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Policy Gaps and Needs Analysis for the Implementation of NDCs on Adaptation and Loss and Damage in Bangladesh, Nepal and Sri Lanka.

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List of Abbreviations

ADP	Automatic Data Processing
BCCSAP	Bangladesh Climate Change Strategy and Action Plan
CCD	Coast Conservation Department
COP	Conference of the Parties
CSOs	Civil society organisations
EFLG	Environment-Friendly Local Governance
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GHG	Green House Gas
IISD	International Institute for Sustainable Development
LEG	Least Developed Countries Expert Group
MDB	Multilateral development banks
MEPA	Marine Environment Protection Authority
MRV	Measurement, Reporting and Verification
NAP	National Adaptation Plan
NAPA	National Adaptation Programme of Action
NCCAPS	National Climate Change Adaptation Strategy
NDCs	Nationally Determined Contributions
NITF	National Insurance Trust Fund
SAARC	South Asian Association for Regional Cooperation
UN	United Nations
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
WHO	World Health Organization

1. Abstract

Nationally Determined Contributions under the Paris Agreement are voluntary commitments of parties to the UNFCCC to reduce their GHG emissions and engage on a low-carbon sustainable development pathway.[1] Out of currently 185 submitted NDCs (184 first and 1 second NDCs), and the majority of them contains an adaptation component, often connected to a National Adaptation Plan process.[2,3]

Like many developing country parties, Bangladesh, Nepal, and Sri Lanka have included adaptation goals and actions as well as loss and damage in their NDCs.

The NDCs of all three countries focus their mitigation efforts on the energy and transportation sectors, with two out of three including industry and waste management as well.

For adaptation, food security (mainly agriculture) and ecosystems are the major shared priorities, with water resources, coastal zone management, and urban areas coming of high importance as well. Finally, loss and damage is a priority sector for Bangladesh, Nepal, and Sri Lanka alike.

There are several persistent themes that manifest as either needs or constraints to the successful implementation of NDCs.

Gaps in policies and laws, institutions and coordination, capacities and awareness, finance and technology, as well as socioeconomic and other factors have all emerged as common for the implementation of NDCs in Bangladesh, Nepal, and Sri Lanka.

National, sub-national and sectoral policies and laws are in many cases outdated or inadequate to guarantee the effective implementation of NDCs and especially their adaptation components. Even though all three countries have created new policies and laws to facilitate NDC implementation, these are in many cases not enforced or do not go far enough to achieve NDC goals.

Much of this is connected to a lack of communication and coordination between various institutions involved in development and climate action. Not just the focal point to the UNFCCC is responsible for the implementation of NDCs, but all ministries and all sectors of the economy have a role to play in reducing GHG emissions, adapting to climate change, and manage climate risks. The establishment of a robust institutional framework with clear responsibilities and mandates can greatly facilitate NDC implementation; the establishment of a dedicated coordination body, for example the Coordination Committee in Bangladesh, might be helpful in achieving this goal.

Furthermore, building capacities and creating awareness of climate change and climate action is vital on all levels of government. From national line ministries and government entities to local authorities, every government body in charge of budget allocations, planning, policy drafting, development actions, or other activities related to NDCs should be aware of climate change adaptation and climate risk management and integrate it into all processes.

[1] (United Nations, 2015)
[2] (NDC Partnership, 2019)
[3] (GIZ, 2018)

The last major common gap is connected to financial and technological capacities. As developing countries that are already suffering severe impacts from climate change, Bangladesh, Nepal, and Sri Lanka have limited domestic funding available for adaptation and loss and damage. If the NDCs are to be successfully implemented, they require a strong funding mechanism that can leverage international funds, grants from multilateral development banks and public-private partnership investments as well as technological assistance and technology transfers from developed countries. An MRV mechanism could be highly beneficial in attracting more funding from various sources.

Addressing the shared gaps, needs, and constraints of Bangladesh, Nepal, and Sri Lanka can benefit from regional cooperation and the exchange of experiences and lessons learned. Implementing the NDCs of these three countries in an effective manner is vital to prepare for the impacts of climate change and build resilient, sustainable societies, economies, and ecosystems.

2. Introduction

Climate Change is defined by the United Nations Framework Convention on Climate Change (UNFCCC) as "…a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods."[4]

Anthropogenic climate change has vast impacts on the world at large. From increasing temperatures to erratic rainfall patterns and from extreme weather events to sea level rise, droughts, and soil erosion, climate change poses a clear and present danger to human civilization. Even the increase of just one degree Celsius compared to pre-industrial times has caused immense damage to populations, ecosystems, and economies. Climate-related disasters and slow-onset impacts lead to food and water insecurity, loss of livelihoods, damages to property and infrastructure, spread of diseases, poverty, displacement, and conflict.[5]

As scientists confirm the cause of climate change to be the burning of fossil fuels and other human activities, the nexus between climate change and development has become clear. Recognizing the multiple dimensions of climate change threats, states have initiated multilateral talks on reducing greenhouse gas (GHG) emissions since the late 1970s. Under the auspices of the UNFCCC adopted in 1992, the international regime on climate change has evolved; the Kyoto Protocol in 1997[6] created the current liability-based regime on emission reduction targets and the 2009 Copenhagen Accord[7] was greeted with the participation of 192 countries.

In December 2015, parties to the UNFCCC adopted the significant international climate agreement, widely known as the Paris Agreement at the 21st Conference of the Parties (COP21) in Paris.[8] This agreement aims to build up a strong response to the threat of climate change by keeping global average temperature rise well below 2° Celsius and taking all measures to limit the temperature increase even further to 1.5 degrees Celsius above pre-industrial levels.

The Paris Agreement requests all parties to prepare, communicate and maintain their post-2020 climate goals and actions, known as Nationally Determined Contributions (NDCs). Prior to the Paris Agreement during the 19th conference of the parties (COP 19), the UNFCCC invited all member states to communicate their Intended Nationally Determined Contributions (INDCs). These INDCs points out the contributions made by the member states towards reducing greenhouse gas emissions including goals and actions aimed at both climate change mitigation and adaptation to the adverse effects of climate change.

After ratifying the Paris agreement, the INDCs submitted by the member states became their first Nationally Determined

[4] (United Nations Framework Convention on Climate Change, 1992)
[5] (IPCC, 2018)
[6] (United Nations Framework Convention on Climate Change, 1997)
[7] (United Nations Framework Convention on Climate Change, 2009)
[8] (United Nations, 2015)

Contributions (NDCs).[9] As parties to the Paris Agreement, Sri Lanka, Nepal, Bangladesh prepared their respective NDCs, with Bangladesh being the first to submit in 2015[10] while Nepal and Sri Lanka both submitted their NDCs in 2016[11,12]. Though all three countries are not major contributors to global warming with, the effects of climate change are felt strongly.

Situated along the Himalayas and being landlocked, Nepal is threatened by melting glaciers, increasing temperatures, floods, and earthquakes whereas both Bangladesh and Sri Lanka are threatened by sea level rise and severe droughts, torrential rains with heavy floods, and various other impacts of climate change throughout the year. The inhabitants of these countries face numerous challenges as climate change places their lives and livelihoods at risk. All three countries are heavily dependent on agriculture and farming with rice as the main crop. The impacts of climate change on agriculture have caused people to migrate in search of alternative jobs and impacted the food security and economy of all three countries.

It is believed that NDCs will overall help to maintain the socio-economic conditions in all three countries providing strategies to mitigate future climate scenarios, to help adapt to the present climate conditions and mitigate loss and damage from adverse climate events.

Different policies and regulations implemented by government and non-governmental organizations help to design strategies on all levels including mitigation, adaptation, loss and damage. The Paris Agreement emphasises that NDCs targets could be best achieved by introducing the necessary laws and policies, ensuring that they have the legal framework to facilitate the use of renewable energy sources and other required standards to meet the needs of bringing down global temperatures.[13]

However, policy gaps related to mitigation, adaptation and loss and damage hinders development of the NDCs of these countries. The enhanced transparency framework introduced by Article 13.5 of the Paris Agreement which includes progress towards implementation and adaptation of the NDCs has been now replaced by the measurement, reporting and verification (MRV) framework under which biennial reports and BURs etc. will be required to be submitted.[14]

This gap analysis report on the Implementation of NDCs on adaptation, loss and damage examines the gaps that exist within the context of implementing NDCs in Nepal, Bangladesh and Sri Lanka. It aims to identify key elements for success as well as barriers and opportunities to the achievement of NDC targets. The gap analysis recognises that countries are at different stages of addressing climate change and that submitted NDCs have varying levels of details and different structures. Therefore, the analysis presents common NDC related gaps, capturing both what countries have started doing well and areas where additional effort is required.

[9] (United Nations, 2015)
[10] (Government of Bangladesh, Ministry of Environment and Forests, 2015)
[11] (Government of Nepal, Ministry of Population and Environment, 2016)
[12] (Ministry of Mahaweli Development and Environment, 2016)
[13] (United Nations, 2015)
[14] (United Nations Framework Convention on Climate Change, 2014)

3. Methodology

This research paper is a synthesis of the national-level research done on the legislation, policies, and strategic documents related to the implementation of NDCs in Bangladesh, Nepal, and Sri Lanka under APN Grant No. CRRP2018-11MY-Wijenayake.

The key focus of the research is an assessment of the common existing gaps and needs for the implementation of adaptation and loss and damage NDCs across all three countries. It examines the overall mechanisms for the implementation of NDCs of Bangladesh, Nepal, and Sri Lanka as well as the institutional mechanisms that facilitate this.

The paper has been prepared based on desk research, interlinked with a consultative process through interviews, sectoral and national level multi-stakeholder consultations. Key national documents on climate change, sustainable development, disaster risk management and disaster risk reduction, and relevant sectoral policies were reviewed during the research. Findings of the research were validated through consultation meetings and workshops and the final research product has been prepared taking into consideration the feedback and comments received from the meetings and workshops.

This paper aims to contribute to developing the baseline for identifying the key gaps and needs in laws and policies for the implementation of present NDCs of Bangladesh, Nepal, and Sri Lanka, as well as identifying the common key gaps and needs to be addressed in the review of their NDCs and, in the case of Bangladesh and Nepal, the formulation of their NAPs.

The research methodology applied is as follows:

- **Policy Gaps and Needs Analysis:** Laws and policies related to all sectors that are included in the NDCs and the NAP, as well as related to cross cutting thematic areas have been analysed to identify the gaps and needs in laws the policies for the implementation of current NDCs in all three countries.
- **Multi-Stakeholder Consultations and Workshops:** Based on the initial legal and policy analysis for the laws and policies related to climate change and sustainable development, fourteen multi-stakeholder consultations with a total of around 200 participants were conducted in Sri Lanka, two consultations with a total of 44 participants in Nepal, and two consultations with a total of 50 participants in Bangladesh. Furthermore, a national workshop in Nepal, a national workshop in Bangladesh, a national workshop in Sri Lanka, and a two-day regional workshop in Sri Lanka served to collect additional information from stakeholders and experts as well as for validation of and input for the existing research drafts. Key stakeholders from government entities, civil society organisations (CSOs), research institutions and think tanks, private sector, and academia were invited for these consultations and

workshops. Data collection through consultations was based on discussions with the stakeholders and inputs on the present status of NDC implementation, and data provided on existing gaps and needs for NDC implementation.

- **Recommendations and Feedback:** Following the identification of gaps and needs based on the aforementioned methods, recommendations to address them were developed based on inputs received by experts, and multiple stakeholder consultations were conducted for this purpose. Recommendations and feedback were generated by the researchers based on the inputs received during the stakeholder consultations, national level workshop, as well as the information provided by key stakeholders through the data collection survey.

The research findings were presented for validation by key stakeholders and edited prior to being published.

4. NDCs on Adaptation and Loss and Damage

Nationally Determined Contributions determine the national-level actions taken by parties to the Paris Agreement to reduce GHG emissions and help achieve targets on mitigation and adaptation. They also enable international cooperation and coordination for achieving international commitments. NDCs are voluntary and country driven commitments that are made by countries in reflection of what their respective resources and.[15]

One of the key features of the NDC process is allowing parties the maximum flexibility in preparing, designing, and presenting their contributions. Each country must prepare, communicate and record its contribution. Every country must deliver a minimum of information on their determination of national contribution to fight climate change. Once presented, no country should reduce its objectives and NDCs should be open to public scrutiny.

Studies have noted that developed countries seem to prefer absolute targets while developing countries prefer targets relative to business as usual scenarios (BAUs) while indicating adaptation components with variations related to actions to be taken based on the country specific conditions and others such as availability of support[16].

Out of currently 185 submitted NDCs (184 first and 1 second NDCs), and the majority of them contains an adaptation component, often connected to a National Adaptation Plan process.[17,18]

4.1 The NDCs of Bangladesh, Nepal, and Sri Lanka

All three countries have included adaptation and loss and damage components in their NDCs.

The NDCs of all three countries focus their mitigation efforts on the energy and transportation sectors, with two out of three including industry and waste management as well.

For adaptation, food security (mainly agriculture) and ecosystems are the major shared priorities, with water resources, coastal zone management, and urban areas coming of high importance as well. Finally, loss and damage is a priority sector for Bangladesh, Nepal, and Sri Lanka alike.

Means of implementation and financial support are included in the Sri Lankan and Bangladesh NDCs while Nepal has recognised knowledge management as another area of focus in its NDCs. Efforts under this area mainly consist of the generation and dissemination of climate related knowledge carried out by the Climate Change Knowledge Management

[15] Bernd Hackmann, NDCs and NDC implementation, UNFCCC, (2017), as cited on <http://www.ndcs.undp.org/content/dam/LECB/events/2017/20170926-regional-africa-ndc-dialogue-rabat-morocco/presentations-day-1/undp-lecb-africa-regional-dialogue-climate-negotiations-ndcss-bernd-hackmann-unfccc-sec-20170926.pdf> , accessed on 01.03.2019

[16] INDC White Paper - June 2016_public_RALI.pd

[17] (NDC Partnership, 2019)

[18] (GIZ, 2018)

Centre, exclusively established for that purpose[19].

While action under the above areas have been developed by each country according to the individual needs, targets and risks facing each, in terms of all three being developing countries, their policies also reflect common traits such as climate sensitive development policies, the need to diversify energy mixes and the demand for technical and financial assistance in implementing the actions in the NDCs.

[19] NDCs, Sri Lanka

Sector	NDCs of Bangladesh	NDCs of Nepal	NDCs of Sri Lanka
Mitigation Sectors			
Energy	Rural Electrification	Renewable Energy (NDCs 5, 6, 7, 8, 14)	Energy (Electricity Generation)
Transport and Infrastructure	Resilient Infrastructure	Transportation (NDCs 10, 11)	Transportation
Industry	Industry		Industry
Waste Management		Solid Waste Management (NDC 5)	Waste
Adaptation / Adaptation-Related Sectors			
Health	Health		Human Health
Food Security	Food Security	Agriculture (NDC 5)	Food Security (Agriculture, Livestock, Fisheries)
Water	Water Security		Water and Irrigation
Coastal and Marine	Flood Control and Coastal Erosion, Coastal Zone Management,		Coastal and Marine
Ecosystems	Ecosystems, Community-Based Conservation	Forestry (NDCs 5, 12, 13)	Biodiversity, Forestry
Human Settlements	Urban Resilience		Urban Infrastructure and Human Settlements
Tourism and Recreation			Tourism and Recreation
Loss and Damage	Disaster Management, Social Protection and Livelihoods	Climate-Induced Disasters (NDC 4)	Loss and Damage

4.2 Adaptation Actions

Given the imminent risk of global temperatures rising up to 2°C or more by 2100,[20] strategic adaptation actions are urgently required to prevent the risk from materialising. In this regard, mainstreaming climate change into all domestic policies and action plans at national and regional levels is of vital importance. For this purpose, it is a prerequisite for effective adaptation efforts to develop an efficient, coordinated and well-funded strong institutional framework. Developing countries in general face difficulty at coordinating within the institutional framework and they, in most cases, also

[20] (IPCC, 2018)

suffer from the inadequacy of funds for adaptation efforts.[21]

The NDCs related to adaptation in Sri Lanka have been developed through consultations with the relevant stakeholders based on the National Climate Change Adaptation Strategy (NCCAPS) and the draft National Adaptation Plan for Climate Change Impacts in Sri Lanka (NAPs). These NDCs mainly focuses on mainstreaming climate change adaptation into national planning and development, enabling climate resilient and healthy human settlements, minimizing climate change impacts on food security, improving climate resilience of key economic drives, safeguarding natural resources and biodiversity from climate change impacts.[22]

However, in the absence of comprehensive legal enactment on climate change, Sri Lanka faces many difficulties in terms of implementing climate adaptation strategies. Several NDC sectors, including health sector, have not yet considered the effects of climate change. Heat related stress issues and mental health problems which are aggravated possibly due to temperature increase are under reported, overlooking the effects climate change. Similarly, the agricultural sector mainly consists of a workforce where a majority of them are recognized as farmers.[23] Agricultural crops can be damaged due to severe heat and drought and psychological impact of the farming community due to loss of income and health have not been considered in the NDCs. These communities have been identified as an important group, therefore, need for the implementation of occupation related programmes.[24]

Similar issues have been identified in other sectors. Lack of methods to protect corals and lack of awareness programs about protection of corals for the coastal community have been considered as major gaps. Survey of coral reefs around the country and updating the conditions on a yearly basis coupled with awareness programmes for people to improve their knowledge on the importance of protecting coral reefs are recommended to address this gap. Lack of data related to sea level rise in Sri Lanka is yet another gap that hinds the progress of climate adaptation. This gap can be addressed by linking future projections with sea level rise and obtain future projections with current sea level.[25]

The adaptation component of the NDCs of Bangladesh identifies areas of interventions and adaptation actions to carry out. The first initiation to make adaptation an organized national endeavour took place in 2005 through the Bangladesh's National Adaptation Programme of Action (NAPA). In the pre-2005 era, pioneering programs like 'Reducing Vulnerability to Climate Change' upheld the needs and the importance of adaptation actions on the ground with the people. At present, Bangladesh is in the process of designing a new national adaptation plan to achieve these adaptation goals and to facilitate the integration of climate change adaptation action in the national development process.[26]

Under the NDCs of Nepal, the primary goal for adaptation is to protect the population, enhance their adaptive

[21] (Prakriti Resources Centre / SLYCAN Trust, 2019)
[22] (Ministry of Mahaweli Development and Environment, 2016)
[23] (SLYCAN Trust, 2019)
[24] Ibid
[25] (ICCCAD / SLYCAN, 2019)
[26] (Prakriti Resources Centre / SLYCAN Trust, 2019)

capacity and livelihood options and to protect the overall development of the country. As a climate vulnerable country, adaptation remains the major priority in its NDC. Nepal has initiated a process to develop and formulate National Adaptation Plans (NAPs). Therefore, adaptation needs for future in the context of post 2020 will be projected through the NAPs. Nepal has also strengthened implementation of Environment-Friendly Local Governance (EFLG) Framework in Village Development Committees and Municipalities to complement climate change adaptation, promote renewable energy technologies, and for water conservation and greenery development.

Currently, the ministries in Nepal are being remodelled. Therefore, there is no stable arrangement that is being proposed within the ministries to manage climate change adaptation. Another issue which surfaced is the adaptation process is that relevant agencies have too much focus on mitigation compared to policies on adaptation. At present, policy makers and bureaucrats of Nepal are more interested in carbon trading, making it a priority and neglecting other aspects of climate change. Yet another issue is that the Ministry of Home Affairs has stopped engaging in climate change related matters making it difficult to implement action plans both domestically and globally[27].

4.3 Loss and Damage

Climate change is altering the face of disasters, not only through increased weather-related and other hydro-climatologically risks, but also through increased risks on social, economic, and environmental vulnerabilities. The Paris Agreement extends the Warsaw International Mechanism for Loss and Damage, which is tasked with developing approaches to help vulnerable countries cope with unavoidable impacts and slow-onset events.[28]

NDCs of Bangladesh does not recognize loss and damage comprehensively, but it is addressed through different components of adaptation whereas Nepal has recognised the need to study and understand loss and damage associated with climate change impacts with the support from the scientific and academic communities. The NDCs of Nepal further indicates a financial requirement to conduct research and studies on loss and damage association with climate change impacts and to develop and implement measures to reduce climate vulnerabilities. Compared to both Nepal and Bangladesh, Sri Lanka has adopted a different approach, where loss and damage is recognised, identified and categorised as one of the four areas of the NDCs.

To mitigate loss and damage, insurance for the climate induced disasters are well established in Sri Lanka. This crop insurance schemes have been in existence for over forty years under the Agriculture Insurance Board. The National Agricultural Insurance Scheme and Agricultural Loan Protection Insurance, indemnity-based scheme have been executed by the National Insurance Trust Fund (NITF) to provide Insurance cover for damages caused by drought, flood inundation, cyclone, storm, tempest and damage by elephants to current paddy cultivation. Further, this insurance scheme does provide the cover for input cost of Potato, Big onion, Maize, Chilies, and Soybean.

[27] Ibid

[28] (United Nations Framework Convention on Climate Change, 2019)

Since 2016, NITF coverage extends to lives, properties and all households and small business establishments are covered in respect of damages due to cyclones, storms, tempest, flood, landslide, hurricane, earthquake, tsunami and any other similar natural perils, excluding droughts. All Fishermen registered under Department of Fisheries will also be covered to the value of Rs.1 Million under this scheme [29].

Apart from NITF the private sector has also taken an interest in agriculture insurance. The project developed by SANASA insurance company was centred on the adaptation of a weather-based crop insurance model, to the Sri Lankan environment, including the development and testing of new methodologies to streamline the overall process, improve delivery mechanisms, and raise the awareness of insurance among rural Sri Lankan communities. However, it is not clear on what basis they are hoping to pay the insured parties[30] .

Research conducted in rural parts of the country revealed that the demand for existing insurance schemes is considerably low and that farmers are unaware of how crop insurance works Most farmers do not understand the real benefits that crop insurance, making farmer unawareness a major barrier for taking up insurance in the rural areas[31] .

The Government of Nepal through the Insurance Board introduced crop and livestock insurance in J2013 to encourage insurance companies to develop commercial agricultural insurance. The directive introduces the obligation for non-life insurance companies to offer agricultural insurance, and also the guidelines for the insurance policies that insurance companies can use. Insurance companies are also free to submit their own schemes for approval by the Insurance Board. 17 out of 19 non-life insurance companies have offered agricultural insurance, and insurance coverage is particularly higher for livestock than the crop sector. Apart from this, Cooperative organization of farmers and farmers' groups and Credit Security program of the Agricultural Development Bank have also been implementing agricultural insurance schemes in the country which are separate from the insurance companies' subsidy scheme.[32]

[29] (Institute of Policy Studies of Sri Lanka, 2017)
[30] Ibid
[31] (Rambukwella, Vidanapathirana, & Somaratne, 2007)
[32] (Ghimire, 2014)

5. Policies, Plans, and Strategies

At the first step countries can develop policies for international support in areas where domestic action is not sufficient. In all three countries NDCs have identified the need for policies and legal framework and referred to the process of developing certain legal enactments.

5.1 Bangladesh

Bangladesh has an overall set of laws and policies that are relevant to the NDCs such as the National Adaptation Programme of Action 2005, Bangladesh the Climate Change Strategy Action Plan 2009, the Seventh Five Year Plan, or the Bangladesh NDC Implementation Roadmap.

The Seventh Five Year Plan (2016-2021) articulates new strategies, institutions, and policies that aim to create employment and skill development opportunities, supply credit for SME development, and empower people in many other ways. Along with growth, the Seventh Five Year Plan emphasizes social protection, urban transition, and a sustainable development pathway that is resilient to disaster and climate change.

The NDC Implementation Roadmap was prepared to secure the effective implementation of Bangladesh's NDCs under the Paris Agreement to manage growing emissions without compromising required development and to allow Bangladesh to play its role in global efforts to limit temperature rise to 2°C (preferably 1.5°C) above pre-industrial levels. The

NDC implementation roadmap covers the period from 2016 to 2025 and focuses principally on mitigation actions to reduce GHG emissions from the transport, power, and industry sectors.

For adaptation, the National Adaptation Plan will be the principal policy document. Bangladesh is currently formulating the NAP under the NAP Readiness Proposal with a focus on long term adaptation investment and enhancing the national capacity for integrating climate change adaptation into planning, budgeting, and financial tracking processes. The NAP process is expected to be built on existing experience of formulation and implementation of NAPA, BCCSAP, the Seventh Five Year Plan (2016-2020), the 2015 NDCs, the 2015 NAP Roadmap for Bangladesh, and other programme and project activities of the MoEFCC and other sectoral ministries.

In addition to these fundamental policy instruments, Bangladesh has a number of sectorial laws and policies that can support the effective implementation of NDC. These sector-based policies are implemented under the relevant line ministries[33] and include the Bangladesh Second Country Investment Plan: Nutrition Sensitive Food System (2016-2020), the Strategic Plan for Health, Population and Nutrition Sector Development Program (HPNSDP) 2011-2016, the 2018 National Agriculture Policy, the 2015 National Disaster Management Policy 2015, the National Plan for Disaster Management (2016-2020), the Comprehensive Disaster Management Plan, the 2016 Power System Master Plan, the Climate Resilient Infrastructure Mainstreaming (CRIM) and

[33] (ICCCAD / SLYCAN, 2019)

Coastal Climate Resilient Infrastructure Projects, the Bangladesh Urban Resilience Project, the National Biodiversity Strategy and Action Plan of Bangladesh 2016-2021, the Bangladesh Climate Change and Gender Action Plan, the Bangladesh National Conservation Strategy (2016-2031), or the 2011 Bangladesh Capacity Development Action Plan for Sustainable Environmental Governance.

5.2 Nepal

Nepal is transitioning from a unitary administrative system to federal governance model. With the promulgation of the Constitution in 2015, the country is now governed at three administrative levels – a federal, provincial and municipal levels.

Nepal's legal framework as an approach is similar to that of Bangladesh since they have addressed the NDCs in an overall manner rather than sector-based has set out that the Climate Change Policy of 2011 which enjoins concepts such as climate justice, environmental conservation, and sustainable development with the objectives of reducing GHG emissions, promoting the use of clean energy, enhancing climate adaptation, and strengthening the resilience of local communities and optimum utilisation and efficient management of natural resources. In order to develop mitigation friendly forest management, they have recognised the important function of the community-based organisations and the need for implementing community adaptation plans of action CAPAs, based on forest and non-forest benefits. Nepal's Forestry Sector Strategy 2016-2025 has been in force with the aim to enhance the forest carbon stock and to implement forest carbon trade and payment mechanism by 2025. Their NDC refers to strategies and action plans related to other sectors such as biodiversity, energy, transport. Most of these policies are soft law instruments driven towards time-based targets.[34]

The laws and policies reviewed as part of the research are of federal government. These laws and policies were formulated by the government before the promulgation of the Constitution. Many of these are already in amendment process in the Parliament.

The National Climate Change Policy of Nepal (2011) is a key policy document on climate change that aims to reduce GHG emissions by promoting renewable and clean energy and green technologies, and enhancing climate adaptation and resilience capacity through optimum utilization of natural resources. The National Adaptation Programme of Action (2010) is another key document that has identified and prioritized climate change adaptation actions of Nepal. It has identified six sectors vulnerable to climate change: Agriculture and food security, forest and biodiversity, climate-induced disasters, water resources and energy, public health and urban settlements and infrastructures. The Local Adaptation Plan of Action Framework (2011) is a landmark document that aims to integrate climate change adaptation activities into local and national development planning processes for promoting climate resilient development.

Besides these key policies and planning documents, and laws on different sectors such as agriculture, forestry, disaster, transportation and energy have key provisions related to climate change, such as the Agriculture Development Strategy (2015-2035), the Forestry Sector Strategy (2016-2025), the Disaster Risk Reduction

[34] (Prakriti Resources Centre / SLYCAN Trust, 2019)

National Policy (2018), the National Energy Strategy of Nepal (2013), and the Environment Friendly Vehicle and Transport Policy (2014).

5.3 Sri Lanka

In Sri Lanka, the sector-based approach means that each sector has relevant laws and policies that are in the process of being amended to meet the NDC targets, and some which are not amended for the purpose and need review. There is also the National Adaptation Plan and the National Climate Change Policy which indicate the overarching approach.[35]

Sri Lanka's NDCs present four key thematic areas of focus: adaptation, loss and damage, and mitigation means of implementation. They also concentrate on the sectors of energy (electricity generation), transportation, industry, waste, and forestry for mitigation and on the sectors of health, food security (agriculture, livestock, and fisheries), water and irrigation, coastal and marine, biodiversity, urban, city planning, and human settlements, and tourism and recreation for adaptation, as well as loss and damage as the priority sector for climate action.

Sectoral policies, plans, and other documents relevant to NDC implementation include the Health Services Act and the 2016 National Health Policy, the 2016 Pest Management Plan, the National Biodiversity Strategy and Action Plan, the Urban Development Authority Strategic Plan 2018-2022, the City of Colombo Development Plan, the Sri Lanka Tourism Vision 2025, the Sri Lanka Disaster Management Act, and many more across all sectors of the national economy.

5.4 Identifying Common Gaps and Constraints

There are several persistent themes that manifest as either needs or constraints to the successful implementation of NDCs.

Gaps in policies and laws, institutions and coordination, capacities and awareness, finance and technology, as well as socioeconomic and other factors have all emerged as common for the implementation of NDCs in Bangladesh, Nepal, and Sri Lanka.

In all three countries, there seems to be a lack of an overarching coordinating body and coordination in implementation of laws and policies in terms of the laws of the relevant sectors. There is also a lack of specific implementation plan to identify the actions identified, in order to verify and measure the developments against the plans and to be used in future plans and policies.

[35] (SLYCAN Trust, 2019)

6. Common Gaps and Constraints in NDC Implementation

There are several persistent themes that manifest as either needs or constraints to the successful implementation of NDCs.

Gaps in policies and laws, institutions and coordination, capacities and awareness, finance and technology, as well as socioeconomic and other factors have all emerged as common for the implementation of NDCs in Bangladesh[36], Nepal[37], and Sri Lanka[38].

What follows is a discussion on the above and other relevant themes concerning the success, progress, challenges, needs, and experiences of NDC implementation within these three South Asian countries.

6.1 Policy and Legal Gaps and Constraints

6.1.1 Bangladesh

Bangladesh has a number of key policies that are relevant for the implementation of NDCs, including the 2009 Bangladesh Climate Change Strategy and Action Plan (BCCSAP), the Seventh Five Year Plan (2016-2020), and the Bangladesh NDC Implementation Roadmap. The NAP is supposed to provide the framework for adaptation actions in the country, but it is yet to be drafted.

The Government of Bangladesh has done a lot to integrate NDC adaptation actions into sectoral policies, but there is still a need of detailed road maps for the transport, power, and energy sectors. The adaptation sectors could be further integrated into the ADP, sectoral plans, programs, and projects.

Loss and damage is still in the conceptual stage and needs to be integrated into the different plans and policies by further addressing the issue through different ways such as safety net program, disaster management and relief, emergency support, rebate of agricultural loan, subsidies on agricultural input etc.

6.1.2 Nepal

Nepal has been successful in working toward NDC goals in the forestry sector, agriculture, renewable energy, and disaster risk management. On the other hand, the transportation sector seems to experience a reverse trend, and no data is available for the waste management sector.

Nepal is on the right track, but making sure that NDCs and the upcoming NAP have strong and robust links to national and sub-national policies as well as to the country's development goals is crucial.

6.1.3 Sri Lanka

There are several gaps and needs to be addressed on the policy and legal level for the effective implementation of the NDCs of Sri Lanka. A major gap is the lack of laws for implementing the NDCs, but they are in many cases in their draft version and already being prepared.

Health sector and water sector policies lack a waste management component. There are not sufficient policies for the screening of migrant workers for Malaria,

[36] (ICCCAD / SLYCAN, 2019)
[37] (Prakriti Resources Centre / SLYCAN Trust, 2019)
[38] (SLYCAN Trust, 2019)

for livestock and livestock breeding, for the protection of irrigation systems, for the extraction of groundwater, or for integrated water resources management.

A lack of policies and lack of implementation of policies and laws to prevent unauthorized construction and land use has been identified as well as marine crimes.[39]

With close to 50%[40] of forest cover lost in approximately 50 years, deforestation threatens the biodiversity of Sri Lanka. The Forest Conservation Ordinance 1908 amended by Act 65 of 2009 and the Fauna and Flora Protection Ordinance 1938 amended by Act no. 49 of 1993 are the main legislations related to wildlife and biodiversity in Sri Lanka. Population increase and demand for land for industries have not only reduced the forest cover but also prevented the effective implementation of existing laws.[41]

In the agriculture sector, many key laws provide opportunities to integrate climate change and climate action, for example the development of seeds and food security. While fertiliser is a major contributor to climate change, climate change is not referred to in the relevant laws of Sri Lanka; and while the production of food is vital to addressing food security, the relevant laws focus primarily on elements that do not relate to climate stressors.

[39] Consultations conducted for data collection in collaboration with the Ministry of Mahaweli Development and Environment.
[40] https://www.conftool.com/.../09-07-Selvakkumaran-195_paper.pdf
[41] Ibid

6.1.4 Common Gaps and Constraints

Climate policies are implemented within the country's framework of legislation, which means that the strength of this framework is a vital determinant of the success of climate actions under the NDCs. In many cases, inadequate laws and regulations present difficulties in the implementation process of climate measures in many sectors.[42]

6.2 Institutional and Coordination Gaps and Constraints

6.2.1 Bangladesh

Lack of coordination among different government institutions poses a challenge for implementing the NDCs of Bangladesh. The Government has recognized this issue and already proposed an institutional arrangement for NDC implementation, but it is not operational yet. The Government is reconsidering the existing governing and institutional structures like the NDC and NAP working groups.

The advisory committee, a coordination committee, and the NAP implementation analytical support need to be more strengthened and receive more detailed guidelines and mandates.

There is a need to establish effective coordination among ministries and other government institutions. Each committee should be restricted to its area and have clear boundaries and responsibilities.

To look after the day to day functions of the NDC and NAP implementation activities, the Government may also consider to establish a separate secretariat.

[42] https://pubs.iied.org/pdfs/G04320.pdf

6.2.2 Nepal

Nepal has redesigned their constitutional structure, moving away from a unitary administrative system to a decentralized federal governance model. The country is now governed under three distinctive levels: federal, provincial and municipal.

The new constitution provides mandates for all three administrative sectors to formulate and implement laws and policies on sustainable development and environmental protection and conservation.

The laws and policies that have been reviewed have been implemented by the federal government before the promulgation of the new constitution[43]. Consequently, these laws and policies should be amended so that they would be compatible with the constitution.

In Nepal, local authorities play an important role under the new constitution. They have the ability to set their own priorities and allocate their own funds. This creates a new decision-making space for them and offers a great opportunity to build their capacity and awareness of climate change issues, strengthen the implementation of climate action on the local level, and mainstream and adaptation and mitigation as well as climate risk assessments into all their processes.

The NDCs should recognize the roles and contributions of development partners and private sectors in achieving NDC targets. Works of development partners and the private sector must be account while setting new NDC targets.

It is important that the NDC formulation process is participatory and inclusive and gives ownership to the various involved government agencies, development partners, and the private sector. All concerned stakeholders should be engaged and part of the formulation of NDCs.

6.2.3 Sri Lanka

Like Bangladesh and Nepal, Sri Lanka has also indicated the need for enhanced coordination with sectoral ministries and entities for the implementation of NDCs and climate actions. There is a need to build capacity and to enhance the mainstreaming of climate action in many ministries, and the coordination between the authorities and local stakeholders such as farming or coastal communities, people living in rural parts of the country.

In the health sector, there is a need to set up surveillance or monitoring system, and a lack of institutional capacity to treat chronic kidney disease of unknown origin (CKDU,). The inputs received through consultations and interviews have pointed to the lacking of a coherent coordination body for coastal mapping, the agriculture sector coordination for pesticide poisoning and the implementation of crop insurance.[44]

The overlapping of institutions and the duplication of laws and mandates make the implementation of NDCs more difficult and ineffective.[45] Research is needed in many areas and would greatly improve the government's ability to address climate change impacts.

[43] (Prakriti Resources Centre / SLYCAN Trust, 2019)

[44] Consultations and survey conducted for data collection in collaboration with the Ministry of Mahaweli Development and Environment.

[45] (SLYCAN Trust, 2019)

6.2.4 Common Gaps and Constraints

Another essential factor for the successful implementation of NDCs is the presence of well networked and solid institutions covering all sectors of the economy. Weak, uncoordinated sectors and their institutions are in many cases the greatest hindrance to better implementation of NDCs.[46]

Further, the authority vested in the main coordinating entity, institution or line ministry needs to be proportionate and adequate for the purposes of supervision over and provision of insightful leadership to the various local actors having stakes in NDC implementation and climate change in general.

Where such adequate powers and authority are lacking, institutional weaknesses constitute a real obstacle in carrying out climate action plans spanning the entire country.

6.3 Capacity Gaps and Constraints

6.3.1 Bangladesh

There is lack of awareness about the adaptation part of NDCs in different government and non-government agencies. Capacity and awareness need to be built within government ministries and line agencies to effectively coordinate, streamline and implement NDC-related actions.

Lack of transparency in administrative and implementation processes of NDC is another problem that frequently surfaces. A detailed monitoring plan to track and report on NDC and NAP implementation progress at the national level would go a long way to make Bangladesh's climate action more efficient and allow it to gain access to new funds and support.

6.3.2 Nepal

In Nepal, it is difficult to document the progress made on specific sectors due to lack of Monitoring Reporting and Verification (MRV) mechanism. The revised NDCs should prescribe a comprehensive MRV mechanism for the relevant government agencies, private sector entities, and development partners.

6.3.3 Sri Lanka

Many Government ministries and departments suffer from a lack of qualified human resources and technical experts Both government staff and local stakeholders need capacity building and awareness creation on climate change impacts, climate risks, and climate action. There is also the potential of making more effective use of indigenous knowledge, but for the moment, a lack of expertise makes this difficult.[47]

It is also important that the legal policy experts who draft laws and policies which have interlinks with/ are on climate change related aspects are capacity build on climate change impacts. This is an important element in ensuring that the laws and policies related to different sectors linked to NDC implementation integrate climate change to them.

[46] https://pubs.iied.org/pdfs/G04320.pdf

[47] For example, The Animal Feeds Act No. 15 of 1986 of Sri Lanka has the objective to improve the quality of animal feed available for sale and to protect farmers and animal feed manufacturers and importers, but it does not explicitly address climate impacts and the manner climate change would affect the quality of animal feed. There is a need to build capacities regarding climate change terminology among policy makers, drafting experts and for decision makers.

There is also a lack of awareness on biodiversity and climate change and on climate-induced migration, as well as on international mechanisms such as WIM or the Sendai Framework.

6.3.4 Common Gaps and Constraints

Capacity building needs in the context of implementing NDCs include methods and tools that are required for building capacity as to the development and management of GHG emissions inventories and also the knowledge and training necessary for putting external sources of funding to use.[48]

The Seventh Five Year Plan of Bangladesh, did not address the need for capacity building at the governmental institutional as well as individual level. Capacity building needs on climate change require capacity enhancement mechanisms to bridge the gaps on different institutional levels. The seventh five-year plan lacks communication in coordination and in development of activities and expertise between governmental institute and local level institutions.[49]

Sri Lankan case studies on climate change provide yet another good example. Lack of methods to protect corals and lack of awareness programs for the coastal community about protection of corals have been identified as major gaps. Survey of coral reefs around the country and updating the conditions on a yearly basis and awareness programmes for people to improve their knowledge on the importance of protecting coral reefs are recommended and the Wildlife department along with the It is advised that the marine environment protection authority (MEPA) and the coast conservation department (CCD) to provide assistance to complete the proposed tasks. New Courses on marine wardens for women should be implemented in order to increase the number of women participants in conservation projects. Community participation on biodiversity projects should be strengthen and this can be done with the help of community-based organization along with relevant implementing agencies[50].

In order to properly understand the conditions and assumptions of the Paris Agreement, it is essential for policy and legal drafters to conduct a thorough study and interpretation of climate change terminology. Such efforts also require capacity building and time.

6.4 Financial and Technological Gaps and Constraints

6.4.1 Bangladesh

Detailed financial and technical support should be included in the NDC road map.

There is a need for financial and political support to ensure that NDC implementation measures can gain momentum. Multilateral development banks (MDB) such as the Asian Development Bank and World Bank are sources of finance. However, MDBs give less priority to financing for adaptation. UNDP and WHO are UN agencies which focus their funds on mitigation, such as clean energy. The FAO is adaptation centric. Development partners fund mostly capacity building, training, and knowledge sharing. 80% of Bangladesh's development funding comes from the private sector. From that, the money

[48] https://pubs.iied.org/pdfs/G04320.pdf
[49] (Prakriti Resources Centre / SLYCAN Trust, 2019)
[50] (SLYCAN Trust, 2019)

flowing for adaptation is currently almost zero.

Bangladesh's adaptation fund generation is mainly from the National budget. a) Annual development plan (10% of this is used on adaptation) 1.5 core taka (The government is using 1% of GDP, 2.7 billion dollars for adaptation; it might go up to 8-10% if the situation worsens). b) Climate change trust fund, which is around 420 million USD and comparatively small. Unfortunately, there is no practical road map on adaptation on how money will be generated.

For successful NDC implementation, there is a need to develop a more detail policy landscape for financing mitigation and adaptation actions. Conducting assessments of resource and capacity needs and engaging the private sector could help to mobilize adequate resources for adaptation actions.

6.4.2 Nepal

As available international and national funding is often spent on the national level and does not reach local government or the ground level, the new NDCs need to contain an implementation and financing plan.

If there are concrete targets and if the government states detailed requirements and creates a robust MRV mechanism, it will simplify access to international climate finance and convincing funding agencies.

Furthermore, Nepal's climate budget tagging should be overhauled to be more precise, especially when it comes to local-level allocation of funds.

6.4.3 Sri Lanka

Financial and technological gaps pose challenges to NDC implementation. There is an absence of data or data sharing mechanisms in many sectors, for example regarding weather and climate data for agriculture or regarding early warning systems for climate-related disasters are not freely accessible to the public.

Monitoring systems are need for many sectors, for example for saline intrusion into drinking water, water flow and sediment load in streams, water quality and pipe water contamination, sea level rise, reservoir water levels, pesticide poisoning, or vector- and rodent-borne diseases.

Ecosystem management, integrated coastal management, and post-harvesting technology are further gaps that the Government of Sri Lanka is trying to address.

6.4.4 Common Gaps and Constraints

All participants who have submitted their NDCs recognise the fact that the implementation of their respective targets is impossible without sufficient funds. In terms of the flow of funds for this purpose, internal funding is viewed and relied on by many as a main source; especially in Nepal where the government has mobilized a substantial amount of its annual budget for climate actions. In contrast, no specific financing is requested or allocated from the national budget in the NDCs of Bangladesh or in its NDC Implementation Roadmap 2018. As developing nations, adaptation measures also rely on external financing and

support from the international community[51].

Financial support has been called for both climate mitigation and adaptation strategies, and the demands seem to be specific as to whether the targets are conditional or unconditional[52]. Apart from the bilateral and multilateral financing mechanisms constituting external funding, the role of the private business sector as a source of funding has been recognised as having great potential by the NDCs of some countries such as Nepal, the specific measures taken to empower their local financial markets so as to enable them to contribute towards climate projects. Similarly, in Bangladesh there is significant support for market-based mechanisms such as the Clean Development Mechanism in battling climate change[53].

A common issue as to private financing of climate change projects in the implementation of NDCs is that countries do not always clearly layout the proportion of funds to be raised from the private sector for implementation purposes.

The support in terms of technology, its development and transfer are an element which is as vital as financial resources are in the successful implementation of NDCs, in particular for those developing and least developed countries. This inevitably means that different countries have differing levels of technology needs or requirements and thus, different technology gaps. These needs as to technology can be framed as forming part of the larger challenge of capacity building required for climate action under NDCs[54].

For example, solid waste management is a growing problem across municipalities and cities in Nepal. Increasing volumes of waste results in both air and water pollution in the urban areas. Unavailability of land and lack of technology on managing solid waste have created major issues within the country[55].

Similarly, in Sri Lanka, the lack of technological skills for gathering climate data on biodiversity has reduced the number of researches done on the impact on biodiversity due to climate change. The National Science Foundation, Department of Wild Life and Conservation along with the National and the Aquatic Resource Center should initiate new research programmes and they need to provide technical coordination to develop new research strategies to find out new hot spots which are being threatened due to climate change[56].

The availability of climate data, often associated with issues relating to capacity building, constitutes yet another hindrance to utilizing effective action directed at countering climate change. Unfortunately, this is a gap that is commonly recognised in many NDCs that have been submitted, thus manifestly a great obstacle facing adaptation and capacity building efforts in particular.

For example, the National Water Policy 1999 of Bangladesh was designed with the objectives of improving water resources management and protection of the environment. However, the policy

[51] https://core.ac.uk/download/pdf/154332664.pdf

[52] Ibid

[53] (Government of Bangladesh, Ministry of Environment, Forest and Climate Change, 2019)

[54] https://pubs.iied.org/pdfs/G04320.pdf

[55] (Prakriti Resources Centre / SLYCAN Trust, 2019)

[56] (SLYCAN Trust, 2019)

document made no reference to Climate Change[57].

Similar to technological and financial support, the least developed and some developing countries require technical support in the process of implementation which is also closely associated with capacity building[58]. Well directed and effectively provided Technical Assistance will help countries in the implementation of their NDCs and promote greater ambition to achieve their targets.

Areas where technical assistance would be particularly helpful include the scrutiny of national developments plans for recognising key sectors for NDC implementation, identification of major market and policy factors impeding the implementation of NDCs of the private sector investment in climate action in particular and main stakeholder identification in government and relevant institutions within the key economic sectors by way of mapping.

6.5 Other Gaps and Constraints

Existing NDCs are often gender-blind or gender-neutral, meaning that they do no account for specific vulnerabilities and needs based on gender. To alleviate this, NDCs should be gender sensitive and includes gender specific targets and adaptation and mitigation actions.

Factors determining the socio-economic conditions of a particular country have been recognised as also having an impact on the success at implementing a country's NDCs. Concerns as to food security, extreme levels of poverty, low Human Development Index (HDI) levels together with high rates of youth unemployment, illiteracy and population growth constitute some of the major socio-economic challenges faced by many less developed states in carrying out their international commitments under the NDCs.

These challenges and the need for national development may inhibit the achievement of NDC targets. Thus, they are rather seen as obstacles in making climate change a top priority in the policymaking of a country and not as determining factors per se in relation to the success of NDC implementation process. Climate change can make a huge impact on agricultural crops thus on the farming community.

In Sri Lanka, agriculture in the coastal area has been affected by salinity intrusion and loss of land, about 10% of cultivated crops had been damaged due to sea level rise. Income loss and habitat loss due climate change have forced people to migrate in to new territories. Recent studies have indicated a rapid growth of migrant workers moving in to the capital of Sri Lanka in search of jobs. Unfortunately, there has been no proper research being conducted for future reference[59].

[57] (ICCCAD / SLYCAN, 2019)
[58] https://pubs.iied.org/pdfs/G04320.pdf
[59] (SLYCAN Trust, 2019)

7. Conclusions and Recommendations

Bangladesh, Nepal, and Sri Lanka are all faced with legal and policy gaps for which current projects have been launched to remedy them. All three countries together with the relevant institutions are working towards developing a comprehensive framework to battle climate change. Thus, this research suggests some general recommendations for all three countries that would help in reaching out to their climate goals.

All three countries do not have legislative enactments on climate change. Adopting legislation on climate change creating a coordination mechanism which has as its mandate to streamline the domestic legal and policy framework to suit the country's international climate change commitments would largely contribute to address institutional gaps as discussed above.

Further, establishing an effective coordination mechanism between the relevant line ministries working on climate change in the formulation, implementation and at the stage of Monitoring and Evaluation would expedite the action plans laid down in the NDCs. Coordination issues among stakeholders have caused some of the states to have a multiplicity of laws and policies on the same ministerial sectors causing inconvenience especially to the rural community and for the people who are vulnerable to the effects of climate change. Improving the coordination mechanism by focus on capacity building of the several stakeholders involved in the process would provide great support to in achieving climate goals.

A number of institutions, ministries and planning authorities have failed to give due recognition to climate change actions in the process of implementing climate change actions. Improving the capacity of institutions for the integration of climate change action into their planning processes would help to streamline the proposed action plans through NDCs.

Climate adaptation policies designed by implementing agencies have recognized the importance of climate change actions. Nevertheless, several institutions in all three countries have failed address this need. As per the Paris Agreement integrating climate change action at all levels, national and regional, through participatory decision-making processes should be given due recognition.

Stakeholder consultations revealed that several NDC sectors lack awareness on climate change policies. Awareness and capacity building of all relevant stakeholders with regard to climate change policies and laws to support effective integration processes would assist in the process of implementing a comprehensive legislative framework on climate change of all three countries.

Carrying out an analysis and review of policy and legal framework to identify gaps and scope for development and modification where necessary would help determine the progress of the NDCs and it will also provide a platform to plan out and develop effective NDCs for the future.

Integrating both SDGs and international DRR processes and mechanisms such as the WIM, the Sendai Framework, or the InsuResilience Global Partnership into NDC implementation could create strong

synergies or co-benefits for both sides. Sustainable development and climate adaptation action provide an opportunity to work together and achieve common goals and targets.

Climate change had first been announced by climate scientists and has now become a branch of scientific studies. Scientific data and scientific analysis on climate change are the key to understanding the changes of the atmosphere and the environment which surrounds us. Lack of scientific data and research on different climate scenarios have caused loss of lives in great numbers. Thus, it is important to keep up with scientific progress on climate research, adopting a regular review and amendment process relating to climate change policies and laws.

7.1 Recommendations

Bangladesh	Nepal	Sri Lanka
Policy and Legal		
Formulate the NAP to implement NDC adaptation components.	Formulate the NAP to implement NDC adaptation components.	NAP already formulated and under review for revision.
	Align sectoral targets with national priorities and align SDGs and NDCs.	Strengthen the integration of SDGs and NDCs to create synergies between both processes and interlink climate action and development.
	Set a concrete target for GHG emission reduction.	
	Include water resources, public health, and urban settlements and infrastructure sectors into the revised NDCs.	
Institutions and Coordination		
Establish a separate secretariat to oversee NDC and NAP implementation activities.		
Promote transparency in NDC implementation processes.		
Capacity		
Build capacities within government ministries and line agencies to effectively coordinate, streamline and implement NDC related actions.	Build capacities across all ministries and government agencies to understand climate change impacts and implement adaptation NDCs.	Strengthen coordination and build capacities of climate change practitioners, government agencies, and local stakeholders.
	Ensure a participatory, inclusive, and gender-sensitive NDC process that grants ownership to all relevant stakeholders.	Review and revise as appropriate gender responsiveness of NDCs and NAP of Sri Lanka

Financial and Technological		
Develop a detailed monitoring plan and MRV mechanism to track and report adaptation actions.	Develop a comprehensive MV mechanism for relevant government agencies, development partners, and the private sector.	Enhance the existing monitoring mechanisms, and introduce where they are not available.
Increase private sector engagement and overcome barriers to investment.	Recognize the roles and contributions of development partners and the private sector in achieving NDC targets.	Leverage additional private sector funding and enhance public-private partnerships to strengthen implementation.
Assess resource and capacity needs to mobilize adequate resources.	Develop an implementation and financing plan for NDC actions on national and local level.	Develop an implementation and financing plan for NDC actions on national and local level based on the revised NDCs.
	Overhaul climate budget tagging to be more precise, especially for local-level allocation of funds.	
		Improve collection and accessibility of data in all sectors.
Other		
Strengthen the integration of the Sendai Framework with national disaster and climate risk management.	Link up national DRR and climate risk management with international processes such as the Sendai Framework or WIM.	Improve integration with and awareness of WIM and the Sendai Framework.
		Integrate climate-induced migration aspects into loss and damage sector.
	Introduce a new indicator for forest restoration success.	

7.2 Regional Cooperation

One way to address the identified gaps, needs, and constraints could be through regional knowledge sharing and cooperation. Bangladesh, Nepal, and Sri Lanka are exposed to many of the same hazards and impacts and face similar challenges in adapting to them. Their NDCs share a focus on many of the same sectors, especially energy and transportation for mitigation, food security and ecosystems for adaptation, and loss and damage.

The lessons learned in implementing NDCs through policies, plans, strategies, and projects could in many cases be applicable for all three countries. For example, both Nepal and Sri Lanka are experimenting with index-based crop insurance; both Bangladesh and Sri Lanka are dealing with vulnerable, densely populated coastal sectors and the effects of climate change on mangrove and coral reef ecosystems; and Bangladesh, Nepal, and Sri Lanka are attempting to better reach rural farming

communities to build their awareness and capacities.

Establishing a formal knowledge sharing mechanism that links up with the national focal points and institutions therefore has the potential to be highly beneficial and allow for an efficient use of resources and capacities. Furthermore, capacity building could happen between the relevant government entities and institutions of all three countries. International funding and support could be leveraged on a regional as well as on the national scale, as happened in the case of this research funded by APN.

Especially the capacity gaps identified in this study, but also the policy, legal, technological and financial gaps, could be addressed through regional cooperation and coordination in addition to national and sub-national level efforts.

As the regional entity for South Asia, the South Asian Association for Regional Cooperation (SAARC) could offer an entry point for cooperation. It already includes regional work on agriculture and climate change and could provide a platform for building capacities for NDC implementation between Bangladesh, Nepal, and Sri Lanka, as well as the wider South Asian region.

7.3 Outlook

Despite the identified gaps described in this paper, many of the NDC focal points in all three countries believe they are on track to achieving both their unconditional and conditional NDC targets. The current NDCs are the first ever set of NDCs adopted by the participating states, while there are gaps and needs for their implementation, they present the potential for implementing climate change adaptation, and increasing the climate ambition in countries. This means that planning and implementation processes need progressive development in keeping with the adoption of each set of NDCs in the future. The gaps to be bridged and the measures suggested to be taken by all for such bridging as discussed in the foregoing sections, could preferably be viewed as potential areas for intervention.

As part of the international global community, Sri Lanka, Nepal, and Bangladesh are committed to meeting the long-term goals of the Paris Agreement. The effective, efficient and timely delivery of NDCs play a determining role in this regard, hence the concerted effort by countries to achieve set targets on both mitigation and adaptation. Thus, implementing these recommended measures will not only help towards achieving each country's NDC targets but also contribute towards the betterment of international climate action.

Addressing the shared gaps, needs, and constraints of Bangladesh, Nepal, and Sri Lanka can benefit from regional cooperation and the exchange of experiences and lessons learned. Implementing the NDCs of these three countries in an effective manner is vital to prepare for the impacts of climate change and build resilient, sustainable societies, economies, and ecosystems.

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