and Damage

The preceding section shows there is a sound legal basis under customary international law for individual cases brought by states seeking compensation for loss and damage associated with climate change. Such individual cases should not, however, be the path of choice. International law is based on the notion of cooperation and the avoidance of adjudication, where possible, in favour of diplomatic solutions. Cumbersome individual cases should not be necessary, given that the climate regime is based on the notion of cooperation and good faith. International law scholars have also expressed the view that states even have a legal duty to provide negotiated solutions where environmental damage is expected to occur, so that prompt and adequate compensation can be obtained in practice.[69]

Against this backdrop, one better understands the position of the Alliance of Small Island States (AOSIS) and the idea that states harmed by loss and

67 Stockholm Declaration on the United Nations Conference on the Human Environment, Principle 22, 11 ILM 1416 (1972).

68 Rio Declaration on Environment and Development, United Nations Conference on Environment and Development, Principle 13, 31 ILM 874 (1992).

69 Schwarte & Byrne (2010).

damage related to climate change should seek compensation to rehabilitate their societies (ideally to pre-anthropogenic climate change conditions).[70] In connection with the negotiation for adopting the UNFCCC in 1991, AOSIS proposed the establishment of an International Climate Fund to counter the adverse consequences of climate change, and a separate International Insurance Pool to provide financial insurance against the consequences of sea-level rise. Revenue was to be drawn from mandatory sources and, in particular, from developed countries.[71]

AOSIS and the LDCs have raised this issue of compensation and rehabilitation in oral interventions at a number of international negotiating sessions. Bangladesh, on behalf of the LDCs, called for compensation for damages caused by climate change at the Eleventh Conference of the Parties to the UNFCCC (COP11) in Montreal in 2005.[72] AOSIS argued that[73] –

> [w]here adaptation cannot fully address the impacts of climate change on countries and their communities, impacted countries are justified in seeking compensation from those countries most responsible for the greenhouse gas emissions that have led to those impacts.

The spectre of liability and possibly needing to pay unspecified amounts of money to compensate 'sinking island states' or other countries facing a range of catastrophic climate-related impacts made this area of negotiation controversial for many industrialised countries. However, despite the calls for compensation approaches in the climate change negotiations, the issue of loss and damage associated with climate change damage remains to be squarely addressed and placed under ongoing adaptation framework negotiation.

H. The Bali Action Plan and Loss and Damage

In 2007, under the Bali Action Plan (BAP), states parties agreed to enhance action on adaptation, and loss and damage associated with climate change

70 Zakieldeen & Warner (2012).
71 AOSIS (2007).
72 *Earth Bulletin*, available at http://www.iisd.ca/vol12/enb12291e.html, last accessed 14 January 2013.
73 AOSIS (2005).

were addressed within an adaptation framework. BAP expressly agreed on two options:[74]

- Consideration of "disaster risk reduction strategies and means to address loss and damage associated with climate change impacts in developing countries that are particularly vulnerable to the adverse effects of climate change", and
- "[R]isk management and risk reduction strategies, including risk sharing and transfer mechanisms such as insurance".

Although BAP contained an entire section on (disaster) risk management as well as loss and damage associated with climate change, any association or mention of compensation or liability for such negative effects caused discomfort for industrialised countries.[75]

After BAP formed an Ad Hoc Working Group on Long-term Cooperative Action (AWG–LCA), the issue of loss and damage was advanced further under adaptation negotiations. AOSIS also continues its stance on the compensation approach under the AWG–LCA process, but has proposed some additional elements under the multi-window mechanism in addressing loss and damage. In 2008, AOSIS proposed a mechanism for risk reduction, management and sharing to be established with the following components:[76]

- A *risk management and prevention component* to promote risk assessment and risk management tools and strategies at all levels, with a view to facilitating and supporting the implementation of risk reduction and risk management measures
- An *insurance component* to address climate-related extreme weather events, and risks to crop production, food security and livelihood, and
- A *rehabilitation and compensation component* to address progressive negative impacts that result in loss and damage.

The AOSIS proposal's three-pronged approach clearly sets out how different challenges of loss and damage will be tackled, and is the most comprehensive and far-reaching proposal to date in respect of moving the discussion forward. Some industrialised states parties that were uncomfortable with the elements of rehabilitation and compensation attempted to avoid the discus-

74 Decision 1/CP.13, para. 1c(iii).
75 Zakieldeen & Warner (2012:1).
76 AOSIS (2008).

sions – particularly on compensation for loss and damage. Parties wary of 'compensation' may have wanted to manoeuvre the issue of loss and damage out of the process; however, they needed to build consensus with the mass of countries that are anticipated to experience loss and damage in the future, and preferred to address only risk management, insurance and related capacity-building.[77] A compromise was found at COP16 in Cancun in 2010, and a work programme on loss and damage was established.

I. Work Programme on Loss and Damage

The Cancun Agreements (COP16) recognised the need to strengthen international cooperation and expertise in order to understand and reduce loss and damage associated with the adverse effects of climate change. The decision of the COP16 also considered the loss and damage associated with adverse impacts related to extreme weather and slow-onset events. Sea-level rise, increasing temperatures, ocean acidification, glacial retreat and its related impacts, salination, land and forest degradation, loss of biodiversity, and decortication are identified as slow-onset events associated with climate change. The same COP16 decision established a work programme to consider the approaches required to address loss and damage associated with climate change impacts in developing countries that are particularly vulnerable to such adverse effects.[78] At the COP17 in Durban, states parties further decided to request the Subsidiary Body for Implementation (SBI)[79] to continue the implementation of this work programme.[80] The COP17 decision also provided the required guidance to advance the work programme through a set of activities related to agreed thematic areas, as follows:[81]

- Assessing the risk of loss and damage associated with the adverse effects of climate change, and current knowledge

77 Zakieldeen & Warner (2012).
78 Decision 1/CP.16, paras 25, 26.
79 The SBI is one of two permanent subsidiary bodies to the UNFCCC established by the Conference of the Parties (COP) and the COP serving as the Meeting of the Parties (CMP) to the Kyoto Protocol, through the assessment and review of the effective implementation of the UNFCCC and the said Protocol.
80 Decision 7/CP.17, para. 1.
81 (ibid.:paras 8–11).

- A range of approaches to address loss and damage associated with the adverse effects of climate change, including impacts related to extreme weather events and slow-onset events, taking into consideration experience at all levels, and
- The role of the UNFCCC in enhancing the implementation of approaches to address loss and damage associated with the adverse effects of climate change.

Decision 7/CP.17 also appreciated the need to explore a range of possible approaches and potential mechanisms, including an international mechanism, to address loss and damage, with a view to making recommendations on loss and damage to the Eighteenth Conference of the Parties (COP18) for consideration, including elaborating the elements set out in Decision 1/CP. 16, paragraph 28(a–d).[82]

J. Work Programme on Loss and Damage and Related Activities

In accordance with mandate of Decision 7/CP.17, a technical paper was prepared by the Secretariat before the expert meeting on Thematic Area 1, namely Assessing the Risk of Loss and Damage. This document, titled "Current Knowledge on Relevant Methodologies and Data Requirements as well as Lessons Learned and Gaps Identified at Different Levels, in Assessing the Risk of Loss and Damage Associated with the Adverse Effects of Climate Change",[83] assessed 18 selected approaches, methods and tools in terms of their data and information requirements, strengths, weaknesses, lessons learned, gaps at different levels, and relevance for social and environmental impacts; the document also discussed capacity needs for applying risk assessment methods in developing countries. Moreover, the Secretariat prepared the notes of the expert meeting held in Tokyo, Japan, from 26 to 28 March 2012 on assessing the risk of loss and damage associated with the adverse effects of climate change.[84] In accordance with these notes, the key issues identified by the experts are as follows:

82 (ibid.:para. 5).
83 FCCC/TP/2012/1.
84 FCCC/SBI/2012/INF.3.

- The data and information requirements for assessing impacts and climate risks
- Methods and tools for risk assessment, including their requirements, strengths and weaknesses
- Capacity needs for applying risk assessment methods on the ground, and
- Linking risk assessment with decision-making.

At its Thirty-sixth Session, the SBI considered the progress made on the implementation of the work programme on loss and damage. In accordance with Decision 1/CP.16, paragraphs 26–29 noted a number of points relevant to assessing the risk of loss and damage associated with the adverse effects of climate change and the current knowledge on the same, including the following:[85]

(a) The assessment of climate-related risk is complex, involving the consideration of hazards, exposure and vulnerability, and takes into account underlying risk drivers;
(b) A range of approaches, methods and tools are available to assess the risk of loss and damage associated with the adverse effects of climate change. The selection of appropriate approaches, methods and tools depends upon regional, national and local capacity, contexts and circumstances and involves the engagement of all relevant stakeholders; …

The SBI recalled Decision 7/CP.17, and requested the Secretariat to organise four expert meetings – three at regional level and one for SIDs – to be held before the SBI's Thirty-seventh Session.[86] The SBI also provided the required guidance to organise these workshops.[87]

In accordance with the COP17 Decision, and following the guidance provided by the conclusion adopted at the SBI's Thirty-Sixth Session, as discussed above, the UNFCCC Secretariat organised a further three regional expert meetings in Africa, Asia, and Latin America and the Caribbean, to address issues related to a range of approaches for addressing loss and damage associated with the adverse effects of climate change, including impacts related to extreme weather and slow-onset events, and taking into consideration experience at all levels. Another expert meeting with the identical brief was organised for SIDs. Furthermore, the Secretariat produced a literature

85 FCCC/SBI/2012/L.12, para. 3.
86 (ibid.:para. 5).
87 (ibid.:para. 7).

review on the topics in the context of Thematic Area 2 of the work programme on loss and damage, which also guided the workshop participants in identifying gaps in and the scope of existing approaches to loss and damage at the regional level.[88]

The Secretariat compiled the experts workshop report and published it in accordance with the mandates of Decision 7/CP.17.[89] The report includes an overview of the issues discussed at the meetings, including gaps, needs and challenges, as well as region-specific issues related to the impacts of climate change, and possible areas for further action in addressing loss and damage associated with the adverse effects of climate change at different levels.[90] This report identified the necessity of a new approach to address loss and damage, in combination with prevention, reduction, retention and sharing mechanisms. The report also finds –[91]

> … the need for the further clarification of the operational aspects of the international mechanism proposed by the Alliance of Small Island States was expressed, such as how it would interact with other levels and institutions, including its linkages to capacities and corresponding structures required to be implemented at the national level in order to benefit from the opportunities that such a mechanism will provide.

Moreover, the report identified the necessity of a better understanding of the role of national governments in creating enabling environments for minimising loss and damage associated with the adverse effects of climate change and for developing a global architecture as well as a multi-institutional approach to loss and damage.[92] The experts workshop report provided some of the essential information to the negotiators and influenced the decision-making process at the Eighteenth Conference of the Parties (COP18) in Doha.

In addition, the Secretariat compiled all the views and information from states parties and relevant organisations on the possible elements to be included in the recommendations on loss and damage in accordance with Decision 1/CP.16. Nauru, on behalf of AOSIS, recommended adopting a decision at COP18 in Doha to establish an international mechanism to address loss and damage with three mutually reinforcing components to address loss

88 FCCC/SBI/2012/INF.14.
89 FCCC/SBI/2012/29.
90 (ibid.:Abstract).
91 (ibid.:para. 80).
92 (ibid.:para. 38, 39).

and damage in line with their previous submission in 2008 (discussed above).[93] The LDC group submitted their recommendation based on some recent research studies[94] revealing the reality of loss and damage resulting from climate change, and provided the projection for potential loss and damage in the context of a 2–4°C increase in temperature. LDCs proposed establishing an international mechanism to address loss and damage which would work as an umbrella for activities required on different levels and would perform the key functions required for an adequate response to loss and damage. LDCs suggested the COP as the central oversight body of the mechanism for providing the political direction, and for developing key guidance on the elaboration and operation of the mechanism and its elements.[95] At the UNFCCC informal pre-session meeting held on 24 November 2012 prior to the COP18, states parties exchanged further views on the possible recommendations on loss and damage associated with the adverse effects of climate change.[96]

K. Doha Decision and the Way Forward

The Doha Decision recognised that comprehensive, inclusive and strategic responses were needed to address loss and damage associated with the adverse effects of climate change, and expressed appreciation of the progress made not only in the implementation, but also the importance of the continuation, of the work programme to address climate-change-induced loss and damage through a range of approaches. It was also agreed that the UNFCCC's role in promoting the implementation of approaches to address loss and damage included –

- enhancing knowledge and understanding of comprehensive risk management approaches
- strengthening dialogue among relevant stakeholders, and

93 AOSIS (2012); FCCC/SBI/2012/MISC.14, Add.1 and Add.2, *Submission by Nauru on behalf of AOSIS*, 5.
94 Government of the Gambia (2012).
95 FCCC/SBI/2012/MISC.14, Add.1 and Add.2, Submission by The Gambia on Behalf of the Least Developed Countries (LDCs).
96 Available at http://unfccc.int/adaptation/cancun_adaptation_framework/loss_and_damage/items/7157.php, last accessed 13 January 2013.

- enhancing action and support, including finance, technology and capacity-building.

The Doha Decision recognised the UNFCCC's important and fundamental role in addressing loss and damage through promoting leadership, collaboration and cooperation at national, regional and international levels.[97] The Doha Decision invites all states parties to enhance the actions on addressing loss and damage by, inter alia, –[98]

- designing and implementing country-driven risk management strategies and approaches
- implementing comprehensive climate risk management approaches and approaches including risk reduction, risk transfer, and risk-sharing mechanisms, and
- promoting an enabling environment that would encourage investment and the involvement of relevant stakeholders in climate risk management.

The Doha Decision declares that a range of approaches, methods and tools is available to assess the risk of and to respond to loss and damage associated with the adverse effects of climate change, and that their selection depends upon regional, national and local capacity, context and circumstances, and involves the engagement of all relevant stakeholders.[99] As such, the Decision requests developed country parties to provide developing country parties with finance, technology and capacity-building in order to respond adequately to loss and damage associated with the adverse effects of climate change.

The Doha Decision acknowledges the necessity of strengthening institutional arrangements at national, regional and international levels to address loss and damage associated with the adverse effects of climate change. The Decision also resolves to establish institutional arrangements, such as an international mechanism, to address loss and damage in developing countries that are particularly vulnerable to the adverse effects of climate change. The said Decision mandates the establishment of such institutional arrange-

97 Decision 3/CP.18, Preamble, and para.'s 4 and 5.
98 (ibid.:para. 6). See also Summary of the Doha Climate Change Conference, *Earth Negotiations Bulletin*, http://www.iisd.ca/vol12/enb12567e.html, last accessed 13 January 2013.
99 Decision 3/CP.18, para. 2).

ments and their functions and modalities in accordance with the UNFCCC's role as defined in paragraph 5 of the same decision.[100] However, challenges remain to develop the required institutional mechanisms and their related functions and modalities by COP19.

Before COP19, states parties will work through one official SBI session in June, 2013, one experts meeting, and a technical paper on gaps in existing institutional arrangements within and outside of the UNFCCC as agreed interim activities under the work programme leading up to COP19. Nonetheless, states parties to the UNFCCC may utilise the scope of paragraph 12 of the Doha Decision, which requests the SBI, at its June 2013 session, to elaborate activities under the work programme on loss and damage, taking into account the provisions contained in paragraph 7 of the Doha Decision. The latter paragraph includes the notion of strengthening institutional arrangements at national, regional and international levels in order to address loss and damage in order to further implement the work programme.[101] Therefore, while states parties will work on the functions and modalities of institutional arrangements such as an international mechanism, they also need to take into account the important aspects of national and regional institutional arrangements and their functions and linkages with international mechanisms. An international mechanism is expected to be established at COP19 with micro-level institutional arrangements, so that a bottom-up approach can assess and redress the loss and damage associated with adverse impacts of climate change. AOSIS and LDCs negotiated with the same spirit at COP18 in order to resolve to establish an international mechanism to address loss and damage, and COP18 indeed mandates the establishment of such mechanism. Thus, further coordinated and collective efforts are required in order to develop the required governance mechanism through the vehicle of the work programme on loss and damage under the UNFCCC.

L. Concluding Remarks

The prerequisite of addressing a particular issue like loss and damage associated with climate change is to assess and quantify each case, taking into account the geographical context. Understanding and successfully assessing

100 (ibid.:para. 10).
101 (ibid.:para. 7 and 12).

a particular case of climate-change-induced loss and damage would also suggest the required approaches for dealing with such loss and damage. Thus, the identification, measurement and characterisation of loss and damage are primary requirements for developing local, national, regional and international policy and legal frameworks. Assessment efforts at a micro level demand a particular role of a particular state in collaboration with regional and international efforts to deal with climate-change-related loss and damage.

Against this backdrop, this paper initially concentrated on the conceptualisation of *loss* and *damage* associated with climate change in the context of a particular territory, and considered two cases from Bangladesh that dealt with extreme weather events and slow-onset processes of climate change. The case of the extreme weather event, namely Cyclone Aila, has divided scientific experts in respect of how to quantify the extent to which climate change contributed to Aila's path of destruction.[102] Nonetheless, the destruction wrought by Aila provided a portrait of actual and potential loss and damage related to climate change. On the other hand, increased SST is identified as an impact of climate change with the empirical data, which also provided some unique features of loss and damage.

The factual evidence on existing loss and damage from both cases includes loss of lives; loss of property; ecological damage and loss of traditional livelihoods; displacement and migration; and loss of territory, values, culture and heritage. Moreover, people who were forced to migrate lost their freedom to choose a profession, and also faced challenges with new lodgings, drinking water, food, sanitation, security and so forth. The discussion on definitions revealed that *damage* can be repaired or restored, but *loss* is considered irrecoverable damage, i.e. complete loss that can no longer be avoided through mitigation or adaptation. With regard to approaches to address such damage and loss, adaptation efforts need to be synergised, while others will require taking action through new arrangements and stand-alone approaches. In terms of a legal definition, *loss and damage* equates with "tort" or "liability", and pleads for a claim for such negative impacts, with the monetary compensation as a remedy. Also, remedial measures can be offered for ecological harm, and monetary compensation can be awarded for lost infrastructure and property. However, complex legal and administrative

102 McAdam & Saul (2010).

procedures are needed for resettlement and rehabilitation for forced migrants as well as for issues related to non-economic losses.

In accordance with the legal direction of the definitional views, if Bangladesh can put forward a climate-change-induced loss and damage claim under a climate legal regime and/or under customary international law, it can convincingly establish substantive arguments under both regimes that one or more states are responsible for wrongful acts based on causation and liability. While the substantive law may provide a clear basis for such a claim, there are often no procedural means to pursue them further due to adequate procedural mechanisms under public international law. There is no governing authority that automatically addresses the legality of an act or situation at international level. This reflects the fundamental principle of international relations that states are sovereign and free to choose their own methods of resolving their disputes. In practice, political pressure and diplomatic negotiations remain the primary tools in the international arena to influence state conduct.[103]

Taking into account the gaps and constraints of public international laws involved with climate-change-related loss and damage, broad, system-changing solutions to the climate crisis are called for. Thus, a contemporary legal and policy framework with specific substantive and procedural mechanisms are required. UNFCCC states parties from developing countries are enthusiastically negotiating the establishment of an international mechanism to address loss and damage, and the inclusion of an "international mechanism" in the Doha Decision on loss and damage marks an important window of opportunity for further development of procedural mechanisms in this respect.

Careful proactive policy can minimise the risks of potential loss and damage and can maximise the extent to which community resilience copes with climatic hazards. Mitigation is primary in this respect, with secondary focus being placed on adequate adaptation measures that can prevent and reduce the loss and damage related to climate change. It is, of course, the reactive legal response that is also needed to redress the unavoidable climate-change-induced loss and damage with compensation and remedial approaches. In terms of resettlement/relocation and rehabilitation, adaptation can also be a proactive measure, but it needs to take into account the non-economic consequences like loss of territory. Therefore, for the purposes of regulatory

103 Khan (2010).

responses to loss and damage, policy and legal frameworks will be reactionary and anticipatory. Reactionary measures will be taken in case of unavoidable climate-change-induced loss and damage, whereas anticipatory measures are taken for planning ahead for avoidable loss and damage.[104]

Therefore, it is imperative to establish an autonomous international mechanism with micro-level institutional arrangements, so that a bottom-up approach can assess and redress the real loss and damage.[105] A compensation fund can be launched at international level to meet the financial needs of these institutions (including micro-level institutions at national level) to deliver their functions with executive authority. A quasi-judicial authority, such as an independent dispute settlement body, can be formed to respond by way of compensation and remedial measures in dealing with the claims of loss and damage cases. Certainly, in this regard, a fundamental role needs to be played by the UNFCCC in collaboration with other relevant actors.

While the international climate regime began in 1992 with the adoption of the UNFCCC, it is still struggling to set up governance mechanisms for mitigation and adaptation to climate change, and the establishment of an autonomous international mechanism under UNFCCC will take time. However, the basic foundation needs to be built by 2015, when a new legal instrument will be adopted (Durban Platform). Therefore, LDCs, SIDSs and other vulnerable states such as African countries will have to work together to advance the work programme on loss and damage towards a legally binding instrument to deal with loss and damage. At the same time, some of the research initiatives such as the Loss and Damage in Vulnerable Countries Initiative are needed to generate knowledge and information and to build capacity of the negotiators to act effectively to develop international and national regulatory mechanisms on loss and damage. Without waiting for the development of international mechanisms, efforts can also be taken immediately by LDCs in particular to develop national mechanisms to address loss and damage, which could also provide bottom-up support to developing regional and international mechanisms.

104 Khan (2011a).
105 Khan (2011b).

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