State of Gender Equality and Climate Change in Bangladesh

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IUCN
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EmPower Women for Climate-Resilient Societies
UN WOMEN

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Foreword

As one of the region's most densely populated countries set across low-laying topography, Bangladesh is especially vulnerable to climate induced natural hazards such as rainfall, rising sea levels, and tropical cyclones. According to the latest Intergovernmental Panel on Climate Change (IPCC) report (2022), natural hazards are expected to increase as the climate changes, each seriously affecting agriculture, water, food security, human health, and shelter. The impacts of climate change are not gender neutral. Women and girls are disproportionately affected due to social norms, systemic gender inequalities, and reproductive obligations. The population's vulnerability to climate change varies depending on geographic location and socio-economic inequalities, such as poverty and particularly climate-sensitive livelihoods. Women and girls depend on forestry, crop agriculture, water resources and access to energy for livelihoods and household work. These are some of the most critical sectors affected by climate change. The COVID-19 pandemic has further aggravated vulnerabilities of communities across the country, especially women, given that they are already facing the multidimensional impacts of climate change. Restrictions on movement, social isolation and loss of livelihoods have exacerbated gender inequalities and have caused a spike in gender-based violence. This stark reality demonstrates the increasing need for climate change policies to be gender-inclusive and gender-responsive to ensure no one is left behind.

Bangladesh has been incorporating the gender perspective in the formulation of climate change related policies and action plans, such as Vision 2041; the Eighth Five Year Plan (EFYP) 2020-25; the Bangladesh Climate Change Strategy and Action Plan (BCCSAP), 2009; and the Climate Change and Gender Action Plan (BCCGAP), 2013. In addition, Bangladesh has developed the Mujib Climate Prosperity Plan Decade 2030, which bolsters gender equality through a transformative approach, enabling women to benefit from climate actions. However, the monitoring and implementation of gender equality in climate change policies remains a challenge. There is a lack of evidence and analysis on gender equality and climate change priorities that are specifically impacting the identified sectors such as crop agriculture, water resource management, forestry, and renewable energy.

The Gender Equality and Climate Change Assessment Report in Bangladesh presents the findings and cites evidence of the interlinkages between gender equality and climate change. The report provides country-specific recommendations on how to implement gender-inclusive policies and action plans. The report has been developed by UN Women, the UN Environment Programme (UNEP) and the International Union for Conservation of Nature (IUCN) in Bangladesh, with support from the Swedish International Development Cooperation Agency (Sida). We hope this report will pave the way to integrate gender-responsive approaches in climate policies for a more inclusive and climate-resilient future for all.

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Abbreviations

BARC	Bangladesh Agricultural Research Council
BBS	Bangladesh Bureau of Statistics
BCCGAP	Bangladesh Climate Change and Gender Action Plan
BCCSAP	Bangladesh Climate Change Strategy and Action Plan
BCCTF	Bangladesh Climate Change Trust Fund
BDP2100	Bangladesh Delta Plan 2100
BFRI	Bangladesh Forest Research Institute
BINA	Bangladesh Institute of Nuclear Agriculture
BLRI	Bangladesh Livestock Research Institute
BUET	Bangladesh University of Engineering and Technology
BWDB	Bangladesh Water Development Board
CEDAW	Convention on the Elimination of All Forms of Violence Against Women
CEGIS	Climate Change and Disaster Management Division of the Centre for Environmental and Geographic Information Services
CO_2	Carbon dioxide
CPRW	Convention on the Political Rights of Women
CSO	Civil society organization
DAE	Department of Agricultural Extension
DoE	Department of Environment
DoF	Department of Fisheries
DPHE	Department of Public Health Engineering
DRM	Disaster risk management
DRR	Disaster risk reduction
EFCC-CIP	Country Investment Plan for Environment, Forestry and Climate Change
EFYP	Eighth Five-Year Plan
EPRC	Energy and Power Research Council
FGD	Focus group discussion
GBV	Gender-based violence
GDI	Gender Development Index
GDP	Gross domestic product
GHG	Greenhouse gas
GIS	Geographic information system
GRB	Gender-responsive budgeting
HDI	Human Development Index
ICCPR	International Covenant on Civil and Political Rights
ICESCR	International Covenant on Economic, Social and Cultural Rights
IDCOL	Infrastructure Development Company Limited
IWFM	Institute of Water and Flood Management
ILO	International Labour Organization
IMED	Implementation Monitoring and Evaluation Division

INDC	Intended Nationally Determined Contribution
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
KII	Key informant interviews
LGED	Local government engineering department
LGI	Local government institution
MCPP	Mujib Climate Prosperity Plan
MLGRDC	Ministry of Local Government, Rural Development and Cooperatives
MoA	Ministry of Agriculture
MoDMR	Ministry of Disaster Management and Relief
MoEFCC	Ministry of Environment, Forest and Climate Change
MoL	Ministry of Land
MoPEMR	Ministry of Power, Energy and Mineral Resources
MoWCA	Ministry of Women and Children Affairs
MoWR	Ministry of Water Resources
MTBF	Medium-Term Budget Framework
NAP	National Adaptation Plan
NAPA	National Adaptation Programme of Action
NDC	Nationally Determined Contribution
NFP	National Forest Policy
NGO	Non-governmental organization
NPDM	National Plan for Disaster Management
NWMP	National Water Management Plan
NWP	National Water Policy
SDG	Sustainable Development Goal of the UN Agenda 2030
SME	Small and medium-sized enterprise
SPARRSO	Bangladesh Space Research and Remote Sensing Organization
SREDA	Sustainable and Renewable Energy Development Authority
SRHR	Sexual and reproductive health and rights
SUFAL	Sustainable Forests and Livelihood
UNCDF	United Nations Development Cooperation Framework
UNFCCC	United Nations Framework Convention on Climate Change
WASH	Water, sanitation and hygiene

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Executive summary

Background and rationale

Bangladesh is one of the most vulnerable countries to climate change, disasters and slow-onset events. Recognising the negative impacts of climate change, the Government of Bangladesh has issued and implemented climate change mitigation and adaptation policies and programmes. However, despite robust national policy frameworks and significant progress, gaps remain in addressing the increasingly clear link between the impacts of climate change and gender inequality. Practitioners are also challenged in assessing climate vulnerabilities in a gender-responsive manner due to the absence of disaggregated data, analysis and evidence regarding gender-related impacts. Practitioners and policy makers are therefore limited in their ability to include and consider gender equality in institutional and policy frameworks of climate change, climate action design, and implementation and reporting on the Sustainable Development Goals (SDGs) and the Paris Agreement.

The *"State of Gender Equality and Climate Change in Bangladesh report"* aims to strengthen country-driven processes with evidence on the linkages between gender equality and climate change. The report is prepared by the International Union for Conservation of Nature (IUCN), UN Women, and the UN Environment Programme (UNEP) with financial support from the Swedish International Development Cooperation Agency (Sida).

Methodology and scope of the study

The assessment uses a combination of research approaches comprising a desk review, semi-structured interviews with key informants, secondary data analysis and multi-stakeholder consultations. The analysis was done using a driver-pressure-state-impact-response framework that was modified to reflect a gender dimension, following its use in the preparation of the Global Gender and Environment Outlook published by UNEP in 2016, to assess the state of gender equality and climate change policy.

The assessment has two main objectives: i) to support a country-driven process to identify the links between gender equality and climate change and analyse gendered impacts in crop agriculture, water resource management, forestry and renewable energy; and ii) to recommend areas for further policy work and research, and the means to enhance gender analysis and integration of gender considerations in climate policies. The sectors included in this report were selected because of their economy-wide significance and relevance for climate action, as well as their inclusion in the Nationally Determined Contribution (NDC) and National Adaptation Plan (NAP) as part of commitments in adaptation and mitigation.

Key findings

Bangladesh has strong stand-alone policies in both climate change and gender equality. The Government of Bangladesh has made efforts to mainstream gender equality into climate actions through the BCCGAP 2013. Bangladesh has also adopted a unique approach to integrate the NDC and NAP under a joint governance structure, connecting with key national processes such as the Five-Year Plan and the implementation of the SDGs, and with strategic documents like the BCCSAP. While these initiatives provide an enabling environment for NDC implementation, there remains a gap with regards to the interlinking of gender equality and climate change. Furthermore, there is little evidence of uptake of the BCCGAP 2013 by government agencies, donors, and NGOs. Some of the significant challenges include: limited capacity to mainstream gender into national and local policies, programmes and actions; lack of investment in gender-responsive actions; limited access of women's organizations; and low numbers of women in decision-making.

The assessment found that policies, strategies and plans acknowledge and provide the

scope to recognise gender roles in adaptation measures under the NDC. However, mitigation measures rarely have explicit references to gender equality especially in renewable energy. When it comes to critical sectors for climate change adaptation (agriculture, water resource management and forestry) measures do not accord adequate recognition or acknowledgement to gender equality. Moreover, the lack of gender-responsive monitoring mechanisms, or of evaluation frameworks and indicators, hinder the assessment of gender-related outcomes. Further, implementation remains limited due to absence of resources, capacity and clear guidance for translating policy into action.

Sectoral findings

Crop agriculture: An estimated 59.7 per cent of employed women are engaged in agriculture, including fisheries and forestry, while only 18.6 per cent of women are formally recognized as agricultural labour (BBS, 2018). Women's contribution to agriculture is labelled as "assistants" (ALRD, 2020). The lack of access to resources, including land, forest and water, and infrastructure makes it difficult for women to take effective action in response to climate change. Often, the choice of crop also varies between men and women. Typically, given their limited access to funds, women refrain from cultivating high-value cash crops, which are cash-intensive.

There is an inequality in wages between males and females in the unorganized agrarian sector. Relevant policies such as the National Agriculture Policy 2018 and the Agriculture Extension Policy 2021 strive for women's effective participation and recognition of their efforts by engendering decision-making spaces, forming women farmer groups, promoting small and medium-sized enterprises (SMEs), and raising awareness. However, agriculture policies and strategies lack any analysis of sex-differentiated impacts of climate change on women and men. Furthermore, they do not provide specific measures that link climate-change impacts and gender.

Water resource management: Water-related impacts of climate change are likely to be the most critical for Bangladesh — mainly due to inland and coastal flooding, droughts, and saltwater intrusion. Due to societal norms, systemic gender inequalities, and reproductive obligations, women are disproportionately affected. Collecting and storing water and other caregiving work in the household reduce their time available for economically productive work, income-earning, networking, skill development, information gathering, and community activities. Also, floods, droughts and saltwater intrusion disrupt food production systems, disproportionately burdening women and girls and leading to food insecurity, income loss and health hazards. The National Water Policy (NWP), 1999 and the National Water Management Plan (NWMP), 2001 consider gender dimensions to facilitate women's involvement. However, climate change issues have not been incorporated into the NWP, while the NWMP recognizes the limited knowledge in climate implications. The Bangladesh Delta Plan 2100 (BDP2100) also recognizes the importance of women's roles and leadership. Women face diverse social barriers resulting in systematic exclusion and self-exclusion from water management organizations. The BCCGAP 2013 has highlighted that the water sector significantly lags behind others in analysing the interlinkages between climate change and gender equality.

Forestry: Bangladesh moved from state-oriented forestry to a participatory social forestry system to respond to deforestation in the National Forest Policy (NFP), 1994. It was the first forestry-related policy to recognize the importance of gender issues, and stated that "women will be encouraged to participate in homestead and farm forestry, and participatory afforestation programs." Over the years, women's participation in forest management has improved as more than 30 per cent of the beneficiaries of social

forestry programmes are women. Recently, women's equal participation in decision-making has been secured through co-management committees for protected forest areas. However, women still face social and cultural barriers resulting in their lack of voice in these committees. There continues to be a lack of recognition of women's contribution to sustainable management of forests due to insecure property rights and limited decision-making power. They are also subjected to discrimination and bias in the supply of services, such as credit and technology. Degradation and deforestation affect women more than men in forest-dependent communities. Women are often more reliant than men on non-timber forest products and non-economic benefits from forests. The expert consultation identified, as critical barriers for gender-sensitive policy and programme formulation: limited capacities to undertake an intersectional approach in analysing the impacts of climate change; and the lack of sex-disaggregated and quantitative data on how women and men use and benefit from forests.

Energy sector: The energy sector continues to lag behind in gender-equality provisions. Energy policies do not integrate gender considerations in general. None of the energy sector policies have focused on the role of women in the consumption and management of energy. The absence of gender mainstreaming in the energy sector can be primarily attributed to a focus on economic performance and production, and to the technical and male-dominated nature of the energy sector. Energy projects are primarily focused on technology and feasibility. Little attention is paid to gender concerns, given the assumption that energy impacts men and women in similar ways.

Rural women are disproportionately exposed to energy poverty and energy-related challenges. For example, indoor pollution is a severe problem for women and girls in Bangladesh. In addition, women and girls spend considerable time gathering fuel, cooking, and performing other household chores, resulting in time poverty, which is another dimension of gender inequality. Renewable energy sub-sectors offer benefits that can be leveraged to improve women's livelihoods, employment opportunities, and lives. However, they also present challenges that need to be addressed to ensure women and men benefit equitably.

Recommendations

The following recommendations are proposed to assist gender equality and its

interlinkages with climate change in Bangladesh:

1. **Sensitize and build capacity among policymakers, government agencies and stakeholders, including women's rights organizations.**
   Special efforts should be made to sensitize policy makers, including parliamentarians, on gender equality and women's empowerment aspects in climate change adaptation and mitigation. Similarly, the capacity of government officials should be developed on how to take an intersectional approach in analysing the impacts of climate change, at every level, including local governments. At the same time, a more inclusive approach to gender programming should be taken, including recognition of the needs and priorities of transgender people. The leadership and voice of women in natural resource management and energy committees should be strengthened. Collaboration among gender specialists, climate change experts, and women's rights organizations and organizations working on climate action is also necessary in designing policy and programmes.

2. **Develop research and evidence base for policy advocacy and standards**

   Studies should be conducted to identify entry points for gender integration across sectors and population segments at local and national levels. Such deep-dive studies will provide evidence on policy gaps, community-level best practices, and gender-responsive green growth potential. A working group on climate change and gender, with representatives from relevant ministries, civil society, academia, NGOs, transgender persons, indigenous communities, and persons with disabilities can facilitate in analysing relevant policies and strategies on climate change from a gender lens. This group can also play an essential role in raising awareness among different agencies to integrate gender equality in respective interventions, policies and strategies. Furthermore technical guidelines on gender mainstreaming in climate-change policies and financing should also be provided to policy makers, decision-makers, and practitioners.

3. **Develop gender-responsive monitoring and evaluation framework, and establish gender databases across regions, livelihoods and communities of diverse experiences and practices**

   A gender-responsive monitoring and evaluation framework should be developed for all line agencies to track gender integration and climate impacts across sectors. This will facilitate the collection, analysis, and use of sex-age disaggregated data to strengthen gender-responsive strategy development. Similarly, a monitoring and evaluation framework for climate financing should also be developed to ensure that climate projects and financial flows are contributing to gender outcomes. Improvements in fiscal planning and budgeting processes are necessary; this requires a gender analysis of ongoing processes to identify entry points for strengthening gender-responsive climate finance and co-benefits tagging.

Photo: UNEP

1. Introduction

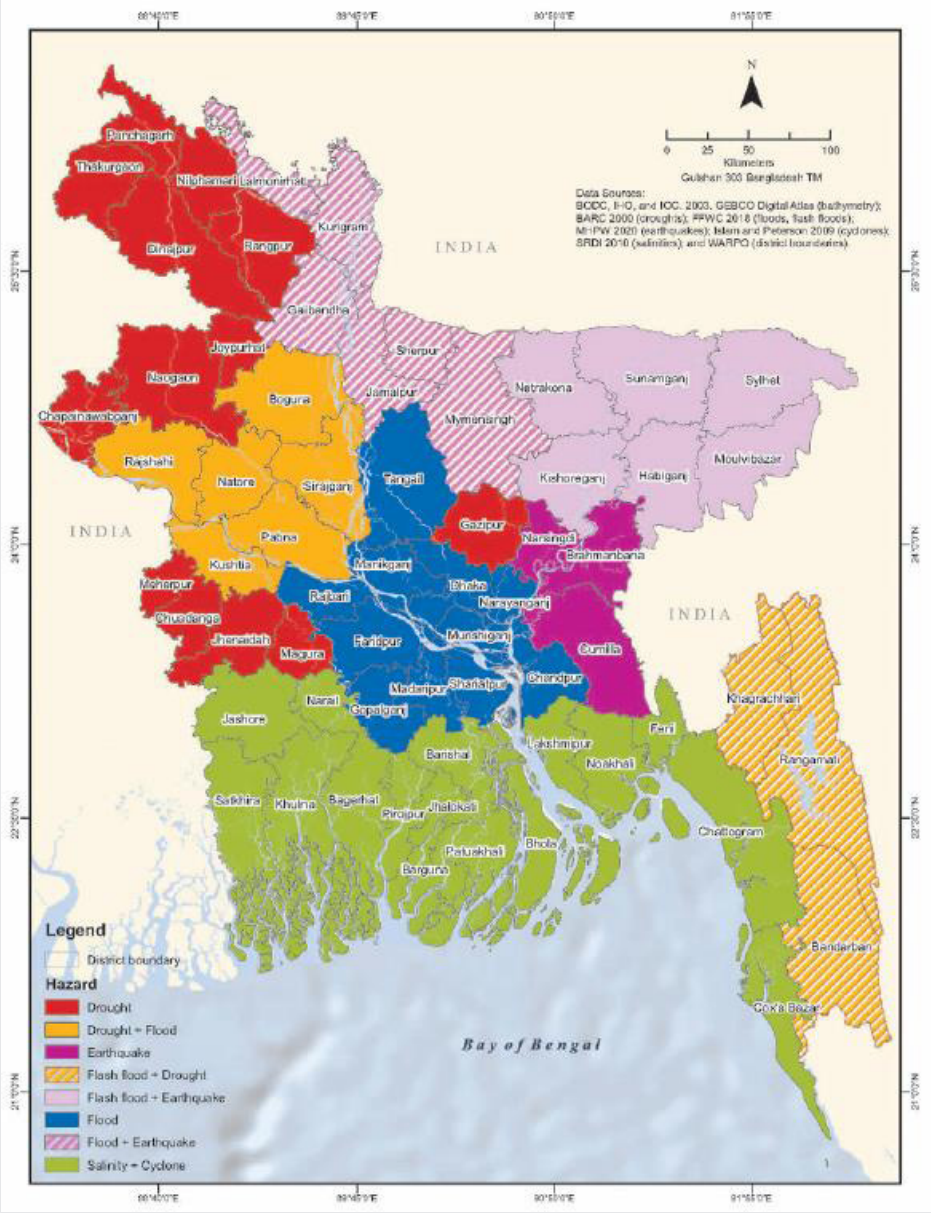
Photo: UN Women/Fahad Kaizer

1.1. Context of the study

Bangladesh has made remarkable progress in economic and social development including poverty reduction since its independence in 1971. However, climate change, manifested by climate-induced disasters and slow-onset events, pose an increasing challenge. The impacts of climate change vary based on location and socio-economic inequalities. The most impacted areas are the central and western coastal regions due to salinity and cyclones, the north-western highlands due to drought, the north-eastern wetlands due to flash flooding, and areas along the main rivers due to river erosion and flooding. Climate-induced disasters and slow-onset events threaten to erode hard-won development gains.

Bangladesh is ranked seventh in the Climate Risk Index 2021 based on data from 2000 to 2019. In the same index, Bangladesh ranks ninth in annual fatalities due to climate-related disasters, 37th in fatalities per 100,000 inhabitants, 13th in losses and 37th in losses per unit of gross domestic product (GDP) (Eckstein et al., 2021). Climate change is increasing the frequency and intensity of natural disasters. Recently, within one year two major cyclones, Amphan (20 May 2020) and Yaas (26 May 2021), hit Bangladesh, causing massive devastation to the coastal regions. Socio-economic factors such as high dependence on agriculture, population density, and poverty exacerbate the impacts of these climate-induced natural hazards (Thomas et al., 2013).

Figure 1.1: Vulnerabilities to different natural hazards



Source: Planning Commission, Ministry of Planning and Asian Development Bank. 2021. Bangladesh Climate and Disaster Risk Atlas: Hazards—Volume I. Dhaka, Bangladesh and Manila, Philippines.

Climate impacts are not gender-neutral and affect women and girls differently from men and boys, due to societal norms, systemic gender inequalities, and gender roles. Restriction on girls' mobility from puberty has limited their economic and social empowerment. This restricted mobility puts women at a higher risk during emergencies such as climate disasters. For example, during the 1991 cyclone in Bangladesh, 90 per cent deaths were among women and children, as most of the women did not move to cyclone shelters mainly to continue carrying out household responsibilities (Rahman, 2013).

Photo: UN Women/Fahad Kaizer

Over the last few years, Bangladesh has put significant emphasis on gender equality in the context of climate change and environment at the institutional level. This has been reflected in several policy documents, including political commitments. Some of the most noteworthy documents include: Vision 2041, Outline Perspective Plan (OPP), the Eighth Five-Year Plan, the BCCSAP 2009, the NAP of Action 2009, (revised), the BCCGAP 2013, the National Women's Advancement Policy 2011 (in line with the implementation of the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW)), Standing Orders on Disaster 1997 (revised 2010), the National Plan for Disaster Management (NPDM) 2010-2015, the National Disaster Management Policy 2015 and the Disaster Management Act 2012. Most of these documents have been developed corresponding to the relevant international conventions to which Bangladesh is a signatory and party.

The UN Sustainable Development Cooperation Framework (UNSDCF) 2022-2025 pursues an inclusive, gender focused and human rights-based approach to development that leaves no one behind. The UNSDCF will coordinate around government's Eighth Five-Year Plan priorities. Strategic Priority 3 mainly aims for ecosystems to be healthier by 2026. It emphasizes that all people, in particular the most vulnerable and marginalized in both rural and urban settings, must benefit from and contribute to, in a gender-responsive manner, a cleaner and more resilient environment, an enriched natural resource base, low-carbon development, and become prosperous and more resilient to climate change and its fallouts.

Despite robust national policy frameworks and significant progress on climate change and gender equality, there are gaps in understanding the interlinkages between climate change and gender equality. Practitioners are challenged in assessing climate vulnerabilities in a sex-disaggregated manner due to the absence of the reliable sex-age disaggregated data. It limits practitioners and policy makers from including or considering gender equality in institutional climate change frameworks. It further limits inclusion of a gender angle in framework design or implementation, and in any reporting on progress towards the SDGs and the Paris Agreement. Further, as the impacts of climate change escalate, there is a profound need to update information and analysis to inform more robust, cross-sectoral gender-responsive strategies and plans.

Accordingly, this report was undertaken to strengthen country-driven processes through more evidence on national-level linkages between gender equality and climate change, and through analysing gendered climate impacts, specifically in crop agriculture, water resource management, forestry and renewable energy.

These four sectors play a crucial role in Bangladesh and are included in the Intended Nationally Determined Contribution (INDC) and the updated NDC developed in 2021 and are part of commitments on adaptation (agriculture, water resources and forestry) and mitigation (agriculture, forestry and energy). The assessment will also contribute to the implementation of Bangladesh's updated NDC, NAP and the updated BCCSAP to achieve SDGs relate to gender equality and climate action by 2030, through gender considerations in designing and implementing activities to achieve their targets.

1.2. Scope, objectives, and duration of the assessment

1.2.1. Scope and objective of the assessment

The Assessment on Gender Equality and Climate Change was conducted with specific objectives to inform policy makers and practitioners on the linkages between gender equality and climate change. These are:

- to support a country-driven process to identify the links between gender equality and climate change and analyse gendered impacts in crop agriculture, water resource management, forestry and renewable energy; and
- to recommend areas for further policy work and research and ways to enhance gender analysis and integration of gender-equality considerations in climate-relevant policy areas.

In order to achieve the above objectives, the assessment answered the following four key questions:

- What are the gendered impacts of climate change in the four selected sectors in Bangladesh?
- To what extent have these gendered impacts been addressed through integration in the national and sectoral climate policies?
- What are the challenges and opportunities to integrate/include gender considerations in future sectoral and national climate policies?
- In what ways can gender mainstreaming into climate policy actions of selected sectors be enhanced and contribute to the implementation of the updated NDC, BCCSAP and NAP of Bangladesh?

1.2.2. Duration of the assessment

The assessment was carried out between April and December of 2021.

1.3. Approach and methodology

1.3.1. Study framework and methodology

The modified drivers, pressure, state, impact and response framework was applied to analyse gender integration in climate policies and actions of four sectors (crop agriculture, water resource management, forestry, and renewable energy). The following key questions were fully or partly addressed for each sector:

1. **What is the state or trend of gender equality in responding to climate change?**
   - [A] What is the current state or trend of gender integration in the specific sector?
   - [B] What is the intended or aspired-to state of gender integration in the specific sector?
2. **What are the pressures responsible for the present state of gender equality and climate change?**
   - [A] What are the root causes and social forces exerting pressure on the present state (short-term)?
   - [B] What are the external factors (beyond that sector) exerting pressure on the present state?
3. **What drivers led to these pressures?**
   - [A] Economic situation and social norms.
   - [B] Long-term factors (from gender and social-inclusion perspectives)

4. **What are the impacts and effects on the present state of gender equality and climate change on society?**
   - [A] If we do not successfully integrate gender into the specific sectors, what will be the impacts or effects?
   - [B] How do the changes in climate affect women and men differently? What are the gendered vulnerability impacts?
   - [C] Are there gendered differences in the emissions profile?
5. **What responses or actions/policies have been or should be taken?**
   - [A] Where are we heading in terms of policy work aimed at gender integration in the sector?
   - [B] What are the recommendations for policy work that will put women and men on equal ground or establish them as equal agents in this sector?
   - [C] What research work on gender integration is still required to address the revealed gaps?
   - [D] What socio-economic factors will shape different outcomes and resources and should be taken into account? What is the gender sensitivity of the actions/policies?

In order to address the above research questions, the following steps were adopted:

A. Expert and key stakeholder consultations

The assessment was initiated with the consultation with the Ministry of Environment, Forest and Climate Change (MoEFCC) to identify the key sectors for analysis. It was agreed that the NDC action plan would be used as a reference in choosing the sectors. Moreover, sectors relevant for loss and damage as well as the Mujib Climate Prosperity Plan (MCPP) presented at the Climate Vulnerable Forum also served as reference. Based on the first consultation meeting, it was agreed that the assessment would focus on crop agriculture, water resource management, forestry and renewable energy.

B. Desk reviews and data collection

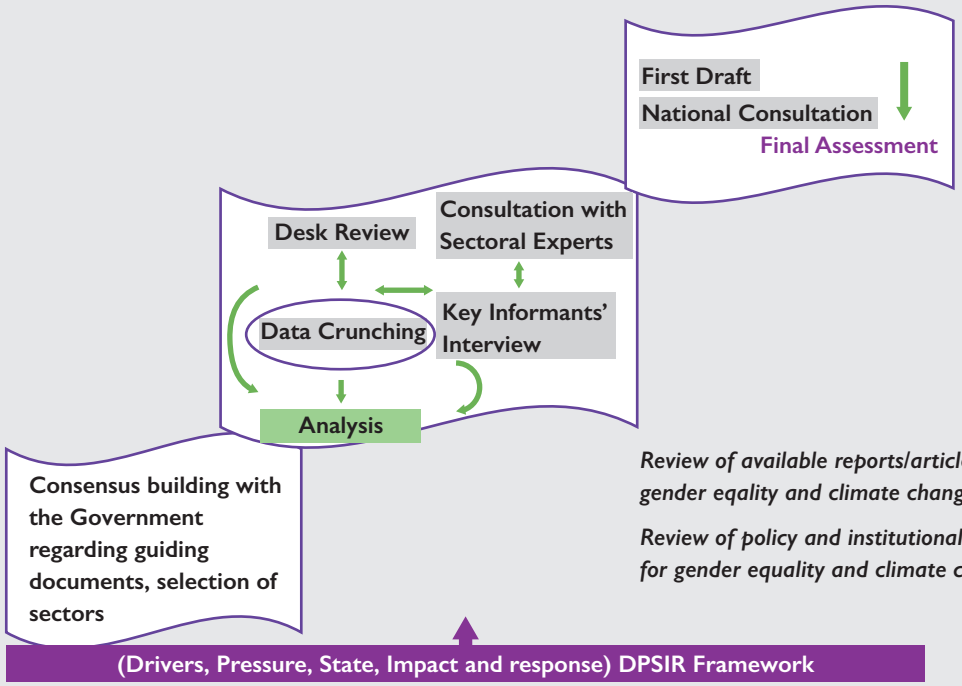
The documents reviewed comprised of: (i) legal and policy documents on gender equality in Bangladesh; (ii) Bangladesh laws and policies on climate change, particularly in the selected sectors; and (iii) relevant documents and studies of international organizations, government agencies and researchers. The institutional setting and policy framework for gender equality and climate change were also reviewed to understand the policy making process and possible entry points for mainstreaming gender considerations into the formulation and implementation of climate policy in Bangladesh.

Data was also collected through a qualitative method, which was followed by key informant interviews (KIIs), focus group discussions (FGDs) and sectoral consultations with experts, in academia, government, international development agencies and NGOs, representatives from key government agencies, and youth and women's activist organizations. The expert consultation meetings were organized virtually due to the movement restrictions imposed during the Covid-19 pandemic. These consultations were used to validate information and data gathered from desk reviews, and to collect participatory recommendations for improved gender integration into climate change policies. The assessment team also conducted community-level FGDs and KIIs.

C. National consultation and peer review

The draft report was presented at a national workshop on 21 September 2021, where key representatives from the government, notably from the MoEFCC as well as Ministry of Women and Children Affairs (MoWCA) participated. Representatives of academia, government departments, international development agencies, women's rights organizations and NGOs also provided their inputs.

Figure 1.2: Approach and methodology of the study



D. Gender-responsive scale

A gender-responsive scale was adapted from the guideline of the World Health Organization (2011) to indicate the state of gender inclusion in the sectoral policies. Following is an explanation of the categories:

Gender-unequal

- Perpetuates gender inequality by reinforcing unbalanced norms, roles and relations
- Privileges men over women (or vice-versa)
- Often leads to one sex enjoying more rights or opportunities than the other

Gender-blind

- Ignores gender norms, roles and relations
- Very often reinforces gender-based discrimination
- Ignores difference in opportunities and resource allocation for women and men
- Often constructed based on the principle of being "fair" by treating everyone the same

Gender-sensitive

- Considers gender norms, roles and relations
- Does not address inequality generated by unequal norms, roles and relations
- Indicates gender awareness, although no remedial action is developed

Gender-specific

- Considers gender norms, roles and relations for women and men and how they affect access to and control over resources
- Considers women's and men's specific needs
- Intentionally targets and benefits a specific group of women or men to achieve certain policies or programme goals or meet certain needs
- Makes it easier for women and men to fulfil duties that are ascribed to them based on their gender roles

Gender-transformative

- Considers gender norms, roles and relations of women and men and that these affects the access to and control over resources
- Considers women's and men's specific needs
- Addresses the cause of gender-based inequities
- Includes ways to transform harmful gender norms, rules and relations
- The objective is often to promote gender equality
- Includes strategies to foster progressive changes in power relationship between women and men.

1.3.2. Limitations

There was a lack of general and national statistical datasets on the gendered impacts of climate change in specific sectors, and on the linkages between climate policy objectives and actions taken on the ground. Consequently, analysis is mostly qualitative and can be interpreted differently.

Furthermore, movement restrictions to mitigate the Covid-19 pandemic presented challenges in conducting the assessment. Limited time and information sources may have led to the exclusion of other aspects related to the impact of climate change on gender equality. In particular, during the period in which this assessment was undertaken (April 2021 - December 2021), the Covid-19 pandemic in Bangladesh and the region prevented direct interaction between the research team and EmPower project team; the interviews and consultations with experts and key stakeholders could not be carried out face-to-face.

Photo: UN Women/Fahad Kaizer

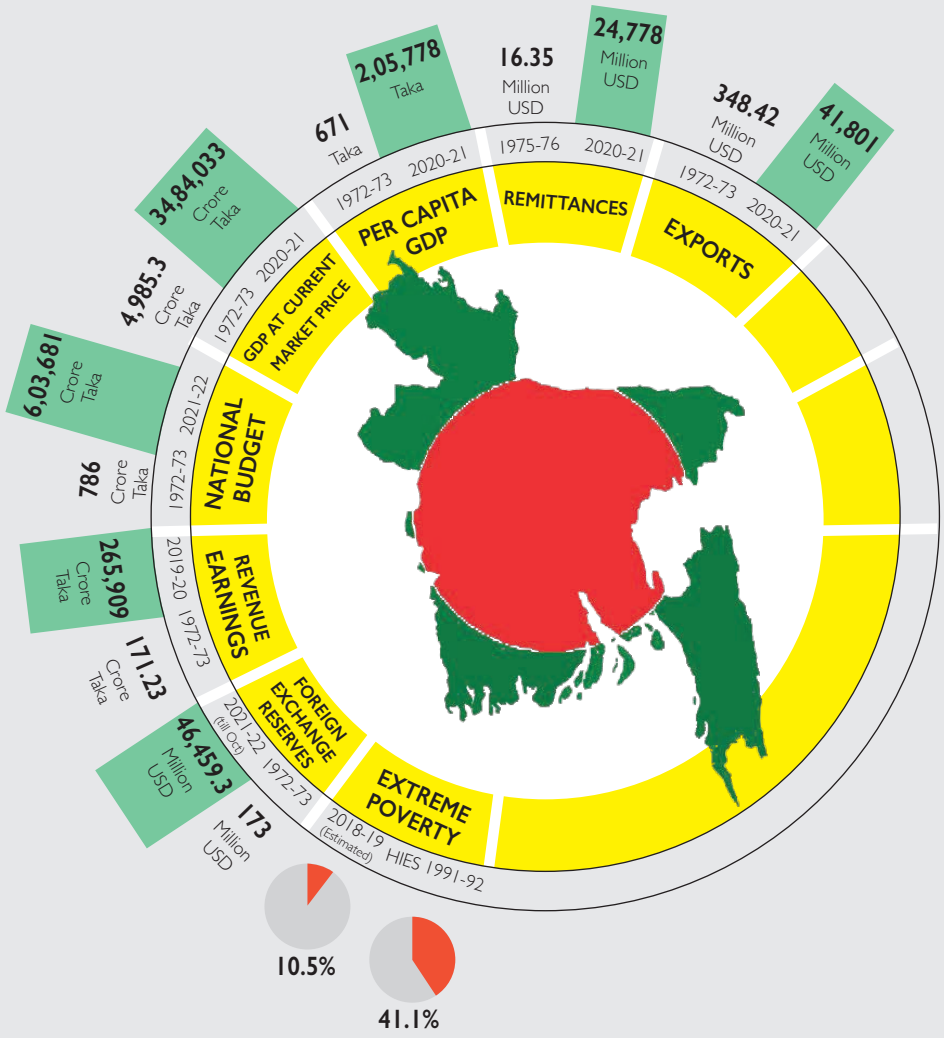
Photo: UN Women/Fahad Kaizer

2. National context of Bangladesh

2.1. Socio-economic context

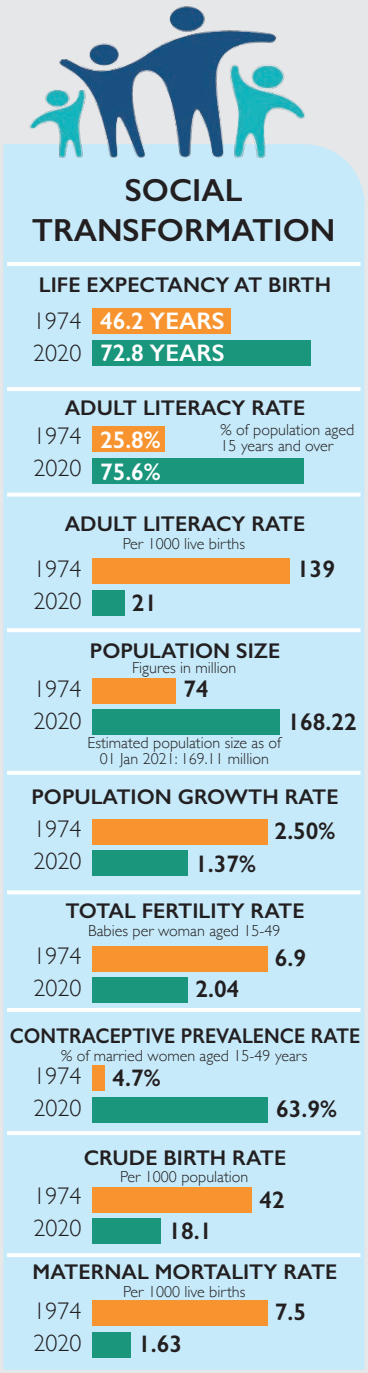
Bangladesh has made remarkable socio-economic development since independence in 1971. Extreme poverty has decreased, per-capita GDP has increased as have revenue and foreign-exchange reserves, and the volume and scope of the national budget have grown over the years. After a decade and a half of sustained GDP growth at around 6-7 per cent, the rate reached 8.19 per cent in FY 2019-2020 (GED, 2015; GED, 2020). The robustness of the economic development is evident from the GDP growth of 5.2 per cent in FY 2020/21, one of the highest in Asia, despite the shock of the global pandemic. Figure 2.1 summarizes some of the development achievements.

Figure 2.1: Development achievements of Bangladesh



Source: The Business Standard; data sources include Bangladesh Bureau of Statistics, Ministry of Planning, Bangladesh Bank and National Board of Revenue, and Ministry of Finance.

Figure 2.2: Bangladesh excels in social indictors



Similarly, development in social sectors has been significant. Bangladesh's overall literacy improved from 35 per cent for people over 15 years in 1991 to 53 per cent in 2020. Infant mortality decreased from 139 per 1000 live birth in 1974 to 21 in 2020. Population growth decreased from 2.50 per cent to 1.37 within the same period.

2.2. Gender equality in Bangladesh

Bangladesh has made substantial strides towards inclusive growth. It has expanded the realm of opportunities for all sections of the population, including the poor, particularly women and youth, who are generally among the most marginalized. Table 2.1 provides a sketch of Bangladesh's status in attaining women's empowerment and gender parity.

Table 2.1: Status of Bangladesh in terms of gender equality and human development using global indicators

Index	Score	Comment
Human Development Index[1] (HDI), 2019	0.632	Medium human development category. Bangladesh secures higher average annual HDI growth rate during 1990-2019 compared to all other South Asian countries, exhibiting progress in each of the HDI indicators. Bangladesh ranks 133 out of 188 countries.
Gender Development Index[2] (GDI), 2019	0.904	The female HDI value for Bangladesh is 0.596 in contrast with 0.660 for males. The GDI, which is based on that difference, places the country into Group 3, medium equality in HDI achievements between women and men.
Gender Inequality Index[3], 2019	0.537	Prevalence of higher degree of inequality between women and men in terms of selected indicators on political empowerment, health, education and labour force participation. Bangladesh ranks 119 out of 159 countries, where lower ranks are more unequal.
Gender Gap Index[4], 2017	65	Bangladesh has topped the South Asian countries in gender equality for the third consecutive year, making progress across all dimensions including economic opportunity and participation, and securing the third spot among the lower-middle income countries. Despite lagging in educational attainment, health services and economic participation by women, the political participation is ranked as 7th in the world which resulted in a high index score and high global rank. Bangladesh currently ranks 47 out of 144 countries.

Source: UNDP, 2020

[1] HDI is a summary measure for assessing progress in three basic dimensions of human development: a long and healthy life; access to knowledge; and a decent standard of living. (Published by: UNDP. Available at http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/BGD.pdf).

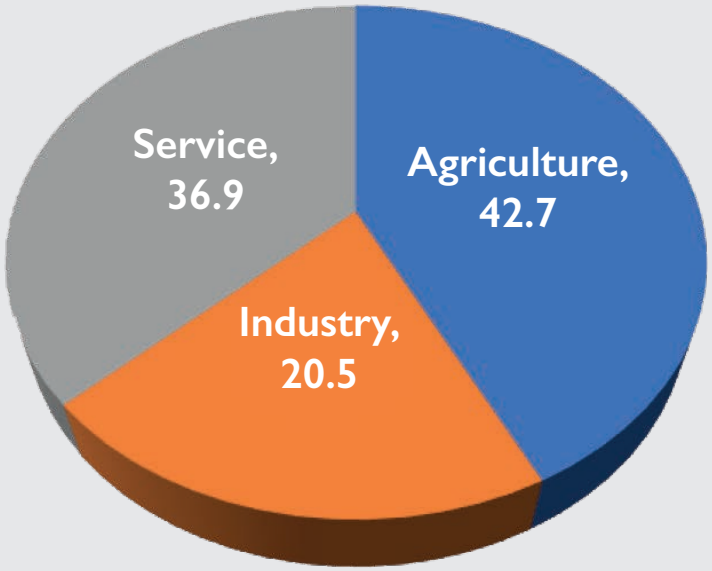
[2] GDI is based on the sex-disaggregated HDI, defined as a ratio of the female to the male HDI. The GDI reflects gender inequalities in achievement in the same three dimensions of the HDI. (Published by: UNDP. Available at http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/BGD.pdf)

[3] The Gender Inequality Index reflects gender-based inequalities in three dimensions – reproductive health, empowerment, and economic activity. (Published by: UNDP. Available http://hdr.undp.org/en/composite/GII)

[4] The Gender Gap Index is a framework for capturing the magnitude of gender-based disparities and tracking their progress over time. (Published by WEF. Available at http://www3.weforum.org/docs/WEF_GGGR_2017.pdf).

Employment: Agriculture constitutes the largest source of employment in rural areas, while the service sector dominates urban areas. Figure 2.3 presents the share of employed persons aged 15 and above by broad economic sectors.

Figure 2.3: Employed persons aged 15 and above by broad economic sector (%), 2016-2017



Source: Bangladesh Bureau of Statistics, 2018

Table 2.2 presents a few key statistics on the employment trends in Bangladesh. By comparing GDP growth rates with female employment growth rates and male employment growth rates, one observes that female employment growth rates are consistently higher than GDP growth rates, and male employment growth rates are lower than GDP growth rates. The elasticity of the relationship between GDP and employment is greater than one for women and less than one for men. This indicates that economic growth resulted in positive dividend for women's economic participation, and also that this dividend is higher for females than for males from 2000 to 2016-2017. Moreover, 91.8 per cent of the female labour force is in informal employment compared to 82.1 per cent of male, and 68 per cent of female workers are either self-employed or contributing family members (BBS, 2017); thus women are working hard but working poor.

Photo: UN Environment Programme/Reza Shariat Rahman

Table 2.2: Key statistics on female employment in Bangladesh

	Labour Force Survey 2005			Labour Force Survey 2010			Labour Force Survey 2016-17		
	National	**Rural**	**Urban**	**National**	**Rural**	**Urban**	**National**	**Rural**	**Urban**
Labour force (million)									
Total	49.5	37.8	11.7	56.7	43.4	13.3	63.5	45.7	17.9
Men	37.3	28.5	8.9	39.5	30.2	9.3	43.5	30.7	12.9
Women	12.1	9.3	2.8	17.2	13.2	4.0	20.0	15.0	5.0
Labour force participation rate (%)									
Total	58.5	59.4	55.7	59.3	60.0	57.3	58.2	59.3	55.7
Men	86.8	88.0	83.2	82.5	83.3	80.2	80.5	80.3	81.0
Women	29.2	29.8	27.4	36.0	36.4	34.5	36.3	38.6	31.0

Source: Bangladesh Bureau of Statistics, 2018

Despite the increasing labour force participation rate, the characteristics of female employment and engagement do not match the expected development outcome of the country's rapid economic growth.

The household Income and Expenditure Survey done by Bangladesh Bureau of Statistics (BBS) (2019) shows that the Gini Coefficient[5] rose to 0.482 in 2016 compared with 0.458 in 2010, despite the fast-paced economic growth. Apart from the general adverse effects of household poverty and inequality on all household members, the poverty status of the household has particular implications for women's welfare.

In this regard, Bangladesh's ready-made garment sector is an important driver of economic growth, accounting for 83 per cent of export revenue. A baseline study by the International Labour Organization (ILO) found that women represented 61.17 per cent of the sector's workforce of about 4 million in 2018. The sector's expansion has specifically contributed to a rise in female employment, pushing Bangladesh's female labour force participation up to 36.3 per cent in 2017 (BBS, 2017). While this rate is lower than in South-East Asia, it is higher than other South Asian countries, such as India (20.8%), Pakistan (21.9%) and Sri Lanka (35.8%).

Rigid gender segregation in the social and economic spheres is combined with a specific set of gender-biased norms that are upheld at all societal levels. Despite an increased participation of women in the labour force, rigid gender segregation and discriminatory practices continue. Economic entry points to labour-force participation, such as the provision of regular and reasonably well paid and protected work, can move beyond economic changes to create spill-over effects on other aspects of women's lives; however,

[5] Gini Coefficient is a statistical measure of the degree of variation represented in a set of values, used especially in analysing income inequality in a scale of zero to one. An increase in the index suggests that income is becoming more unevenly distributed.

to bring about sustainable and transformative change in women's lives, a combination of factors is needed (Kabeer, Mahmud, and Tasneem, 2011).

Education: With a number of policy incentives towards female education since the 1990s, there has been significant progress in achieving gender parity in primary education. However, the cohort survival rate[6] gradually decreases. The female labour force participation in Bangladesh indicates a higher rate of participation among women with higher education degree compared with women without education or only with primary education (Solotaroff et al., 2019). According to the Labour Force Survey of 2016-2017, only 0.6 per cent female were engaged as managers and 5.6 per cent worked as technicians and associated professionals (BBS, 2018). Thus, women remain poorly represented in higher education leading to poor representation in higher-level technical and managerial positions (BANBEIS, 2016). Moreover, the trend reveals the fact that efforts to promote gender parity in education are not converted into women's participation in decent jobs or formal employment.

A number of deep-rooted socio-cultural norms impact on women's ability to attain education and participation in the labour market. Unequal power relations in the household leads to a disadvantaged life for the female members. Child marriage remains a harmful practice and a key challenge to enhanced women's participation in the labour market. It also affects development outcomes in health and nutrition, particularly of poor people (GED, 2015; Osmani, 2014). Studies indicate that 62.8 per cent of girls get married before 18 years of age, including 23.8 per cent of girls who get married before they turn 15 (BBS, 2018). Literature suggests that there is a negative relationship between early marriage and education. Early marriage is also negatively associated with household wealth (UNDP, 2020). The adolescent birth rate (births per 1,000 women ages 15-19) in Bangladesh is 82, the highest in South Asia.

Gender-based violence: Another source of vulnerability in women's lives in Bangladesh is GBV, especially intimate partner violence. In 2015, two thirds (65%) of currently married women had experienced physical violence from their current husband at some time in their life, while one third (33%) had been subject to violence during the previous 12 months (NIPORT, 2016). The proportion of married women experiencing partner physical and/or sexual violence during their lifetime is about half (49.6%) (BBS, 2018). Furthermore, 27.8 per cent of all women in Bangladesh are exposed to physical and sexual violence by perpetrators other than their husbands (non-partners) at some point in their lifetime (BBS, 2018).

Migration: Martin et. al. (2013) estimated that, of the half a million people moving to cities every year, most come from coastal and rural areas. About 16–26 million people are expected to migrate from their places of origin due to floods, storm surges, riverbank erosion and sea-level rise (Kniveton et al., 2013). Similarly, Iqbal and Roy (2015) also estimate that the out-migration from climate-affected areas will be 22 per cent higher in 2030 than in 1990. The International Organization for Migration (2010) highlighted that climate change would likely affect the movement of people in at least four ways: (i) the intensification of natural disasters, both sudden and slow-onset environmental changes, leading to increased displacement and migration; (ii) the adverse consequences of increased warming, climate variability and of other effects of climate change for livelihoods, public health, food security and water availability; (iii) rising sea levels that make coastal areas uninhabitable; and (iv) competition over scarce natural resources, potentially leading to growing tensions and even conflict and, in turn, displacement. Internal migration is male-dominant with women migrating in smaller numbers than men, to different destinations and for different reasons. Men, especially in the most climate-vulnerable areas,

[6] The survival rate is the percentage of a cohort of students enrolled in the first grade of a given level or cycle of education in a given school year who are expected to reach a given grade, regardless of repetition. Available at http://uis.unesco.org/en/glossary-term/survival-rate-grade#:~:text=Divide%20the%20total%20number%20of,multiply%20the%20result%20by%20100.

migrate to find alternative livelihoods, leaving women to take care of the households. Female migration tends to be over shorter distances and for family-related reasons, mostly on account of marriage, rather than for economic reasons.

Women's voice and political representation: Decision-making in public spaces, especially policy spaces, is generally male-dominated. However, Bangladesh has made formal commitments to women's political participation by adopting important international strategy documents initiated by the United Nations. The amendments to the Union Parishad[7] Ordinance (1997) have changed the overall scenario of women's representation at the local level, in particular the provisions for a quota of one-third of seats to be reserved for directly elected women in the Union Parishads. At the national level, men and women enjoy equal voting rights and are equally eligible to contest for the 300 general seats. There are, however, an additional 50 reserved seats in the parliament (according to the 15th amendment of the constitution passed in June, 2011) for women, bringing the total number of seats to 350. Evidence shows that women have not fallen behind men in casting votes but they have fallen behind men in standing for election as individuals as well as being elected as member of the parliament.

2.3. Gendered impacts of climate change in Bangladesh

The impacts of climate change are gendered. A wide range of climate-change fallouts (food insecurity, disrupted production, out-migration) are experienced differently by men and women. Women and girls, due to their restricted access to resources and decision-making processes, are disproportionately affected by climate-related disasters. Furthermore, their vulnerability is a result of socio-economic and political factors that are exacerbated by climate change. Table 2.3 provides a consolidated perspective of gender-differentiated vulnerabilities linked to natural hazards in Bangladesh.

Photo: UN Women/Fahad Kaizer

[7] *Union Parishad* is the smallest rural administrative and local government unit in Bangladesh

Table 2.3: Examples of gendered vulnerability to natural disasters and plausible climate change impacts in Bangladesh

Natural disasters and hazards due to climate change	Region	Differential vulnerability based on gender (issues and responses)
Cyclone and storm surge	Coastal belt	• Limited access to information of early warning for disasters increases risks for women and other marginalized groups despite having cyclone shelters in place. • Cyclone shelters, designed without addressing gender needs, for example privacy or security, discourage women and girls from using those facilities. • Inadequate shelters result in overcrowding leading to incidents of GBV. • Access to emergency health services, for example skilled midwives or doctors for pregnant women, with safe birth become challenging during any crisis. • Intra-household food insecurity and lack of sanitation facilities caused by any disaster, affect women more than men.
Waterlogging	South-west, south central coastal belt, urban areas	• Disruption in land-based productive systems results in acute poverty; gender-biased intra-household food distribution can further aggravate food insecurity and malnutrition for women and girls. • Collecting drinking water and fuel becomes extremely challenging as women, burdened with the task, become disproportionately vulnerable from spending more time and wading through unsafe waters. • Maintaining menstrual hygiene becomes more challenging in waterlogged situations. • Long-term waterlogging reduces accessibility to schools increasing possibility of dropping out, especially for girls, affecting their future well-being.
Salinity	Coastal belt, specifically south-west coastal belt	• Disrupted production system resulting in poverty leads to higher likelihood of food insecurity and malnutrition for women. • Limited access to drinking water increases workload for women for collecting water, increases probability of suffering from different gynaecological problems in the long run. • Limited access to extension services, credit facilities, and financial institutions, limited opportunities for the households, especially women to explore other livelihood opportunities. • Out-migration for male members of the households seeking employment opportunities leaves female members with increased responsibilities but within limited resources, and increases chances of GBV. • Long-term salinity may result in forced migration of households for survival, adjusting to a new environment with minimum resources, and increasing vulnerability of women.

Natural disasters and hazards due to climate change	Region	Differential vulnerability based on gender (issues and responses)
Flood (riverine)	Mostly in river island areas	• Limited access to information of early warning for disasters increases risks for women and other marginalized groups despite having a well-established system in place. • Collecting drinking water and fuel becomes extremely challenging as women, burdened with the task, become disproportionately vulnerable from spending more time and wading through unsafe waters. • Emergency flood shelters, designed without addressing gender needs, for example privacy or security, increase women and girls' risk of GBV and health hazards (mostly related to disrupted sanitation facilities). • Prolonged flooding causes loss of crops and property resulting in a disproportionate burden on women and girls in terms of food security. • Increased poverty, food insecurity, restricted mobility and dropping out from school lead to increased rate of early marriage and higher demand for dowry. • May cause temporary or permanent migration of households making women and girls more vulnerable from the disconnection from their social network.
Flash flood	North-east part	• Loss of crop results in food insecurity and increased poverty; women remain at higher risks of food insecurity and malnutrition.
Urban flood and drainage congestion	Urban areas	• Water-logging at home and workplace challenges daily living and livelihoods, especially for women living in informal settlements. • Maintaining menstrual hygiene becomes more challenging in waterlogged situations and without access to safe water and toilet facilities.
Riverbank erosion	Mostly in river island areas	• May cause temporary or permanent migration of households making women and girls more vulnerable from the disconnection from their social network.
Drought (predominantly agricultural)	Predominant in the western and north-western parts	• Increased food insecurity and malnutrition increase the vulnerability of women and girls to gender-based food distribution within the household. • Scarcity of water increases the stress of the workload and health issues due to lack of drinking water for women and girls. • Poverty, food insecurity, dropping out from school, and rupture of social networks due to temporary and permanent migration, all increase the potential of trafficking of women and girls.

Source: Climate Change Cell, Department of the Environment, 2009

Photo: UN Environment Programme/Reza Shariar Rahman

3. Policy, legal and institutional framework for gender equality and climate change

Photo: UN Environment Programme/Reza Shahriar Rahman

3.1. Gender equality

3.1.1. Response to international commitments for gender equality

Bangladesh has adopted major international conventions related to human rights and gender. Furthermore, the constitution of Bangladesh guarantees equality before law for all citizens. Similarly, the constitution, Representation of the Peoples Order, 1972 and the National Parliament (Reserved Women Seat) Election Act, 2004 have secured women's right to vote and right to hold public office for women by way of ensuring representation in the parliament and by way of not discriminating between men and women. Over time, the country has adopted key international instruments that have shaped its position on gender equality as illustrated in Table 3.1.

Table 3.1: Response to international commitments on gender equality

No	International commitments	Focuses	Bangladesh's response
1	The UN Charter	Reaffirms faith "in the equal rights of men and women" in the preamble.	Bangladesh received UN membership on 17 September 1974 by accepting the obligations.
2	The Universal Declaration of Human Rights, 1948 the International Covenant on Civil and Political Rights (ICCPR), 1966 and the International Covenant on Economic, Social and Cultural Rights (ICESCR), 1966	Contain non-discrimination clauses by guaranteeing exercise of the rights set forth by these instruments without any gender discrimination. Both ICCPR and ICESCR are concerned with the protection of families and ICESCR is also concerned with providing protection for motherhood.	Bangladesh acceded to the ICCPR on 6 September 2000 with a reservation along with some declarations and to the ICESCR on 5 October 1998 with some declarations but without any reservation.
3	Convention on the Political Rights of Women (CPRW), 1953	Focuses on gender equality	Bangladesh acceded to the CPRW on the same date as the ICESCR, 5 October 1998, with two declarations.
4	ILO, Convention No 100	Focuses on the equal remuneration for men and women workers for work of equal value	Bangladesh notified the ratification of ILO Convention No. 100 on 28 January 1998, which came into effect on 28 January 1999. Bangladesh also adopted the National Women Development Policy, 2011, National Education Policy, 2010 and National Labour Policy, 2012 to emphasize the rights and protections of women, and the elimination of discriminations regarding education and employment.
5	CEDAW, 1979	Article 4 provides that special measures taken for accelerating equality are not discriminatory, and Article 15 provides for equality before the law.	Bangladesh acceded to CEDAW on 6 November 1984 with a reservation aiming to avoid disputes with religious laws and customs as practiced by the citizens of the country.
6	Vienna Declaration and Programme of Action, 1993	Emphasizes human rights of women and girl children.	Domestic Violence (Prevention and Protection) Act, 2010, the Domestic Violence Prevention and Protection Rules, 2013 of Bangladesh supports the Declarations.
7	Declaration on the Elimination of Violence against Women, 1993	Emphasizes the equal rights of women.	

No	International commitments	Focuses	Bangladesh's response
8	Beijing Declaration and Platform for Action, 1995	Focuses on the equal access to economic resources for women, marks the relationship between women and the environment, and determines the actions to be taken for ensuring active involvement of women at all levels while making decisions regarding environment.	Adopted the Beijing Declaration and Platform for Action, 1995.

3.1.2. Domestic laws and policies

Domestic laws and policies of Bangladesh acknowledge and advocate gender equality. For example, Article 19 (3) of the constitution endows the state with duties and responsibilities "to ensure equality of opportunity and participation of women in all spheres of national life." Article 27 guarantees equality before law with entitlement of equal protection of law for all citizens whatever their gender. Article 28 prohibits any kind of discrimination, including based on gender, and ensures equal rights irrespective of gender, along with allowing the State to make special provision by facilitating the advancement of women. Article 29 reconfirms the pledge of non-discrimination regarding gender and other aspects with regards to public employment, and also allows the reserving of appointments and office to secure adequate representation for women. A number of legal instruments were enacted in light of the provisions stated in the Constitution and in accordance with international commitments. Some of the policies were also formulated to emphasize the efforts towards achieving gender equality. Table 3.2 highlights some of the key policies and laws that have more emphasis on the legal aspects of the gender equality.

Photo: UN Women/Fahad Kaizer

Table 3.2: Examples of laws and policies on gender equality

No	Key national laws and policies	Gender provisions
1	Representation of the People Order, 1972	Defines the persons connected with conducting elections to the Parliament as "persons" not men or women and thereby promotes gender equality.
2	Family Courts Ordinance, 1985	Guides on civil dispute resolution in marital relations; the Family Court is established under this Ordinance.
3	Nari-O-Shishu Nirjaton Domon Ain, 2000 or Violence against Women and Children Restraining Act, 2000	Aims to eliminate violence against women and children by declaring such violence to be punishable offences, including domestic violence.
4	National Parliament (Reserved Women Seat) Election Act, 2004	Sets aside a number of National Parliament seats as reserved for women.
5	Bangladesh Labour Act, 2006	Upholds gender equality while providing definitions. Chapter 4 makes provisions for pregnant women in work. The law has prevented the discharge of women from service through the provisions of Section 50.
6	Local Government (Pouroshova) Act, 2009, Local Government (Union Parishad) Act, 2009 and Local Government (City Corporation) Act, 2009	Secure reserved seats for women within the structures of local government bodies to ensure representation of women in local governance.
7	National Women Development Policy, 2011	Sets four objectives and a way forward for providing women with their equal rights by ensuring fundamental freedoms and protection of women
8	National Labour Policy, 2012	Facilitates women's labour and equality in employment with a view to eliminating discrimination in employment.
9	Domestic Violence (Prevention and Protection) Act, 2010 and Domestic Violence Prevention and Protection Rules, 2013	The Act ensures gender equality by protecting women from domestic violence, and the Rules provide procedural aspects in this respect.
10	Child Marriage Restraint Act, 1929, Child Marriage Restraint Act, 2017 supplemented by Child Marriage Restraint Rules, 2018	Establish institutional framework to prohibit child marriage as a punishable offence for both men and women.

To analyse the position of Bangladesh in respect of national legal and policy frameworks, it may be observed that, even before becoming a member country of the United Nations, Bangladesh expressed its respect for the principles set forth by the UN Charter, later reflected in CEDAW. In the same way, before accession to the CPRW and also before adoption of CEDAW, the Constitution of Bangladesh, and the National Parliament Election Act secured the political rights of women. The same spirit is evident in the laws enacted to form the structures of all the local government bodies. In accordance with CEDAW and the ILO Convention, the laws have also upheld the tradition of non-discrimination and provided some safeguards for women to facilitate their participation in the workforce. The laws regarding elimination of violence against women followed the

pledges in the Declaration on the Elimination of Violence against Women and the Vienna Declaration and Programme of Action. The concerns of CEDAW regarding the rights and protection of women and elimination of discrimination regarding education and employment are also accommodated in the national policies.

The chronology of the development of these laws and policies indicates that the initial initiatives were aimed more towards establishing women's rights to equality and protection against violence. The premise of these laws was very much influenced by the conservative and patriarchal social context, which assumed traditional gender roles and division of labour for women. However, the rapidly changing socio-economic dynamics of the country during the structural adjustment policies and neoliberal governance in the late 1980s demanded new initiatives to establish decision-making power, political rights and laws against discrimination in employment. More women were taking on productive roles. These laws attempted to help overcome the barriers to gender equality, as discussed in the previous chapter, for accessing human assets such as education and skills, financial assets such as employment and equal wages, and decision-making power. The legal structural interventions are yet to be fully translated into accepted social norms in many sectors, and hence have been slow in terms of enforcement.

3.1.3. Institutional settings to address gender equality

In the initial period after independence, the institutional arrangement in Bangladesh regarding gender equality was focused on the rehabilitation and welfare of women in a war-torn country. Subsequently, the Ministry of Women Affairs was established, which was later renamed as the MoWCA. Under this ministry, the Department of Women Affairs is specifically mandated to facilitate matters concerning women. The National Women's Organization is an integrated part of this framework. This institute aims to take the necessary initiatives for development of women. Their duties and responsibilities include coordinating civil society and women's organizations' activities. The MoWCA formulated the National Women's Development Policy, 2011. The National Women and Child Development Council was formed through this policy to coordinate relevant initiatives of different ministries and make recommendations on necessary legal and policy development (MoWCA, 2011).

3.2. Climate change and gender

Bangladesh is a pioneer in the adoption of international multi-lateral agreements related to climate change and environmental protection. The timeline in Figure 3.1 illustrates the chronology of the key climate change-related agreements and commitments. The later discussions explore some of the related policies and laws that have implicit relations with climate change and gender equality.

Bangladesh has adopted laws and policies and updated the national institutional responses in consonance with its international commitments. The Constitution of the People's Republic of Bangladesh, 1972 was supplemented by the insertion of Article 18A in 2011. This Article is titled "Protection and improvement of environment and biodiversity" and has become one of the fundamental principles of the state policy of Bangladesh. This new provision has imposed duties and responsibilities on the State to protect and improve the environment as well as preserve and safeguard forests, wetlands, biodiversity, natural resources and wildlife in the interests of the present and the future citizens of this country.

Among the laws addressing the environment, the Environment Conservation Act, 1995 and the Environment Conservation Rules, 1997 were enacted with the specific objectives of environmental conservation, control and mitigation of environmental pollution, and development of environmental standards. Later, the Environment Court Act, 2000, amended and consolidated in 2010, was established for trial of offences relating to environmental pollution. Although these laws do not explicitly address climate change, they are important for a nature-based approach to support both adaptation to and mitigation of climate change impacts. On the policy front, the National Environment Policy, 2018 aims to build a community capable of dealing with all types of issues related to the environment and ecosystem including climate change. It ensures the protection of women and children from disasters and provides for the active participation of women in the efficient use of resources (MoEFCC, 2018). A timeline showing some key milestones in terms of environment protection and disaster risk reduction (DRR) is given in Figure 3.2.

Figure 3.1: Timeline of international commitments on climate change

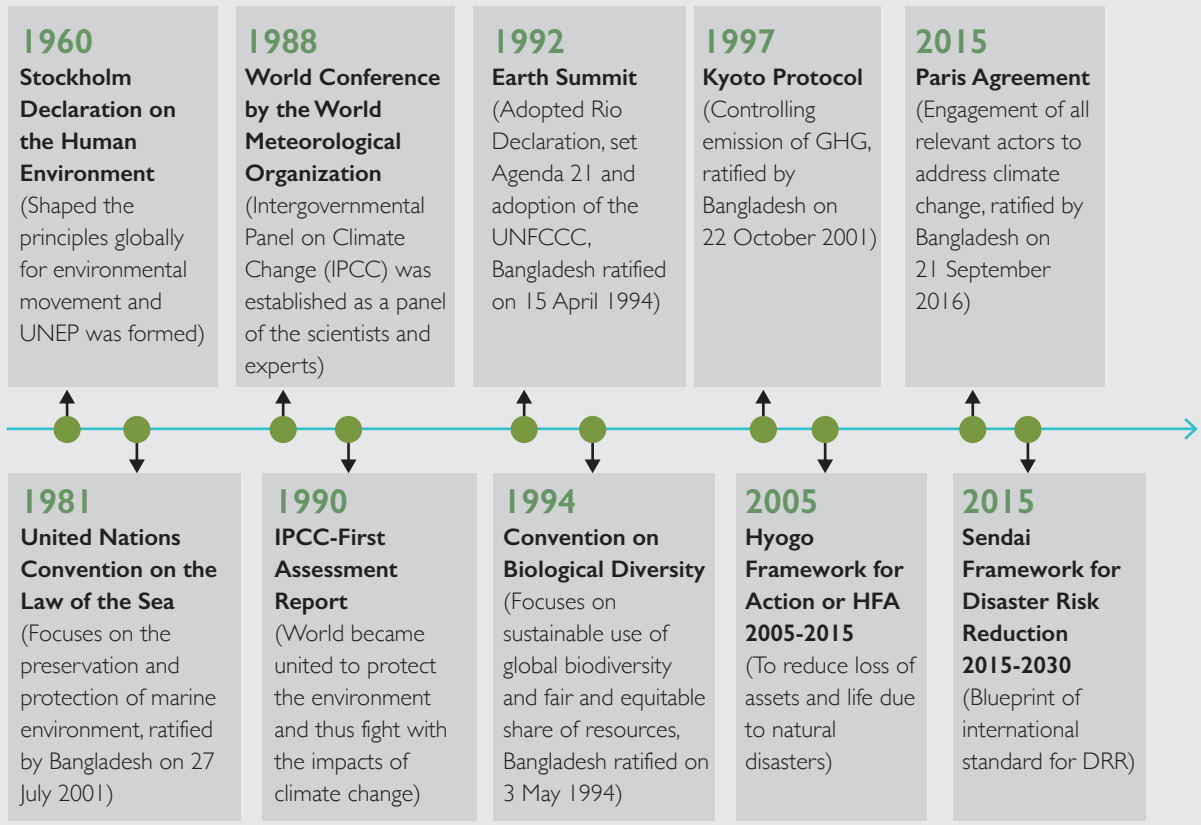
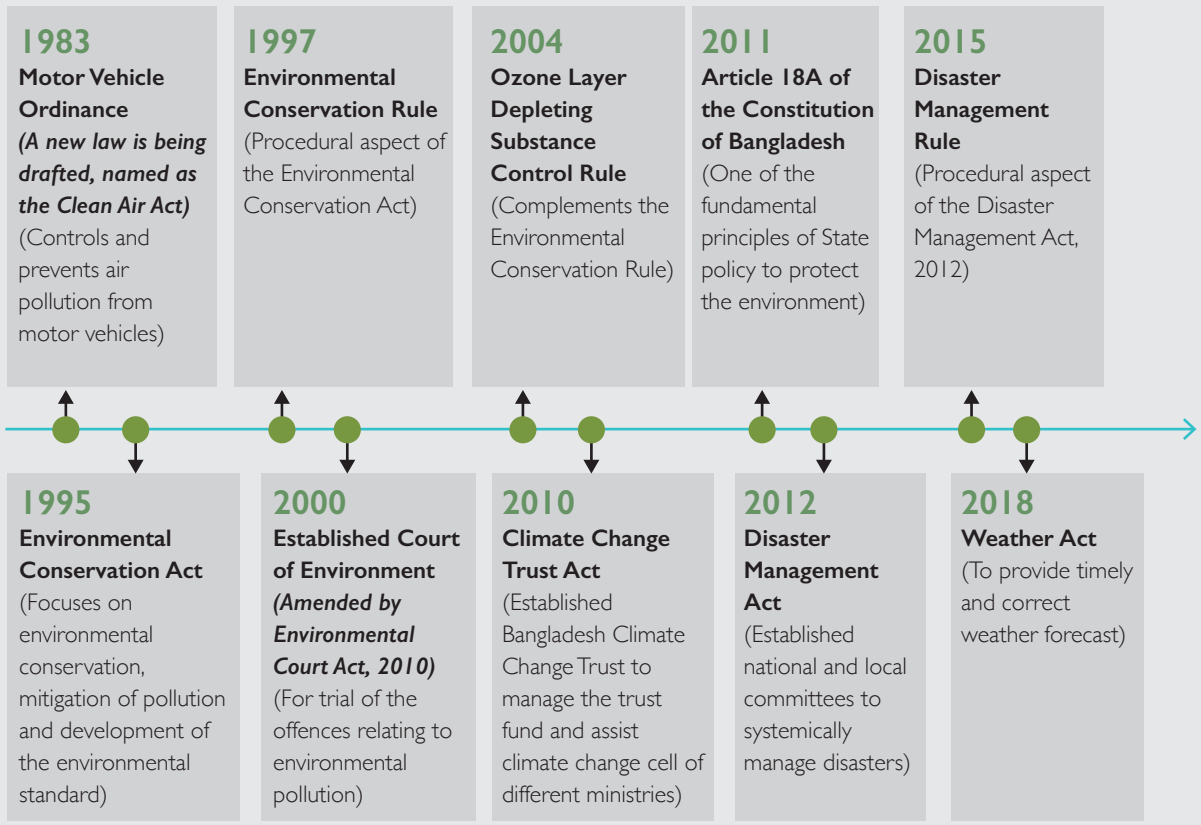


Figure 3.2: Timeline of climate change legal and policy frameworks in Bangladesh



The Bangladesh Climate Change Trust Fund (BCCTF) was created through the Climate Change Trust Act, 2010 to fight adverse climate impacts. The BCCTF operates as the first-ever national climate fund established by a Least Developed Country. It assists focal points or the climate-change cell of ministries and the Department of the Environment (DoE), and the Climate Change Unit of the Ministry of Environment and Forests (present MoEFCC) to undertake programmes and projects from the national budget to make communities resilient to climate change.

Beside the parliamentary enactments, there are several policy documents that aim to concurrently address the issues of gender equality, climate change and environmental conservation in Bangladesh. These include the Standing Orders on Disaster, 2019 in which the Ministry of Disaster Management and Relief (MoDMR) has determined the duties and responsibilities of all the relevant stakeholders to mitigate, prepare, and respond to disasters and establish the necessary institutional structure for disaster risk management (DRM). The policy enables a gender-responsive approach in DRM and includes provisions to eliminate GBV during times of disaster (MoDMR, 2019).

The National Disaster Management Plan, 2021-2025 highlights the provision of coordinated actions of the MoDMR, the MoWCA and other ministries to take steps for

DRR and DRM. While doing so it has taken a twin-track strategy and provided for the mainstreaming of gender along with the empowerment of women in respect of gender-responsive DRR and DRM (MoDMR, 2021).

A summary of other important policy documents related to climate change and gender integration is given in Table 3.3.

Table 3.3: Gender in national laws and policies

No	Key national laws and policies	Gender provisions
1	Representation of the People Order, 1972 *General Economics Division, Planning Commission*	• Focuses on integration of environment, climate change, and disaster management into planning and budgeting with the goal of promoting sustainable development. • EFYP emphasizes on "developing Gender-Inclusive Climate Change Response framework" to harmonize the priorities and strategies among different national documents (policies/ strategies/ visions/plans) related to climate actions. • Directs measures to increase women's knowledge of environmental management and conservation, and make investments in education, capacity-building training, technology transfer, and environmental projects focusing on women.
2	National Biodiversity Strategy and Action Plan (2016-2021) *MoEFCC*	• Translates measures set out in the Convention on Biological Diversity. • Recommends inclusion and recognition of women's existing active role in biodiversity conservation to offer them equal opportunity. • Aims to build the capacity of rural women to enable them to engage actively in biodiversity conservation at both household and community levels.
3	BDP2100 *Ministry of Water Resources (MoWR)*	• A plan with a long-term vision for "achieving safe, climate resilient and prosperous delta." • Gender reference is minimal in this planning document. It mentions women as "vulnerable", but does not portray them as potential change agents in the process towards building climate and disaster resilient development. • There are no specific strategies or plans that directly relate to gender equality.

No	Key national laws and policies	Gender provisions
4	NPDM, (2016-2020) *MoDMR*	• DRR and emergency management are integrated in the disaster management policies. • The plan provides a directive to integrate gender in all its plans and actions. • However, gender mainstreaming in DRR remains broad as it lacks specific gender references and gender-responsive strategies.
5	National Sustainable Development Strategy *General Economics Division, Planning Commission*	• Focuses on the constitutional obligations of Bangladesh to have a people-centric approach with a vision for sustainable development.
6	Perspective Plan, 2021-2041 *General Economics Division, Planning Commission*	• Considers both gender and environment as important perspectives for development by addressing those in separate chapters.
7	Mujib Climate Prosperity Plan (MCPP) – Decade 2030	• Intends to facilitate climate financing for vulnerable communities and to encourage women's empowerment. MCPP is formulated in honour of the Father of the Nation on his birth centenary.
8	National Adaptation Programme of Action (NAPA), 2009 *MoEFCC*	• Suggests specific strategies for adaptation and recommends 15 projects to strengthen the immediate and urgent adaptation activities to address the current and anticipated adverse effects of climate change, including extreme events. NAPA was the first attempt to guide the coordination and implementation of adaptation initiatives in the country. However, differentiated gender impacts were not recognized.
9	BCCGAP, 2013 *MoEFCC*	• Prepared with an aim to ensure the integration of gender equality into climate change-related policies, strategies and interventions. The BCCGAP integrates gender considerations into four of the six main pillars in the BCCSAP: (i) food security, social protection and health; (ii) comprehensive disaster management; (iii) infrastructure; and (iv) mitigation and low-carbon development. It is in the process of being updated in light of the revised BCCSAP.

Analysing these laws and policies, which do not always explicitly discuss or consider climate change, illustrates that many of them are gender-sensitive or even gender-specific, recognizing women as a target group of certain policy goals, and considering their specific needs. However, they do not: address inequality generated by unequal norms, roles and relations; consider both women's and men's specific needs; suggest any remedial actions; or address the root causes of inequality that affect access to and control over resources. Despite creating some opportunities to guide the national policies, strategies, and plans in different sectors to address the impacts of climate change, some of these laws and

policies remain gender-blind and often fall short of becoming gender-transformative to foster progressive changes in power relationships between women and men.

3.3. Gender equality in the Bangladesh Climate Change Strategy and Action Plan

The first BCCSAP was developed in 2008 and was revised in 2009 to effectively reflect national development priorities. The objective was to formulate a strategy towards pro-poor, climate-resilient and low-carbon development, based on the four building blocks of the Bali Action Plan (adaptation, mitigation, technology transfer, and adequate and timely flow of new and additional (funds). In line with the Sixth Five-Year Plan (GED, 2011), BCCSAP, 2009, devised a roadmap to mainstream climate change in its development strategy by marking six thematic areas, under which 44 programmes were prioritized.

Despite certain limitations, BCCSAP, 2009, acknowledges the gender-differentiated impacts of climate change and the lack of understanding of the socio-economic impacts of climate change on different segments of population. It provides a generic call to incorporate gender considerations in all aspects of climate change-related activities, and underlines the urgency of undertaking capacity building. However, BCCSAP, 2009, fails to provide guidance on the development and prioritization of gender-responsive climate-related programmes. There is no directive to collect sex-disaggregated data from the actions or projects to evaluate and monitor progress.

In terms of institutional arrangements to implement BCCSAP, 2009, 11 ministries were identified as the main ministries/agencies involved in climate change issues. The MoWCA was not included. The BCCSAP was envisaged as a living document to be updated over time. The latest BCCSAP was submitted as a draft to the MoEFCC in December 2020.

Table 3.4: Bangladesh Climate Change Strategy and Action Plans 2009 and 2020 (Draft): thematic areas developed for climate actions

BCCSAP, 2009	BCCSAP, 2020 (Draft)
Six thematic areas: 1. Food security, social protection and health 2. Comprehensive disaster management 3. Infrastructure 4. Research and knowledge management 5. Mitigation and low-carbon development 6. Capacity building and institutional strengthening	**Eleven thematic areas:** 1. Natural resource management: water, biodiversity and soil 2. Ensure and sustain food and nutrition security 3. Industry and power 4. Health 5. Social protection and gender 6. Regional and urban dimensions of climate change 7. Comprehensive disaster management 8. Infrastructure 9. Low-carbon development and mitigation 10. Research and knowledge management 11. Governance: legal, institutional and policy aspects

The revised BCCSAP, 2020 promises greater integration of gender-responsive actions

(specific activities with time-frames) in almost each of the 11 thematic areas. A number of proposed actions include explicit gender components and have a high potential for facilitating gender mainstreaming. A number of examples from the BCCSAP, 2020 (Draft) are provided in Annex 3. The MoWCA is expected to play an active role in climate actions. Further, there is a clear directive to develop practical initiatives to integrate gender issues into climate-sensitive development projects (in Development Project Proforma for the government) along with capacity building.

3.4. Gender equality in Nationally Determined Contribution development

Bangladesh submitted its INDC to the United Nations Framework Convention on Climate Change (UNFCCC) on 25 September 2015, which included three sectors (power, industry and transport). Subsequently, Bangladesh prepared the NDC Implementation Roadmap and Action Plan in 2018. As part of the global initiative, Bangladesh has updated its NDC and submitted it to the UNFCCC on 26 August 2021, incorporating additional sectors consistent with the guidelines of the Intergovernmental Panel on Climate Change (IPCC) (MoEFCC, 2021).

Table 3.5 provides a basic understanding of how Bangladesh is addressing gender in subsequently submitted NDCs and how this integration is shaping up through changes over time.

The INDC, 2015 did not provide any reference to gender equality or women's empowerment. However, the NDC Implementation Roadmap and Action Plan of 2018 provides for the inclusion of a senior representative from the MoWCA within the NDC-NAP Advisory Committee to give strategic advice on cross-cutting issues.

On the other hand, the updated NDC, 2021 performed better on gender integration. This document mentions "leveraging government funds to finance women-led businesses", while discussing the National Action Plan for Clean Cooking, 2020-2030. With regards to DRM, the NDC, 2021 has mentioned the sex-disaggregated data of the beneficiaries of different supporting projects. Finally, while setting the planning processes, the NDC, 2021 undertook to establish domestic institutional arrangements in a gender-responsive manner and set the procedures to do so.

In the study titled "Gender and National Climate Planning: Gender Citation Integration in the Revised Nationally Determined Contributions", IUCN (2021) analysed the indicators of gender stakeholders' participation in NDC development, gender stakeholders as implementing agencies (for specific actions), specific gender objectives in the NDCs, gender activities and gender analysis, use of sex-disaggregated data, and budget allocation to support gender action. The analysis concluded that there is no sufficient country-level data available on gender-responsive components for Bangladesh.

In light of this review, it is obvious that certain improvements have been made in terms of gender mainstreaming in the NDC and its implementation plans, but there is a lot more that could be done, especially taking into account already existing policies, where gender has been referenced. The sector-level gender analysis could reveal more gendered impacts and highlight women's role in those sectors that are critically important for NDC implementation.

Table 3.5: Gender analysis (summary) of submitted NDCs of Bangladesh

NDC commitment areas	INDC, 2015	Updated NDC, August 2021
Types of support	No gender references	Conditional and unconditional
Participatory process of NDC development		Yes *(Gender was mentioned in domestic institutional arrangements, public participation and engagement with local communities and indigenous peoples, in a gender-responsive manner)*
Reference to women/ gender		Yes *(Gender was mentioned in participatory process and monitoring and implementation)*
Financing		No reference of gender-responsive budgeting (GRB) in the INDC
Each Party with NDC under Article 4, paragraph 7, of the Paris Agreement to submit information		Not applicable
Context for the reference		No Indicators noted as gender-responsive. Gender reference is cross-cutting in commitments to mitigation, adaptation Commitment to gender mainstreaming or taking gender into account across one or more components of the NDC
Monitoring and/or implementation		Yes *A set of national policies and plans have been prepared to guide climate action.* *National Action Plan for Clean Cooking 2020-2030 focused predominantly on the removal of existing financing barriers by enabling access to capital by SMEs, promoting access to climate funds, leveraging government funds to finance women-led businesses in the sector and lobbying for additional financing options from international donors at low rates.*

Source: Adopted and modified from WEDO Gender Climate Tracker (Available at https://genderclimatetracker.org/).

3.5. Financing structures for mainstreaming

GRB is part of the gender mainstreaming strategy. It builds a bridge between public financial management and gender equality. Budgetary decisions are crucial for empowerment of women and for creating an enabling environment for gender equality. GRB seeks to achieve a gender-equal distribution of resources.

By replacing the traditional planning processes, Bangladesh has initiated the Medium-Term Budget Framework (MTBF) integrating budgeting with planning and policymaking (Chowdhury, 2020). Three critical steps are taken by the government under MTBF to seamlessly facilitate implementation of GRB. Firstly, gender issues are integrated within MTBF. Secondly, funds allocated with the aim to benefit women are indicated in a segregated way by developing a database or model – a Recurrent Capital, Gender and Poverty (RCGP). Finally, accompanied with budget, a report on gender budget is published with explanations on gender-responsive activities handled by different divisions or ministries of the government by using the budget allocated for projects and programmes being run by these organs (Siddique, 2013).

Besides the good practice with GRB, Bangladesh is advancing gender mainstreaming in its budget by working to meet the SDGs by utilising domestic financial resources to finance climate actions. To implement the six thematic areas of the BCCSAP, the BCCTF was established under the MoEFCC, which is financed from the national budget of Bangladesh. Added to this, the Bangladesh Climate Change Resilience Fund, a multi-donor trust fund, was created in 2009 and became operational the following year to implement projects of both non-governmental organizations (NGOs) and government agencies in the thematic areas of BCCSAP. As a part of the global Strategic Climate Fund, the Pilot Programme for Climate Resilience is running in Bangladesh financed through global contributions. In addition, nine projects of the Global Environment Facility are currently being implemented in Bangladesh (Khan and Tashmin, 2016).

Bangladesh has initiated the Country Investment Plan for Environment, Forestry and Climate Change (EFCC-CIP) to address issues related to environment, forest and climate change by mobilizing both international and national investments and strengthening coordination across all stakeholders. EFCC-CIP has four pillars with 14 coordinated and coherent programmes for investment, and works as a strategic tool for the government (MoEF, 2017).

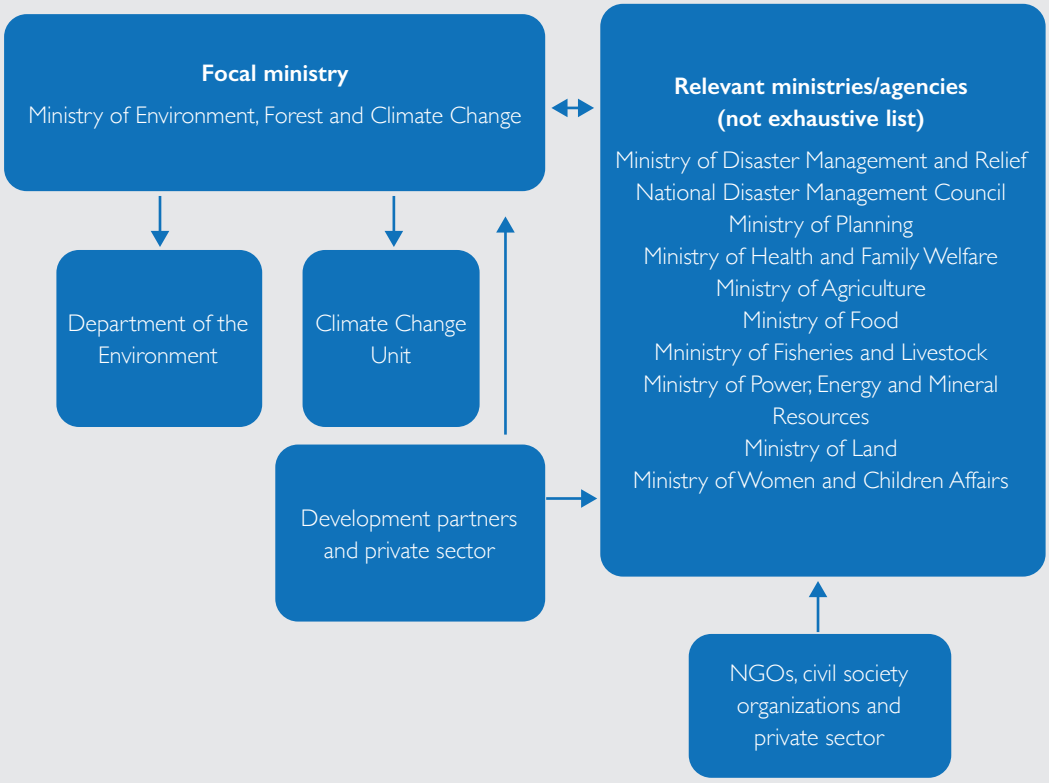
However, as Budlender (2017) has analysed, despite efforts to target expenditures for women and the inclusion of gender in budget statements and in all climate-sensitive expenditure, gender equity in climate finance will need continuous efforts.

3.6. Institutional settings for implementation

The MoEFCC is the focal ministry to address environmental management and climate change issues. Under the MoEFCC, the DoE provides technical support to implement the Environment Conservation Act, 1995. In accordance with BCCSAP, a Climate Change Unit was established under the MoEFCC in 2010 to coordinate and facilitate climate change focal points nominated by the other ministries.

There are more than 35 ministries delegated with responsibilities to deal with various impacts of climate change (MoEF, 2009). At local level, the Local Government Division administers urban health and slum development, waste management, development of water supply and sanitation facilities of both urban and rural areas (GED, 2015).

Figure 3.3: Major institutions addressing climate change issues



The MoDMR, the National Disaster Management Council, the Planning Commission under the Ministry of Planning and Ministry of Health and Family Welfare are key government agencies and ministries in Bangladesh responsible for dealing with various adverse impacts of climate change (MoEF, 2013). Among other ministries, Ministry of Agriculture (MoA), Ministry of Food, Ministry of Fisheries and Livestock (MoFL), Ministry of Power, Energy and Mineral Resources (MoPEMR), Ministry of Health and Family Welfare, the Ministry of Land (MoL), Ministry of Planning and the MoWCA are responsible for climate actions in the areas of their core mandate. NGOs, civil society organizations (CSOs), development partners and the private sector are also closely involved in implementing climate actions.

Photo: UN Environment Programme/Reza Shariar Rahman

4. Sectoral climate policies and assessment of integration of gender equality

Photo: UN Environment Programme/Reza Shahriar Rahman

All four sectors covered in this report, namely crop agriculture, water resources, forestry and renewable energy, play an essential role in Bangladesh. Their inclusion in the NDC as part of commitments in adaptation and mitigation is important to guide the inclusion of gender equality and gender considerations in designing and implementing policies and programmes.

4.1. Crop agriculture

Agriculture plays a vital role in the economy of Bangladesh. The country's fertile delta provides food security to more than 160 million people. Bangladesh is third among the rice-producing countries (USDA, 2021). Agriculture contributed 13.02 per cent to the country's GDP in 2021 (BBS, 2021), which decreased from its previous share of 20 per cent in 2010 (Yu et al., 2010). Despite the reduction in the share of GDP, the sector remains significant for food security (GED, 2020). Around 40.6 per cent of the total labour force (BBS, 2020) are working in this sector. Agriculture is regarded as a vital livelihood for rural people (BBS, 2018), as 65 per cent of the population is directly or indirectly dependent on primarily crop agriculture (GED, 2020).

Climate change is critical for an agriculture-based country like Bangladesh (Rahman and Rahman, 2019). The changes in mean values of the critical climatic parameters, such as temperature, rainfall, humidity and sunshine hours (UNFCCC, 2011) will have profound consequences for agriculture productivity. The poor socio-economic conditions of the majority of farmers, for example, poverty, lack of access or ownership of land, loss of assets, and high dependence on microcredits or loans, limit their capacity to adapt to the changing climate scenarios. Furthermore, reliance on agrochemicals or unsustainable farming practices reduce their capacity to attain optimum crop production over time, and reduce the capacity to accumulate assets, ensure nutrition, and secure socio-economic sustainability.

4.1.1. Impacts of climate change on crop agriculture

Changes in temperature: Bangladesh is already experiencing a rise in temperature (MoFA, 2018; Rahman and Rahman, 2019), which contributes to increased atmospheric moisture demand and eventually enhances evapotranspiration[8] (Murshed, Rahman, and Kaluarachchi, 2019). Higher evapotranspiration reduces soil moisture content (Ibne Amir and Ahmed, 2013) and leads to higher irrigation requirements (MoFA, 2018). Frequent droughts in the north and northwest of Bangladesh are intensified by rising temperatures (Sikder and Xiaoying, 2014). It is predicted that some 60 per cent of the rice-producing land will be affected by the seasonal droughts by 2030 (MoFA, 2018). In addition, higher temperature decreases crop yields (Yu et al., 2010) and changes the length of the crop growing season (MoFA, 2018) in Bangladesh.

Changes in rainfall: Climate change also causes irregular rainfall. The number of consecutive rainy and dry days is increasing in Bangladesh, signifying occurrence of heavy rain (CCC, 2009; Murshed et al., 2019). Extreme climatic calamities, including floods, and cyclones, are becoming more common. In June and July 2020, floods and heavy rains significantly reduced Aus and Aman rice harvest (USDA, 2021).

According to Nahar et al. (2018), long-term rice production could be reduced by 12.8 per cent in the coastal and northern regions and gain 1.7 per cent in the middle and eastern regions. The decrease in the coastal and northern regions (which produce 17.5 per cent and 41.8 per cent of total rice output, respectively) outweighs the increase in the central and eastern areas (which produce 31.3 per cent and 9.3 per cent, respectively). The resulting outcome from the reduced rice production is higher rice prices and lower farmer welfare. The simulation model forecasts that many farmers in climate-affected areas will seek off-farm labour.

Increasing sea-level rise: Moreover, the geographic location of Bangladesh and its flat terrain makes the country exposed to sea-level rise. Several studies (Faroque, Asaduzamman, and Hossain, 2013; Hossain, Amin, Sultana, and Siddique, 2020; Murshed et al., 2019; Rahman and Rahman, 2019) found an increase in sea level at Bangladesh's coast would intensify salinity intrusion and coastal flooding, which could deteriorate soil fertility for agriculture production. The Asian Development Bank estimated economic loss of 2 per cent and 9.4 per cent of GDP by 2050 and 2100 respectively (ADB, 2014).

4.1.2. Measures to reduce climate change impacts on crop agriculture

Adaptation options introduced in agricultural sectors by the government, development partners and NGOs include the use of stress-resilient crop varieties, cropping patterns, efficient irrigation techniques, sustainable land management, early warning, research, subsidies, supply of inputs and digitization of agricultural information. The practice supports the National Agriculture Policy 2013, which emphasises promoting sustainable land and water management and calls for a research thrust on weather forecasting, climate change and disaster management in general. The policy proposes appropriate steps to develop an efficient irrigation system and re-excavation of canals, ponds and other water bodies for the conservation and utilization of surface water. However, disaster management considerations are not systematically considered in this policy.

[8] Evapotranspiration is the process by which water is transferred from the land to the atmosphere by evaporation from the soil and other surfaces and by transpiration from plants.

The targets set for agriculture in the Eighth Five-Year Plan that address climate change issues include developing climate-resilient crop varieties for rice and non-rice crops, introducing organic fertiliser use and organic pest management system, developing location-specific technologies, implementing research and development activities on food-based nutrition and reducing the harmful effects of agrochemicals and heavy metal (i.e., arsenic, lead, and cadmium) contamination in the food chain and enhancing consumer awareness, and expanding the digitalization of market access and market linkage activities, as well as establishing agricultural marketing.

The Bangladesh Agricultural Research Institute, the Bangladesh Institute of Nuclear Agriculture, the Bangladesh Sugar Crop Research Institute, the Bangladesh Wheat and Maize Research Institute and the Bangladesh Rice Research Institute are centres of excellence contributing to developing new stress-tolerant high-yielding crop varieties.

Climate-smart agriculture has become a popular term in Bangladesh that development partners and NGOs use in agriculture extension support to address both the climate change and the gender aspects. These practices include household-based pond aquaculture and vegetable farming for homestead gardens and pond dykes, cultivation on the dykes of shrimp gher (ponds), and floating bed cultivation. Floating agriculture has been discussed in the IPCC Fifth Assessment Report (2014) and has been showcased as an adaptation technology by the Technology Executive Committee of the UNFCCC.

4.1.3. Gendered impact of climate change in crop agriculture

The discussed climate impacts on crop agriculture tend to vary between women and men based on the nature of their participation in the sector. The following section provides an analysis of the conditions that contribute to women's overall vulnerabilities in agriculture, which are likely to be exacerbated by climate change.

Participation of women: As discussed earlier, agriculture remains a major sector for women's employment in Bangladesh. They participate in a wide range of agricultural activities including crop cultivation, livestock and poultry rearing, homestead gardening and fisheries (Jahan, 1990; Farid et al., 2009). The labour survey indicates that men's engagement in agriculture has declined during the last decade, which has had direct consequences on women's participation in agriculture. In recent years, rural agricultural labour has become scarce, and new technology and innovations have not been introduced. Such gaps between the demand and supply in labour and technologies has increased the needs for women's participation. The overall poverty reduction, stronger women's empowerment and male family members moving away from agriculture to non-farm employment also contributed to the increase in women's participation in agriculture, a phenomenon termed the feminization of agriculture (Jaim and Hossain, 2011; Rahman, M.T., 2017; Neelormi, S and Ahsan A.U., 2011). While the situation provides economic opportunities for women, increasing climate variability threatens to erode those gains.

Underreported engagement: Time spent by employed persons in the agriculture, forestry, and fisheries sector is the lowest compared to other industries, men work an average of 46 hours per week while women report working 32 hours per week (BBS,2017). Women's involvement in post-harvest field crop processing and livestock raising, among other activities, has economic implications as well (Begum 1989; Islam 1979; Wallace et al. 1987). Not only do official statistics undervalue the economic contribution of women, but the women themselves also underreport their work (Mahmud and Tasneem 2011). Both these tendencies to underreport reflect and reinforce a lower status for women relative to that of men. Nevertheless, the literature review suggests that rural household income is vastly lower in households where women do not participate in agriculture (Chowdhury et al., 2009; Neelormi and Ahmed, 2011; Khatun et al., 2014). Thus, women's contribution in the sector remains systematically unrecognized and underreported (Farouk, 1980; Jain, 2015).

Limited decision-making ability: Men still dominate the fieldwork, while women are increasingly involved in the preparation and post-harvest operations. It is important to note that men dominate commercial activities, whereas women dominate domestic agriculture (Garrette and Syamal, 2004; Neelormi and Ahmed, 2011). The changing dynamics of women's participation in agriculture and increasing economic empowerment are very important to withstand any shocks from natural disasters and climate change impacts. Women's empowerment and participation in agri-business is, therefore, explicitly mentioned in the successive Five-Year Plans by the government of Bangladesh (GED 2010; GED 2015; GED 2020). But despite their increased involvement, women's decision-making ability remains limited about choice of crop production or actions to better cope with the changing context and needs.

Limited access to and ownership of land: Women's decision-making ability and contribution in agriculture, especially in crop production, is very much influenced by land ownership. Land is essential for agriculture, rural subsistence and market production. Women in Bangladesh are often restricted to secondary land rights, meaning they hold these rights through male family members. They therefore risk losing their entitlements in case of divorce, widowhood or their husband's migration. In cases where women do hold primary ownership, land parcels are on average smaller and of lower quality (Scalise, 2009). The existing laws do not favour women in securing equitable ownership of assets, particularly land. With limited access to and ownership of land, they can only exert limited decision-making power and also cannot access financial resources. Table 4.1 illustrates land ownership status in Bangladesh.

Table 4.1: Ownership of land by women in Bangladesh

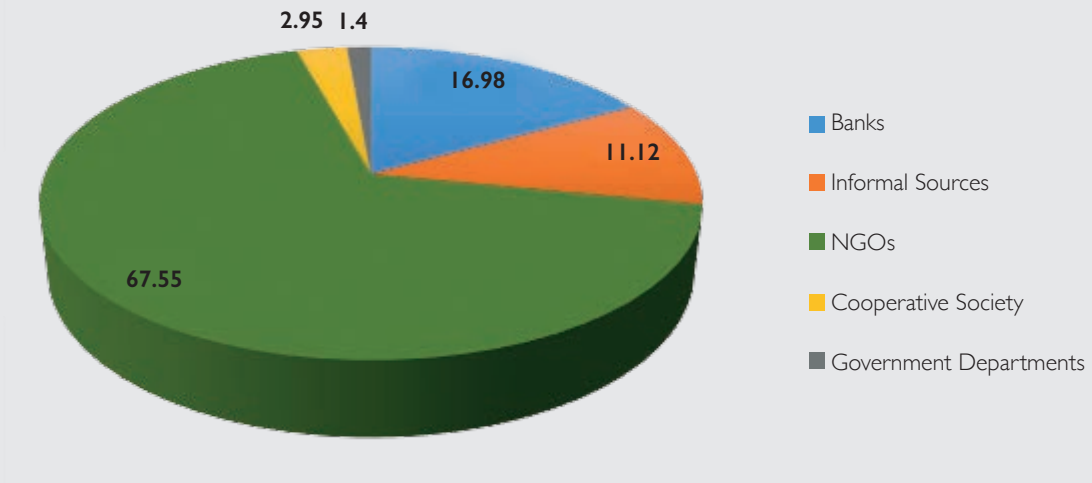
	Year	Per centage of females	Source
Agricultural landholders	2008	4.6	Agricultural census
Agricultural landowners	2011-2012	22.6	LSMS-Bangladesh integrated household survey (Kieran et al., 2015)
Incidence of female agricultural landowners (sole/joint)	2011-2012	8.5	
Agricultural land area owned by females	2011-2012	10.1	

Source: FAO Gender and Land Rights Database, 2018

Photo: UN Environment Programme/Reza Shahriar Rahman

Unequal access to credit and other financial resources: In 2010, the government, through its central bank (the Bangladesh Bank), began opening bank accounts for all farmers with only 10 Taka (12 US cents) as deposit. About 17 per cent of the total rural credit disbursement is operated by banks (national, non-government and specialized banks), while NGOs give the majority of rural credit disbursements (67.6%) as illustrated in Figure 4.1 (BBS, 2014). A significant proportion of rural credits (11.1%) is disbursed by non-institutional or personal sources, such as moneylenders, friends, relatives, or brokers. According to the Rural Credit Survey 2014, small agricultural households (72.41%) receive the most loans (BBS, 2014). Unfortunately, the government specialized banks' agricultural and non-farm rural credit disbursement was found to prefer male borrowers (Bangladesh Bank, 2015). Women are often excluded from banking because they cannot provide collateral, in particular in the form of land (Hossain et al., 2014).

Figure 4.1: Distribution of loans by disbursing source



Source: BBS, 2014

Unequal access to knowledge, resource, and training: The Department of Agricultural Extension (DAE) provides farmers with rural advisory and agricultural extension services. The DAE has a large, countrywide network and focuses on crop sector extension services. It aims to educate farmers on the latest research and farming techniques to increase productivity. Agricultural extension services in Bangladesh are staffed predominantly by men, which limits the understanding of women 'specific needs and considerably hinders dialogue due to existing social norms. Women also have less access to technology and technical knowledge due to lack of training, exposure and investment opportunities. Agriculture is increasingly being mechanized, but social norms often prevent women from using such machinery. Limitations in women's control and ownership of productive physical and human capital severely limit their ability to earn.

Wage differential: Agricultural workers have one of the lowest incomes among all professions. On average, women's daily wages are 75-78 per cent lower than male workers' (BBS, 2017). The government, on the other hand, promotes equal pay when providing cash for work under social safety net programmes.

Dependency on homestead production systems: About 40.2 per cent of employed women work in production for domestic consumption 'own use' or subsistence agriculture (BBS, 2017). Homestead gardens have emerged as an effective intervention to support women in subsistence agriculture. They help to increase the supply and consumption of a diverse range of vegetables, thus contributing to nutrition and food security (Schreinemachers, et al., 2015; Bushamukaet al., 2005; Bloemet al., 1996). However, research shows that women are likely to be hit the hardest by climate change, particularly in maintaining livelihoods dependent on homestead small-scale production systems (Ahmed et al., 2007; MOEF, 2013). Many NGOs have advocated for changes to the prevalent homestead-based production system. A few good examples of appropriate community-based responses have been tested and found to be useful (Ahmed et al., 2017; Hafiza and Neelormi, 2015; Solidaridad, 2017; Ahmed, 2016). Women in general have the fewest resources and formal skills for production-oriented activities. They are severely constrained in scaling up production and their dependency on homestead production will only decrease their ability to cope with the impacts of climate change.

It is evident that women are disproportionately vulnerable to the impacts of climate change due to their systematically unrecognized and underreported contributions to agriculture, compounded by their limited ownership of land and consequently limited decision-making power, lower wages, limited access to credit, agricultural extension services, technologies and markets. Climate impacts that escalate food insecurity affect women and girls more due to gender roles and social culture. Malnutrition, early marriage, GBV and migration have been found to increase in cases of crop failures due to climate change.

4.1.4. Gender integration into climate change policies in the crop agriculture

Bangladesh has several policies and strategies to promote gender equality in agricultural development addressing climate change. The government recognizes the importance of having both women and men equally involved in adapting to climate change and other environmental challenges. However, despite affirmation from the government of its intention to mainstream gender in national and climate change policies, such efforts remain inconsistently applied.

Table 4.2 summarizes some of these policies and strategies

Table 4.2: Policies and strategies for promoting of gender equality in agriculture

Policy/Ministry/Agency	Gender equality elements
National Development Policy	
Eighth Five-Year Plan, 2020-2025 *General Economics Division, Planning Commission*	• Acknowledges the role of women in the food and nutrition security of Bangladesh and focuses on removing barriers to productive participation of women in agricultural employment by addressing the following issues, amongst others: 1) Socio-economic backwardness and constraints that women endure in a male-dominated society 2) Wage differences between male and female in agriculture 3) Women's access to institutions and facilities including extension and credit services and linkages with other services such as health and nutrition 4) Women's access to markets and high value-added agriculture
National Women Development Policy	
National Women Development Policy, 2011 *MoWCA*	• Highlights the inclusive growth and participation of women in all spheres of national life and fulfils objectives, such as the following: 1) Take steps to ensure that farming women have equal opportunity in obtaining agricultural inputs such as fertilizer, seed, farmer's card and credit facilities 2) Take initiative to ensure equal wages for the same job 3) Put special emphasis on the health of women alongside food during post-disaster emergencies
National Agriculture Policy	
National Agriculture Policy, 2018 *MoA*	• Recognizes the direct and indirect contribution of women in different stages of production. • The main strategies towards enhanced women's participation in the agriculture sector are envisaged as the following: 1) Recognition of women's labour and participation to ensure their social dignity and safety 2) Elimination of the wage differential between men and women labour in agriculture and ensuring equal pay for men and women 3) Homestead gardening and promotion of cash payment 4) Agricultural education and research 5) Encouraging women to participate in the formal economic sphere by providing support to their involvement in agricultural product-based small and cottage industries 6) Training on families' nutritional security, agricultural production, storage, marketing, agricultural businesses and industries to build enhanced capacities 7) Participation of women in food security-related planning, decision making, supervision and distribution activities 8) Adoption of specific extension activities for women farmers

Policy/Ministry/Agency	Gender equality elements
National Agricultural Extension Policy, 2020 *MoA*	• Addresses the conditions that hinder the recognition and effective participation of women in decision-making spaces by engendering those spaces, forming women farmer groups, encouraging women-led SME development in agri-business, developing their confidence in raising their voice through grassroots-level women farmers' organizations, and creating gender awareness in both women and male farmers • The Policy also puts emphasis on homestead gardening as a means to women's economic empowerment, poverty alleviation, and food and nutritional security.

After analysing agriculture policies, it is evident that there are relevant policies in place that acknowledge that women are crucial for food processing and nutrition security. While women are missing from other roles in agriculture sector — as producer and other parts of the value chain — some of these policies recognize women's predominant engagement in seed conservation and post-harvest activities. These policies suggest capacity-building measures, increased access to information, knowledge, financial assets, technology, farming resources and markets. These include initiatives to equal pay for equal work and to remove wage discrimination in agriculture, steps to ensure women have equal opportunity in securing agricultural inputs like fertilizer, seed, farmer's card and credit facilities etc. There is also policy guidance to create alternative options.

However, these policies fall short in three aspects. First, the agriculture policies and strategies lack the analysis of differentiated impacts of climate change on women and men. Second, they do not provide specifically climate-gender interlinked measures. Third, lack of gender-disintegrated data on access to land, finance, extension services and agricultural tools act as barrier to better gender-responsive climate actions.

The policies attempt to recognize women beyond their traditional reproductive role, encouraging increased participation through women farmer groups, encouraging women's SME development in agri-business, developing confidence in raising their voice through grassroots women farmers' organizations, and creating gender awareness among both female and male farmers. The expectation is that women farmers will be encouraged to assume decision-making roles and positions within farmers' organizations. However, some of these gender-transformative intentions promoting gender equality are yet to demonstrate visible results. There is still little comprehension of how inequalities generated by unequal norms, roles and relations affect women and men differently and how they lead to limited access and control over resources in a scenario of higher climate risks. In the absence of support from such an analysis, the policies remain at best either gender-sensitive or gender-specific, by intentionally targeting and benefiting a specific group of women or men to achieve certain policies or programme goals. They fall short of being gender-transformative, as they do not take significant remedial actions considering women's and men's specific needs.

4.2. Water resources

Water resource management plays a key role in adapting to climate change. Due to its geographical location, Bangladesh is prone to water-related disasters (PWRI, 2007), exacerbated by climate change (MoFA, 2018). The country is located where the Ganges, Brahmaputra and Meghna rivers converge. The primary rivers that sustain the country's water resources originate outside the country. Bangladesh carries water from the 700 rivers and tributaries that feed into the Bay of Bengal. Thus, the hydrological complexity ranges from the Himalayan glaciers to the flood-prone deltaic region of Bangladesh (Chak, Farquharson, and Chowdhury, 2006). The country has no control over the Ganges,

Photo: UN Environment Programme/Reza Shahriar Rahman

Brahmaputra and Meghna river system because of its downstream location, artificial river systems, upstream water diversions, dams, barrages, etc. (Murshed and Kaluarachchi, 2018).

4.2.1. Impacts of climate change on water resources

Variation in rainfall: The climatic pattern of Bangladesh is characterized by high seasonal variations of rainfall. Bangladesh has heavy monsoon rainfall and 80 per cent of the rain falls during the wet season (June-October) (Banglapedia, 2014). The rest of the year (November-May) is very dry. The dry season has become drier and more drought-prone because of upstream diversions and withdrawals of water from the transboundary rivers (Mirza, 2004). Thus freshwater availability has become highly variable through the year.

Bangladesh is heading towards extreme climatic conditions with increasing temperature and evapotranspiration trends (S.B. Murshed, Rahman, and Kaluarachchi, 2019), which pose several challenges for water resource management. An analysis of the hydroclimatic variables in the 38 years from 1980 to 2017 found increasing trends in temperature, and in discharge during the wet season, while there was a decreasing trend in rainfall and water level (Islam, Karim, and Mondol, 2021) in the north and northeast of Bangladesh. Furthermore, climate change disrupts hydrological systems by changing rainfall frequency, intensity, and the spatial and seasonal distribution (Mainuddin, Karim, Gaydon, and Kirby, 2021; Mukherjee et al., 2019). Quick bursts of intensive rainfall are also becoming more frequent (Murshed et al., 2019; Murshed, Islam, and Sarker, 2013). These trends conform with the IPCC's prediction of wetter monsoons and drier dry seasons (Chak et al., 2006).

Freshwater supply: Bangladesh is a riparian country with approximately 230 rivers and 57 transboundary rivers that feed into the country, making it the world's second largest riverine drainage basin. Although 97 per cent of the population have access to water, the quality is always in doubt. Due to its high population density, Bangladesh suffers from significant water pollution and scarcity. Major challenges facing sustainable water resource management include increasing vulnerability to extreme events, unrestricted extraction, growing urban demand, climate change, land-use changes and environmental requirements. The increased frequency and severity of floods or tidal surges inundate tube wells, ponds, and water bodies and contaminate the natural sources of freshwater. This situation is particularly distressing for the coastal population for their heavy reliance on surface water (ponds and rivers) and groundwater (tube wells) for drinking and everyday usage.

Disruption of livelihoods: A recent study (Mukherjee et al., 2019) demonstrated the adverse effects of water scarcity on fish reproduction and difficulties in fishery-based livelihoods in the Halda and Haor basins. Fish are the main source of protein for people of rural Bangladesh (MoFA, 2018). Reduced fish availability will impact food security and nutrition. The study also identified greater flow variability, smaller and larger flooding events with earlier and longer flood peaks. Saline intrusion tends to reduce the fish population of fisheries. Salinity also creates scarcity of drinking water and reduces water availability for domestic use and irrigation. A study by Bhowmik et al. (2021) observed that the highest impacts of salinity were at the south-west coast of Bangladesh, causing economic losses and damage estimated at USD 568–1,054 per household.

Human health: The climate crisis has increased incidences of waterborne diseases that are linked to sea level rise, floods, and salinity intrusion. According to the World Health Organization (2008), protecting health against the effects of climate change is one of the great challenges of the 21st Century. Climate factors such as changes in precipitation, temperature, and sea-level rise, are set to impact freshwater supply worldwide. Climate change has been shown to reduce quantity and quality ofwater supply, which in turn has a negative effect on human health. Inadequate water resources for drinking, sanitation, and farming are expected to worsen in the future as the population grows.

Climate change-induced water-related impacts: Climate change-related hazards such as floods, droughts, saline intrusion, cyclones and storm surges, waterlogging, erratic rainfall, have direct and indirect negative impacts on the management of water resources. Increased climate-induced water-related disasters may affect large areas with a variety of physical, social, economic, and environmental consequences, including increased casualties, lower agricultural yields, loss of productive land, climate-forced migration, property damage, and deterioration of quality and quantity of water in the country.

4.2.2. Measures to reduce climate change impacts on water resource management

The three main ministries involved with water management are the MoWR, the MoA, and the Local Government Division of the Ministry of Local Government, Rural Development and Co-operatives (MLGRDC). The MoWR deals with the large flood-control and irrigation projects, and river management issues. While there is little data on historical trends available on water-related investment in Bangladesh, during the period 2007-2011 government investments were allocated mainly to water infrastructure such as irrigation and drainage facilities, flood-protection embankments, dykes and polders, and bridges. The MoA has undertaken some development projects to improve the efficiency of irrigation systems with better on-farm water management practices. A number of these initiatives have taken into consideration the requirements for adapting to the impacts of climate change.

The government recognizes that a business-as-usual approach to water management would not be sustainable. Bangladesh completed a comprehensive long-term study on water management integrating with land use, agriculture, environmental management and bio-diversity conservation, and published the BDP2100. The Plan has a vision of "achieving a safe, climate resilient and prosperous Delta". It is centred around water governance as its mission is to "ensure long term water and food security, economic growth and environmental sustainability while effectively reducing vulnerability to natural disasters and building resilience to climate change and other delta challenges through robust, adaptive and integrated strategies, and equitable water governance". There are six specific objectives of the BDP2100: (i) ensuring safety from floods and climate change-related disasters; (ii) enhancing water security and efficiency of water usages; (iii) ensuring sustainable and integrated management of river systems and estuaries; (iv) conserving and preserving wetlands and ecosystems and promoting their wise use; (v) developing effective institutions and equitable governance for in-country and trans-boundary water resource management; and (vi) achieving optimal and integrated use of land and water resources. Gendered impact of climate change on water resources.

Vulnerability to water-related crises is gendered. Societal norms, systemic gender inequalities, and reproductive obligations disproportionately affect women. According to UNICEF, women and girls across the globe spend 200 million hours every day collecting water. In 8 out of 10 homes with water resources off-premises, they are responsible for water collection, implying that any reduction in access to potable water will have a significant gendered impact (WHO and UNICEF, 2017). Bangladeshi women and girls are no exception.

Indigenous people of the Chittagong Hill Tracts have to walk long hours to collect water from sources, some 1–2.5 km away with earthen pots or plastic buckets to carry 10–15 litres. In extreme cases, women from some villages of south-western coastal Bangladesh walk 6–12 km to fulfil the daily water requirement of three jars (12–15 litres each) per household. Schoolgirls are frequently entrusted with collecting safe drinking water. They often have to miss school or spend less time on schoolwork as they prioritize collecting water. The time spent collecting and storing water and on demanding household chores reduces their time for other income-generating activities, networking, skill development, information gathering and community activities.

Collecting water is a physically demanding task, especially for pregnant women and girls. Long-term practice of carrying water containers causes back and spine injury. For many women, this chore has physical and health implications extending beyond the lifting itself. Carrying water in excessive heat can lead to dehydration or sunstroke. Women and girls get less sleep than men and boys of the households, as they have to get up early or stay up late to collect water. Pregnant mothers are more likely to be injured or have difficulties carrying heavy loads throughout their pregnancy.

A study consisting of 1,500 women from Bangladesh's south-west coast revealed that coastal areas had considerably higher rates of preeclampsia and hypertension during pregnancy than non-coastal districts. Water-borne diseases, such as urinary tract infections and other genital conditions linked to contaminated water are also prevalent at higher rates among coastal women. There are also safety concerns when traveling long distances each day to get water. Women and girls often suffer verbal and physical sexual harassment on their way to collect water. Women are also often stigmatized with social and traditional myths and taboos, which put barriers to their access to water resources and proper use.

In the water management groups, women often remain silent members. Even if they are allowed to have a decision-making role, their voice is not often heard. Good examples of local leadership such as women water champions have been documented, however women need to be further empowered to enable them to mobilize their communities.

4.2.3. Gender in water resource management policies

There are several laws, policies, and plans at the national level to deal with water resource management in Bangladesh. Table 4.5 illustrates those policies and measures to achieve gender equality in water resource management while addressing climate change.

Table 4.3: Policies related to water resource management and gender integration

Policy/Ministry/Agency	Gender equality elements
National Development Policy	
Eighth Five-Year Plan (2020) *Ministry of Planning*	• Mentions gender equality; however, does not integrate gender equality.
BDP2100 (2018) *Ministry of Planning*	• Although women's engagement is mentioned in the Plan in terms of the role and leadership of women in water resource management, the main strategy document and abridged version of the paper do not pay significant attention to gender aspects.
National Climate Change and Gender Policy	
BCCSAP, 2009 *MoEFCC*	• Although gender equality is mentioned, the justification of interventions related to water resource management is not strong from a gender equality perspective. • The Plan showcases the linkages between climate change and gender that have been brought into focus. • However, the link between water, sanitation, and hygiene (WASH), climate change, and gender is still not explored adequately. Implementation of drinking and sanitation programmes in the climate risk areas fell under the thematic pillar of "food security, social protection and health." Repairing and restoring water resource structures, such as coastal embankments, river embankments, and drainage systems, are advocated under the pillar "infrastructure."
BCCGAP, 2013 *MoEFCC*	• Emphasizes on ensuring women's involvement in efficient water management through interventions such as consolidating women's associations to create a movement for keeping water bodies (rivers, canals, lakes and wetlands) usable, capacity development of women to fully engage in water resource management committees and ensuring access of women to water technologies. • Highlights the water sector as one of the most neglected sectors in analysing the gender-climate change linkages.

Policy/Ministry/Agency	Gender equality elements
National Water Policies	
NWP, 1999 *MoWR*	• Recognized women as principal providers and carriers of water, main caretakers of family's health, and participants in many stages of pre- and post-harvest activities. • Also, identified women's challenges in safe water collection in the rural areas, which significantly impacts their health and productivity. • The policy had set objectives: 1) to take into account the particular needs of women and children in ensuring water availability; 2) to enhance the role of women in water management, and to protect the interests of women in water resource management; and 3) to enable an environment where women will play a key role in local community organizations to manage water resources. • However, climate change was not considered a significant factor in planning for managing water resources in any of the sections.
NWMP, 2001 *Water Resource Planning Organization*	• Recognizes the need to develop water resource management knowledge and capacity building, including gender equality. • Also, outlines the approaches necessary to ensure a gender-balanced development and management process, and considers the gender dimension to flood deaths and appropriate measures to safeguard women's rights. • While climate change as completely ignored in the NWP, it was considered in the NWMP from the baseline phase of formulating the plan. • The plan also recognized the knowledge gap regarding the implications of climate change.
Coastal Zone Policy, 2005 *MoWR*	• Women's development and gender equity are integrated by proposing a gender-sensitive and participatory approach, prioritizing women's education, training and employment, and providing special support for broadening their coping capacity. • Recognizes climate change as one of the coastal area's great vulnerabilities, and recommends adopting adaptive measures to climate change. • Emphasizes developing an institutional framework to tackle climate change and using innovative technology for knowledge enhancement and risk related to climate change.
Bangladesh Water Act, 2013 *MoWR*	• The issue of participation of women in decision-making during planning, operations and maintenance of water projects is overlooked in the Water Act 2013.
The Participatory Water Management Rules, 2014 *MoWR*	• Incorporates the participation of women in the various infrastructure maintenance-related activities of the water sector, and provides specific guidelines for the inclusion of women to make up one third of water-management groups. • Creates provision to include two female members in the executive committee of water-management groups out of six members to ensure adequate maintenance of earthwork in various projects.

Policy/Ministry/Agency	Gender equality elements
National Strategy for Water Supply and Sanitation, 2014 *MLGRDC*	• Strategy 8 highlights full involvement of women and men in the water supply and sanitation sector, and proposes interventions such as the involvement of women in planning, implementing and operating and maintenance of WASH services, as well as increasing women's representation in community-based organizations, • Water and sanitation committees and other committees involved in the sector are mandated to promote technological options suitable for women of various socio-economic groups and their special needs such as menstrual hygiene management and adopting a gender-sensitive approach in the promotional campaign. • Climate change has been identified as one of the emerging challenges. The strategy emphasized strengthening existing institutions to safeguard water supplies and hygiene services from climate-change impacts, and mobilizing climate change funds to prepare climate change projects.

The BCCGAP (2013) has shown water resource management to be one of the most neglected sectors in analysing gender-climate interlinkage. During consultations, experts said gender issues are neither well-articulated nor addressed in the sector. The NWP recognizes women as having a particular stake in water management in its text but does not incorporate climate change issues. The NWMP, recognizing the knowledge gap regarding the implications of climate change for women, mentions the necessity to ensure a gender-balanced development and management process, and consider the importance of understanding the gender dimension of flood-related deaths in order to facilitate women's participation. In addition, women's roles and leadership are mentioned in the BDP2100 while the Participatory Water Management Rules (2014) provides guidelines for including women in water management organizations. However, in reality women face diverse forms of social barriers resulting in systematic exclusion and self-exclusion from these institutions, especially in the coastal zone of south-west Bangladesh.

There is a considerable gap in implementing policy actions on the ground, particularly with regards to addressing the differentiated needs of men and women. While the gendered context in this sector is a multidimensional phenomenon, large gaps have been observed in women's empowerment and decision-making at the household level. It is essential to identify clear goals and measurable indicators to analyse women's situation, such as whether women are participating in the decision-making process, women's access to water and mobility, among others.

Furthermore, adequate accountability and transparent data and access to information are essential to taking proper actions to protect women, which is also a big challenge despite the policies advocating gender-equality. In consultations, experts also indicated that there is a need to set quantifiable goals to analyse the water resource management through a gender-climate lens. Moreover, disaggregated data on climate impacts on women as they relate to water resources are largely missing. For instance, health impacts in the saline zone due to the water crisis are not analysed. Similarly, gender-differentiated data on migration is also not readily available. Consequently, most policies related to water resource management remain gender-specific but not gender-responsive as regards the direct and indirect impacts of climate change.

4.3. Forestry

The total forest area of Bangladesh is 2.6 million hectares, covering about 17.4 per cent of the country's total land area. Major forest types in Bangladesh are mangrove forest (6,000 sq. km) in the south-west, hill forest (6,700 sq. km) along the eastern periphery, sal forest[9] (1,200 sq. km) in the central region and village forest (2,700 sq. km) located across the country. The hill forest and sal forest support most of the indigenous population of the country. About 3.5 million people depend on mangrove forests for their livelihood. Bangladesh experiences one of the highest deforestation rates in South Asia.

Social forest was the country's first attempt to move from a state-oriented forestry towards a participatory forest management system for restoring the degraded forest lands. The social forest system is an important cornerstone for women's formal integration into forestry. Women make up about 50 per cent of participants of social forestry, and nearly 30 per cent of the 700,000 beneficiaries of the programme. Communities, especially women, depend on non-timber forest products for non-economic benefits from forests. Thus, degradation and deforestation affect women more than men in the forest-dependent communities.

4.3.1. Impacts of climate change on forestry

Climate change harms Bangladesh's forest ecosystems and biodiversity, reducing the country's mitigation potential (Forest Department, 2017). Climate change is likely to worsen the degradation of tropical forest ecosystems, according to the IPCC. Bangladesh's tropical position exposes the country to higher risks from increased temperature and precipitation, increased salinity intrusion, and extreme weather events, such as floods, cyclones, and droughts, due to climate change.

Sea level rise and salinity: Mangroves, coastal plantations, and Char land plantations are exposed to sea level rise. Studies estimate that at a sea level rise of 88 cm, the largest mangrove forest, the Sundarbans,[10] will shrink by half. Moreover, the coastal and plantation sites are confronted with dwindling freshwater supplies and rising sea levels. This simultaneous occurrence alters forest composition. The mangrove forest will lose its diversity and low-lying areas with high salinity may lose their tree cover.

Increased rainfall and heat: Increased rainfall intensity exacerbates upstream erosion and sedimentation. Increased erosion and degradation in soil quality in many upland wooded areas is predicted, putting pressure on many climate-sensitive species. High evapotranspiration and low water flow will raise the salt content in forest soil and coastal waters during winters. Moreover, an increase in rainfall during monsoon (Mullick et al., 2019) may exacerbate runoff erosion, especially in hills, increasing water runoff on the forest floor. This causes nutrient leakage, microorganism destruction, and reduced overall site quality for improved forest growth in Chittagong, Sylhet, and Cox's Bazar (Baten and Ahammad, 2008). Similar effects can be seen in Sal and Hill forests. Unpredictable rain and protracted dry seasons will alter forest vegetation diversity. According to Miah et al. (2013), Sal forest and forest products have already substantially decreased.

4.3.2. Measures to reduce climate change impacts on forestry

Bangladesh adopted the first NFP in 1979 to place greater emphasis on conserving the country's forest assets and improve their protection whilst developing its rural and industrial economies. The Forest Department is responsible for the management, planning, protection, and strategy development of the country's forest resources according to the NFP (updated in 1994), as well as the Forest Act and attendant regulations. The Bangladesh Forestry Master Plan (2017–2036) acknowledges the threats and impacts of climate change on forests and biodiversity. The master plan has included

[9] Sal forest is a forest type dominated by a single plant species, commonly known as Sal tree (Shorea robusta). It belongs to the "Tropical Moist Deciduous Forest" category..

[10] The Sundarbans Reserve Forest (SRF) is the largest contiguous mangrove forest in the world, with 60 per cent of the forest in Bangladesh and the rest in India. The area is known for its Bengal tiger and many other threatened species.

different mitigation and adaptation strategies for the management of forest ecosystems, and recognizes their benefits to the community.

Coastal afforestation is considered one of the best nature-based solutions for climate change adaptation and mitigation. Bangladesh has successfully established a coastal green belt by means of mangrove afforestation. It is an adaptation measure that has significantly contributed to reducing the loss of lives and properties due to tropical cyclones and storm surges in the coastal areas. Mangrove forests also serve to conserve and stabilize new land and develop a suitable environment for biodiversity. Mangroves also reduce the damage to housing, infrastructure and food sources by reducing saline water intrusion. Mangroves build up carbon-rich soil in thicknesses of up to several metres and their root systems hold more carbon below ground than other tropical forests. They thus have high rates of carbon sequestration both above and below ground. At present, 36.24 teragrammes (Tg) of carbon dioxide (CO_2) is stored above ground and 54.95 Tg below ground in this forest, resulting in a total blue carbon[11] stock of 91.19 Tg CO_2 (Chanda et al., 2016).

A National Forest Inventory was developed to identify the status of forest and tree resources, carbon and biomass stock, as well as the dependency of local people on trees and forests and on the local ecology. Bangladesh has formulated a National REDD+ Strategy to reduce carbon emissions from forests. The government has also developed the Forest Reference Level and Forest Reference Emission Level and submitted them to the UNFCCC.

A centre point of the current strategy to reduce climate impacts and other pressures on forestry is co-management. The Forest Department formed the co-management committees to facilitate community participation in protected area management and to help restore and protect degraded forest land. The committee members are forest-dependent people who participate in decision making along with the forest officials, and who obtain livelihood benefits from forest conservation. Similarly, under the social forestry programme, the Forest Department has successfully replanted 84,378 ha of degraded and denuded land and 68,830 km of strip plantation. These beneficiaries are landless poor people living in the surrounding forest boundary. To date, about US$ 34.8 million has been distributed among the beneficiaries (FD, 2020).

The latest large-scale project of the Forest Department is titled Sustainable Forests and Livelihood (SUFAL). It is expected that 100,000 ha of forest will be restored through collaborative forest and protected area management. The target is to reach at least 250,000 people directly and provide benefits to 1 million indirectly.

4.3.3. Gendered impacts of climate change in forestry

Limited access to and rights over forest resources and lands: Women have little influence on the practices in forest conservation and management despite the fact that they play an essential role in forest conservation. Insecure property rights and limited access to forest and land resources continue to disadvantage them. Women are also subjected to discrimination and bias in the supply of services, such as credit and technology. They are frequently excluded from decision-making at the household, communal, and national levels. In addition, forest-dependent communities often struggle to establish their customary rights. Without such rights, the role of women becomes secondary in forest management. As forest degrades due to climate change impacts, this may displace the forest-dependent communities and degrade women's position further concerning forest management.

[11] Blue carbon refers to "the organic carbon buried in the mangroves and inter-tidal marshes."

Bangladesh is currently managing its forestry resources as a Protection Forest rather than a Production Forest to secure the required minimum forest cover of 25 per cent of the country's total landmass. Although harvesting from natural forests is prohibited, rural communities adjoining the forests still collect fuelwood from most forests, and a dominant portion of fuelwood collectors are women and children. As fuelwood availability decreases, fuelwood collectors ultimately cut young saplings and pole-sized plants, which severely limits forest regeneration. It also creates a negative feedback loop of decreasing supply of fuel wood, further degradation of the forest and ultimately displacement and also conflict with wildlife.

Forest degradation and gender-based violence: Forest degradation can lead to increased GBV, including sexual assault and domestic violence. As the forest degrades due to climate change and anthropogenic reasons, women and girls must walk further from home to collect food, water or firewood, which exposes them to greater protection risks and insecurity. Moreover, the additional time needed for travelling reduces their time to carry out household responsibilities. In many cases, poverty compounded by the time poverty makes managing all the care work difficult, and being late in cooking meals or leaving chores unfinished can often result in domestic violence.

Gendered role in social forest: Women's role in social forestry has mostly been limited to activities in nurseries in rearing seedlings, rather than activities in agro-forestry. Lack of land ownership prevents women from participating directly in the agro-forestry and woodlot plantation programmes. In many cases, women take care of the plants on behalf of men. Men ultimately are involved in timber selling or marketing.

Women are often well versed in the specific use of tree species, such as medicinal and harvest species for sustainable management. However, experts mentioned that climate change degrades forest habitat through the alteration of species composition and range, which impacts on women's ability to collect forest resources. The monoculture of the social forest programme also limits genetic diversity and the range of available species.

Women's leadership in forest management groups: Introduction of the participatory forest management system created opportunities for women to participate actively in decision-making roles. According to the Social Forestry Rules (2004), 20 per cent of the positions on the co-management councils in 16 protected areas per cent and 33 per cent of the Village Conservation Forum positions with the People's Forum for the Protected Areas have been reserved for women from the adjoining villages. Despite these rules, their participation is unequal in all tiers of co-management institutions. Often the number of women in the Village Conservation Forums remain sufficient as participants; however, the number remains very low in most of the decision-making groups, such as the existing People's Forum, Co-management Committee and the Co-management Council.

4.3.4. Gender integration into climate policies in forestry

Forest conservation is a top priority in combatting climate change for both adaptation and mitigation in Bangladesh, and strategic forest management is effective in climate change adaptation. Increasing emphasis has been placed, over the last two decades, on social forestry, which provides a new dimension of small-scale, participatory forest management, leveraging local understanding and knowledge for the utilization, protection and maintenance of forest ecosystems while ensuring stronger participation of women. Policies related to forestry attempt to increase women's participation. Table 4.8 illustrates Bangladesh's policies and measures to achieve gender equality in the forestry while addressing climate change.

Table 4.4: List of climate policies of the forestry sector related to climate change

Policy/Ministry/Agency	Gender equality elements
National Development Policy	
Eighth Five-Year Plan, 2020 *Ministry of Planning*	• Mentions gender equality in the section on the forestry sector; however, gender equality integration is not visible.
National Climate Change and Gender Policy	
BCCSAP, 2009 *MoEFCC*	• Mentions gender equality; nevertheless, justification of interventions related to the forestry sector is not strong from a gender-equality perspective.
BCCGAP, 2013 *MoEFCC*	• Emphasizes the mainstreaming of gender considerations in coastal and social forestry programmes and initiatives through interventions such as expanding the coastal green belt, including mangroves, through women's participation, • Expands social forestry and plantations on river and coastal embankments through women's involvement, and supports women in establishing nurseries for mangrove saplings.
National Forestry Policies and laws	
National Forestry Policy, 1994 *MoEFCC*	• Encourages participation of women in homestead and farm forestry as well as participatory afforestation programmes.
Social Forestry Rules, 2004 *MoEFCC*	• Indicates that the benefits should focus on the poor, particularly women, and mandates the inclusion of women in social forest management committees
Wildlife Conservation and Security Act, 2012 *MoEFCC*	• No provision for gender equality or integration is mentioned in the Act although it does observe that climate change will impact on wildlife due to loss of forestry resources.
National Biodiversity Strategy and Action Plan, 2016 *MoEFCC*	• Emphasizes the importance of ensuring women's participation in biodiversity conservation, including roadside plantations, agro-forestry, kitchen gardening, etc.

Policy/Ministry/Agency	Gender equality elements
National Forestry Policy (Draft), 2016 *MoEFCC*	• Mentions women's engagement in some areas, but not in leadership position for mitigation. • Recognizes the emergence of environmental and socio-economic changes in climate change and the extensive loss of forest cover in the country. • Illustrates strong commitment to ensure the Paris climate accord through INDC regarding land use, land change and forestry to guide the future forestry action in the country; underlines the enhancement of forestry carbon stocks and generation of benefits through mechanisms such as the clean development mechanism and REDD+ in future forestry programmes. • Commits to establishing a climate financing mechanism that will help the country to take advantage of new and emerging climate financing mechanisms and support from other governmental allocations and other local sources.
Bangladesh Forestry Master Plan (Draft), 2017 *MoEFCC*	• Encourages women's involvement in forestry activities such as homestead afforestation, rural tree farming and participatory forestry. • Emphasizes promoting and facilitating alternative off-forest income-generating activities to forest-dependent communities, especially women and children engaged in fuelwood collection, and improving their knowledge of climate change mitigation issues.

Analysing these policies, it is evident that, despite their attempts to integrate gender into climate change policies in forestry, they need to be further updated to increase the direct and indirect involvement of rural women in forest resource dependency. For example, although participation of women is guided by the government gazette, the engagement of women should be emphasized more in order to exercise natural resource management. Climate change issues are better addressed in the latest NFP since it included a recognition of the emergence of environmental and socio-economic changes due to climate change and the loss of forests. The policy is committed to the Paris Agreement through the NDC by enhancing forest carbon stocks and generating benefits through mechanisms such as CDM and REDD+. However, the role and leadership of women in mitigating climate change impacts through forestry are not visible in the policy.

Similarly, Social Forestry Rules mandate the inclusion of women in the management committees of social forest. They are given priority when selecting the beneficiaries of social forestry. In many forestry committees at the ground level, including the forest conservation and protection committee, forest credit committee, forest accounting committee, and forest procurement committee, gender balance is ensured. Despite gender integration in these climate change policies, more action-oriented gender-specific activities will be needed to ensure the direct and indirect involvement of women in forest resource management. For example, empowering women to expand their role from just retaining forest resources and increasing awareness to active involvement in the co-management committees can act as an excellent driver for natural resource management and planning. Women of the local communities can play a vital role in the Community Patrol Groups , and help prevent GBV that may occur during fuelwood collection.

The critical reasons for variable degrees of gender sensitivity in policies and programming are likely to result from limited capacities in analysing the intersectionality of gender and climate change, and a lack of gender-disaggregated and qualitative data on how women and men use and benefit from forests. Most of the policies are gender-specific or to some extent gender-sensitive, recognizing women as specific group of beneficiaries. However,

the efforts to achieve effective changes will need to identify the root causes arising from social norms, and to better understand the relationships between men and women.

Good practices in the forestry sector

There are lessons to be learned from existing good practices. The Forest Department's ongoing SUFAL project includes many alternative income-generation measures for women in forestry, enhancing their participation in climate change mitigation. It also ensures gender balance in several ground-level forestry committees, including forest conservation and protection, credit, accounting, and procurement. Moreover, there are many forestry committees at the ground level, including the forest conservation and protection committee, forest credit committee, forest accounting committee, and forest procurement committee, where gender balance is ensured: The Forest, Village and Loan-Savings Committee with six members consisting of the women and three men; the Social Audit Committee with four members, two men and two women; the Finance and Accounting Committee with four members, two men and two women; and the Procurement Committee, which has four members, two men and two women. The SUFAL initiative also has a gender specialist who conducts frequent consultations with women locally and provides training on various concerns. A Gender Action Plan for the Forest Department is also being developed under the SUFAL initiative. The SUFAL initiative addresses safety and training issues, but more training is needed on scientific plantation methods in homesteads to help women mitigate the impacts of climate change. Women will also be educated and given better cooking stoves to reduce pollutants and enhance their health.

4.4. Renewable energy

Bangladesh has a strong commitment to gradually shift towards renewable energy in light of the global impact of climate change, although the country is lagging behind in achieving renewable energy generation targets.

The solar home systems programme, which ran from 2003 to 2018, was the largest national programme globally for off-grid electrification, enabling 20 million Bangladeshis to access electricity (World Bank, 2021). The project has reduced greenhouse gas (GHG) emissions by the equivalent of approximately 9.6 million tonnes of CO_2 and has helped reduce indoor air pollution by avoiding the consumption of 4.4 billion litres of kerosene. Despite these achievements, the share of renewable energy in the country's overall energy generation is only 3.2 per cent (Gorjian 2017). According to the updated NDC (MoEFCC, 2020), the government has set a target of generating 1700 MW from utility-scale solar plants and 250 MW from solar home systems by 2030.

Availability of land is a major hindrance for utility-scale solar power development. At present, several solar projects are under various stages of the procurement. Among those, solar irrigation projects in off-grid remote areas have been received enthusiastically by local communities. Wind power in the coastal areas is the second most potent source of renewable energy. A comprehensive wind mapping will be essential to assess the real potential.

4.4.1. Impacts of climate change on renewable energy

Higher demand, reduced efficiency: Rising temperatures will increase power demand from summer to post-monsoon and spring for cooling, heating and irrigation. This may put an additional burden on the scarce electricity supply and affect energy costs and their demands on energy supply institutions. Boosting supply to meet peak power demand reduces power plants' efficiency and transformer lifetime, and increases transmission loss. More frequent and severe extreme weather events may damage power infrastructure, causing more disruption in power generation and distribution.

Malfunction of critical infrastructure: Lower water flow in rivers in the dry season may cause water scarcity in power plants and hamper production. Increased salinity in river water due to sea-level rise and saltwater intrusion may lead to corrosion and leakage in power plants in the coastal region. Hence, even being in the row of countries that produce the least carbon, Bangladesh is one of the worst sufferers of the impacts of climate change. Due to limited fossil fuel reserves, the only way to minimize the supply-demand gaps in the energy sector is by switching to alternative renewable energy sources (Karim et al., 2019).

Higher greenhouse gas emissions: Coal, gas and petroleum are available as energy sources in Bangladesh. Natural gas (24%) is the main energy source, but is likely to be depleted soon. As of 2021, the total installed power generation capacity exceeds 22,000 MW in Bangladesh and the energy need is increasing day by day. To meet the cumulative power demand, higher dependency on fossil fuels is not sustainable for the country considering their GHG emissions into the atmosphere. Therefore, Bangladesh needs to work on greener renewable energy solutions to cope with the energy demand and energy poverty.

Prospects of renewable energy sources: The implementation of Renewable Energy Technology presents as an advantage in accomplishing the goal of meeting the energy demand through rural electrification across developing and transition countries (Anderson, 2000, Amin, et.al, 2019). The government had set a plan to generate 5 per cent of the country's total electricity from renewable sources by 2015 and 10 per cent by 2020. However, by 2020, the government generated only 3.2 per cent of the total electricity from renewable sources. The report found that an enabling policy and implementation strategy and an effective business model are all absent at the moment, slowing down renewable energy growth.

4.4.2. Measures to reduce climate change impacts in renewable energy sector

Climate change impacts are shifting future energy choices. Although Bangladesh is lagging in achieving renewable energy generation targets, there is a solid commitment to move towards renewable energy gradually.

In 2021, Bangladesh has decided to scrap ten coal-fired power plants in different parts of the country. Furthermore, the government adopted the Renewable Energy Policy of Bangladesh in 2008 to promote renewable energy development.

In addition, the Sustainable and Renewable Energy Development Authority (SREDA) was established under the SREDA Act 2012 to facilitate renewable energy development and implement energy efficiency improvement and conservation programmes on the demand side. SREDA has formulated a roadmap to generate 30,000 MW from solar power over the next 20 years since solar energy is the most viable renewable energy source identified in Bangladesh. The renewable energy choice is also reflected in the Bangabandhu Climate Perspective Plan 2041, which targets generating 40 per cent of total energy from renewable sources.

The Eighth Five-Year Plan of Bangladesh emphasizes renewable energy generation. In this regard, according to the NDC document of Bangladesh, under the business-as-usual scenario, GHG emissions from the power, transport and industrial sectors shall account for 69 per cent of the total emissions or 234 $MtCO_2$ by 2030 (excluding land use, land use change and forestry). The emission reduction contribution intended in the NDC document in the power, transport, and industry sectors by 2030 has been set at 5 per cent below business-as-usual emissions for those sectors unconditionally and 15 per cent conditionally. Therefore, it is recognized that renewable energy will play a significant role in mitigation to achieve NDC targets.

At present, the development of renewable energy is not significant in Bangladesh. The total installed capacity of renewable energy is only 766.8 MWp, around 3 per cent of the total installed capacity. On-grid capacity is 417 MWp, and off-grid capacity is 349.79 MWp. Out of 417 MWp grid-connected renewable capacity, 230 MWp is generated from a hydropower plant commissioned in 1962 at Kaptai on Karnafuli River. Besides, out of 349.79 MWp off-grid renewable energy, solar photovoltaic contributes about 346.7 MWp. There are 5.5 million installations of solar home systems in predominantly off-grid areas of Bangladesh, making it the largest off-grid programme in the world (SREDA, 2020).

Solar was identified as the most potent source of renewable energy in Bangladesh. However, the availability of land is a major hindrance to scale up solar power development. At present, several solar projects are in various stages of procurement. The solar home systems have been installed with technical and financial assistance from the Infrastructure Development Company Limited (IDCOL), a government-owned financial institution mandated to develop infrastructure. According to the updated NDC (MoEFCC, 2020), the government has set a target of generating 1,700 MW from utility-scale solar plants and 250 MW from the solar home system by 2030.

Table 4.5: Present renewable energy capacity in Bangladesh

	Technology	Off-Grid (MWp)	On-Grid (MWp)	Total (MWp)
1.	Biogas	0.69	0	0.69
2.	Biomass	0.4	0	0.4
3.	Hydro	0	230	230
4.	Solar	346.70	186.11	532.81
5.	Wind	2.0	0.9	2.9
	Total	**349.79**	**417.01**	**766.80**

Source: SREDA Website (September 2021)

Wind power in the coastal areas is estimated to be the renewable energy source with the second-highest potential in the country. But it is difficult to assess its real potential in the absence of comprehensive wind mapping. The government has prepared a 1,370 MW wind power installation plan under public and private sector initiatives. However, some utility-scale wind projects are on the table but are yet to be implemented.

4.4.3. Gendered impacts of climate change in the energy sector (renewable energy)

Although there are numerous opportunities to mainstream gender into the energy sector, and particularly in the renewable sector, gender mainstreaming remains largely absent. This can be attributed to several factors, including a focus on economic performance and production within energy policies, the technical and male-dominated nature of the energy sector, and the limited of understanding of the benefits of clean energy sources to women.

Consumption patterns and behavioural change of women: Women tend to make more sustainable consumption choices than men and, as household energy managers, tend to have a bigger say in household energy decisions (UNDP, 2016). Their role in the household and community equip them with an understanding of the cultural and community context, which is useful for introducing behavioural change in energy consumption at the household level. However, increasing temperatures especially in urban areas can lead to higher energy demands. It can impact women's living and working conditions especially in the absence of affordable energy sources to support domestic work.

Women's energy poverty: Energy-related issues are often assumed to be gender-neutral. However, approximately 70 per cent of the energy sources in developing countries come from biomass fuels, which are overwhelmingly the responsibility of women. Rural women are disproportionately exposed to energy-poverty and energy-related challenges, which will be exacerbated by climate change. Climate-induced disasters, such as waterlogging, flooding, and saline intrusions can impact on the availability of biomass fuel.

Indoor pollution from traditional energy sources: Indoor pollution is a serious problem for women and girls. Inefficient burning of biomass indoors releases high levels of black carbon (soot). This accounts for nearly 2 million deaths per year globally, mainly of women and children in the poorest communities. Increased heat combined with indoor air pollution translate into health hazards. With increasing temperature and given the time they spend indoors, women will be particularly vulnerable to these hazards.

Time poverty: Women and girls in rural areas spend considerable time gathering fuel, cooking and performing other household chores, which raises another gender-relevant dimension of poverty: time poverty (UNDP, 2013). Historically, this link has not been acknowledged in planning energy projects, whether governmental or non-governmental. However, the loss of natural resources, in particular water scarcity, due to changes in temperature and rainfall patterns, can aggravate women's time poverty. Time poverty can influence how able they are to build their adaptive capacity, with limited time to access education and skills development.

Impact of gender-blind energy projects: Energy projects are treated as gender-neutral based on the assumption that energy impacts men and women similarly. In most countries, this does not reflect reality and has led to gender-blind projects, which in some cases have not been successful due to the failure to consider the distinct situations of women and men with regard to energy production and use patterns. Women's social position can prevent their equal involvement in energy generation. Increased heat and associated energy usage at home and workplaces, especially in high density urban areas, may also bring their own challenges in future.

Access to renewable energy sources: Renewable energy value chains for large and small-scale renewable energy sub-sectors include grid and non-grid connected infrastructure. These pose different employment and livelihood options. Existing social and gender norms influence access and control of women and men to knowledge, skills, and productive resources. Women may face challenges to benefitting from the renewable energy value chain, from employment to consumption.

4.4.4. Gender integration into energy sector policies

The approaches of gender mainstreaming into renewable energy sector policies in Asia and the Pacific, including Bangladesh, is limited (UNEP, 2020). Several countries have specific green growth or renewable energy policies, roadmaps and strategies, while others include renewable energy within broader energy and power policy documents. Table 4.6 summarizes a list of energy-related policies in Bangladesh and their respective references to gender equality.

Table 4.6: List of policies relating gender and climate change with the renewable energy sector

Name of the policy, Year, Ministry/ Agency	Gender equality elements
National Development Policy	
Eighth Five-Year Plan, 2020 *Ministry of Planning*	• Highlights that women's access to energy (power, fuel and green) is to be increased to reduce their drudgery and save time for productive employment, and increase their access to information and ensure their expanded access to renewable energy. • Directs that climate change effects and gender needs be considered in all infrastructure planning (transport, energy, water, sanitation, market, and service centres).
NDC, 2021 *MoEFCC*	• No provision for gender equality or integration is mentioned in terms of the renewable energy sector. • INDC, 2015 sets out several mitigation actions that will help limit the country's GHG emissions. It highlights several mitigation programmes from the BCCSAP, including improved energy efficiency in production and consumption, to ensure secured energy and low-carbon development in the economy as well as the development of renewables to lower GHG emissions and ensure energy security.
National Climate Change, Environment and Gender Policy	
BCCSAP, 2009 *MoEFCC*	• Highlights gender integration in the promotion of renewable energy. • Recognizes the male dominance in planning, decision-making, and implementation in the energy sector. • Recognizes women's lack of access to modern energy or technology despite their comparatively higher motivations to change behaviour to save energy and buy low-carbon products.
BCCGAP, 2013 *MoEFCC*	• Identified two action plans to promote women's integration into mitigation and low-carbon development efforts through ensuring that: 1) gender considerations are addressed in the process of reviewing energy and technology policies; and 2) gender-responsive programmes are developed to reduce GHG emissions at household level while ensuring women's access to energy and power technologies.

Name of the policy, Year, Ministry/ Agency	Gender equality elements
Bangladesh Environment, Forestry and Climate Change Country Investment Plan, 2017 *MoEFCC*	• Highlights gender equality as a major issue, includes gender as a specific programme, and emphasizes gender mainstreaming in its other programmes by strengthening rural women's capacity to better engage in environmental management by raising awareness of their rights and providing training in leadership. • Also promotes the provision of cleaner technologies and renewable energy that can create jobs while reducing GHG emissions.
MCPP (Draft), 2021 *MoEFCC*	• Highlights gender equality through a transformative approach to ensure women benefit from climate actions including through women-only training, special financing, and programme opportunities, despite not focusing clearly on gender equality for renewable energy.
Third National Communication of Bangladesh Submitted to UNFCCC, 2008	• Highlights the country's opportunities in several areas, including: power generation, transmission and distribution; transport by road, rail, water and aviation; energy-intensive industries; and renewable energy.
National Energy Policy	
National Energy Policy, 2004 *MoPEMR*	• No provision for gender equality or gender integration is highlighted.
Renewable Energy Policy, 2008 *MoPEMR*	• No provision for gender equality or gender integration is highlighted.
Guidelines for the Solar Power Development Program, 2013 *MoPEMR*	• No provision for gender equality or gender integration is highlighted.
Energy Efficiency and Conservation Master Plan (2015) *MoPEMR*	• No provision for gender equality or gender integration is highlighted.
National Solar Energy Roadmap 2021-2041 (draft) (2021) *Ministry of Power Energy and Mineral Resources*	• No provision for gender equality or gender integration is highlighted.
National Energy Policy (2004) *MoPEMR*	• No provision for gender equality or gender integration is highlighted.
Renewable Energy Policy (2008) *MoPEMR*	• No provision for gender equality or gender integration is highlighted.

Name of the policy, Year, Ministry/ Agency	Gender equality elements
The Guidelines for the Solar Power Development Program (2013)	• Does not provide any direction of gender integration in the renewable energy sector of Bangladesh.
Energy Efficiency and Conservation Master Plan up to 2030	• Does not provide any directions of integrating gender in the renewable energy sector in Bangladesh.
National Sustainable Development Strategy (2010) *Ministry of Planning*	• No provision for gender equality or gender integration is highlighted.

Bangladesh government's commitment to gender equity and climate action issues has been reflected in various policies of the country and by its being a signatory to many relevant international treaties. However, a brief analysis of renewable energy policies and relevant energy legislation finds that the policies in this sector do not integrate gender considerations in general. None of the energy sector policies has focused on the role of women in the consumption and management of energy. The BCCGAP (2013) recognizes that the mitigation efforts of the energy sector is largely male-dominated and in need of transformation. Even though the INDC set several targets for mitigation efforts, it does not provide any direction for the involvement of women in the sector in the country. The Guidelines for the Solar Power Development Program (2013) provides multiple directions for setting up of solar parks, implementation of solar mini grid projects, installation of roof-top solar systems and irrigation pumps, implementation of social type solar power projects[12], but it does not provide any direction for gender integration in the renewable energy sector of Bangladesh.

Similarly, the Bangladesh Environment, Forestry and Climate Change Country Investment Plan has identified several priority investment areas, including strengthening the capacity of rural women to better engage in environmental management by raising awareness of their rights and providing training in leadership, lobbying and negotiation. At the moment, those employed in the renewable energy sector are primarily men, while there are opportunities for women to become engaged as technicians and entrepreneurs in future. There is limited recognition of differentiated energy needs and priorities of women and men and even fewer mentions of gender equality issues in most of these policies.

The absence of a gender mainstreaming strategy in the energy sector can be attributed to several factors, including a focus within energy policies on economic performance and production, as well as the technical and male-dominated nature of the energy sector. Mitigation actions, including the transition to clean energy, are primarily focused on technology. Experts in this field are mainly concerned with the project's feasibility or viability, with gender concerns receiving little attention. Most of the policies thus can be attributed the category of gender-blind.

[12] Solar type solar projects refer to public sector projects financed by the government of Bangladesh and/or development partners where electricity generated will be used by the same facility. e.g., Union health center, educational institutions in remote areas, information centers, etc. (GSDP, 2013, p.21)

Good practices

During consultations, experts linked access to clean energy with a reduction in GBV. Experts also opined that access to clean energy has reduced the risk of child injury from kerosene oil-based lamps, improve indoor air quality and provided more caregiving time to women. Moreover, people experience tremendous difficulties during natural calamities due to a shortage of electricity, water, and other necessities. Even then, women are usually in charge of fetching water and often experience violence on their way. Solar-powered pond sand filters and desalinization plants near homes provide respite to women during those climate-induced disasters. Moreover, bio-gas produces slurry, which is a high-quality organic fertilizer used widely by women. With the proper entrepreneurial training, women can market these fertilizers and earn independently.

Experts indicated that IDCOL is working on four initiatives, including a solar irrigation scheme that includes women through various capacity-building training interventions. IDCOL is also looking into different options (such as aligning with IDCOL's financing schemes for solar irrigation pumps) for developing future gender-sensitive projects. When IDCOL installed solar home systems in various households, the owner was required to fill out a form confirming the approval from the women counterparts of the family. This gave women the chance to participate in the system. Gender equality has also been addressed by the work of local organization SOL share, which has created a peer-to-peer trading network for electricity generated by solar house systems. SOL share employs more than 40 per cent of female engineers and data developers, with 90 per cent of women involved in product development on the ground. SOL share's SOLbox allows households to sell electricity from their solar panels, or to buy electricity directly from another SOLbox-equipped household. Women account for 40 per cent of the 6,500 recipients, and 25 per cent of SOLbox owners. In addition, local social enterprise Grameen Shakti has installed 35,000 biogas units, which are also benefiting women. Grameen Shakti also offers skills training for women on renewable energy entrepreneurship. in the energy sector.

Photo: UN Environment Programme/Reza Shahriar Rahman

Photo: UN Environment Programme/Reza Shahriar Rahman

5. Conclusion and recommendations

5.1. Conclusion

Climate change impacts are gendered. Gender-responsive climate policies and actions are needed to achieve gender equality and attain human rights. However, the interlinkages between gender equality and climate change are yet to be fully understood in the context of Bangladesh. This assessment examined climate change impacts and key challenges for gender equality in Bangladesh across four sectors: crop, water resource management, forestry, and renewable energy. The analysis indicates that the existing policy frameworks illustrate positive commitments to integrate gender equality. However, there are gaps that need to be filled.

The assessment found that the overall institutional and policy framework in Bangladesh is comprehensive but varies in the integration of climate action and gender equality. Although climate change has been integrated into almost all the masterplans of Bangladesh, including the Five-Year Plan and BDP2100, a number of sectoral policies where climate change is highly relevant have only weak references to climate change or climate risks. On a similar note, gender equality and social inclusion have not been adequately integrated into the NAPA 2005 or the BCCSAP 2009.

The updated NDC, 2021 submitted to the UNFCCC has significantly improved on incorporating gender aspects in comparison with the INDC, 2015. However, the NDC, 2021 requires still stronger integration of gender into climate issues. In addition, the inclusion of sectoral gender analysis and a clear direction to integrate gender into the implementation process should be considered in the next revision of the NDC to make it gender-transformative.

One of the major gaps is the limited understanding of gender mainstreaming in policy making, where gender so far remains an afterthought or tends to be developed in isolation from other sectors. Thus, many activities under the policies remain minimal and unenforced, more of a rhetoric than practice. Gender equality considerations remain external to climate change policies and interventions, at best connected to them as add-ons, but also risk being siloed. Most of the activities only managed to become gender-sensitive from being gender-blind, while very few were gender-specific and almost none were gender-transformative. Integration of gender into climate-specific policies and in relevant sectoral policies remains inconsistent.

On the other hand, the BDP2100 has some solid recommendations for gender integration, which will benefit gender-equal climate action in agriculture. Overall, there is an indication that gender experts often do not have adequate knowledge of climate change integration, and some sectoral experts often do not have adequate knowledge of gender mainstreaming. Although the 1995 Beijing Platform for Action flagged 12 key areas where urgent action was needed to ensure greater equality and opportunities for women and men, it did not cover any climate change issues, despite the earlier adoption of the UNFCCC in 1992. Women's rights organizations also do not have a sufficiently strong role in climate change-related activities. However, as observed in a few cases, when these two groups of experts come together in formulating and implementing policies, better gender equality-climate change interlinkage is ensured.

The BCCGAP is the only dedicated and detailed instrument available at the moment regarding climate-gender interlinkage in Bangladesh. It remains a vital document highlighting the central role of women in many aspects of climate action. However, an updated version of this document needs to analyse whether proposed interventions will pose an excess burden on women. Furthermore, policy documents need to shift towards recognizing the leadership role of women in decision making instead of perceiving them as beneficiaries. While almost 35 ministries have integrated gender policies and there is a separate gender unit within the MoEFCC, their role in ensuring integrated gender equality and climate change actions is not evident. Therefore, MOEFCC should undertake an assessment to analyse if proposed plans and actions of different ministries and agencies

are implemented.

Furthermore, existing social norms and practices remain a significant challenge as they continue to influence policymaking. Across all the sectors reviewed, it was found that underlying patriarchal norms and customs tie women to both their productive and reproductive responsibilities. This double burden results in time poverty, which leaves women with less time for education, independent economic activities, political participation, or leisure, while men have time for engaging in activities outside their homes. Women's limited mobility and lack of opportunities to acquire knowledge and understand of climate change and its risks further impact their adaptation potential. In sectoral climate initiatives, women are mostly considered participants and not leaders, despite playing a significant role in climate action in crop agriculture, water management, forestry management and renewable energy promotion.

Women's limited capacity for self-determination and decision-making due to their gendered role ultimately affects their ability to adapt to climate change. Women's position in the household and community needs to be enhanced with land-use rights and control of assets. The concluding observation is that, without significant efforts to change and challenge social norms and practices, there will be significant hurdles towards gender equality in climate actions.

Further, the assessment surfaced that expert observation, policy documents, and field implementation primarily focused on a comparative analysis between the binary categories of men and women. An "intersectional perspective" has almost entirely been absent across policy documents. Similarly, women are referred to as a homogenous group and existing analyses remain sparse or fail to take religious minority and ethnic minority contexts into consideration. Going beyond the binary definition of gender and addressing respective vulnerabilities to climate change need to be emphasized during future policy formulation and actions.

5.2. Recommendations

From the assessment of gender integration in climate change-related policies and sectoral policies of four selected sectors, the following recommendations are proposed to increase the gender equality–climate change interlinkages in national and sectoral climate-related policies and actions in the future:

Sensitize and build capacity among policymakers, government agencies and stakeholders, including women's rights organizations.

- **Sensitize the members of parliament and policymakers.** Special efforts should be made to sensitize the parliamentarians on climate change and gender equality in policy making, participation and communication in international fora such as UNFCCC Conferences of the Parties, reporting through national communications to UNFCCC, the SDGs and CEDAW, as well as the planning processes, such as NAP and NDC processes.
- **Build capacity of government stakeholders.** The capacity of government officials at every level, including local governments agencies, on gender-responsive climate actions should be developed. In addition, capacity building on gender-responsive climate budgeting and upgrading the current manual for 'development project proforma' with greater gender integration is necessary.
- **Strengthen coordination.** Effective coordination among different ministries, departments and agencies is needed to co-develop gender action plans. In addition, when designing any policy and action plan, collaboration among gender experts, climate change experts, and women's rights organizations and organizations working on climate action is necessary.

- **Increase the number of qualified gender advisers and staff** in national government departments and local government units to increase and improve services for women across different sectors.
- **Promote women's leadership.** Women professionals and leaders, including youth representatives dealing with gender and climate change, must be able to represent different people in climate hot spots and advocate gender mainstreaming in policies and practices. The leadership and voice of women in natural resource management and energy committees should be enhanced rather than merely having their participation ensured.
- **Incorporate a broader definition of gender and intersectionality from a human rights perspective** so that gender-related issues are discussed and climate solutions are designed with the perspectives of transgender and gender non-binary people taken into account. In addition, the standpoint of indigenous men and women needs to be considered in devising climate change policies and actions so as not to marginalize them or ignore their traditional rights.

Develop a research and evidence base for policy advocacy and standards

- **Conduct studies on the gender-differential impacts of climate change.** One of the critical gaps identified in the assessment is the lack of integration of gender equality and climate change in policies and programmes. Studies should be conducted to identify entry points for gender integration across sectors and different population segments at local and national levels. Such deep-dive studies will provide evidence on policy gaps, community-level best practices, and gender-sensitive green growth potentials across sectors. A working group on climate change and gender can be developed with gender focal persons from climate change-relevant ministries, including representatives from civil society, academia, NGOs, indigenous communities, and persons with disabilities. Such multi-stakeholder groups can organize dialogues and assist in analysing relevant policies and strategies on climate change through a gender lens. Such knowledge is essential for building the capacity of different agencies to integrate gender equality into their respective policies and strategies.
- **Set up multi-foci expert groups.** A 'climate change and gender working group' can be developed with gender focal persons from relevant ministries along with representatives from civil society, academia, NGOs, indigenous communities, and persons with disabilities. Such a multi-stakeholder group can organize dialogues and assist in analysing climate change policies and strategies with a gender lens. Such knowledge is essential for building capacity of different agencies to integrate gender in their respective climate interventions, policies, and strategies.
- **Explore business models and entrepreneurship development.** Emphasis should be given to designing gender-responsive climate actions so that those actions remain economically, socially and ecologically beneficial for men and women.
- **Bring strong focus on female members of households that are dependent on natural resources.** Since male dominance in all sectors underplays the essential role of women in those sectors, particular emphasis should be given to female members and female-headed households dependent on natural resources. A gender-responsive human rights-based approach should change and challenge social norms and practices to ensure gender equality in climate actions, to break away from a narrow sectoral perspective.
- **Develop technical guidelines for promoting gender mainstreaming in climate change policies and financing.** The BCCSAP (update on going) has proposed to

develop technical guidelines for gender mainstreaming in policies. Such guidelines will be useful for building the capacity of government officials at different levels. Such guidelines or standards should consider including the following:

- **Support submissions of gender-mainstreaming reports** in development activities, international reports and communications.
- **Integrate work related to changing social norms and practices with climate action**-related sectoral works to maximize the gender equality-related outcomes of the interventions.
- **Safeguard women while designing policies and actions that interlink gender equality and climate change,** so that those do not create an additional burden for women and do facilitate their transformative leadership.

Develop a gender-responsive monitoring and evaluation framework and establish a gender database across regions, livelihood groups and communities of diverse experiences and practices:

- **Develop a gender-responsive monitoring and evaluation framework.** All line agencies should use standard gender-responsive monitoring, evaluation and reporting framework to track gender integration and impacts in the different sectors. It will facilitate the collection, analysis and use of sex-age disaggregated data to strengthen gender-responsive strategy development. Government ministries, departments and related authorities need to be sensitized and capacitated with regards to the proposed guidelines under the BCCSAP to enable them to develop a gender-responsive monitoring and evaluation framework for climate change-related sectoral development activities. Social impacts and a human rights-based approach should be central to the results-based monitoring framework.
- **Develop a monitoring and evaluation framework for gender budgeting.** The government's initiative on the MTBF for gender-responsive budgeting provides an opportunity to strengthen gender responsive climate financing. The finance division and Implementation Monitoring and Evaluation Division of the Ministry of Planning should work in a concerted fashion and create an enabling environment to support policy dialogue, capacity development, and pilot projects to make climate finance work for women. Climate finance accountability should be ensured through a systematic and ambitious approach to auditing the gender responsiveness of climate projects and flow of funds. Improvements in fiscal planning and budgeting processes are necessary, this requires undertaking a gender analysis of ongoing processes to identify entry points for strengthening gender-responsive climate finance and tagging accompanying benefits thereof.

5.3. Sector-specific recommendations

Sector-specific recommendations are aimed at considering the gender norms, roles, and relations of women and men, their access to and control over resources, and their respective needs, and to address the causes that cause gender-based inequalities. Some of the recommendations, thus, are strategic or policy-related, while some are actionable and can deliver clear gender outcomes.

Crop agriculture

	Potential intervention	Main Actor(s)
Strategic	• Recognize women as farmers.	Government
	• Increase women's access and ownership of land. Local government authorities can be sensitized in this regard.	MLGRDC, MoWCA, MoL, MoA, DAE
	• Re-think employment in agriculture as a formal structure.	MoA, MoWCA, DAE, MLGRDC
	• Devise strategies to reach a large number of women producers and allocate resources and staff for training for women.	DAE, MoA, MoWCA
	• Design interventions engaging with underlying normative barriers, including by specifically incorporating gender-transformative strategies in trainings and extension activities.	DAE, MoWCA, MoA, MoF, Planning Commission, IMED, Bangladesh Bank (BB), MLGRDC, SME Foundation
	• Formulate supportive national policies; develop mechanisms to identify gaps in existing policies and strategies to be forwarded to the concerned ministries and agencies.	MoWCA, MoA, MLGRDC
	• Identify, develop and promote programme strategies to reduce time burdens and other negative outcomes for women in agriculture.	DAE, Agriculture Research System, Bangladesh Livestock Research Institute (BLRI), Department of Fisheries (DoF), MoWCA
	• Address food safety and security through policy and programmes.	MoA, all agricultural research systems, BLRI, DoF, Nutrition Institute, National Institute of Preventive and Social Medicine
Action-oriented	• Collect and publish extensive sex-disaggregated data available on time-use surveys, division of labour, and analysis of the socio-economic and cultural factors on a regular basis. The BBS collects sex-disaggregated data on a number of issues; there should be more household surveys done to contextualize climate change impacts.	BBS, MoA, MLGRDC, DAE, MoWCA, Planning Commission
	• Recognize and document the workload, burden and needs of a household as experienced by its different members. Women's contribution should be highlighted in different stages of agro processes.	BBS, School Text Book Board, Media

	Potential intervention	Main Actor(s)
	• Devise weather-related agro-advisory services. This information should be accessible to all, especially women, and disseminated through mass communication media channels (local radios, Bangladesh Television, etc.).	DAE, Bangladesh Space Research and Remote Sensing Organization (SPARRSO), Bangladesh Agricultural Research Council (BARC), Bangladesh Institute of Nuclear Agriculture (BINA), Bangladesh Forest Research Institute (BFRI), BLRI, DoF
	• Build capacity through training and support programmes more explicitly targeting women, focusing on higher-return opportunities and designed specifically for poor women.	DAE, MoWCA, MoA, MLGRDC
	• Increase access to financial assets, especially credit through specific directives from the MoA, Bangladesh Bank and other agencies to provide credit to women; set up special women's help desks in financial institutions, and sensitize their employees for working with women.	MoA, MoWCA, BB, BB Training Institute, Bangladesh Institute of Bank Management Palli Karma-Sahayak Foundation
	• Monitor gender budget. A monitoring and evaluation protocol can be devised for agriculture and rural economy related ministries and agencies.	IMED, MoWCA, MoA, MLGRDC, MoF

Water resource management

	Potential intervention	Main Actor(s)
Strategic	• Develop a forecast and early-warning system for natural hazards (riverbank erosion, flood, etc.) to make it accessible to all, especially to vulnerable communities and women.	Institute of Water and Flood Management (IWFM), Climate Change and Disaster Management Division of the Centre for Environmental and Geographic Information Services (CEGIS), Bangladesh Water Development Board (BWDB), Flood Forecasting and Warning Centre, MoWR, local government institutions (LGIs), NGOs, media
Action-oriented	• Develop water infrastructure to provide safe drinking water, with specific reference to the south-west coastal belt.	Department of Public Health Engineering (DPHE), LGIs, development partners, NGOs

	Potential intervention	Main Actor(s)
	• Install robust sanitation facilities in hazard-prone areas.	MoF, BWDB, DPHE, local government engineering department (LGED), LGIs
	• Develop proper drainage facilities in urban and semi-urban areas.	City corporations, Pourashavas
	• Devise gender-responsive adaptation practices in waterlogged areas.	LGIs, BWDB, LGIs, NGOs, development partners
	• Conduct research on crop varieties that are particularly vulnerable or resistant to flood, drought or saline intrusion, and assist agricultural extension services to reach to women farmers.	DAE, Department of Livestock Services DLS, BARC, Bangladesh Agriculture Research Institute, BLRI
	• Provide greater access to irrigation infrastructure for women farmers, coupled with access to credit.	Financial institutions, microfinance institutions, LGIs, NGOs
	• Provide training to women farmers for efficient use of irrigation water.	DAE, Bangladesh Agricultural Development Corporation, technical universities, NGOs, LGIs
	• Involve women in protecting water infrastructure. Make participatory water management plans functional, involving women's participation in different tiers of management committees.	BWDB, NGOs, LGIs
	• Analyse the needs related to sexual and reproductive health and rights (SRHR) and other health hazards for women, girls and other vulnerable people.	DPHE, NGOs, MoHFW, MoWCA, media
	• Design flood shelters according to the needs of women, girls and other disadvantaged groups.	LGED, LGIs, development partners
	• Empower women involved in water groups at the local level to take leadership roles.	DAE, BWDB, NGOs
	• Strengthen CSOs to enable women in the water sector and build strong linkages with the government institutions which are not visible at the moment.	DAE, NGOs, MoWR

Forestry

	Potential intervention	Main Actor(s)
Strategic	• Ensure that protected areas and ecologically sensitive areas receive special attention and can be maintained in a participatory way with the local community. Ensure that participation of local people is effectively integrated and implemented.	MoEFCC, DoF, DoE, NGOs, SPARRSO, CEGIS
	• Strengthen participatory social forestry providing greater and effective design of beneficiary selection, and sustainable livelihood management, with a focus on graduation from poverty.	DSWS, DoF, NGOs, media, LGIs
	• Develop adaptation programs for forest-dependent communities.	Government of Bangladesh, MoEFCC, DoF, World Bank, NGOs
Action-oriented	• Prepare REDD++ Roadmap in a participatory manner, especially taking notes from forest dependent communities.	MoEFCC, DoF, DoE, NGOs, indigenous communities
	• Develop gender-responsive geographic information system (GIS) mapping of forest usage, forest inventory, and conservation of forest.	DoF, CEGIS, SPARRSO, BFRI

Renewable energy

	Potential intervention	Main Actor(s)
Strategic	• Ensure renewable energy policies and programmes equality benefit women, and most marginalised sectors	SREDA, IDCOL, NGOs
	• Enhance capacities of energy specialists to integrate gender aspects into energy-related interventions.	Energy experts, MoPEMR, MoWCA, Energy and Power Research Council (EPRC)
Action-oriented	• Conduct an assessment of current practices of renewable energy generation, distribution and usage from gender perspective.	MoPEMR, SREDA, NGOs, IDCOL, EPRC
	• Develop women's leadership in the renewable energy market	SREDA, IDCOL, MoWCA, NGOs

List of Annexes

Annex 1: List of key policy documents reviewed

No	Year	Document
1.	1972	The Constitution of the People's Republic of Bangladesh
2.	1996 (Amended in 2017)	Rules of Business
3.	1972	Stockholm Declaration on the Human Environment
4.	1982 (Ratified by Bangladesh in 2001)	United Nations Convention on the Law of the Sea
5.	1992	Rio Declaration
6.	1992 (Bangladesh ratified in 1994)	United Nations Framework Convention on Climate Change (UNFCCC)
7.	1992 (Bangladesh ratified in 1994)	Convention of Biological Diversity
8.	1997 (Bangladesh ratified in 2016)	Kyoto Protocol
9.	2005-2015	Hyogo Framework for Action or HFA
10.	2015-2030	Sendai Framework for Disaster Risk Reduction (SFDRR)
11.	1995	Environment Conservation Act (ECA)
12.	1997	Environment Conservation Rules
13.	2000 (Amended in 2010)	Environment Court Act
14.	2010	Climate Change Trust Act
15.	2012	Disaster Management Act
16.	2015	Disaster Management (Committee Establishment and Functions) Rules
17.	2019	Standing Orders on Disaster

No	Year	Document
18.	2021-2025	National Disaster Management Plan
19.	2012	Environment Policy
20.	2018	National Environment Policy
21.	2005	National Adaptation Programme of Action (NAPA)
22.	2009-2018	Bangladesh Climate Change Strategy and Action Plan (BCCSAP)
23.	2016-2021	Country Investment Plan for Environment, Forestry and Climate Change (EFCC CIP)
24.	2007	Bangladesh Vision 2021
25.	2013	Climate Change and Gender Action Plan
26.	2015	Intended Nationally Determined Contribution (INDC)
27.	2014	Bangladesh Climate Fiscal Framework (CFF)
28.	2010-2021	National Sustainable Development Strategy
29.	2015	National Social Security Strategy (NSSS)
30.	2016-2020	Seventh Five Year Plan
31.	2020-2025	Eighth Five Year Plan
32.	2010-2021 and 2021-2041	Perspective Plan of Bangladesh
33.	1979	Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW)
34.	2021-2025	National Plan for Disaster Management (NPDM)
35.	2016-2021	National Biodiversity Strategy and Action Plan

No	Year	Document
36.	2018	Bangladesh Delta Plan 2100
37.	2015	Nationally Determined Contribution
38.	2013	Bangladesh Climate Change Trust
39.	2010	Bangladesh Climate Change Trust Fund Act
40.	1825	Alluvion and Diluvian Regulation
41.	1864	The Canals Act
42.	1868	The Alluvion (Amendment) Act
43.	1876	The Irrigation Act
44.	1927	The Forest Act
45.	1950	The Protection and Conservation of Fish Act (East Bengal Act)
46.	1952	The Embankment and Drainage Act
47.	1953	Town Improvement Act
48.	1974	Territorial Waters and Maritime Zones Act
49.	1983	Motor Vehicles Ordinance
50.	2000	Municipal Areas of the Country Play fields, Open Places, Parks and Natural Water Resources Conservation Act 2000
51.	2010	Sand Quarry and Earth Management Act
52.	2012	The Wildlife (Conservation and Security) Act
53.	2013	The Bangladesh Water Act
54.	2013	National River Protection Commission Act
55.	2013	The Brick Manufacturing and Brick Kilns Establishment (Control) Act
56.	2017	The Bangladesh Biodiversity Act

No	Year	Document
57.	2018	The Agricultural Purpose Underground Water Management Act
58.	1985	The Ground Water Management Ordinance
59.	2018	The Weather Act
60.	2020	The Marine Fisheries Act
61.	2011	The Plant Quarantine Act
62.	2019	The Plant Species Conservation Act
63.	2018	The Seeds Act
64.	2018	The Pesticides Act
65.	2018	The Fish Quarantine Act
66.	1999	National Agriculture Policy
67.	2020	National Agriculture Extension Policy
68.	1999	National Water Policy (NWP)
69.	2005	Coastal Zone Policy (CZP)
70.	2009	Public Water-body Management Policy
71.	2009	The Public Water-body Management Policy
72.	2019	The Water-bodies (Flowing Rivers and Other Water reservoirs) Cage Fisheries-culture Policy
73.	1998	National Fish Policy
74.	2014	National Shrimp Policy
75.	2012	Master Plan of Haor Area
76.	2006	National Food Policy
77.	2030	Energy Efficiency and Conservation Master Plan

No	Year	Document
78.	1992	The Water Resources Planning Act
79.	2018	The Bangladesh Water Rules
80.	1961	The Agricultural Development Corporation Ordinance
81.	1992 (Repealed in 2012)	Bangladesh Agriculture Research Council Act
82.	1984	Bangladesh Institute of Nuclear Agriculture Ordinance
83.	2017	Bangladesh Institute of Nuclear Agriculture (BINA)
84.	1976	The Bangladesh Agriculture Research Institute Ordinance
85.	2017	The Bangladesh Agriculture Research Institute Act
86.	1959	The Forest Industries Development Corporation Ordinance
87.	2012	The Sustainable and renewable Energy Development Authority Act
88.	1973	The Bangladesh Atomic Energy Commission Order
89.	2017	The Bangladesh Atomic Energy Commission Act
90.	2009	The Bangladesh Climate Change Resilience Fund
91.	1991	Global Environment Facility
92.	2010	Green Climate Fund (GCF)
93.	2010	Cancun Agreement
94.	2011	Bangladesh Country Investment Plan (CIP)
95.	2012	The Bangladesh Climate Public Expenditure and Institutional Review
96.	2011	National Women Development Policy
97.	2018	National Agriculture Policy
98.	2011	Plant Quarantine Act

No	Year	Document
99.	2019	Plant Species Conservation Act
100.	2017	United Nations Children's Fund
101.	2004	National Water Management Plan (NWMP)
102.	2013	National Water Act
103	2014	Participatory Water Management Rules
104.	2014	National Strategy for Water Supply and Sanitation
105	2018	Bangladesh Water Rules
106	2014	The Participatory Water Management Rules
107.	(Under Implementation)	Community Based Adaptation to Climate Change through Coastal Afforestation
108.	2007	Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC)
109.	2016	National Forest Policy (NFP)
110.	2012	Wildlife Conservation and Security Act
111.	2017	Protected Area Management Rules
112.	2004	Social Forestry Rules
113.	2014	Social Forestry Rules
114.	1981-1987	Community Forestry Project
115.	1989-1996	Upazilla Afforestation and Nursery Development Project
116.	1995-2002	Coastal Green Belt Project
117.	1998-2004	Forestry Sector Project
118.	2013-2016	Climate Resilient Participatory Afforestation and Reforestation Project
119.	2003-2018	The Bangladesh Solar Home Systems Program

No	Year	Document
120.	2020	UN Environment Programme report
121.	2004	National Energy Policy
122.	2008	Renewable Energy Policy
123.	2016	The Power Sector Master Plan
124.	2013	Solar Power Development Program
125.	2015	Energy Efficiency and Conservation Master Plan up to 2030
126.	2013	National Sustainable Development Strategy

Annex 2: List of stakeholders in consultation meetings

First Consultation Meeting with the Gender Experts

Sl. No	Name	Institute/ Designation	Male/Female
1	Ms. Tahmina Rahman	Gender Expert – UN Women, Cox's Bazar	Female
2	Advocate Kamrun Nahar	Naripokkho (Women's Rights, GBV and Youth SRHR)	Female
3	Mahfuza Akter Mala	Consultant – Gender and Environment Specialist, IUCN in Bangladesh	Female
4	Rina Roy	Manusher Jonno Foundation (MJF)	Female
5	Ms. Chandra Tripura	Bangladesh Indigenous Peoples Forum (BIPF)	Female
6	Muktasree Chakma Sathi	Sangat - A South Asian Feminist Network	Female
7	Jinat Ara Haque	WE CAN (Amrai Pari)	Female
8	Shanaz Sumi	Bangladesh Nari Progati Sangha (BNPS)	Female
9	Hosne Ara Hashi	Jago Nari, Barguna	Female
10	Moushumi Sharmin	Concern Worldwide	Female
11	Ms. Durdana Farid	Youth Feminist, Senior Associate at Leaping Boundaries	Female

Second Consultation Meeting with the Forestry Experts

Sl. No	Name	Institute/ Designation	Male/Female
1	Dr. Mohammad Kamal Hossain	Institute of Forestry, Chittagong University	Male
2	Arifa Sharmin	Forestry and Wood Technology Discipline, Khulna University	Female
3	Dr. Md. Nazmus Sadath	Forestry and Wood Technology Discipline, Khulna University	Male
4	Md. Akhter Hossain	IFES, Chittagong University	Male
5	Sharmin Akter	Deputy Project Director, Sustainable Forests & Livelihoods (SUFAL) Project, Bangladesh Forest Department	Female

Third Consultation Meeting with the Water Management Experts

Sl. No	Name	Institute/ Designation	Male/Female
1	Professor Tanvir Ahmed	ITN, Bangladesh University of Engineering and Technology (BUET)	Male
2	Dr Sara Nowreen	Institute of Water and Flood Management, BUET	Female
3	Professor Mashfiqus Salehin	Institute of Water and Flood Management, BUET	Male
4	Rokeya Khatun	Senior CB Expert, Gender and Water Alliance	Female
5	Sharif Jamil	Waterkeepers	Male
6	Shaila Shahid	Chief Operating Officer, Disaster Climate Change Support Unit (DCCSU), LGD/DPHE	Female

Fourth Consultation Meeting with the Agriculture Experts

Sl. No	Name	Institute/ Designation	Male/Female
1	Dr Salina Parvin Banu	Former Chief Scientific Officer, Bangladesh Agricultural Research Institute	Female
2	Professor Md Anwarul Abedin	Department of Soil Science Faculty of Agriculture Bangladesh Agricultural University	Male
3	Dr. Abu Wali Raghib Hassan	Climate change Specialist and Agriculture Technology Expert, Department of Agricultural Extension (DAE), Bangladesh	Male
4	Dr. Shawkat A. Begum	Country Director, Practical Action	Female
5	Professor Md. Roshidul Hasan	Bangabandhu Sheikh Mujibur Rahman Agricultural University	Male
6	Prof. Dr. Sadika Haque	Department of Agricultural Economics Bangladesh Agricultural University	Female
7	Dr. Salina Parvin Banu	Former Chief Scientific Officer Bangladesh Agricultural Research Institute	Female

Fifth Consultation Meeting with the Energy Experts

Sl. No	Name	Institute/ Designation	Male/Female
1	Tanuja Bhattacharjee	Energy Specialist, Energy and Extractives, the World Bank Group	Female
2	Dr. Saiful Huque	Institute of Energy, Dhaka University	Male
3	Mohammad Mahmodul Hasan	Coordinator, Climate Change Program, Christian Commission for Development in Bangladesh	Male
4	Hoque Sanjida	Manager, Infrastructure Development Company Limited (IDCOL)	Female
5	Mr Abdul Arif	Manager (Project Development), Grameen Shakti	Male
6	Salma Islam	Head of Projects, Fundraising and Communication, SOL share	Female

Final Workshop

No	Name	Institute/ Designation	Male/Female
1.	Raquibul Amin	Country Representative, IUCN Bangladesh	Male
2.	Dr. Khalid Hossain	Programme Coordinator, IUCN Bangladesh	Male
3.	Md. Iqbal Hussain	Joint Secretary, MoWCA	Male
4.	Keya Khan	Additional Secretary, MoEFCC	Female
5.	Dilruba Haider	Programme Specialist, DRR/CCA/Has, UN Women	Female
6.	Inkar Kadyrzhanova	Regional adviser on Gender and Climate Change, Regional Office for Asia and the Pacific of UN Women	Female
7.	Annette Wallgren	Programme Management Officer, Gender and Climate Change, Asia and the Pacific Office of UN Environment Programme	Female
8.	Sharmind Neelormi	Team Leader/Gender Expert of the Project	Female
9.	Prof. Rezaur Rahman	Climate Change Expert of the Project	Male
10.	Advocate Mohammad Hafijul Islam Khan	Policy Expert	Male

No	Name	Institute/ Designation	Male/Female
11.	Dr. Md. Nazmus Sadath	Professor, Forestry and Wood Technology Discipline, Khulna University	Male
12.	Dr. Mohammad Kamal Hossain	Professor, IFES, Chittagong University	Male
13.	Shawkat A. Begum	Country Director, Practical Action	Female
14.	Priodarshine Auvi	Programme Analyst – EmPower, UN Women	Female
15.	Md. Badrul Alam Talukder	Programme Adviser at Embassy of Denmark in Bangladesh	Male
16.	Arka Chakraborty	ED, Dhrubotara Youth Development Foundation (DYDF)	Male
17.	Shaila Shahid	Chief Operating Officer (COO), Disaster Climate Change Support Unit (DCCSU), CWIS-FSM Support Cell, LGD/ DPHE of the Government of Bangladesh	Female
18.	Athena Denise Galao	UN Women	Female
19.	Hosne Ara Hashi	JAGO NARI	Female
20.	Anowarul Haq	Social Development Adviser, FCDO Bangladesh	Male
21.	Rina Roy	Manusher Jonno Foundation (MJF)	Female
22.	Adnan Qader	WaterAid	Male
23.	Mahfuza Akter Mala	Consultant of the Project	Female
24.	Muzammel Haque	Senior Officer, Climate Change Adaptation, Save the Children	Male
25.	Professor Mashfiqus Salehin	IWFM, BUET	Male
26.	Sharmin Akter	DPD, SUFAL, BFD	Female
27.	Moumita Das Gupta	Research Fellow of Center for Climate Justice - Bangladesh (CCJ-B)	Female
28.	Ipshita Habib	Resource Mobilization and Advocacy Manager, Solidaridad Network	Female
29.	Evelin Karmokar	Communications Associate, UN Women	Female
30.	Sonia Binte Murshed	Associate Professor, IWFM, BUET	Female

No	Name	Institute/ Designation	Male/Female
31.	ASM Marjan Nur	Climate Change Policy Manager, FCDO	Male
32.	Shakila Yasmin	Bangladesh Climate Change Trust (BCCT)	Female
33.	Mahbubur Rahman	Senior Programme Officer, Development Co-operation, Embassy of Sweden	Male
34.	Morium Nesa	ActionAid Bangladesh	Female
35.	Tanuja Bhattacharjee	Energy Specialist at the World Bank	Female
36.	Mausumi Sharmin	Concern Worldwide	Female
37.	Kaushik Das	UN women	Male
38.	Habibun Nessa	Member, Naripokkho	Female
39.	Minhazul Ferdous	IUCN Bangladesh	Male
40.	Farhana Hafij	Specialist on Advancing Gender Justice and Women Rights, UN Women	Female
41.	Prof. Dr. Sadika Haque	Department of Agricultural Economics, Bangladesh Agricultural University	Female
42.	Md. Affan Mahir		Male
43.	Mohan Kumar Mondal	ED, LEDARS Satkhira	Male
44.	Sohanur Rahman	Youth Activist, YouthNet	Male
45.	Farah Anzum	Programme Assistant, IUCN Bangladesh	Female
46.	Md. Tareq Aziz	Senior Programme Assistant, IUCN Bangladesh	Male
47.	Anika Tasneem	Programme Assistant, IUCN Bangladesh	Female
48.	Saleh B. Musa	Programme Officer, IUCN Bangladesh	Male
49.	Ashis Datta	Programme Assistant, IUCN Bangladesh	Male
50.	Md. Ashikur Rahman	Programme Assitant, IUCN Bangladesh	Male

No	Name	Institute/ Designation	Male/Female
51.	Mohsin Kabir Miron	Programme Assistant, IUCN Bangladesh	Male
52.	Shahidul Islam Kazal	Project Assistant, IUCN Bangladesh	Male
53.	Samir Saha	Programme Assistant, IUCN Bangladesh	Male

Annex 3: Examples of gender mainstreaming potential in the BCCSAP, 2020 (Draft)

Examples of gender mainstreaming potential in climate actions in Bangladesh are cited from the BCCSAP, 2020 (Draft) (list of actions cited here are not exhaustive, these are a glimpse of examples)

Theme 2: Ensure and Sustain Food and Nutrition Security

Programme T2P1: Institutional capacity for research related to crop agriculture towards climate resilient cultivars and their dissemination

A8: Develop appropriate balanced diet for human consumption particularly for children, pregnant and lactating women given the predicted fall in nutrition-density of crops/

Timeline

Short, medium to long-term

Institutional responsibility

BRRI, Bangladesh Agriculture Research Institute and other NARS organizations under MoA, DAE, Ministry of Health, CSOs and CBOs involved in nutrition programmes

Theme 4: Health

Programme T4P1: Human health stresses and adaptation

A1: Morbidity pattern assessment of day and night time temperature changes and additional mortality particularly in urban areas in general and shanty towns in particular and for vulnerable groups particularly women and children

A7: Awareness-raising programmes for managing climate related health stresses for all, particularly children and adolescent, pregnant and lactating women

Timeline

Short, medium to long-term

Institutional responsibility

Ministry of Health and Family Planning, in association with research centres (IDCCR,B; IEDCR etc)) and others; Ministry of Industries, Ministry of Public Works and Housing, Ministry of Local Government, Rural Development and Co-operatives, Urban Directorate, Ministry of Women and Children Affairs

Programme T4P2: Water and sanitation programme in climate vulnerable areas including urban areas

A4: Monitor sanitation situation as impacted by climate change and climate shocks, particularly at times of hazards like floods, water shortages due to drought, during and aftermaths of cyclonic storms with specific attention to women's personal hygiene issues in general but also particularly in cyclone shelters

Theme 5: Social Protection and Gender

Programme T5P1: Livelihood protection for people (including women) in ecologically fragile areas

A1. Conduct studies through rigorous quantitative and qualitative methods to understand and analyse the present situations regarding means of livelihood of people of various socio-economic strata including women in ecologically fragile regions (prone to flooding, riverbank erosion, sea level rise, landslides, salinity increase etc) and develop immediate and medium term adaptation strategy for alternative, decent and sustainable means of livelihood

A3. Prepare comprehensive, community-based and participatory plan and programmes and projects for investment for climate resilience against erosion in income, employment and human health in coastal, char, hilly and wetland regions with specific attention to women's needs as well as particularly vulnerable socio-economic groups (e.g. fishermen and women in estuaries).

Timeline

Short, medium and long term

Institutional responsibility

Various ministries incl Ministry of Social Welfare, Ministry of LGRDC, Ministry of

Women Affairs, Ministry of Chittagong Hill Tracts Affairs, Haor Development Board, BMDA (Min of Agriculture), Ministries of Education (primary and above primary)

Programme T5P2: Livelihood protection of vulnerable socio-economic groups (including women, adolescent girls and children)

A1: Prepare GIS map of concentration of various marginal groups based on socio-economic status who might be affected more adversely than others due to climate change, such groups may include marginal and small farmers, fishermen particularly those fishing in estuaries and the seas, the infirm and elderly, people with physical and mental disabilities and women and children in all groups

A4: Conduct comprehensive study/studies of the impact of climate change on women, adolescent girls and children and the development of recommendations to address these in all relevant interventions and investment plans, programs and projects under the relevant BCCSAP Actions

Timeline

short, medium and long term

Institutional responsibility

Various ministries incl Ministry of Social Welfare, Ministry of LGRDC, Ministry of management, MoWCA, Ministry of Education (primary and above primary)

Theme 7: Comprehensive Disaster Management

Programme T7P3: Awareness raising and public education towards climate resilience Actions

A1. Awareness raising programmes among local communities about impacts of Climate Change

A2. Train local communities on shelter management, search and rescue, and health issues (with due attention to specific needs of adolescent girls and women including children) related to disaster management

Timeline

Immediate and continuing

Institutional responsibility

Ministry of Food and Disaster Management, Bangladesh Red Crescent Society, NGOs, CBOs working in the coastal areas, media (print and electronic)

Theme T8. Infrastructure

Programme T8P4: Adaptation against floods

A6. Plan and implement non-structural flood proofing measures, particularly involving vulnerable communities

Timeline

Medium to long term

Institutional responsibility

MoWR and its agencies, MoDMR

Theme 9: Low Carbon Development and Mitigation

Programme T9P5: Renewable energy development

A4. i. Based on recent evaluations of Bondhu Chula and others and a review of the diffusion strategy for cook stoves under IDCOL/World Bank programme, and study of the remaining techno-economic including standardisation, social, institutional and marketing constraints to adoption of improved biomass stoves, a workable strategy in consultation with institutional stakeholder (including necessary supporting policies for credit, fiscal and pricing measures and technical support) for further diffusion of improved cook stoves should be worked by the Government

ii. Based on above, prepare and implement a large-scale plan for further dissemination of improved biomass stoves

Timeline

Immediate

Institutional responsibility

MoPEMR; Ministry of Science and Technology, Geological Survey of Bangladesh, NGOs, private entrepreneurs

Theme 10: Research and Knowledge Management

Programme T10P4: Monitoring of ecosystem and biodiversity changes and their impacts

A3. Report changes in ecosystems and biodiversity and asses the implications, including those for the livelihoods of local people including women, and recommend adaptation measures

Timeline

Medium to long term

Institutional responsibility

Ministry of Environment and Forests, MoA, Ministry of Health and Family Welfare, MoWCA, Ministry of Fisheries and Livestock

Programme T10P7: Understanding loss and damage in Bangladesh perspectives A4. Prioritise sectors, geographic areas and social groups for optimal adaptation to minimize loss and damage

Timeline

Short and medium

Institutional responsibility

MoEFCC, Min of Disaster and Relief

Programme T10P6: Monitoring of and support to internal and external migration of climate change distressed people

A2. Development of a protocol to provide adequate support for resettlement and rehabilitation of out-migrants

A3. Building of capacity through education and training to facilitate resettlement in new environment

Timeline

Medium to long term

Institutional responsibility

Ministry of Environment, Forests and Climate Change, Ministry of Home Affairs, MLGRDC, Ministry of Social Welfare

Theme 11: Governance: Legal, Institutional and Policy Aspects

Programme T11P5: Integrating gender issues in all climate change actions

Actions

A1. Develop criteria and approach for inclusion of gender consideration in all climate response activities including in project proposals

A2. Build the capacity of gender focal points in all ministries and agencies to incorporate gender issues in all climate response activities

Timeline

Short Term

Institutional responsibility

MoWCA, Planning Commission, MoEFCC

Reference List

[1] ADB. (2014). Bangladesh Could See Climate Change Losses Reach Over 9% Of GDP. Asian Development Bank. https://www.adb.org/news/bangladesh-could-see-climate-change-losses-reach-over-9-gdp-report

[2] ADB. (2017). Bangladesh: Gender Equality Diagnostic of Selected Sectors. https://doi.org/10.22617/TCS179121-2

[3] Ahmed, A. U., and Neelormi, S. (2007). Livelihoods of Coastal Fishermen in Peril: In Search of Early Evidence of Climate Change Induced Adverse Effects in Bangladesh. Dhaka: Centre for Global Change and Campaign for Sustainable Rural Livelihoods.

[4] Ahmed, A.U., (2016). An assessment of Progress on Environmental Activities Related to the Management of Dairy Hub, Report submitted to United Nations Industrial Development Organization (UNIDO), Vienna, pp. 16.

[5] Ahmed, A.U., Mondal,P and Islam, M., (2017). Community based Adaptation: An analysis of best practices in the south western region of Bangladesh, Dhaka, CARE Bangladesh, pp. 70.

[6] Amin, S., Rahman, S. (2019). Energy Resources in Bangladesh: Trends and Contemporary Issues. Springer, pp. 93

[7] Anderson, D., (2000). Energy and economic prosperity. In J. Goldemberg (Ed.), World Energy Assessment: Energy and the Challenges of Sustainability (pp.393-414). New York: United Nations Development Programme.

[8] Association for Land Reform and Development (ALRD). 2020. Women's contribution to agriculture and access to land: Covid-19 and beyond. ALRD. (n.d.) https://www.alrd.org/media-details/168/51

[9] BANBEIS. (2016). Bangladesh Education Statisticd. https://lib.banbeis.gov.bd/BANBEIS_PDF/Bangledesh Education Statistics 2016.pdf

[10] Banglapedia. (2014). National Encyclopedia of Bangladesh. Asiatic Society of Bangladesh.

[11] Bangladesh Bank. (2015). Impact Assessment of Bangladesh Bank's Re-finance Scheme for Financing Agricultural and Non-farm Rural Borrowers Bangladesh Krishi Bank and Rajshahi Krishi Unnayan Bank. https://www.bb.org.bd/pub/research/sp_research_work/1503.pdf

[12] Baten, M. A., and Ahammad, R. (2008). Climate change: Impact on forests. The Daily Star, August 2, 2008.

[13] BBS (2014). Rural Credit Survey 2014, Bangladesh Bureau of Statistics (BBS), Ministry of Planning. Government of the People's Republic of Bangladesh, Dhaka.

[14] BBS. (2017). Labour Force Survey 2016-17, Bangladesh Bureau of Statistics (BBS), Published by-Government of the People's Republic of Bangladesh, Dhaka.

[15] BBS. (2018). Labour Force Survey Bangladesh 2016-17. Bangladesh Bureau of Statistics (BBS), Ministry of Planning. Government of People'sRepublic of Bangladesh. http://203.112.218.65:8008/WebTestApplication/userfiles/Image/LatestReports/LFS_2016-17.pdf

[16] BBS (2019). Final report on household income and expenditure Survey 2016. Ministry of Planning. Government of People'sRepublic of Bangladesh.

[17] BBS. (2020). Yearbook of Agricultural Statistics-2019. Bangladesh Bureau of Statistics (BBS), Ministry of Planning. Government of People'sRepublic of Bangladesh.

[18] BBS. (2021). Yearbook of Agiricultural Statistics -2020. Bangladesh Bureau of Statistics (BBS), Ministry of Planning. Government of People'sRepublic of Bangladesh. http://bbs.portal.gov.bd/sites/default/files/files/bbs.portal.gov.bd/page/b343a8b4_956b_45ca_872f_4cf9b2f1a6e0/2021-08-12-10-30-5cf27cf44402f7d5c73e3cc4e4d2b664.pdf

[19] Begum, K., (1989). 'Participation of rural women in income-earning activities: a case study of a Bangladesh village', *Women's Studies International Forum*, Vol. 12, No. 5, pp. 519–28.

[20] Bhowmik, J., Irfanullah, H. M., and Selim, S. A. (2021). Empirical evidence from Bangladesh of assessing climate hazard-related loss and damage and state of adaptive capacity to address them. *Climate Risk Management, 31*(May 2020), 100273. https://doi.org/10.1016/j.crm.2021.100273

[21] Bloem, M.W., Huq, N., Gorstein, J., Burger, S., Kahn, T., Islam, N., Baker, S. and Davidson, F., (1996). Production of fruits and vegetables at the homestead is an important source of vitamin A among women in rural Bangladesh. *European Journal of Clinical Nutrition, 50*, pp.S62-7.

[22] Budlender, D. (2017). Tracking climate change funding: learning from gender-responsive budgeting; https://www.climatefinance-developmenteffectiveness.org/sites/default/files/documents/04_12_14/Session_3/IBP_Tracking-Climate-Change-Funding-Learning-from-Gender-Responsive-Budgeting.pdf

[23] Bushamuka, V.N., de Pee, S., Talukder, A., Kiess, L., Panagides, D., Taher, A. and Bloem, M., (2005). Impact of a homestead gardening program on household food security and empowerment of women in Bangladesh. *Food and Nutrition Bulletin*, 26(1), pp.17-25.

[24] CCC. (2009). Characterizing Long-term Changes of Bangladesh Climate in Context of Agriculture and Irrigation. http://203.83.183.19:8080/xmlui/bitstream/123456789/79/1/8. Characterizing Long-Term Changes Of Bangladesh Climate In Context Of Agriculture And Irrigation.pdf%5Cnhttp://kmp.dmic.org.bd/handle/1234567

[25] Chak, F. F., Farquharson, F., and Chowdhury, J. (2006). Exploring the impacts of climate change on water resources-regional impacts at a regional scale: Bangladesh. *IAHS-AISH Publication*, (308), 389–393.

[26] Chowdhury, N., Rashid, M.H.A., Ahmed, S. and Sultana, A., (2009). Participation of Rural Women In Farm and Non-farm Activities: An Economic analysis. Progress Agriculture, 20(1 and 2):245 – 251. ISSN 1017-8139

[27] Chowdhury, S. (2020). Resistances to Gender Mainstreaming: An Analysis of the Trend of Women Engagement in Participatory Gender-Responsive Budgeting in Bangladesh. Journal of Contemporary Governance and Public Policy, 1(2), 53-66; DOI: https://doi.org/10.46507/jcgpp.v1i2.24; https://scholar.google.com/scholar?cluster=15049103577868286961andhl=enandas_sdt=0,5

[28] Convention (No. 100) concerning equal remuneration for men and women workers for work of equal value, 1951 (adopted 29 June 1951, Entered into Force 23 May 1953), 165 UNTS 303, retrieved on 09.07.2021 from https://treaties.un.org/doc/Publication/UNTS/Volume%20165/volume-165-I-2181-English.pdf

[29] Convention on Biological Diversity, (1992), (adopted 5 June 1992, entered into force 29 December 1993) 1760 UNTS 79, retrieved on 12.07.2021 from https://treaties.un.org/doc/Treaties/1992/06/19920605%2008-44%20PM/Ch_XXVII_08p.pdf

[30] Convention on the Elimination of All forms of Discrimination Against Women, (1979) (CEDAW) (adopted 18 December 1979, Entered into Force 3 September 1981), 1249 UNTS 13, retrieved on 10.07.2021 from https://treaties.un.org/doc/Treaties/1981/09/19810903%2005-18%20AM/Ch_IV_8p.pdf

[31] Convention on the Political Rights of Women, (1953), (adopted 31 March 1953, Entered in to Force 7 July 1954), 193 UNTS 135, retrieved on 09.07.2021 from https://treaties.un.org/doc/Treaties/1954/07/19540707%2000-40%20AM/Ch_XVI_1p.pdf

[32] DAE (2012), National Agriculture Extension Policy, 2012, published by – Department of Agricultural Extension, Dhaka, Bangladesh; retrieved from http://dae.portal.gov.bd/sites/default/files/files/dae.portal.gov.bd/page/dd7d2be1_aeef_452f_9774_8c23462ab73a/National%20Agricultural%20Extension%20Policy_%28NAEP%29.pdf

[33] Declaration of acceptance of the obligations contained in the Charter of the United Nations by Bangladesh (1974). Dacca, 8 August 1974, registered ex officio on 17 September 1974, A/RES/3203(XXIX), 950 UNTS 3, retrieved on 09.07.2021 from https://treaties.un.org/doc/source/docs/bangladesh-E.pdf

[34] Declaration on the Elimination of Violence against Women, (1993), (20 December 1993), A/RES/48/104, retrieved on 10.07.2021 from https://www.ohchr.org/en/professionalinterest/pages/violenceagainstwomen.aspx

[35] Eckstein, D., Künzel, V., and Schäfer, L. (2021) Global Climate Risk Index 2021 Who Suffers Most from Extreme Weather Events? Weather-Related Loss Events in 2019 and 2000-2019.

[36] FAO. (2020). The State of World Fisheries and Aquaculture 2020. Sustainability in action. In FAO. https://doi.org/https://doi.org/10.4060/ca9229en

[37] Farid K.S., Mozumdar L., Kabir M.S., and Goswami U.K. (2009). Nature and extent of rural women's participation in agricultural and non-agricultural activities-*Indian Journals*. https://www.indianjournals.com/ijor.aspx?target=ijor:asdandvolume=29andissue=4andarticle=005

[38] Farouk, A. (1980). Time Use of Rural Women. Bureau of Economic Research, Dhaka University. Bangladesh.

[39] Faroque, M., Asaduzamman, M., and Hossain, M. (2013). Sustainable Agricultural Development under Climate Change in Bangladesh. Journal of Science Foundation, 11(1), 17–28. https://doi.org/10.3329/jsf.v11i1.19396

[40] FD. 2020. Forest Conservation and Management Atlas, Bangladesh. Food and Agriculture Organization of the United Nations, Forest Department, Government of the People's Republic of Bangladesh.

[41] Forest Department (2017). Forest Investment Programme. Ministry of Environment and Forests, Government of the People's Republic of Bangladesh

[42] Garrett, J., Chowdhury, S., Payne, L., Boeren, P., Gillingham Of Care-Bangladesh, S., Leach, M., and Hendriksen, G. (2004). *Urban-Rural Links And Transformation In Bangladesh: A Review Of The Issues Urban-Rural Links and Transformation In Bangladesh: A Review of the Issues CARE-Bangladesh Acknowledgements We are grateful to*.

[43] GED. (2011). Sixth Five Year Plan. https://policy.asiapacificenergy.org/sites/default/files/Sixth%20Five%20Year%20Plan-%20Accelerating%20Growth%20and%20Reducing%20Poverty.pdf

[44] GED (2015a), National Social Security Strategy, Published by – General Economic Division, Planning Commission, Ministry of Planning, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh; http://socialprotection.gov.bd/wp-content/uploads/2018/09/National-Social-Security-Strategy-English.pdf

[45] GED (2015b), Seventh Five Year Plan (FY 2016-FY2020): Accelerating Growth, Empowering Citizens, Published by – General Economic Division, Planning Commission, Ministry of Planning, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh. http://www.plancomm.gov.bd/sites/default/files/files/plancomm.portal.gov.bd/files/aee61c03_3c11_4e89_9f30_d79639595c67/7th_FYP_18_02_2016.pdf

[46] GED (2020), Eighth Five Year Plan (July 2020-June 2025): Promoting Prosperity and Fostering Inclusiveness, Published by- Planning Commission, Ministry of Planning, Government of the People's Republic of Bangladesh, http://www.plancomm.gov.bd/sites/default/files/files/plancomm.portal.gov.bd/files/68e32f08_13b8_4192_ab9b_abd5a0a62a33/2021-02-03-17-04-ec95e78e452a813808a483b3b22e14a1.pdf

[47] GED (2020). Sustainable Development Goals: Bangladesh Progress Report 2020. Published by- Planning Commission, Ministry of Planning, Government of The People's Republic of Bangladesh

[48] GoB. (1996). Rules Of Business, 1996. https://bangabhaban.portal.gov.bd/sites/default/files/files/bangabhaban.portal.gov.bd/page/08608c7e_896d_4607_87f9_7ee0a9ea9120/CD_SPEC_GOVT_POLIC_bn_2_128.pdf

[49] GoB. (2011). National Women Development Policy 2011 Ministry of Women and Children Affairs Government of the Peoples' Republic of Bangladesh.

[50] GoB. (2013). Domestic Violence Prevention and Protection Rules. https://dwa.portal.gov.bd/sites/default/files/files/dwa.portal.gov.bd/law/65b0cb42_cef1_4d62_8f83_d657e8823276/Domestic-Violence-Rules-English.pdf

[51] GoB – Government of Bangladesh (2015). Intended Nationally Determined Contributions (INDC).

[52] Hafiza, S. and Sharmind Neelormi. (2015). Climate Resilient and Empowering Livelihoods for Women | UN Women – Asia-Pacific. https://asiapacific.unwomen.org/en/digital-library/publications/2016/01/climate-resilient-and-empowering-livelihoods-for-women

[53] Hashmi, T, (2012). Microfinance and its Discontents: Women in Debt in Bangladesh by L. Karim – A Review Article. *Journal of Bangladesh Studies*, Special Issue: Microfinance, pp. 54-60.

[54] Hossain, M., Bayes, A. and Islam, S.M.F., (2014). A Diagnostic Study on Bangladesh, Agricultural Economic Working Paper, BRAC, Dhaka, BRAC, pp. 2018.

[55] Hossain, M. A., Amin, M. N., Sultana, J., and Siddique, M. N. A. (2020). Climate Change Impact on Agriculture and Related Sustainable Land Management Practices in Bangladesh – A Review. *International Journal of Environment and Climate Change, April*, 53–69. https://doi.org/10.9734/ijecc/2020/v10i230181

[56] Ibne Amir, K., and Ahmed, T. (2013). Climate Change and Its Impact on Food Security in Bangladesh: A Case Study on Kalapara, Patuakhali, Bangladesh. *Journal of Earth Science and Climatic Change, 4*(5). https://doi.org/10.4172/2157-7617.1000155

[57] IEA. (2017). WEO-2017 Special Report: Energy Access Outlook – Analysis - IEA. https://www.iea.org/reports/energy-access-outlook-2017

[58] IFAD. (2017). Promote Resilience of Vulnerable Through Access to Infrastructure, Improved Skills and Information (PROVATI) Project.

[59] International Covenant on Civil and Political Rights, (1966) (ICCPR), (adopted 16 December 1966, Entered into Force 23 March 1976), 999 UNTS 171, retrieved on 09.07.2021 from https://treaties.un.org/doc/Treaties/1976/03/19760323%2006-17%20AM/Ch_IV_04.pdf

[60] International Covenant on Economic, Social and Cultural Rights, (1966) (ICESCR), (adopted 16 December 1966, Entered into Force 3 January 1976), 993 UNTS 3, retrieved on 09.07.2021 from https://treaties.un.org/doc/Treaties/1976/01/19760103%2009-57%20PM/Ch_IV_03.pdf

[61] IPCC. (2008). *Climate Change and Water*. https://archive.ipcc.ch/pdf/technical-papers/climate-change-water-en.pdf

[62] IPCC, (2021): Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press. In Press.

[63] Islam, R., (1979). Some Aspects of Female Employment in Rural Bangladesh, Dhaka, National Foundation for Research on Human Resource Development.

[64] Islam, A. R. M. T., Karim, M. R., and Mondol, M. A. H. (2021). Appraising trends and forecasting of hydroclimatic variables in the north and northeast regions of Bangladesh. *Theoretical and Applied Climatology*, 143(1–2), 33–50. https://doi.org/10.1007/s00704-020-03411-0

[65] IUCN. (2021). Gender and national climate planning: gender citation: integration in the revised Nationally Determined Contributions. Gland, Switzerland: IUCN.

[66] Jahan, I. (1990). 'Country Paper-Bangladesh' in Gender Issues in Agriculture: Papers and Proceedings of the Regional Conference on Gender Issues in Agriculture (Manila, 5-6 December) ADB and UNIFEM, pp.189-200.

[67] Jaim, W. M. H., andHossain, M, (2011). Women's participation in agriculture in Bangladesh 1988–2008: Changes and determinants. In *preconference event on Dynamics of Rural Livelihoods and Poverty in South Asia, 7th Asian Society of Agricultural Economists (ASAE) International Conference, Hanoi, Vietnam*.

[68] Jiménez Cisneros, B. E., Oki, T., Arnell, N. W., Benito, G., Cogley, J. G., Döll, P., … Nishijima, A. (2014). Freshwater resources. In *Climate Change 2014 Impacts, Adaptation and Vulnerability:* Part A: Global and Sectoral Aspects (pp. 229–270). https://doi.org/10.1017/CBO9781107415379.008

[69] Kabeer, N., Mahmud, S. and Tasneem, S. (2011) 'IDS WORKING PAPER Volume 2011 Number 375 Does Paid Work Provide a Pathway to Women ' s Empowerment ? Empirical Findings from Bangladesh'.

[70] Karim, M. E., Karim, R., Islam, M. T., Muhammad-Sukki, F., Bani, N. A., and Muhtazaruddin, M. N. (2019). Renewable energy for sustainable growth and development: An evaluation of law and policy of Bangladesh. *Sustainability (Switzerland), 11*(20), 5774. https://doi.org/10.3390/su11205774

[71] Khan, A. J., and Tashmin (2016), N. Climate Change Finance in Bangladesh: A Way toward Sustainable Development, retrieved on 12.07.2021 from http://www.aabl.com.au/aablConference/public/documents/pdf/13_P138-R13_Full%20Paper.pdf

[72] Khatun, M.F., Hossain, M.K., Hossain, K.A. and Rahman, M.M., (2014). Participation Potential of Rural Women in Different Homestead Farm Activities. The Agriculturists 12(1): 57-67.

[73] Kyoto Protocol to the United Nations Framework Convention on Climate Change, 1997 (adopted on 11 December 1997, entered into force on 16 February 2005) 2303 UNTS 162, retrieved on 12.07.2021 from https://treaties.un.org/doc/Publication/UNTS/Volume%202303/v2303.pdf

[74] Mahmud, S and Tasneem, S. (2011) 'The Under Reporting of Women's Economic Activity in Bangladesh: An Examination of Official Statistics, BDI Working Paper No. 1, Feb 11. BDI: Dhaka

[75] Mainuddin, M., Karim, F., Gaydon, D. S., and Kirby, J. M. (2021). Impact of climate change and management strategies on water and salt balance of the polders and islands in the Ganges delta. *Scientific Reports, 11*(1), 1–15. https://doi.org/10.1038/s41598-021-86206-1

[76] Martin, M, Kang, Y., Billah, M, Siddiqui, T, Black, R and Kniveton, D. (2013). Policy analysis: Climate change and migration Bangladesh. Working Paper No. 4. Refugee and Migratory Movements Research Unit (RMMRU), University of Dhaka, and Sussex Centre for Migration Research (SCMR), University of Sussex. http://migratingoutofpoverty.dfid.gov.uk/files/file.php?name=wp4-ccrm-b-policy.pdfandsite=354

[77] Miah, M.G., Ahmed, M. and Afroz, T. (2013). Climate Change and Adaptation: Evidence from a Forest-dependent Community in Bangladesh. Journal of Forest and Livelihood 11(1): 94-108. March, 2013.

[78] Ministry of Food and Disaster Management (2006), National Food Policy, 2006, published by – Ministry of Food and Disaster Management, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh; retrieved 16.07.2021 from http://fpmu.gov.bd/agridrupal/sites/default/files/National_Food_Policy_2006_English_Version.pdf

[79] Mirza, M. M. Q. (2004). The Ganges Water Diversion: Environmental Effects and Implications - An Introduction. In M. M. Q. Mirza (Ed.), *The Ganges Water Diversion: Environmental Effects and Implications* (pp. 1–12). https://doi.org/10.1007/1-4020-2480-0_1

[80] MoDMR (2019), The Standing Orders on Disaster, 2019, Published by – Ministry of Disaster Management and Relief, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh; https://modmr.gov.bd/sites/default/files/files/modmr.portal.gov.bd/policies/7a9f5844_76c0_46f6_9d8a_5e176d2510b9/SOD%202019%20_English_FINAL.pdf

[81] MoDMR (2021), National Disaster Management Plan (2021-2025), Published by – Ministry of Disaster Management and Relief, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh; https://modmr.gov.bd/sites/default/files/files/modmr.portal.gov.bd/policies/6e6059dd_17e4_4700_b4d3_3f92c6d806e3/NPDM%202021-2025_Final%20Version.pdf

[82] MoE (2010), National Education Policy, 2010, published by –Ministry of Education, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh; retrieved on 07.07.2021 from: https://reliefweb.int/sites/reliefweb.int/files/resources/02.National-Education-Policy-2010-English.pdf

[83] MoEF (1992), Environment Policy, 1992 and Implementation Activities, published by – Ministry of Environment and Forest, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh; retrieved 14.07.2021 from http://nda.erd.gov.bd/files/1/Publications/Sectoral%20Policies%20and%20Plans/Environment%20Policy,%201992.pdf

[84] MoEF (1994), National Forest Policy, 1994, published by –Ministry of Environment and Forest, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh; retrieved on 25.09.2021 from http://bforest.portal.gov.bd/sites/default/files/files/bforest.portal.gov.bd/page/238fc41d_700a_489d_9758_e80b7efdb2ef/Forest%20policy%201994.pdf

[85] MoEF (2004), The Social Forestry Rules, 2004, published by –Ministry of Environment and Forest, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh.

[86] MoEF. (2005). National Biodiversity Strategy and Action Plan for Bangladesh MINISTRY OF ENVIRONMENT AND FORESTS Government of the People's Republic of Bangladesh.

[87] MoEF (2005), National Adaptation Programme of Action, 2005, published by – Ministry of Environment and Forest, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh; retrieved 17.07.2021 from http://nda.erd.gov.bd/files/1/Publications/CC%20Policy%20Documents/NAPA2005.pdf

[88] MoEF (2009), Bangladesh Climate Change Strategy and Action Plan, 2009, Published by – Ministry of Environment and Forest, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh; http://nda.erd.gov.bd/files/1/Publications/CC%20Policy%20Documents/BCCSAP2009.pdf

[89] MoEF. (2009). National Adaptation Programme of Action (NAPA), Updated Version of 2005. Dhaka: Ministry of Environment and Forests, Government of Bangladesh.

[90] MoEFCC (2020), Nationally Determined Contributions, 2020 (Interim) from Vision to Action, published by – Ministry of Environment, Forest and Climate Change, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh, https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Bangladesh%20First/Updated_NDC_of_Bangladesh.pdf

[91] MoEF. (2013). Bangladesh Climate Change and Gender Action Plan (BCCGAP: Bangladesh). http://nda.erd.gov.bd/files/1/Publications/CC%20Policy%20Documents/CCGAP%202009.pdf

[92] MoEF (2015), Intended Nationally Determined Contribution, 2015, published by – Ministry of Environment and Forest, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh; retrieved 17.07.2021 from http://nda.erd.gov.bd/files/1/Publications/CC%20Policy%20Documents/INDC_2015_of_Bangladesh.pdf

[93] MoEF (2016), National Forest Policy, 2016 (Draft), published by –Ministry of Environment and Forest, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh; retrieved on 25.09.2021 from http://bforest.portal.gov.bd/sites/default/files/files/bforest.portal.gov.bd/page/238fc41d_700a_489d_9758_e80b7efdb2ef/Forest%20Policy%202016%28Bangla%20version%29%20%281%29.PDF

[94] MoEF (2017), The Country Investment Plan for Environment, Forestry and Climate Change, (2016-2021), (EFCC CIP), Published by – Ministry of Environment and Forest, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh; https://drive.google.com/file/d/0B-9VU7ksb42dUE9zMTZXMndjRHRpWThnOG5MaGtRakRseklj/view?resourcekey=0-UhEgMcVZThHkSsy5ca-Izw

[95] MoEFCC. (2013). Bangladesh Climate Change And Gender Action Plan (BCCGAP: Bangladesh). http://nda.erd.gov.bd/files/1/Publications/CC%20Policy%20Documents/CCGAP%202009.pdf

[96] MoEFCC (2018), National Environment Policy, 2018, Published by – Ministry of Environment, Forest and Climate Change, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh; https://moef.portal.gov.bd/sites/default/files/files/moef.portal.gov.bd/page/6ee9d54b_b349_4e85_b0da_6df1225285cb/%E0%A6%AA%E0%A6%B0%E0%A6%BF%E0%A6%AC%E0%A7%87%E0%A6%B6%20%E0%A6%A8%E0%A7%80%E0%A6%A4%E0%A6%BF%20%E0%A7%A8%E0%A7%A6%E0%A7%A7%E0%A7%AE.pdf

[97] MoF and MoEFCC (2021), 'Mujib' Climate Prosperity Plan – Decade 2030 (Unpublished Draft), prepared by – Ministry of Finance and Ministry of Environment, Forest and Climate Change, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh.

[98] MoFA. (2018). Climate Change Profile Bangladesh. In Ministry of Foreign Affairs of the Netherlands. Www.government.nl/foreign-policy-evaluations

[99] MoFL (1998), National Fisheries Policy, 1998, published by – Bangladesh Haor and Wetland Development Board of Ministry of Fisheries and Livestock, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh; retrieved 16.07.2021 from http://www.fisheries.gov.bd/sites/default/files/files/fisheries.portal.gov.bd/policies/920e2a16_1958_41c9_830f_30a9bac36f21/nat_fis_policy_Eng.pdf

[100] MoFL (2014), National Shrimp Policy, 2014, published by – Bangladesh Haor and Wetland Development Board of Ministry of Fisheries and Livestock, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh; retrieved 16.07.2021 from http://www.fisheries.gov.bd/sites/default/files/files/fisheries.portal.gov.bd/policies/3207faeb_8216_4e5a_9f32_ec003d549c1a/National%20Shrimp%20Fish%20Police-2014_0.PDF

[101] MoLE, National Labour Policy (2012), published by –Ministry of Labour and Employment, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh; retrieved on 07.07.2021 from: http://www.ilo.org/dyn/natlex/docs/ELECTRONIC/99016/118017/F-912502787/BGD99016.pdf

[102] MoLJPA. (2019). The Child Marriage Restraint Act, 1929. http://bdlaws.minlaw.gov.bd/act-details-149.html

[103] Monica Jain. (2015). Addressing complexities of measuring women's time use in Bangladesh. https://a4nh.cgiar.org/2015/02/02/addressing-complexities-of-measuring-womens-time-use-in-bangladesh/

[104] MoPEMR (2008), Renewable Energy Policy, 2008, published by –Ministry of Power, Energy and Mineral, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh; retrieved on 25.09.2021 from https://policy.asiapacificenergy.org/sites/default/files/REP_English.pdf

[105] Moser, C., 1995. Women, gender and urban development policy: challenges for current and future research. Third World Planning Review, 17(2), p.223.

[106] MoWCA, National Women Development Policy, 2011, pages 11,12and25; published by –Ministry of Women and Children Affairs, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh; retrieved on 05.07.2021 from https://mowca.gov.bd/sites/default/files/files/mowca.portal.gov.bd/policies/64238d39_0ecd_4a56_b00c_b834cc54f88d/National-Women%20Development%20Policy-2011English.pdf

[107] MoWR (1999), National Water Policy, 1999, published by – Ministry of Water Resources, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh; retrieved 16.07.2021 from https://mowr.gov.bd/sites/default/files/files/mowr.portal.gov.bd/files/32e67290_f24e_4407_9381_166357695653/National%20Water%20Policy%20(English).pdf

[108] MoWR (2005), Coastal Zone Policy, 2005, retrieved 16.07.2021 from https://warpo.portal.gov.bd/sites/default/files/files/warpo.portal.gov.bd/page/50e22033_f149_4dcc_9271_6ff84fe87efb/CZPO_bn.pdf

[109] Mullick, M.R.A., Nur, R.M., Alam, M.J., Islam, K.M.A. (2019). Observed trends in temperature and rainfall in Bangladesh using pre-whitening approach. Global and Planetary Change, Volume 172, January 2019, Pages 104-113

[110] Mukherjee, N., Rowan, J. S., Khanum, R., Nishat, A., and Rahman, S. (2019). Climate Change-Induced Loss and Damage of Freshwater Resources in Bangladesh. In S. Huq, J. Chow, A. Fenton, C. Stott, J. Taub, and H. Wright (Eds.), *Confronting Climate Change in Bangladesh* (Vol. 28). https://doi.org/10.1007/978-3-030-05237-9

[111] Murshed, Sonia Binte, Nowreen, S., Islam, A. K. M. S., Hasan, M. A., and Sarker, T. K. (2013). Change of Extreme Precipitation Indices for the Eight Hydrological Regions of Bangladesh. Paper presented at the International Conference on Climate Change Impact and Adaptation (I3CIA- 2013). Center for Climate Change and Sustainability Research (3CSR). . *International Conference on Climate Change Impact and Adaptation (I3CIA- 2013)*, 2013.

[112] Murshed, Sonia Binte, and Kaluarachchi, J. J. (2018). Scarcity of fresh water resources in the Ganges Delta of Bangladesh. *Water Security*, 4–5(November), 8–18. https://doi.org/10.1016/j.wasec.2018.11.002

[113] Murshed, S. B., Rahman, M. R., and Kaluarachchi, J. J. (2019). Changes in Hydrology of the Ganges Delta of Bangladesh and Corresponding Impacts on Water Resources. *Journal of the American Water Resources Association, 55*(4), 800–823. https://doi.org/10.1111/1752-1688.12775

[114] Nahar, A., Luckstead, J., Wailes, E. J., and Alam, M. J. (2018). An assessment of the potential impact of climate change on rice farmers and markets in Bangladesh. *Climatic Change*, 150(3–4), 289–304. https://doi.org/10.1007/s10584-018-2267-2

[115] Naila Kabeer. (1988). Subordination and Struggle: Women in Bangladesh, NLR I/168, March–April 1988. https://newleftreview.org/issues/i168/articles/naila-kabeer-subordination-and-struggle-women-in-bangladesh

[116] National Parliament (Reserved Women Seat) Election Act, (2004) (President's Order) (President's Order No. 155 of 1972), retrieved on 06.07.2021 from http://bdlaws.minlaw.gov.bd/act-424.html

[117] National Strategy for Water Supply and Sanitation. (2014). https://www.who.int/globalchange/resources/wash-toolkit/national-strategy-for-water-supply-and-sanitation-bangladesh.pdf

[118] NDA. (2010). Bangladesh Climate Change Trust Act . http://nda.erd.gov.bd/files/1/Publications/CC%20Policy%20Documents/Climate%20Change%20Trust%20Act%202010.pdf

[119] Neelormi, S. and Ahmed, A.U., (2011). *Krishite Rashtrio Cromobardhaman Shubidha Keeshani Bandhabkora Proyojon* (in Bengali), The Rationale for Making the State Assistances to Farming 'Friendly to Female Farmers', Centre for Global Change (CGC), Dhaka (2011).

[120] NIPORT. (2016). Bangladesh Maternal Mortality and Health Care Survey 2016. https://niport.portal.gov.bd/sites/default/files/files/niport.portal.gov.bd/miscellaneous_info/4c534fbe_dc9c_491e_89d7_1f85ab298e93/2020-08-23-18-28-35970449b61ba2439986d9e68dfd83b4.pdf

[121] OHCHR. (1966). International Covenant on Civil and Political Rights (ICCPR). https://www.ohchr.org/en/professionalinterest/pages/ccpr.aspx

[122] OHCHR. (1966). International Covenant on Economic, Social and Cultural Rights (ICESCR). https://www.ohchr.org/en/professionalinterest/pages/cescr.aspx

[123] Optional Protocol to the CEDAW, 1999 (adopted 6 October 1999, Entered in to Force 22 December 2000), 2131 UNTS 83, retrieved on 10.07.2021 from https://treaties.un.org/doc/Treaties/1999/10/19991006%2005-18%20AM/Ch_IV_8_bp.pdf

[124] Osmani, S. R. (2014). Designing Social Protection for the Rural Poor: Learning from Lessons on the Ground. *Working Papers*. https://ideas.repec.org/p/imb/wpaper/31.html

[125] Paris Agreement (adopted on: 12 December 2015, entered into force on: 4 November 2016) Decision 1/CP.21, Annex, UN Doc FCCC/CP/2015/10/Add.1, retrieved on 12.07.2021 from https://treaties.un.org/doc/Treaties/2016/02/20160215%2006-03%20PM/Ch_XXVII-7-d.pdf *Participatory Water Management Rules (2014)*. (2014). http://www.dpp.gov.bd/upload_file/gazettes/7147_19286.pdf

[126] Planning Commission, Ministry of Planning and Asian Development Bank (2021). Bangladesh Climate and Disaster Risk Atlas: Hazards—Volume I. Dhaka, Bangladesh and Manila, Philippines.

[127] PWRI. (2007). Factor Analysis of Water-related Disasters in Bangladesh. The International Centre for Water Hazard and Risk Management, *Public Works Research Institute*.

[128] Rahman, M. S. (2013). Climate change, disaster and gender vulnerability: A study on two divisions of Bangladesh. *American Journal of Human Ecology*, 2(2), 72-82.

[129] Rahman, M.T., (2017). Role of Agriculture in Bangladesh Economy: Uncovering the Problems and Challenges. International Journal of Business and Management Invention ISSN (Online): 2319 – 8028, ISSN (Print): 2319

[130] Rahman, M. S., and Rahman, M. A. (2019). Impacts of Climate Change on Crop Production in Bangladesh: A Review. Journal of *Agriculture and Crops*, 5(51), 6–14. https://doi.org/10.32861/jac.51.6.14

[131] Schreinemachers, P., Patalagsa, M.A., Islam, M.R. et al. (2015). The effect of women's home gardens on vegetable production and consumption in Bangladesh, *Food Sec*, 7: 97-107.

[132] Siddique, K. (2013). A case study of gender responsive budgeting in Bangladesh. The Commonwealth, 11, 19; https://consultations.worldbank.org/sites/default/files/consultation-template/update-world-bank-group-gender-strategy-consultations/submissions/grb_papers_bangladesh_updf_final.pdf

[133] Sikder, R., and Xiaoying, J. (2014). Climate Change Impact and Agriculture of Bangladesh. J*ournal of Environment and Earth Science, 4*(1), 35–40. http://www.iiste.org/Journals/index.php/JEES/article/view/10247

[134] Solidaridad. (2017). Solidaridad works to close gender gap among farmers in Bangladesh – Solidaridad Network. https://www.solidaridadnetwork.org/newºs/solidaridad-works-to-close-gender-gap-among-farmers-in-bangladesh/

[135] Solotaroff, J. L. et al. (2019) *Voices to Choices: Bangladesh's Journey in Women's Economic Empowerment, Voices to Choices: Bangladesh's Journey in Women's Economic Empowerment*.

[136] SREDA. (2015). Energy Efficiency and Conservation Master Plan up to 2030 Sustainable and Renewable Energy Development Authority (SREDA) and Power Division Ministry of Power, Energy and Mineral Resources Government of the People's Republic of Bangladesh.

[137] SREDA (2020). National Solar Energy Action Plan, 2021 – 2041. Sustainable and Renewable Energy Development Authority. Ministry of Power, Energy and Mineral Resources, GoB.

[138] The Alluvion and Diluvion Regulation, (1825) (Bengal Regulation XI of 1825), Long Title, retrieved 13.07.2021 from http://bdlaws.minlaw.gov.bd/act-1319.html

[139] The Alluvion (Amendment) Act, (1868) (Act No. IV of 1868), sections 2 and 3, retrieved from http://bdlaws.minlaw.gov.bd/act-19.html

[140] The Balumohal o Mati Babjsthapona Ain, (2010) or the Sand Quarry and Earth Management Act, 2010 (Act No. 62 of 2010), retrieved 13.07.2021 from http://bdlaws.minlaw.gov.bd/act-1066.html

[141] The Bangladesh Atomic Energy Control Act, (2012) (Act No.19 of 2012), retrieved on 25.09.2021 from http://bdlaws.minlaw.gov.bd/act-1096.html

[142] The Bangladesh Biodiversity Act, (2017) (Act No. 2 of 2017) retrieved 13.07.2021 from http://bdlaws.minlaw.gov.bd/act-1203.html

[143] The Bangladesh Energy Regulatory Commission Act, (2003) (Act No. 13 of 2003), retrieved on 25.09.2021 from http://bdlaws.minlaw.gov.bd/act-902.html

[144] The Bangladesh Labour Act, (2006) (Act No. 42 of 2006), retrieved on 06.07.2021 from: http://bdlaws.minlaw.gov.bd/act-952.html

[145] The Bangladesh National Water Act, (2013) (Act No. 14 of 2013), retrieved on 13.07.2021 from http://bdlaws.minlaw.gov.bd/act-1114.html

[146] The Bangladesh Petroleum Corporation Act, (2016) (Act No. 8 of 2016), retrieved on 25.09.2021 from http://bdlaws.minlaw.gov.bd/act-1180.html

[147] The Bangladesh Water Rules, (2018), retrieved on 13.07.2021 from https://mowr.gov.bd/sites/default/files/files/mowr.portal.gov.bd/files/e1c2e694_74a1_45e1_8b02_33f174a87210/Water%20Bidhimala%202018.pdf

[148] The Brick Manufacturing and Brick Kilns Establishment (Control) Act, (2013) (Act No. 59 of 2013) retrieved 13.07.2021 from http://bdlaws.minlaw.gov.bd/act-1140.html

[149] The Charter of the United Nations, (adopted 26 June, 1945), 1 UNTS XVI, retrieved on 09.07.2021 from https://treaties.un.org/doc/Publication/CTC/uncharter-all-lang.pdf

[150] The Child Marriage Restraint Act, (2017) (Act No. 6 of 2017), retrieved on 06.07.2021 from: http://bdlaws.minlaw.gov.bd/act-1207.html

[151] The Child Marriage Restraint Rules, (2018), retrieved on 06.07.2021 from: https://mowca.gov.bd/sites/default/files/files/mowca.portal.gov.bd/law/e8ec8f51_4a0e_48e8_96c1_b49df73b40b0/Child%20Marriage%20Restraint%20Act,%202018.pdf

[152] The Clean Air Act, (2019) (Draft), retrieved on 25.09.2021 from https://moef.portal.gov.bd/sites/default/files/files/moef.portal.gov.bd/news/eb41e86a_0179_4e02_8340_729424438e52/scan0944%20%281%29.pdf

[153] The Climate Change Trust Fund Act, (2010) (Act No. 57 of 2010), retrieved 13.07.2021 from http://bdlaws.minlaw.gov.bd/act-1062.html

[154] The Constitution of the People's Republic of Bangladesh, (1972) (as amended up to date), retrieved on 06.07.2021 from: http://bdlaws.minlaw.gov.bd/act-367.html

[155] The Domestic Violence Prevention and Protection Rules, (2013), retrieved on 06.07.2021 from: https://mowca.gov.bd/sites/default/files/files/mowca.portal.gov.bd/policies/64238d39_0ecd_4a56_b00c_b834cc54f88d/National-Women%20Development%20Policy-2011English.pdf

[156] The Disaster Management Act, 2012 (Act No. 34 of 2012), retrieved 13.07.2012 from http://bdlaws.minlaw.gov.bd/act-1103.html

[157] The Disaster Management (Committee Establishment and Functions) Rules, (2015), retrieved 16.07.2021 from https://modmr.gov.bd/site/view/law/%E0%A6%86%E0%A6%87%E0%A6%A8-%E0%A6%93-%E0%A6%AC%E0%A6%BF%E0%A6%A7%E0%A6%BF

[158] The Domestic Violence (Prevention and Protection) Act, (2010) (Act No. 58 of 2010), retrieved on 06.07.2021 from: http://bdlaws.minlaw.gov.bd/act-1063.html

[159] The Environment Conservation Act, (1995) (Act No. 1 of 1995), retrieved 13.07.2021 from http://bdlaws.minlaw.gov.bd/act-791.html

[160] The Environment Conservation Rules, (1997), retrieved 13.07.2021 from https://www.elaw.org/system/files/Bangladesh+--+Environmental+Conservation+Rules,+1997.pdf

[161] The Environment Court Act, (2000) Act No. 11 of 2000. (2000). http://extwprlegs1.fao.org/docs/pdf/bgd42277.pdf

[162] The Environment Court Act, 2010 (Act No. 56 of 2010), retrieved 13.07.2021 from http://bdlaws.minlaw.gov.bd/act-1061.html

[163] The Economic Zone Act, (2010) (Act No. 42 of 2010), retrieved on 25.09.2021 from http://bdlaws.minlaw.gov.bd/act-1053.html

[164] The Forest Act, (1927) (Act No. XVI of 1927), retrieved 13.07.2021 from http://bdlaws.minlaw.gov.bd/act-144.html

[165] The Family Courts Ordinance, (1985) (Ordinance No. XVIII of 1985), retrieved on 06.07.2021 from: http://bdlaws.minlaw.gov.bd/act-682/section-17893.html

[166] The Irrigation Act, (1876) (Act No. II of 1876), Long Title and Preamble, retrieved 13.07.2021 from http://bdlaws.minlaw.gov.bd/act-35.html

[167] The Krishi Kaje Vugorvostho Pani Byabosthapona Ain, (2018) or the Agricultural Purpose

[168] The Local Government (City Corporation) Act, (2009) (Act No. 60 of 2009), retrieved on 10.07.2021

[169] The Local Government (Pouroshova) Act, (2009) (Act No. 58 of 2009), retrieved on 10.07.2021 from http://bdlaws.minlaw.gov.bd/act-1024.html

[170] The Local Government (Union Parishad) Act, (2009) (Act No. 61 of 2009), retrieved on 10.07.2021 from http://bdlaws.minlaw.gov.bd/act-1027.html

[171] The Local Government (City Corporation) Act, (2009_. (n.d.). Retrieved October 21, 2021, from https://www.ccc.org.bd/sites/default/files/publications/Local_Government%28City_Corporation%29_Act%2C2009_0.pdf

[172] The Marine Fisheries Act, (2020) (Act No. 19 of 2020), retrieved 13.07.2021 from http://bdlaws.minlaw.gov.bd/act-1347.html

[173] The Motor Vehicles Ordinance, (1983) (Ordinance No. LV of 1983), Section 150, retrieved 13.07.2021 from http://bdlaws.minlaw.gov.bd/act-654/section-22543.html

[174] The Nari-O-ShishuNirjatonDomon Ain, (2000) or The Violence against Women and Children Restraining Act, 2000 (Act No. 8 of 2000) (with Amendments 2003 and 2020), retrieved on 06.07.2021 from: http://bdlaws.minlaw.gov.bd/act-835.html

[175] The National Parliament (Reserved Women Seat) Election Act, (2004) (Act No. 30 of 2004), retrieved on 10.07.2021 from http://bdlaws.minlaw.gov.bd/act-922.html

[176] The National River Protection Act, (2013) (Act No. 29 of 2013), retrieved 13.07.2021 from http://bdlaws.minlaw.gov.bd/act-1122.html

[177] *The National Water Management Plan*. (2001). http://old.warpo.gov.bd/nwmp/nwmp_vol2.pdf

[178] The Natural Gas Allocation Rules, 2019, published by –Ministry of Power, Energy and Mineral, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh;

[179] The Ozon Layer Depleting Substance (Control) Rules, (2004), published by –Ministry of Environment and Forest, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh

[180] The Pesticides Act, (2018) (Act No. 24 of 2018), retrieved 16.07.2021 from http://bdlaws.minlaw.gov.bd/act-1243.html

[181] The Protection and Conservation of Fish Act, (1950) (East Bengal Act) (Act No. XVIII of 1950), retrieved 13.07.2021 from http://bdlaws.minlaw.gov.bd/act-233/section-5924.html

[182] The Seeds Act, (2018) (Act No. 6 of 2018), retrieved 16.07.2021 from http://bdlaws.minlaw.gov.bd/act-1227.html

[183] The Sound Pollution (Control) Rules, (2006), published by –Ministry of Environment and Forest, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh.

[184] The Sustainable and Renewable Energy Development Authority Act, (2012) (Act No. 48 of 2012), retrieved on 25.09.2021 from http://bdlaws.minlaw.gov.bd/act-1107.html

[185] The Territorial Waters and Maritime Zones Act, (1974) (Act No. XXVI of 1974), retrieved 13.07.2021 from http://bdlaws.minlaw.gov.bd/act-467.html

[186] The Town Improvement Act, 1953 (East Bengal Act) (Act No. XIII of 1953), Long Title, Preamble and Section 1, retrieved 13.07.2021 from http://bdlaws.minlaw.gov.bd/act-257/section-10102.html

[187] The Universal Declaration of Human Rights. (1948). https://www.un.org/en/udhrbook/pdf/udhr_booklet_en_web.pdf

[188] The Weather Act, (2018) (Act No. 28 of 2018), retrieved 13.07.2021 from http://bdlaws.minlaw.gov.bd/act-1247.html

[189] The Wildlife (Conservation and Security) Act, (2012) (Act No. 30 of 2012), retrieved on 13.07.2021 from http://bdlaws.minlaw.gov.bd/act-1102.html

[190] Thomas, T.S.; Mainuddin, K.; Chiang, C.; Rahman, A.; Haque, A.; Islam, N.; Quasem, S.; Sun, Y. (2013): Agriculture and Adaptation in Bangladesh: Current and Projected Impacts of Climate Change. IFPRI Discussion Paper 01281. http://www.ifpri.org/sites/default/files/publications/ifpridp01281.pdf

[191] Underground Water Management Act, 2018 (Act No. 5 of 2018) retrieved 13.07.2021 from http://bdlaws.minlaw.gov.bd/act-1226.html

[192] UNCTAD. (2010). Renewable Energy Technologies for Rural Development. https://unctad.org/system/files/official-document/dtlstict20094_en.pdf

[193] UNDP. (2013). Gender and energy. *United Nations Development Programme*, *4*, 1–6. http://www.undp.org/content/dam/undp/library/gender/Gender and Environment/TM4_AsiaPacific_Capacity.pdf

[194] UNDP. (2016). Gender and sustainable energy Sustainable energy is a human development enabler The role of women in sustainable energy. 1–8.

[195] UNDP (2020). The next frontier-Human development and the Anthropocene. Human Development Report 2020. New York.

[196] UNDP. (2021), Bangladesh leads the way in the NAP process, https://www.adaptation-undp.org/resources/bangladesh-leads-way-nap-process

[197] United Nations. (2015). THE 17 GOALS | Sustainable Development. https://sdgs.un.org/goals

[198] UNEP. (1972). Stockholm Declaration on the Human Environment. https://wedocs.unep.org/bitstream/handle/20.500.11822/29567/ELGP1StockD.pdf?sequence=1andisAllowed=y

[199] UNFCCC. (2011). Climate change science - the status of climate change science today. In United Nations Framework Convention on Climate Change (Issue February 2011). https://unfccc.int/files/press/backgrounders/application/pdf/press_factsh_science.pdf

[200] UN General Assembly, Vienna Declaration and Programme of Action, 12 July 1993, A/CONF.157/23, retrieved on 10.07.2021 from https://www.refworld.org/docid/3ae6b39ec.html

[201] UNISDR. (2007). *Hyogo Frameowork for Action 2005-2015*. https://www.preventionweb.net/files/1037_hyogoframeworkforactionenglish.pdf

[202] United Nations. (1992). *Rio Declaration on Environment and Development*. https://www.cbd.int/doc/ref/rio-declaration.shtml

[203] United Nations. (2021). *United Nations Sustainable Development Cooperation Framework (UNSCDF) for Bangladesh (2022-2026)*.

[204] United Nations Convention on the Law of the Sea, (1982), (adopted on 10 December 1982, entered into force on 16 November 1994) 1833 UNTS 3, retrieved on 12.07.2021 from https://treaties.un.org/doc/Treaties/1994/11/19941116%2005-26%20AM/Ch_XXI_06p.pdf

[205] United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, (1994) (adopted on 14 October 1994 entered into force on 26 December 1996) 1954 UNTS 3, retrieved on 07.09.2021 from https://treaties.un.org/doc/Treaties/1996/12/19961226%2001-46%20PM/Ch_XXVII_10p.pdf

[206] United Nations Framework Convention on Climate Change, (1992) (adopted on 9 May 1992, entered into force on 21 March 1994) 1771 UNTS 107, retrieved on 12.07.2021 from https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf

[207] United Nations, Beijing Declaration and Platform of Action, adopted at the Fourth World Conference on Women, 27 October (1995), retrieved on 10.07.2021 from https://www.un.org/en/events/pastevents/pdfs/Beijing_Declaration_and_Platform_for_Action.pdf

[208] Universal Declaration of Human Rights, (1948) (UDHR), (adopted 10 December 1948), UNGA, A/RES/217(III), retrieved on 09.07.2021 from https://www.un.org/en/about-us/universal-declaration-of-human-rights

[209] UNDP (undated), Human Development Reports, Available from http://hdr.undp.org/en/countries/profiles/BGD accessed on December 2021

[210] UNTC, Convention (No. 100) concerning equal remuneration for men and women workers for work of equal value, (1951), retrieved on 09.07.2021 from https://treaties.un.org/pages/showDetails.aspx?objid=080000028014f5a2

[211] UNTC, Declarations of Acceptance of the Obligations contained in the Charter of the United Nations – Admission of States to Membership of the United Nations in accordance with Article 4 of the Charter: Decision of the General Assembly Registration and Publication of Declarations, Chapter I.2, retrieved on 09.07.2021 from https://treaties.un.org/pages/ViewDetails.aspx?src=TREATYandmtdsg_no=I-2andchapter=1andclang=_en

[212] UNTC, Environment: Convention on Biological Diversity, Chapter XXVII.8, retrieved on 12.07.2021 from https://treaties.un.org/pages/ViewDetails.aspx?src=TREATYandmtdsg_no=XXVII-8andchapter=27

[213] UNTC, Environment: Kyoto Protocol to the United Nations Framework Convention on Climate Change, Chapter XXVI.7.a, retrieved on 12.07.2021 from https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATYandmtdsg_no=XXVII-7-aandchapter=27andclang=_en

[214] UNTC, Environment: Paris Agreement, Chapter XXVII.7.d, retrieved on 12.07.2021 from https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATYandmtdsg_no=XXVII-7-dandchapter=27andclang=_en

[215] UNTC, Environment: United Nations Framework Convention on Climate Change, Chapter XXVII.7, retrieved on 12.07.2021 from https://treaties.un.org/pages/ViewDetailsIII.aspx?src=TREATYandmtdsg_no=XXVII-7andchapter=27andTemp=mtdsg3andclang=_en

[216] UNTC, Human Rights: Convention on the Elimination of All forms of Discrimination Against Women, Chapter IV.8, retrieved on 10.07.2021 from https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATYandmtdsg_no=IV-8andchapter=4

[217] UNTC, Human Rights: International Covenant on Civil and Political Rights, 1966, Chapter IV.4, retrieved on 09.07.2021 from https://treaties.un.org/pages/ViewDetails.aspx?src=TREATYandmtdsg_no=IV-4andchapter=4andclang=_en

[218] UNTC, Human Rights: International Covenant on Economic, Social and Cultural Rights, 1966, Chapter IV.3, retrieved on 09.07.2021 from https://treaties.un.org/pages/ViewDetails.aspx?src=TREATYandmtdsg_no=IV-3andchapter=4andclang=_en

[219] UNTC, Human Rights: Optional Protocol to the Convention on the Elimination of All forms of Discrimination Against Women, Chapter IV.8.b, retrieved on 10.07.2021 from https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATYandmtdsg_no=IV-8-bandchapter=4

[220] UNTC, Law of the Sea: United Nations Convention on the Law of the Sea, Chapter XXI.6, retrieved on 12.07.2021 from https://treaties.un.org/Pages/ViewDetailsIII.aspx?src=TREATYandmtdsg_no=XXI-6andchapter=21andTemp=mtdsg3andclang=_en

[221] UNTC, Status of women: Convention on the Political Rights of Women, Chapter XVI.1, retrieved on 09.07.2021 from https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATYandmtdsg_no=XVI-1andchapter=16

[222] UNTC, United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, Chapter XXVII.10, retrieved on 07.09.2021 from https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATYandmtdsg_no=XXVII-10andchapter=27andclang=_en

[223] USDA. (2021). Report Name : Grain and Feed Update; Country: Bangladesh. In USDA, Report Number: BG2021-0004 (Vol. 21, Issue December 2020).

[224] Wallace, B.J., Ahsan, R.M., Hussain, S.H. and Ahsan, E. (1987). The Invisible Resource: Women and Work in Rural Bangladesh, Boulder, Westview Press

[225] WHO. (2008). *Protecting Health from Climate Change*. https://www.who.int/world-health-day/toolkit/report_web.pdf

[226] World Health Organization and United Nations Children's Fund. (2017). *Progress on Drinking Water, Sanitation and Hygiene Update and SDG Baselines 2017 Launch version July 12 Main report*. http://apps.who.int/bookorders.

[227] Yu, W., Alam, M., Hassan, A., Khan, A. S., Ruane, A., Rosenzweig, C., Major, D., and Thurlow, J. (2010). Climate Change Risks and Food Security in Bangladesh. In Climate Change Risks and Food Security in Bangladesh. https://doi.org/10.4324/9781849776387

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