

# State of Gender Equality and Climate Change in South Asia and the Hindu Kush Himalaya

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International Centre for Integrated Mountain Development (ICIMOD)

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# Foreword

UNEP and UN Women

South Asia and the Hindu Kush Himalaya ranks among the poorest, most food insecure and water-stressed in the world. In this context, climate change represents a major threat, exacerbating poverty and worsening socioeconomic and gender inequalities.

While significant strides have been made in reducing the gender gap in the region, women continue to be underrepresented in climate decision-making processes. Climate policies remain unable to adequately take their specific needs and vulnerabilities into account. In South Asia and the Hindu Kush Himalaya, women are more likely than men to experience poverty, which, coupled with women's unequal access to education and healthcare, contributes to their marginal positions.

Women and other marginalised groups' full, equal, and meaningful participation and representation in decision-making processes is critical to meeting the collective goal of limiting global warming to 1.5 °C and achieving sustainable development. The UN Environment Programme (UNEP) and United Nations Entity for Gender Equality and the Empowerment of Women (UN Women) commend the efforts of the International Centre for Integrated Mountain Development (ICIMOD) to put gender equality on the sub-regional agenda.

We are pleased to present this State of Gender Equality and Climate Change Assessment Report, which provides an up-to-date sub-regional level analysis and evidence of the gendered impacts in the key adaptation and mitigation sectors of agriculture, water, and renewable energy. The report draws from the contributions of governments and civil society across ten countries to bring practices and lessons to the forefront to redesign strategies and facilitate integrated policy solutions.

It is our vision that this report will increase regional and national knowledge and dialogue, while providing the key evidence needed to fully implement the commitments made to reduce gendered vulnerabilities to climate change. Thereby contributing to delivering on the Paris Agreement and creating a pathway towards a just, resilient, and sustainable future for all.



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# Foreword

ICIMOD

South Asia and the Hindu Kush Himalaya are among the regions that are most vulnerable to the impacts of climate change. Adverse effects attributable to the changing climate are fast accelerating here – about 40 per cent of total global climate disasters occur in these regions and their geologically fragile mountains and coastal floodplains are vulnerable to erosion, landslides, floods, droughts, and saltwater intrusion.

The present assessment report investigates gender and social inequalities in the key sectors of agriculture, water and energy, and climate action in South Asia and the Hindu Kush Himalaya. Climate change is widening the gender gap and existing social inequalities that are due, in large part, to women's inadequate access to and control over productive resources, their limited mobility, and their traditionally restricted voice in decision making. Consistent with findings of other studies, the present report finds that women and girls are more vulnerable to climate change and its impacts. Importantly, it takes note of the adaptation challenges that vary across different socioeconomic groups in the South Asian and HKH settings. Through this lens, it suggests viable steps to reduce gender and social inequalities in the face of climate change.

As most countries in South Asia and the HKH transition to low-emission development pathways, efforts are in the works to integrate mitigation and adaptation solutions across sectors – including the water, energy, and agriculture sectors – to limit global warming to 1.5 °C and reach net zero emissions by 2050. The governments in these regions are committed to promoting gender equality and social inclusion in climate change actions across sectors. To this end, multiple policies have been formulated and international commitments such as the Sustainable Development Goals and Nationally Determined Contributions have been ratified.

A major constraint, however, as highlighted in this report, lies in the implementation of supporting policies and laws. As an intergovernmental regional knowledge centre, ICIMOD works with its member countries and partners to address gender and social inequalities in climate action and implementation. We do so through capacity building and sensitising communities and institutions on gender equality and social inclusion – we establish gender resource groups, support women in entrepreneurial and leadership roles, and work towards inclusive development and growth. With the vision of 'a greener, more inclusive, and climate resilient Hindu Kush Himalaya' in our Strategy 2030, ICIMOD will continue to have gender equality and social inclusion as a core area of focus. We see this report as a contribution to the vast developing body of knowledge on gender equality and climate change – and thus enable further progress and action – across South Asia and HKH



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# Acknowledgements

The authors would like to thank the UN Environment Programme (UNEP) for inviting us to undertake this study as part of “Empower Women for Climate-Resilient Societies”, a project jointly implemented by UNEP and UN Women, with funding from the Swedish International Development Cooperation Agency (Sida). We are thankful for the support and cooperation from UN Women, UNEP, and ICIMOD. We also thank all the respondents and stakeholders for their inputs and suggestions.

The study was partially supported by the core funds of ICIMOD contributed by the governments of Afghanistan, Austria, Bangladesh, Bhutan, China, India, Myanmar, Nepal, Norway, Pakistan, Sweden, and Switzerland.

The authors greatly benefitted from discussions with their colleagues at ICIMOD, Kamala Gurung (Gender and Natural Resource Management Specialist) and Amina Maharjan (Senior Livelihoods and Migration Specialist). The authors are also grateful to Mamata Shrestha for her support in organising the stakeholder consultation and the launch event for this report.

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# Acronyms and abbreviations

|                 |  |
|-----------------|--|
| <b>ADS</b>      | Agriculture Development Strategy   |
| <b>AFSP</b>     | Agriculture and Food Security Policy   |
| <b>ANPDF</b>    | Afghanistan National Peace and Development Framework                           |
| <b>ANREP</b>    | Afghanistan National Renewable Energy Policy                                   |
| <b>BBIN</b>     | Bangladesh, Bhutan, India, Nepal   |
| <b>BCCSAP</b>   | Bangladesh Climate Change Strategy and Action Plan                             |
| <b>BCFF</b>     | Bangladesh Climate Fiscal Framework  |
| <b>BIMSTEC</b>  | Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation |
| <b>CBET</b>     | Cross Border Energy Trade  |
| <b>CEDAW</b>    | Convention on the Elimination of all Forms of Discrimination against Women     |
| <b>CMIP</b>     | Coupled Model Intercomparison Project  |
| <b>CMIP6</b>    | Coupled Model Intercomparison Project Phase 6                                  |
| <b>COVID-19</b> | Corona Virus Disease of 2019   |
| <b>CSOs</b>     | Civil Society Organisations  |
| <b>DFAT</b>     | Department of Foreign Affairs and Trade  |
| <b>DPSIR</b>    | Driver Pressure State Impact Response  |
| <b>DRM</b>      | Disaster Risk Management   |
| <b>EV</b>       | Electric Vehicle   |
| <b>FRUs</b>     | Family Response Units  |
| <b>GALS</b>     | Gender Action and Learning System  |
| <b>GESI</b>     | Gender Equality and Social Inclusion   |
| <b>GHG</b>      | Greenhouse Gases   |
| <b>GLOF</b>     | Glacial Lake Outburst Flood  |
| <b>GMS</b>      | Gender Management System   |
| <b>GPAG</b>     | Gender Policy Advocacy Group   |
| <b>GRBC</b>     | Gender Responsive Budget Committee   |
| <b>HKH</b>      | Hindu Kush Himalaya  |
| <b>ICIMOD</b>   | International Centre for Integrated Mountain Development                       |
| <b>IEP</b>      | Integrated Energy Policy   |
| <b>ILO</b>      | International Labour Organization  |
| <b>INGO</b>     | International Non-governmental Organisation                                    |
| <b>IORA</b>     | Indian Ocean Rim Association   |
| <b>IPCC</b>     | Intergovernmental Panel on Climate Change                                      |
| <b>IUCN</b>     | International Union for Conservation of Nature                                 |
| <b>LAPAs</b>    | Local Adaptation Plans for Action  |

|            |   |
|------------|---|
| LSGA       | Local Self-Governance Act                                       |
| MGC        | Mekong-Ganga Cooperation  |
| MBI        | Myanmar-Bangladesh-India  |
| MCCP       | Myanmar Climate Change Policy                                   |
| MCCMP      | Myanmar Climate Change Master Plan                              |
| MCCS       | Myanmar Climate Change Strategy                                 |
| MCCSAP     | Myanmar Climate Change Strategy and Action Plan                 |
| MOF        | Ministry of Finance   |
| NAPA       | National Adaptation Programme of Action                         |
| NAPWA      | National Action Plan for the Women of Afghanistan               |
| NDCs       | Nationally Determined Contributions                             |
| NEAP       | National Environmental Action Plan                              |
| NGOs       | Non-governmental Organisations                                  |
| NPC        | National Planning Commission                                    |
| OHCHR      | Office of the United Nations High Commissioner for Human Rights |
| PM-KUSUM   | Prime Minister's Farmer Energy Security and Upliftment Campaign |
| PoVAW      | Prevention of and Protection from Violence Against Women        |
| RCI        | Regional Cooperation and Integration                            |
| RE         | Renewable Energy  |
| RGGVY      | Rajiv Gandhi Gramin Vidyutikaran Yojana                         |
| RMS        | Resilient Mountain Solutions                                    |
| RREP       | Rural Renewable Energy Policy                                   |
| RTI        | Reproductive Tract Infections                                   |
| SAARC      | South Asian Association for Regional Cooperation                |
| SAARC-GPAG | SAARC Gender Policy Advocacy Group                              |
| SACEP      | South Asia Co-operative Environment Programme                   |
| SAGIB      | SAARC Gender Information Base                                   |
| SANP       | Strategic National Action Plan for Disaster Risk Reduction      |
| SARI/E     | South Asia Regional Initiative for Energy                       |
| SASEC      | South Asia Sub-regional Economic Cooperation                    |
| SDGs       | Sustainable Development Goals                                   |
| SEWA       | Self-Employed Women's Association                               |
| SHDP       | Sustainable Hydropower Development Policy                       |
| SMEs       | Small and Medium sized enterprises                              |
| SLCPs      | Short Lived Climate Pollutants                                  |
| TCARD      | Technical Committee on Agriculture and Rural Development        |
| TES        | Total Energy Supply   |

|          |   |
|----------|---|
| TPES     | Total Primary Energy Supply   |
| UNDP     | United Nations Development Programme                                    |
| UNEP     | United Nations Environment Programme                                    |
| UNESCAP  | United Nations, Economic and Social Commission for Asia and the Pacific |
| UNFCCC   | United Nations Framework Convention on Climate Change                   |
| UNWC     | United Nations Watercourse Convention                                   |
| UN Women | United Nations Entity for Gender Equality and the Empowerment of Women  |
| USAID    | United States Agency for International Development                      |
| UTI      | Urinary Tract Infections  |
| WWA      | Water Apportionment Accord  |
| WAPDA    | Water and Power Development Authority Act                               |
| WASH     | Water, Sanitation and Hygiene   |
| WCRPA    | Women and Children Repression Prevention Act                            |
| WGWEE    | Working Group on Women's Economic Empowerment                           |
| WRC      | Water Resources Council   |
| WRS      | Water Resources Secretariat   |
| WUAs     | Water Users Associations  |

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## Executive summary

Climate change is a global emergency that reaches beyond national borders and impacts both human and natural systems. Rising temperatures, changes in precipitation patterns, and an increased incidence of hazards have clear and severe impacts on the poorest and most marginalised communities, further compounding social and gender inequalities. South Asia and the Hindu Kush Himalaya (HKH) are among the regions that are most vulnerable to the impacts of climate change. Its adverse impacts are worsening and becoming more evident here. About 40 per cent of all global climate-related disasters occur in South Asia and the HKH, which have geologically fragile areas such as mountains and coastal floodplains – vulnerable to erosion, landslides, floods, drought, and saline intrusion. The HKH, in particular, faces high rates of glacier melt, erratic precipitation patterns, and increased incidences of floods and dry spells.

The impacts of climate change are leading to severe consequences such as increased food insecurity, poverty, and social and gender inequalities. Through a cyclical relation, these consequences are also the root causes of climate vulnerability. Reducing climate risks demands that we address these root causes. An understanding of gender equality and social inclusion (GESI), among other issues, is central to understanding people's capacities to cope with and adapt to climate change induced impacts, including recognising the prevalence of patriarchal systems in most South Asian and HKH countries.

The main goal of this assessment is to provide evidence to support the development and implementation of gender-responsive climate policies and programmes at the country level as well as improve regional cooperation towards this end in South Asia and the HKH. In this regard, the report assesses the state of gender equality and climate change by analysing three climate-affected sectors – agriculture, water, and energy (with a focus on renewable energy). The assessment covers all 10 countries which fall in South Asia and the HKH – Afghanistan, Bangladesh, Bhutan, China, India, Maldives, Myanmar, Nepal, Pakistan, and Sri Lanka. In addition, regional frameworks and mechanisms have also been considered, particularly for assessing the challenges to and potential for regional cooperation around GESI-centric climate action in selected sectors. These sectors were chosen based on their importance to livelihoods and their high susceptibility to climate change impacts. Information for the assessment was gathered from published literature, national policy documents, and regional frameworks and mechanisms. The assessment also benefitted from inputs gathered through a virtual survey of experts and through a stakeholder consultation workshop.

The report has found that there are gendered differences in the severity of climate change impacts and the ability to adapt. Women and girls are more vulnerable to climate change and its impacts, and their adaptive capacities are limited. Climate change is further widening the gender gap and worsening existing social inequalities due to women's inadequate access to and control over productive resources, and their limited mobility and voice in decision making. To address this, there is a need to mainstream gender into decision making at all levels – from policy to practice. This would open up avenues for women to take charge and find the autonomy needed to work towards solutions that address the issues inherent in current socio-ecological systems.

## Existing policies on GESI, climate change and the agriculture, energy, and water sectors

The policy documents reviewed for this report collectively reveal the commitment of South Asian and the HKH countries to promoting gender equality through their constitutional mandates and their ratification of international instruments. Additionally, the countries have several laws and policies in place that promote gender equality and social inclusion. However, the implementation of these policies and laws present major constraints. This is despite the fact that these countries all have climate-related laws, policies, and institutional frameworks in place to ensure implementation of their climate action targets, their Nationally Determined Contributions (NDCs), and the Sustainable Development Goals (SDGs) – SDG 13 on Climate Action, in particular. Notably, most countries in South Asia and the HKH are transitioning to low-emission development pathways that integrate mitigation and adaptation solutions across sectors – including in water, energy, and agriculture – and are committed to the global 1.5 °C target and to achieving net zero emissions by 2050. To achieve these targets, all nations have either developed or are in the process of developing country-specific National Adaptation Programmes of Action (NAPAs).

However, when it comes to linking and integrating gender concerns into climate policies and commitments, analysis has revealed that the uptake has been slow in the region. Although climate change is a central agenda for most governments in their planning and policies, the focus on gender has not been given due attention and has remained unclear so far (Patel et al 2019, p. 147). Consequently, most national policy documents examined in this report are only accommodative to gender (and social inclusion) concerns. This means that governments, while aware of gendered differences and acknowledging of them, are yet to take the kind of proactive action needed to change the status quo. Most policy documents lack explicit provisions for addressing the specific vulnerabilities of women across sectors and the inequalities that result from prevailing (and unequal) norms, roles, and relations. While there are good examples related to GESI policy and implementation from South Asia and the HKH, they are few and far between.

On the regional front, most countries in South Asia and the HKH have bilateral agreements and treaties, which are important for tackling climate change and disaster risks. Two major regional platforms for potential collaboration in the arena of climate change are the South Asian Association for Regional Cooperation (SAARC) and the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC). On environmental management, SAARC member countries have committed to working together against climate change, raising a collective voice at international fora, and intensifying regional cooperation to strengthen their disaster management capabilities. However, implementation has proven to be a major bottleneck – countries have diverse approaches to environmental matters, each one anchored in country-specific concerns; there is limited scope to address transboundary and regional issues. With BIMSTEC, the establishment of the BIMSTEC Centre for Weather and Climate Change is a notable initiative, achieved through a memorandum of association signed by the governments of Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka, and Thailand. For the HKH countries, a major step towards stronger regional cooperation has been a joint declaration signed in 2020 in support of the HKH Call to Action – built on the HKH Assessment Report – for a prosperous, poverty-free HKH that is food, energy, and water secure as well as climate and disaster resilient communities in the mountains, downstream regions, and beyond.

## Major findings at the sectoral level

The key drivers and pressures in the agriculture, energy, and water sectors in South Asia and the HKH are population growth, rapid urbanisation, unsustainable agricultural and industrial practices, weak management systems, environmental pollution, and climate change. These are resulting in the degradation of natural resources, water scarcity, and food insecurity.

## Agriculture sector

- Agricultural emissions in the region are on an upward trend. This is mainly due to use of synthetic fertilisers, burning of crop residue, and land degradation, which need to be addressed through sustainable agricultural practices with an ecological and socioeconomic focus, with co-benefits for climate change adaptation.
- Cereal yield in the region is projected to decline in the coming decades (Krishnamurthy et al. 2015; Shaw et al. 2022; Yan and Alvi 2021).
- Climate change has led to an increase in the outmigration of economically active men in search of better livelihood options and employment. Women, children, and the elderly are left behind, increasing the feminisation of agricultural labour and adversely affecting agricultural production, particularly in the mountain areas of HKH countries like China, India, Nepal, and Pakistan (Hussain et al. 2016; 2018; Rasul et al. 2014; Shi et al. 2018; Xu et al. 2019).
- Regional cooperation under SAARC has focused on agriculture research, extension, and their linkages with farmers, and on exchange of farm technology. However, agreements and declarations relating to food security and agriculture are either gender neutral or gender blind.
- In the border areas, women are engaged in the informal trade of agricultural products and inputs (CUTS International 2018a, 2021). Although the volume of trade is significant, its informal nature means that there are no regional or national policy measures to safeguard these women traders.
- Given its importance, all the countries of the HKH and South Asia have numerous policy documents focusing on agriculture. While these national agricultural policies recognise the vital role of women in the sector, most of them are silent on the persistent pay gap between women and men, and on the issue of women's lack of or limited access to and control over the resources necessary for agricultural activities.

## Energy sector

- The energy sector's emissions are around 82 per cent of the total GHG emissions in South Asia and the HKH (ClimateWatch 2019). This trend is expected to rise due to rapidly increasing energy demand. Since 2000, demand has risen by 50 per cent, and is expected to increase further with population growth, industrialisation, and urbanisation (World Bank 2021; ENERGIA 2019).
- The share of renewable energy in the region's total energy supply is only 12 per cent. However, a gradual transition to renewable energy is taking place, particularly in remote and mountainous areas, where it is extremely difficult to set up grid lines for electricity. Governments are making attempts through national policies to increase the use of renewable energy and alternative fuels such as cooking gas and low-cost solar lighting systems, particularly in rural areas. However, a clear regional mechanism on renewable energy has not been adopted by countries.
- Energy poverty is intrinsically linked to economic poverty and has distinct gender characteristics that disproportionately affect women and girls. Unavailability and lack of access to clean and sustainable energy affects women and men differently due to their pre-existing responsibilities, vulnerabilities, and positions within society (UNEP 2013; ENERGIA 2019; IDS 2020; UNEP 2020a).
- Renewable energy in this region is becoming increasingly cost effective given the high crude oil prices, increasing demand for energy, and innovation in renewable technologies, resulting in a consistent decline in the cost of renewable energy.



- There is a big disparity in energy access among urban, rural, and mountainous settings in South Asia and the HKH (ENERGIA 2015; Patel et al. 2019; Ezeilo 2020).
- At the regional level, SAARC and BIMSTEC have a focus on energy. The SAARC Energy Centre (SEC) was set up to promote collaboration and coordination among South Asian countries and agreements have been signed, and under BIMSTEC, a memorandum of understanding for the establishment of the BIMSTEC Grid Interconnection was signed in 2018. However, social and gender issues do not feature in these agreements.
- The South Asia Regional Initiative for Energy (SARI/E) initiated by the US Agency for International Development (USAID) in 2000 specifically mentions gender mainstreaming in its fourth phase (2018–2022).
- At the national level, the countries have made some progress towards including GESI concerns in electricity-related policies and plans. For instance, Bangladesh, India, Nepal, and Pakistan have amended policies to include enhanced access to energy for women and marginalised groups. However, more attention is needed in these policies related to the productive use of energy and benefits to women from various energy options.

### Water sector

- The problems associated with the water sector can be summarised as there being either too much or too little water – i.e., floods, flash floods, glacial melt, erosion, and drought. Despite this situation, the water sector in the region remains undeveloped.
- Some parts of the region are already experiencing water stress, while water demand for agriculture, energy, industry, and human and livestock use is predicted to rise.
- Ninety per cent of water is used for the agriculture sector (Maja and Ayano 2020; Rasul 2016) and the remaining for industrial, drinking and household purposes.
- The countries in the region mostly have bilateral cooperation frameworks on management and utilisation of water resources, hydropower development, and data sharing. Gender equality and social inclusion are not integrated in these bilateral cooperation frameworks.
- At the national level, there are many national policy documents governing the management of water resources, and countries have, over the years, made significant efforts to mainstream gender within the water sector. However, there are several gaps in the policy provisions and implementation on the ground. For instance, women are not recognised in the policies on groundwater or irrigation water as these are tied to land rights, which are held by men.

## Recommendations

The present assessment provides recommendations to address GESI concerns effectively and reduce the differential vulnerabilities of various groups of women and men in the face of a changing climate. Recommendations are categorised in terms of the appropriate period for action – short term (six months to two years), medium term (two to five years), and long term (five years and beyond) – and effective integration of GESI into policies and implementation plans. A summary of the recommendations is presented below:

### Overall recommendations

- Integrate GESI perspectives in the planning, implementation, and review processes of sectoral and climate policies and programmes (short term)

- Formulate mechanisms to ensure maintenance of gender disaggregated data, GESI-sensitive assessments, and monitoring and evaluation of interventions in the agriculture, energy, and water sectors to improve the effectiveness of policies for achieving gender and social equality (short term)
- Guarantee the meaningful participation of networks of women and marginalised groups in policy dialogues and in the development of climate-related interventions in these sectors (short term)
- Conduct analyses of institutional capacities on integrating GESI into policies and programmes, and implementing targeted capacity-building plans based on identified gaps (short term)
- Set up systems to avoid silo sectoral approaches and improve their capacity in mainstreaming GESI in policies and actions in a nexus way (short term)
- Implement gender-responsive budgeting and gender audits to ensure that GESI issues are reflected in all stages and phases of development programmes (medium term)
- Conduct regular evaluations of policy implementation to identify best practices and extract lessons learned to increase the impact of climate policies and action for women and socially marginalised communities, and for national policy refinement and sharing at the regional level (medium term)
- Strengthening the existing regional mechanisms for sharing knowledge, cross learning, and monitoring of the performance of climate change and sectoral policies using GESI indicators (long term)

### Agriculture sector

- Ensure active, meaningful, and equitable participation of women and marginalised groups in all phases of policy formulation and implementation (short term)
- Promote gender-responsive and climate-resilient technologies to reduce the workload of women in agriculture (short term)
- Improve smallholder and women farmers' access to financial services (i.e., credit and insurance) and provide useable climate services (short term)
- Launch programmes to build capacity of women and marginalised groups as farm managers and entrepreneurs (medium and long term)
- Promote diversity in agriculture systems and establish infrastructure in vulnerable areas to promote value chains towards improving income and livelihoods, with a special focus on women and marginalised groups (medium and long term)
- Encourage private sector investment in women-led enterprises in agriculture (medium and long term)

### Energy sector

- Initiate national capacity building and skill development programmes for women entrepreneurs to enable them to benefit from jobs and entrepreneurship opportunities created by renewable energy development and use (short term)
- Develop mechanisms for equitable benefit sharing from opportunities created by renewable energy sources (short term)
- Develop specific policies and programmes for improving access to affordable, appropriate, and innovative finance for women and marginalised groups to enable them to become successful energy entrepreneurs (medium term)

- Promote gender responsive and gender transformative investments from the public and private sectors to achieve renewable energy policy targets and fulfil energy needs (medium term)
- Ensure social safeguards and just transition in energy transition to renewables with the aim of minimising and compensating the socioeconomic adverse impacts on women and marginalised groups (medium term)
- Improve women's control over resources by allocating productive resources to enable them to benefit from renewable energy options and to use energy sources for improving livelihoods and wellbeing (long term)

### Water sector

- Formalise, the inclusion of women in decision-making processes regarding water resources management and distribution (short term)
- Develop programmes to improve the access of households to adequate water for agriculture and drinking and domestic purposes (short term)
- Ensure equitable distribution of the benefits of water projects to both women and men in the communities (short term)
- Formulate clear guidelines on water rights in policies and ensure equitable access of women and the landless poor to water for agricultural and other uses (medium term)
- Promote multiple-use water systems that cater to diverse groups and fulfil the irrigation, domestic use, drinking, and ecosystems sustainability needs of large sections of a given community (long-term)





# I. Introduction

Climate change is now globally recognised as a major crisis of the century that threatens the very existence of humans on this planet. Evidence-based research from around the world underscores that climate change is not limited to biophysical impacts only; it has profound social implications, with the poorest and marginalized communities being most severely affected, resulting in widening of social and gender inequalities (Islam and Winkel 2017; Goodrich et al. 2019a; OHCHR 2019; Pross et al. 2020; Resurrección et al. 2019). The IPCC has identified Asia and the Pacific among the regions that are most vulnerable to the impacts of climate change. For instance, extreme weather and climate-related events accounted for 83 per cent of all disasters in Asia and the Pacific over the past decade and this increasing trend is expected to continue (IFRC 2020, UNESCAP 2019). Furthermore, this region is also witnessing rapid socio-economic changes because of globalisation, urbanisation, infrastructure development, population increase, migration, tourism, and COVID-19; added to this are conflicts and political tensions (Kelkar 2009; Goodrich et al. 2017a; Patel et al. 2019; Wester et al. 2019; Rasul et al. 2021). In such a scenario, the impacts of climate change will have major consequences for development – social, economic, and political - of the region. South Asia and the HKH comprise vast areas that are geologically fragile such as mountains and coastal floodplains, which are vulnerable to erosion, landslides, floods, droughts, and saline intrusion, among others. Not only are extreme weather conditions and events on the rise, but the rapid changes in temperature, precipitation patterns, and snowfall have become noticeable over the past decade. Persistent conditions of unprecedented population growth, low institutional capacities, increasing poverty, economic vulnerability, and high dependence on natural resources have added to the climate-related vulnerabilities across South Asia and the HKH (Mall et al. 2019).

The degree of climate change impacts varies among various groups of women and men, with the poor and marginalised sections of society facing more extreme effects (Carr and Thompson 2014; IPCC 2014; Goodrich et al. 2017b; Nelleman et al. 2011; Sultana 2010; UNFCCC 2019). Thus, the most vulnerable to climate change include women, children, elderly and people living with disability (Patel et al. 2019; Dankelman 2008; Sugden et al. 2014).

Initial understandings of vulnerability within climate science stem from the field of natural hazards and were understood as biophysical and related to the “ultimate impact of a hazard event” (Brooks 2003, p. 4) and the sensitivity of a geographically definable population and area (Brooks 2003; Füssel 2005). This was the approach or understanding of vulnerability that was used to inform the earlier works of the IPCC. As such, the Second Assessment Report defines vulnerability as the extent to which climate change may damage or harm a system (IPCC 1995) with a focus on regions vulnerable to climatic hazards and the number of people within these regions that would be at risk (Adger and Kelly 1999).

Until the early 1980s social scientists too largely followed such definitions of vulnerability with a biophysical understanding of the concept. A paradigm shift began with Wisner (1978) and Hewitt (1983), wherein there was a growing recognition that the impacts of hazardous events are not homogenous. It was recognised that vulnerability is shaped by social relations based on ethnicity, caste, generation, and gender (Harriss 1990; Kent 1991). It followed that vulnerability is largely determined by people’s context and situation, that includes access to resources and opportunities based on their positions within physical and social worlds, and that the social conditions that shape vulnerability develop and

change much faster than the physical conditions (Dow 1992; Bohle et al. 1994; Adger 2006). This gave rise to the concept of social vulnerability. The term has since become broader and increasingly interdisciplinary to incorporate the idea that vulnerability is not just a characteristic of some groups, rather vulnerability is produced, and driven by a wide variety of conditions. Vulnerability is not just dependent on hazards, rather it is defined by numerous socio-economic factors, and efforts to reduce vulnerability must therefore not only be confined to the hazard but also include the social systems within which vulnerability is produced (Wisner et al. 2004). Thus, gendered vulnerability is a subset of social vulnerability; it is the differential vulnerabilities of people based on their gender (Sugden et al. 2014; Goodrich et al. 2017a). It is critical to understand that the term “gender” does not refer to the binary categories of men and women, and must be considered as part of the heterogeneity in gender categories and intersectionalities (Ravera et al. 2016). Another line of discourse on the intersection of gender and climate change originated from ecofeminism, which emphasises that women would generally behave more sustainably towards environment than men (Datey et al. 2021). Feminist political ecology (FPE) made progress on this argument, recognising the intersectionality of gender with other social fault lines, and how this mediates and shapes gender-environment relations (Rocheleau et al. 1996; Molyneux 2007).

There is now a growing body of research on climate change-gender linkages, showing that women and men experience and respond to and/or adapt to climatic change and hazard events differently (Brody et al. 2008; IPCC 2007; Lambrou and Laub 2004; Lynn 2005; Neumayer and Plumper 2007). Within this body of research, there is significant amount of recognition that women and girls are often more vulnerable to climate change due to pervasive historical and existing gender-based discriminations that curtail their rights and access to assets, resources and power; thus excluding them from decision-making processes that affect their lives (Brody et al. 2008; Demetriades and Esplen 2008; Aguilar 2009; Vincent et al. 2010; Kapoor 2011; Skinner 2011; Tschakert 2012; Alston 2014; Bartels et al. 2013; Okali and Naess 2013; Ravon 2014; IPCC 2014; Nursey-Bray 2015; Goodrich et al. 2017a; Patel et al. 2019; UNFCCC 2019; Datey et al. 2021). The most alarming consequence is that climate change could widen, and is already widening in many cases, the gender gap and the existing social inequalities due to the negative effects on gender division of labour and access to and control over resources.

However, women and girls are not inherently vulnerable to climate change (Arora-Jonsson 2011; Lambrou and Nelson 2010; Sultana 2010; Nelleman et al. 2011; Goodrich et al. 2019a), and as aptly put by Wisner et al (2003, p.16) “it is not the female gender itself that marks vulnerability...but rather gender in a specific situation”. Therefore, not all women face the same type or degree of vulnerability to climate change.

Women’s roles and responsibilities of managing and sustaining natural resources for their own and their families’ livelihood place them at the frontline of adapting to climate change, thus often making them key agents in adaptation and mitigation (Nelleman et al. 2011; Goodrich et al. 2017a; Gurung and Bisht 2014; Datey et al. 2021). This is the basis on which women’s traditional role as holders of local knowledge is often stressed in the discussions on resilience (Angels and Tarbotton 2001; Rothe 2017). Climate change can aggravate prevalent gender inequalities, while on the other hand gender and social inequalities influence or even shape coping and adaptation ability (UNDP 2013a; IUCN 2015). Thus, “any attempt to tackle climate change that excludes a gender analysis will be insufficient, unjust and therefore unsustainable” (MacGregor 2010, p. 14).



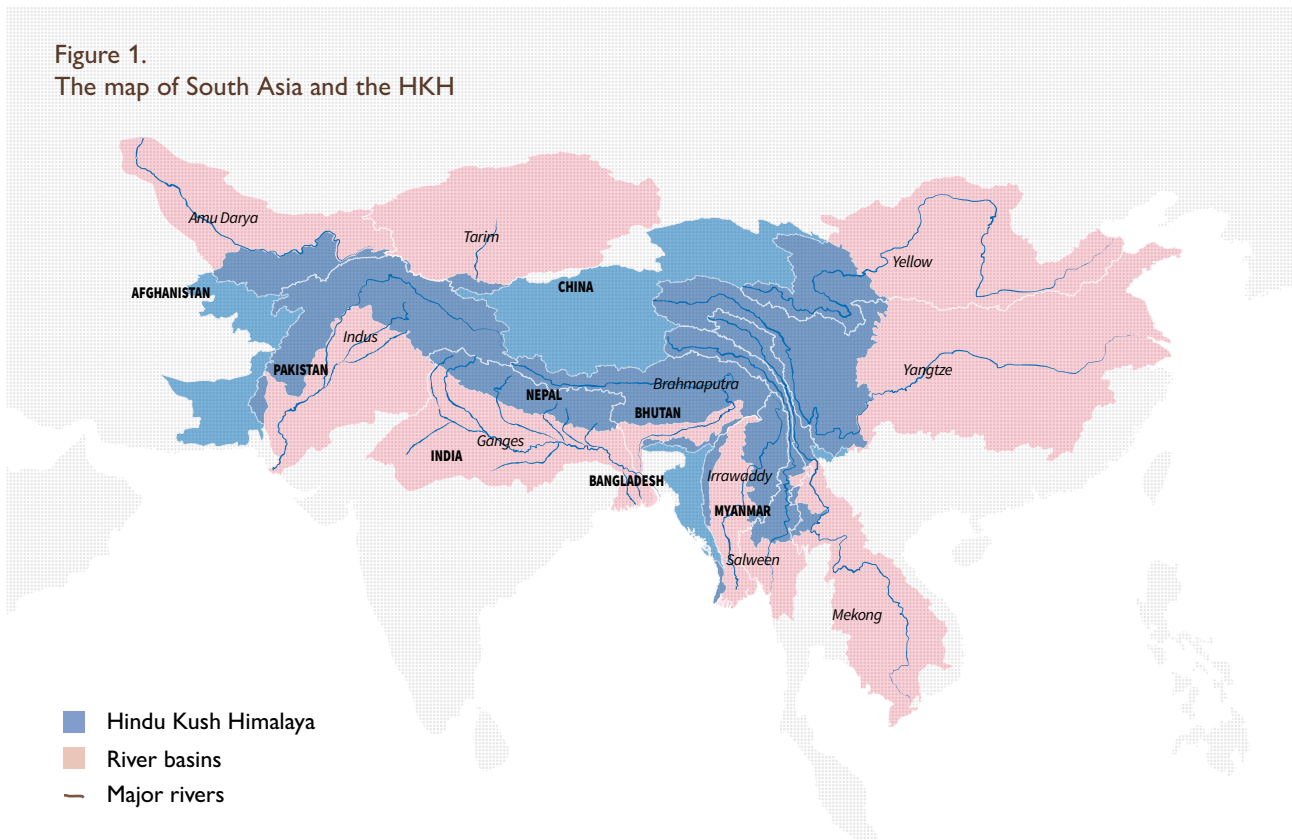


## II. Methodology

## 2.1 Geographical focus

This assessment covers ten countries from South Asia and the Hindu-Kush Himalaya (Figure 1). South Asia consists of eight countries – Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. The HKH is the hilly and mountainous region extending 3500 km across eight countries – Afghanistan, Bangladesh, Bhutan, China, India, Nepal, Myanmar, and Pakistan. South Asia and the HKH have six common countries. The HKH includes two other countries – China and Myanmar – which are not part of South Asia, and South Asia has Maldives and Sri Lanka which are not the part of the HKH. In this assessment, it was important to mainstream the HKH and include the two additional countries (China and Myanmar) because this region is the lifeline of South Asia and one of the most vulnerable areas to climate change in the world (Wester et al. 2019). Any climate change induced event (i.e., flood, drought) occurring in the hill and mountain areas of the HKH has direct and severe impacts on the food security, economy, infrastructure, ecosystems and gender and social equalities in downstream areas (mainly in South Asia, and in parts of Southeast Asia). The HKH with a total area of 4.2 million km<sup>2</sup> contains the headwaters of 10 major river basins – the Amu Darya, Indus, Ganges, Brahmaputra (Yarlung Tsangpo), Irrawaddy, Salween (Nu), Mekong (Lancang), Yangtze (Jinsha), Yellow River (Huang He), and Tarim (Dayan) – providing ecosystem services (e.g., water, food, energy) to 240 million people in the region, and nearly 1.6 billion people in the downstream areas. Overall, more than 3 billion people benefit from the food produced in the river basins of the HKH (Wester et al. 2019).

Figure 1.  
The map of South Asia and the HKH



## 2.2 Objectives

The overall objective of this report is to present data, analysis, and evidence on the state of gender equality and climate change in South Asia and the HKH to (1) increase national and regional knowledge and stimulate dialogue, and (2) catalyse appropriate actions by regional organisations, governments, and financing institutions for reducing gendered vulnerabilities to climate change. The specific objectives of the report are:

1. To contribute to the development and implementation of regional policies and normative work on the linkages between gender equality and climate change.
2. To explore and collect evidence of the gendered dimensions of climate change impacts particularly in the energy, agriculture, and water sectors, in South Asia and the HKH.
3. To show the extent of gender integration in climate change-related policy documents in the energy, agriculture, and water sectors.
4. To recommend areas for further policy work and research and ways to enhance gender analysis and integration of gender equality considerations in climate-relevant regional policy frameworks.

## 2.3 Research questions

1. What are the linkages between gender equality and climate change?
2. What is the status of gender equality in the region and in the countries?
3. What is the climate change scenario in the region?
4. What is the gender equality and climate change policy landscape in the region?
5. To what extent have gender considerations been integrated into policy documents in the agriculture, energy, and water sectors in the region and in the countries?
6. What are the gendered impacts of climate change on agriculture, energy, and water in the region and in the countries?
7. What are the enablers and barriers to successful implementation of gender inclusion in these sectors?
8. How can inclusive and gender transformative climate action be implemented in existing climate policies and policy documents in the region (e.g., the NDC implementation roadmaps and action plans), especially in the agriculture, water, and energy sectors?

## 2.4 Scope and assessment criteria

This report is based on a national and regional level assessment on the state of gender equality and climate change in three key adaptation and mitigation sectors (agriculture, energy, and water) across ten countries in South Asia and the HKH.

The report has followed established criteria for the 'assessment', considering the available data (mainly qualitative), peer reviewed publications, reliable reports, and policy documents (national policies, programmes, plans, and regional frameworks). In terms of methodology and implications, an assessment is different from a review. Review research speaks to other scientists in a particular field. However, the assessment critically evaluates current state of knowledge about a particular topic with an aim to suggest policy-oriented recommendations and inform relevant decision makers across sectors. Moreover, an assessment is mainly structured to address specific issues by translating scientific knowledge into easily understandable content that is important, legitimate, and credible to wider audiences (Wester et al. 2019). As mentioned earlier, this assessment is mainly conducted at national and regional levels. It has not covered the sub-national administrative units such as provinces and states within the countries. It is also important to mention here that the assessment is not in-depth in the case of China, due to the lack of access to official reports and policy documents in the English language.

For this assessment, in addition to published literature, reports and policy documents, questionnaire survey of experts (virtual and face-to face where possible) and a stakeholder consultation workshop were conducted to improve the quality of content and validate the findings. The key experts and stakeholders were from government, NGOs, INGOs, CSOs, and regional organisations. The virtual survey (conducted in May 2022) received responses from 33 experts with experience in different sectors, climate change and gender issues (61 per cent women) from all ten countries in the region. The survey responses enabled the identification of the relevant policies and programmes in the countries and understand the status of GESI mainstreaming in policy documents. The survey was also helpful to identify best practices (in policies and programmes) in terms of GESI mainstreaming in policy measures and institutional steps taken to implement them effectively. The purpose of the stakeholder consultation (1 August 2022, involving 45 experts) was to validate the findings of the report and get critical feedback on the recommendations to make them more relevant and actionable.

The assessment examined the agriculture, water, and renewable energy sectors to analyse the drivers and pressures of climate change, the gendered impacts of climate change, and the status of gender integration in the policy documents in these sectors. The sectors are closely interlinked and serve as the basis for the lives, livelihoods, and wellbeing of people.

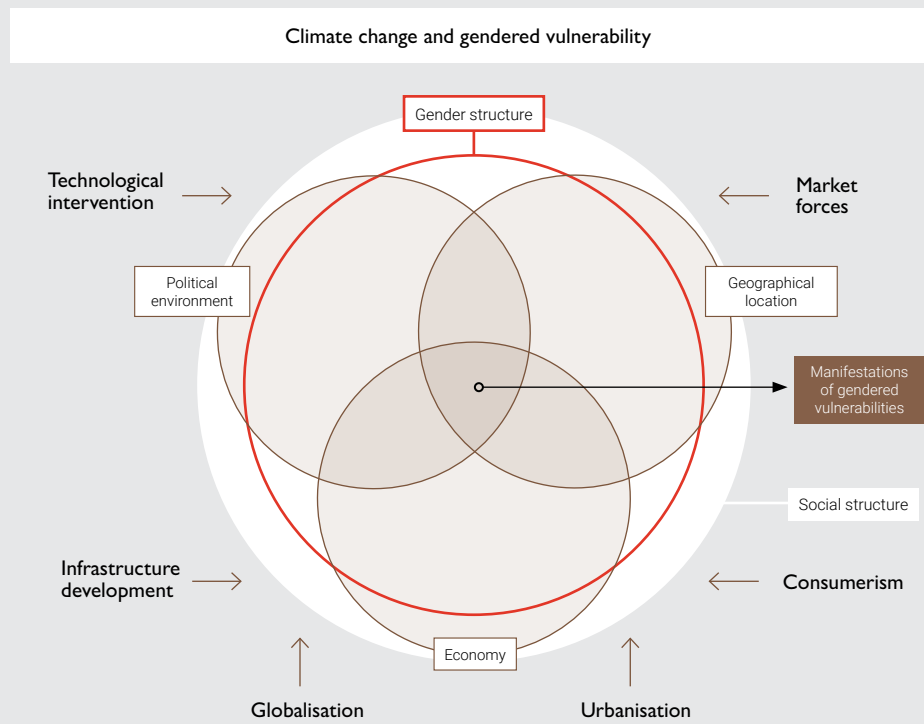
A consultative process between UNEP, UN Women, and ICIMOD informed the selection of these three sectors. This selection was based on:

1. High dependence of communities on these sectors for livelihoods
2. Sectors directly impacted by climate change
3. Importance of agriculture in the member states' economies and the sector's vulnerability to climate variability and extremes
4. Growing water stress and scarcity in the region
5. The urgent need to shift away from carbon-intensive to renewable forms of energy to mitigate further climate risks

## 2.5 Analytical framework

An adapted version of the Driver-Pressure-State-Impact-Response (DPSIR) framework (EEA 1999; Kristensen 2004) was adopted. This framework was used to examine the climate change dimension: drivers and pressures of climate change in the three sectors, its impacts on these sectors, the state of the sector due to climate change, and the responses, particularly policy responses, to these impacts. Gender analysis, using the gender and intersectionality framework (Figure 2) was applied to assess the differential vulnerabilities to and impacts of climate change based on gender and social differences. The gender and intersectionality framework was used because gender intersects with other social fault lines such as sex, class, caste, ethnicity, race, religion, age, (dis)ability, education, profession, as well as geographical location, to shape people's vulnerabilities and capacities. South Asia and the HKH are marked by such differences and variations that manifest in numerous forms of inclusion and exclusion, privilege and discrimination. Therefore, although the focus was on gender, the document also considered GESI where applicable. The gender integration continuum framework (Figure 3) was used to assess the level of gender integration in the policy documents. Using this framework, we examined how and to what extent gender, and where relevant social inclusion, are integrated in regional and country policies in the three sectors (energy, agriculture, and water).

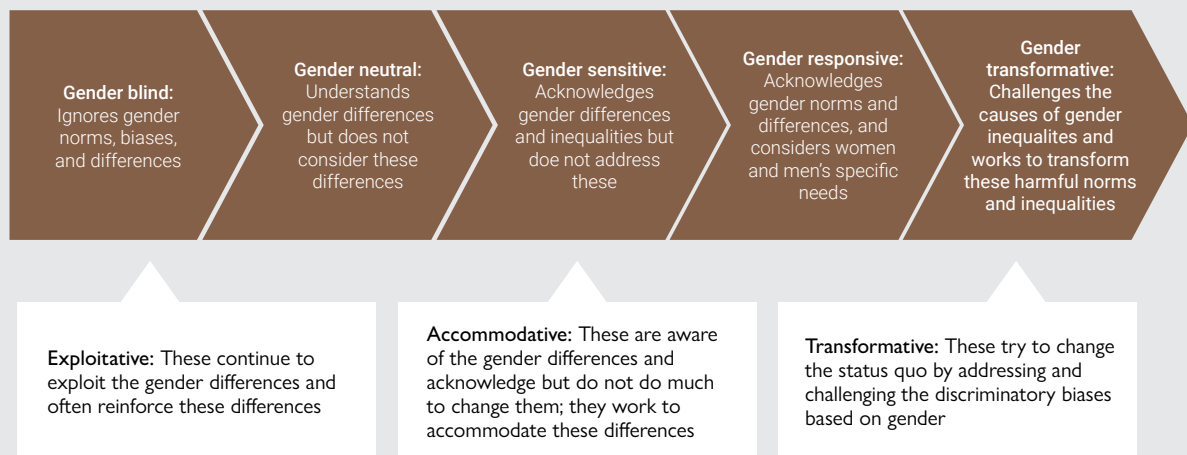
Figure 2. Gender and intersectionality framework



Source: Goodrich et al. 2019a



Figure 3.  
The gender integration continuum framework



Sources: Interagency Gender Working Group 2017; Harvey et al. 2019; Pederson et al. 2014

## 2.6 Identification of best practices

A simple criterion was used to identify best practices. In implementation strategies, initiatives, and programmes, identifying the best practices was straightforward and based on steps taken to mainstream GESI in actions. However, considering any policy document as a best practice requires some qualifying criteria. We considered those policy documents that adequately mainstreamed GESI in their goals and policy measures/instruments, and where some institutional steps were also taken towards effective implementation of these measures/instruments.







### **III. The regional context: South Asia and the Hindu Kush Himalaya**

### 3.1 Situation, challenges, and opportunities

The southern region of Asia, geographically defined as South Asia, consists of eight countries – Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. The region is defined by the hills and mountains to the north and the Indian Ocean to the south. The HKH consists of vast mountain ranges covering a geographical area of 3.4 million km<sup>2</sup> across eight countries: Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan. This region is home to 240 million people, and contains the headwaters of ten major Asian river systems, which provide water to 1.9 billion people (one-fourth of the world's population) in South Asia and Southeast Asia (Wester et al. 2019). Six countries sharing the geographical area of the HKH are also part of South Asia. Moreover, five out of the eight countries share coastlines with rapidly rising sea levels. South Asia houses approximately 15.5 and 12 per cent of the world's flora and fauna, respectively (SACEP 2016). A large proportion of the South Asian population depend on natural resources for their livelihoods.

South Asia is one of the poorest, most food insecure and water stressed regions in the world. The region also faces the big challenge of social and gender inequalities. Overall, alleviating poverty and ending hunger are priority agendas for South Asian countries (SAARC 2020; Asadullah et al. 2020). To achieve this, governments have prioritised economic growth. Five-year development plans, country specific targets to graduate from Least Developed Country status, and sustainable development growth narratives are inspired by strong poverty alleviation imperatives. Despite continuous efforts by governments, around one-third of the world's poor live in South Asia with about 65 per cent living in rural areas (The World Bank 2022) and primarily dependent on rain-fed agriculture. The prevalence of food and nutrition insecurity is also very high in this region (FAO 2017). In 2019, around 649 million people in South Asia were moderately or severely food insecure, 36 per cent of children (<5 years of age) were stunted, and 16 per cent were acutely malnourished (Rasul 2021). The situation is likely to worsen further because of COVID-19 (Rasul et al. 2021).

Climate change is one of the biggest challenges in South Asia, compounding poverty, food insecurity and socioeconomic inequalities (Shaw et al. 2022). The HKH areas in South Asia are highly vulnerable to climate induced hazards and their severe impacts. In the future, even if global warming is limited to 1.5 °C above pre-industrial levels, warming in the HKH will likely be at least 0.3 °C higher, and at least 0.7 °C higher in the northwest Himalaya and Karakoram (Krishnan et al. 2019). This could trigger a multitude of biophysical impacts, such as biodiversity loss, increased glacial melt, and less predictable water availability—all of which will impact livelihoods and wellbeing in the HKH (Krishnan et al. 2019). More than one billion people are at risk of exposure to increasing frequency and intensity of natural hazards in the HKH. There is an increasing trend in the number of disasters reported, resulting in huge loss of human lives and sizable economic losses (Vaidya et al. 2019). Air pollution in the region is pervasive with possible impacts on precipitation patterns and Himalayan glacier systems, in addition to the impact on health and agriculture (ICIMOD 2020a).

Despite many challenges, the region also has a huge potential to accelerate inclusive economic growth through regional policies and cooperation. South Asian countries have three formal platforms /intergovernmental organisations for regional cooperation on key regional challenges. These platforms include the South Asian Association for Regional Cooperation (SAARC), Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), and the Bangladesh, Bhutan, India, Nepal (BBIN)

Initiative. SAARC, which was established in 1985, focuses on issues of agriculture, rural development, telecommunications, meteorology, health, population activities, transport, postal services, scientific and technological cooperation, sports, arts, and culture. SAARC has five regional centres – Agriculture Centre (Dhaka, Bangladesh), Energy Centre (Islamabad, Pakistan), Cultural Centre (Colombo, Sri Lanka), Tuberculosis and HIV Centre (Kathmandu, Nepal), and Disaster Management Centre (New Delhi, India) (SAARC 2020). BIMSTEC is another platform/regional mechanism for cooperation among member countries. Of its seven member countries, four countries – Bangladesh, Bhutan, India, and Nepal – are in South Asia. This sub-regional organisation came into being on 6 June 1997 and focuses on cooperation in trade, technology, energy, transport, tourism, fisheries, agriculture, public health, poverty alleviation, counterterrorism, environment, culture, people to people contact, and climate change (BIMSTEC 2020). The BBIN Initiative, approved in May 1996, is a sub-regional body of countries in Eastern South Asia – Bangladesh, Bhutan, India, and Nepal. This sub-regional body aims to formulate, implement, and review quadrilateral agreements across areas such as water resources management, connectivity of power, transport, trade, and infrastructure (CUTS International 2018a).

In addition, there is also Asian Development Bank supported ‘South Asia Sub-regional Economic Cooperation’ (SASEC) programme which brings together Bangladesh, Bhutan, India, Maldives, Myanmar, Nepal, and Sri Lanka in a project-based partnership that aims to promote regional prosperity, improve economic opportunities, and build a better quality of life for the people of the sub-region (SASEC 2020; ADB 2020a). Established in 1982, the South Asia Co-operative Environment Programme (SACEP) is another inter-governmental organisation which is promoting regional cooperation in South Asia in the field of environment.

The International Centre for Integrated Mountain Development (ICIMOD), founded in December 1983, is intergovernmental learning and knowledge sharing organisation. Member countries include Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan. The centre aims to improve the wellbeing of men, women, and children of the Hindu Kush Himalaya in a healthy mountain environment. ICIMOD provides a platform for regional cooperation among countries on major transboundary issues such as climate change, hazards, social and gender inequalities, agriculture underdevelopment, and food, air pollution, biodiversity, energy, and water (ICIMOD, 2018).

### 3.2 Status of gender equality and social inclusion (GESI) in the region

Gendered constructions, roles, and responsibilities are shaped by the culture and knowledge systems that underpin societies and determine what is deemed to be appropriate or inappropriate to being a female or a male. This means that understandings of gender and what it means to be either male or female are highly diverse and related to context (Arora-Jonsson 2011; Goodrich et al. 2019a, Joshi 2014, Lambrou and Nelson 2010; Lazar 2005; Sultana 2010; Nelleman et al. 2011; Resurrección et al. 2019). The increasing inequalities and gender issues are thus shaped by intersections between multiple identities of gender, class, caste, ethnicity, culture, and religion within diverse historical, political, economic, and organisational settings. Thus, in South Asia and the HKH, gender relations, women’s status and experiences have been defined by historical and political events like nationalist movements, democracy, ethnic conflicts, wars, rise of religious fundamentalism, communism, identity politics and women’s movements, as well as by urbanisation, globalisation, commercialisation, technological revolution, and infrastructure development.

Moreover, the overarching patriarchal values and social norms that are prevalent in the region determine the status of gender (in)equality across the life cycle stages (conception, birth, childhood, adolescence, and adulthood) (Gurung, 1999). Customs and cultural beliefs are used to ‘control’ women through sanctions, violence, and suppression of

human rights. All these factors restrict women from acquiring control over resources, freedom in choices and mobility, participation in decision making, and having basic rights and power. Thus, women continue to be inhibited by unequal power relations, and discriminatory norms, practices and attitudes that limit their access to resources, deny them ownership and control over critical productive resources, and systematically exclude them from decision making processes (Goodrich et al., 2017a). The region faces high rates of outmigration of men. While this leads to an immense increase in women's workload (Hussain et al. 2016), there is no corresponding increase in their control over productive resources or access to critical services (such as credit facilities, technical inputs), or in their role/space in decision making. In the last couple of years, the COVID-19 pandemic has further deepened pre-existing gender inequalities as more women have either lost their livelihoods or are experiencing decreased access to institutional services and a decline in income; gender based and domestic violence also increased in the region as many women and girls were forced to 'lock down' at home with their abusers (Alvi et al. 2021; Goodrich and Bano 2020; UN Women 2020a).

While considerable progress has been made in the region in recent years to reduce the gender gap in the various spheres viz. education, health, employment, political participation, and despite the many policy efforts by governments and non-governmental organisations, gender-based discrimination continues to hold back progress and development for both women and men. The global gender gap index<sup>ii</sup> of 2021 shows that among the ten countries being examined in this report (out of 156 countries), only Bangladesh is in the top 70 in terms of gender parity (World Economic Forum 2021; see Table 1).

Table 1. The Global Gender Gap Index 2021 rankings<sup>iii</sup>

| Rank* | Country     | Score (0-1) in 2021 | Rank change 2020 | Score change |        |
|-------|-------------|---------------------|------------------|--------------|--------|
|       |             |                     |                  | 2020         | 2006   |
| 65    | Bangladesh  | 0.719               | -15              | -0.006       | +0.092 |
| 106   | Nepal       | 0.683               | -5               | +0.003       | +0.135 |
| 107   | China       | 0.682               | -1               | +0.006       | +0.026 |
| 109   | Myanmar     | 0.681               | 5                | +0.016       | n/a    |
| 116   | Sri Lanka   | 0.670               | 14               | -0.009       | -0.050 |
| 128   | Maldives    | 0.642               | -5               | -0.004       | n/a    |
| 130   | Bhutan      | 0.639               | 1                | +0.004       | n/a    |
| 140   | India       | 0.625               | -28              | -0.042       | +0.024 |
| 153   | Pakistan    | 0.556               | -2               | -0.007       | +0.013 |
| 156   | Afghanistan | 0.444               | n/a              | n/a          | n/a    |

Source: The World Economic Forum 2021  
 \*\*Rank is out of 156 countries

The report's ranking of countries in four major sectors – economic participation and opportunity, educational attainment, health and survival, and political empowerment – does not paint a bright picture of the region, with most countries ranking below 100 in all the sectors. Three of the countries rank the lowest (156) and second lowest (155) in some spheres – Afghanistan ranks lowest in two spheres, i.e., economic participation and opportunity, and educational attainment; China and India rank lowest and second lowest respectively in the health and survival sphere. However, there are some positive and encouraging trends. For instance, in the political empowerment sphere, five countries rank above 100, and Maldives and Myanmar rank 1 under educational attainment and health and survival, respectively (Table 2).

In terms of economic participation and work opportunities, overall most of the countries in the region have done well in improving women's participation in economic activities. However, the economic gaps in India and Pakistan, two of the bigger countries, have widened in 2021 compared to 2020 (World Economic Forum 2021). A UNDP report (2015) identifies various disadvantages that women in the region face in economic participation and work opportunities. These include workload (unpaid work in the home and paid work outside the home), limited prospects in the formal sector, wage discrimination, lack of training opportunities and credit facilities, job insecurity, and harassment at work or in transit to the place of employment. As per the International Finance Corporation (IFC) website<sup>v</sup>, South Asia has the world's largest gender gap (18 per centage points) in account ownership at formal financial institutions and the lowest proportion of women-owned businesses of any region due to a significant financing gap for women-owned micro, small, and medium enterprises.

In the educational attainment sphere, much progress has been made but there are still differences in education levels across countries and genders. For example, the literacy rate among women in Maldives is 98.11 per cent, in China it is 95.16 per cent, in Myanmar it is 71.8 per cent, in India 65.8 per cent, in Nepal 59.7 per cent, in Bhutan 57 per cent, in Afghanistan 53.7 per cent, and in Pakistan 46.5 per cent. (World Economic Forum 2021). There is a remarkable decrease in the gender gap in primary education in the region. In the past decade, Maldives, China, India, and Sri Lanka have ensured access to primary education for almost all, closing the gender gap in the net enrolment ratio. However, prevailing gender norms, particularly in South Asia, often result in high dropout rates and low levels of achievement at the higher levels of education. For instance, in many countries, the gender norm of recognising women as care givers and home makers forces young girls to give more attention to learning domestic skills, taking over household chores, or supporting and learning subsistence agriculture over formal education (Sultana 2010). Furthermore, the practice of early marriages for girls, as well as ideologies of purdah (veil) or seclusion restricting their mobility adds to the higher dropout rate from school. Similarly, the strong pro male gender bias, which determines intrahousehold allocations of education expenditure, where families prefer spending money on educating boys over girls, also means more girls drop out of school (Banu 2016).

In the Health and Survival sphere Myanmar and Sri Lanka have fared very well. However, the persistent practices of child marriage or early marriage in most of the other countries is one of the big contributors to the existing gender gap in this sphere as maternal health has a direct link with age at marriage and pregnancy. In South Asia, 46 per cent of girls become child brides (Raj et al 2010). In many of the countries, pregnancy and giving birth are considered 'natural' phenomena requiring no extra attention to ensure a safe delivery. As a result, many women experience acute health damage that can affect physical, mental, sexual and/or productive and reproductive capabilities (Banu 2016).

When it comes to political representation, Bhutan, China, and Myanmar fare quite poorly with very low presence of women in politics. But even in the other countries, the representation of women in the political sphere is low, with no country having women's

representation above 33 per cent, except Nepal (World Economic Forum 2021, p. 27). Given this context, Bangladesh and Nepal have resorted to reserving seats for women in the national and sub-national parliaments. Lack of representation and voice in decision making bodies means that women's concerns and needs to adapt to climate change are often ignored leading to top-down gender-neutral adaptation and resilience building strategies.

Table 2. Ranking and scores in the four sectors (Year 2021)

| Sectors     | Economic participation and opportunity |              | Educational attainment |              | Health and survival |              | Political empowerment |              |
|-------------|--|--------------|------------------------|--------------|---------------------|--------------|-----------------------|--------------|
|             | Rank*                                  | Score (0 -1) | Rank*                  | Score (0 -1) | Rank*               | Score (0 -1) | Rank*                 | Score (0 -1) |
| Afghanistan | 156                                    | 0.180        | 156                    | 0.514        | 149                 | 0.952        | 111                   | 0.132        |
| Bangladesh  | 147                                    | 0.418        | 121                    | 0.951        | 134                 | 0.962        | 7                     | 0.546        |
| Bhutan      | 130                                    | 0.556        | 117                    | 0.954        | 131                 | 0.963        | 137                   | 0.082        |
| China       | 69                                     | 0.701        | 103                    | 0.973        | 156                 | 0.935        | 118                   | 0.118        |
| India       | 151                                    | 0.326        | 114                    | 0.962        | 155                 | 0.937        | 51                    | 0.276        |
| Maldives    | 138                                    | 0.491        | 1                      | 1.000        | 148                 | 0.955        | 117                   | 0.121        |
| Myanmar     | 93                                     | 0.657        | 102                    | 0.975        | 1                   | 0.980        | 120                   | 0.113        |
| Nepal       | 107                                    | 0.630        | 134                    | 0.895        | 113                 | 0.965        | 61                    | 0.241        |
| Pakistan    | 152                                    | 0.316        | 144                    | 0.811        | 153                 | 0.944        | 98                    | 0.154        |
| Sri Lanka   | 132                                    | 0.547        | 88                     | 0.988        | 30                  | 0.980        | 90                    | 0.167        |

Source: The World Economic Forum 2021  
\*\*Rank is out of 156 countries

### 3.3 Climate change and its impacts in the region

South Asia is vulnerable to various climate change issues and impacts that are intricately linked to the region's geography, economy, and population patterns. According to Ranasinghe et al. (2021) mean minimum and maximum daily temperatures in South Asia are increasing and winters are getting warmer faster than summers. The South Asian monsoon has shown contrasting behaviour over India and Pakistan. There is high confidence that there has been a decrease in mean rainfall over most parts of the eastern and central-north regions of India and an increase in precipitation in Pakistan (IPCC 2021). According to the latest Coupled Model Intercomparison Project<sup>4</sup> Phase 6 (CMIP6) dataset, by the end of the 21st century, the country-averaged annual mean precipitation is projected to increase by 17.1 per cent in Bangladesh, 18.9 per cent in Bhutan, 27.3 per cent in India, 19.5 per cent in Nepal, 26.4 per cent in Pakistan, and 25.1 per cent in Sri Lanka under a high emission scenario (Almazroui et al. 2020).

It is likely that surface temperatures over South Asia and the Tibetan Plateau (TIB, the HKH part of China) will increase greater than the global average, more so over TIB, and with projected increases of 4.6°C (3.4°C– 6.0°C) during 2081–2100 compared with 1995–2014 under SSP5-8.5 and 1.3°C (0.7°C– 2.0°C) under SSP1-2.6 (Gutiérrez et al. 2021).

Summer monsoon precipitation in South Asia is likely to increase by the end of the 21st century while winter monsoons are projected to be drier. Over the same time periods, CMIP6 models project an increase in annual precipitation in the range of 14–36 per cent under SSP5-8.5 and 0.4–16 per cent under SSP1-2.6. With continued warming, snow cover and snow water equivalent in TIB are likely to decrease, with more precipitation falling as rain rather than snow in South Asia. It is projected that the peak river flow at higher altitudes will commence earlier (in the spring or the start of summer) because of the impact of warming on snow cover and snow/glacier melt rates, causing changes in magnitude and seasonality of flow.

**Climate change impacts:** The South Asia region covers climatic zones as diverse as its physical landscape. The region is experiencing a range of impacts due to climate change, which include but are not restricted to forest fires, rising sea levels, mountain and coastal soil erosion, saline water intrusion, and accelerated glacial melt. More prominent impacts are abnormal monsoon patterns and more frequent and intense storms that have aggravated disasters and climate change in recent years (Wester et al. 2019). According to IPCC (2021), in South Asia, heatwaves and humid heat stress will be more intense and frequent during the 21st century (medium confidence). Both annual and summer monsoon precipitation will increase during the 21st century, with enhanced interannual variability (medium confidence).

**Glacier melting:** With rising temperatures, the ice mass of the Himalayas is retreating more rapidly than the global average, which will be critically impacted further by seasonal changes in climate than the annual patterns.

Many glacial lakes are fed by glacier meltwater in the HKH. The number and size of these lakes are increasing due to continuous melting of glaciers, which might cause glacial lake outburst floods (GLOFs), creating havoc in downstream areas. Therefore, some of them have been identified as critical or potentially dangerous<sup>vi</sup>. There are 20 potentially dangerous glacial lakes in Nepal and 25 in Bhutan, which pose risks to local communities (Ives et al. 2010). The upper Indus basin, which includes parts of the Hindu Kush, Karakoram, and western Himalaya sub-regions, contains 2420 glacial lakes, of which 52 are potentially dangerous (Ashraf et al. 2012).

**Erosion:** Increasing floods and flash floods, riverbank erosion, surges, storms, extreme rainfall over a short duration, sea level rise, and human activity are all causes of worsening erosion in South Asia. Coastal areas, overgrazed rangelands, degraded ecosystems, and denuded mountains are particularly affected. Twenty-six per cent of India's coastline is susceptible to erosion, with yearly loss of 450 ha. Sri Lanka's coastline is also exposed to significant erosion in certain areas; in addition the hilly country is also vulnerable to frequent landslides. Riverbank erosion has become a common phenomenon along the major and minor rivers in Bangladesh mainly due to deltaic topography and it has forced people to migrate or resettle in more vulnerable areas (Rahman and Gain 2020). The frequency of landslides in hills and mountains in Bhutan, India, and Nepal is increasing at an alarming rate. The loss of land due to landslides and erosion is causing severe damage to economies, agriculture, ecosystems, and habitats, and shrinking livelihood opportunities, particularly for poor rural communities. The projections suggest a worsening scenario of more intense soil erosion over the next few decades (ADB 2010).

**Sea level rise:** The long and heavily settled coastlines in South Asia are under serious threat due to sea-level rise. By 2050, the sea level in Bangladesh is expected to rise by 45

centimetres (cm), which will impact up to 15 per cent of the land area and approximately 35 million people. Similarly, in India the sea level is expected to rise by up to 40 cm, which can severely affect the heavily populated cities of Mumbai, Kolkata, and Kochi. Sri Lanka and Maldives are also expected to face similar challenges due to sea level rise. Saline water intrusion due to sea level rise threatens the availability of drinking water and directly affects agriculture and aquaculture (ADB 2010).

**Floods and flash floods:** Large areas in South Asia are exposed to recurrent floods owing to heavy rainfall during monsoon season, low elevation, and blocked natural drainage systems. Particularly, Bangladesh is at severe risk due to floods, due to convergence of three large river systems (Islam et al. 2010). In recent years, floods in South Asia and the HKH have led to severe disasters. Increased glaciers and snow melt will further lead to an increase in frequency of flood occurrence. Riverine floods killed 1,132,530 persons and affected 5,001,590,805 people in South Asia between 1990 and February 2022 (EM-DAT, n.d.). Flash floods are very widespread in the HKH, causing significant damage to people and property. For example, in 2010, flash floods in Pakistan killed approximately 2000 people and caused damages of USD 10 billion (FFC 2010; Wester et al. 2019).

**Droughts:** South Asian countries have been experiencing frequent drought incidents recently. According to Chandrasekara et al. (2021a), rainfall characteristics and high heat stress, which would cause high evaporation, are the key reasons for drought in South Asia. Furthermore, soil erosion aggravates drought conditions, along with poor soil texture (i.e., low water-holding capacity, high permeability, and infiltration), which percolates more available water at surface into deep layers (Chandrasekara et al. 2021a). Afghanistan is highly prone to moderate and severe droughts. All of India is prone to drought except for the eastern regions; the western arid regions of India experience frequent droughts (Venkateswarlu 2010; Joshi et al. 2016). Pakistan frequently experiences droughts; its central-eastern, southwestern, southern, and some scattered south coastal regions are most vulnerable to severe droughts, mainly during winter and dry-wet periods due to the enhanced climate variability in these areas. Wang et al. (2013) identified that both natural variability and anthropogenic activities influenced the recent decadal drought in Nepal. Sri Lanka experiences drought almost annually, with periodic severe droughts, and it is identified as the most frequent disasters in Sri Lanka (DMC 2009; DMC 2016). Although Maldives and Bhutan experience droughts, studies related to droughts are limited (Chandrasekara et al. 2021a). Bhutan has experienced fewer droughts compared to other South Asian countries.

### 3.4 Policy landscape on gender and climate change in the region

#### 3.4.1 Policy landscape on GESI in the region

There are numerous policy documents at international, regional, and country level that address gender equality, and women rights and empowerment. In addition to declarations, many also lay down specific provisions to ensure gender equality and women's rights. Most countries have numerous policies, plans, strategies, and programmes on gender equality. The most important and central policy committing to social and gender equality in these countries are their respective constitutions. The national constitutions across the countries of South Asia and the HKH enshrine the proposition of gender equality, where the countries provide equal rights to women and men and assures equal treatment of all citizens without any discrimination, including based on sex. The countries adopt positive discrimination as legally recognised rights in the constitution and integrate gender mainstreaming strategies within national policies. Countries such as India and Nepal ensure constitutional rights for the protection of different caste groups such as Dalits, and ethnic minorities. However, although the constitutions include additional provisions for women, poor and the marginalised in attaining gender equality and social inclusion, the implementation of these laws is often driven by traditional belief systems, patriarchal structures, customary laws, and social norms, thus often falling short of these rights and



principles. Across South Asian and HKH countries, the effectiveness of the constitution in protecting women, poor and the marginalised is also based on interpretation by the judiciary (Mahanta et al. 2019), which is guided by customary laws, traditional customs and norms, and religious laws.

**International instruments:** There are several international instruments on gender equality and women's rights as well on social inclusion, equality, and justice. Some of the more significant ones and their implementation status in countries in the region are given below.

*The Convention on the Elimination of all Forms of Discrimination against Women (CEDAW):* This is one of UN's core conventions that was adopted by the UN General Assembly in 1979 and is one of the most widely ratified conventions. Prior to this Convention, human rights focused mainly on men's human rights, such as protection against torture in war situations, and women's rights were ignored. Thus, CEDAW was developed specifically targeting the rights of women and to eliminate discrimination based on gender. CEDAW is unique as it requires governments to address discrimination of women in both private and public spheres. Furthermore, the CEDAW Committee General Recommendation 37 makes references to climate change related risks, providing guidance on how to interpret and apply CEDAW in disaster risk management (DRM) and climate change adaptation. This provides the basis for international norms in making and implementing gender sensitive DRM legislation.

All the countries of the region are signatories to the Convention. However, only Bangladesh, Maldives, Nepal, and Sri Lanka have ratified it. Furthermore, in Nepal, the Ministry of Women and Social Welfare formed a taskforce to review all laws that were inconsistent with the Convention<sup>viii</sup>.

*Agenda 2030 and the Sustainable Development Goals (SDGs):* All the countries of the region have committed to this international development policy. Agenda 2030 clearly defines SDG 5 on gender equality as a cross cutting goal in all 17 SDGs. Furthermore, SDG 5 explicitly calls for the achievement of gender equality and empowerment of all women and girls.

There are also five key International Labour Organization (ILO) conventions on gender equality. The status of these in the countries of the region are presented in Table 3 below.

Table 3. International Labour Organization (ILO) conventions and their status

| Convention  | Ratified  | Not ratified | Remarks                          |
|---|---|--------------|----------------------------------|
| Maternity Protection Convention, 1919                                 | None  | All          | Bhutan is not mentioned anywhere |
| Equal Remuneration Convention, 1951                                   | Afghanistan, Bangladesh, China, India, Maldives, Nepal, Pakistan, Sri Lanka | Myanmar      |                                  |
| Discrimination (Employment and Occupation) Convention, 1958           | Afghanistan, Bangladesh, China, India, Maldives, Nepal, Pakistan, Sri Lanka | Myanmar      |                                  |
| Workers with Family Responsibilities Convention, 1981                 | None  | All          |                                  |
| Protocol of 1990 to the Night Work (Women) Convention (Revised), 1948 | India   | All          |                                  |

**Regional policy documents:** Several regional entities within South Asia and the HKH have passed and adopted policy documents to promote gender equality in the region and among the countries. The key policy documents from these regional entities are briefly highlighted below:

*South Asian Association for Regional Cooperation (SAARC):* SAARC has integrated gender equality in its agenda since 1991 and formulated a national plan of action to promote the rights of girls in its member states. Following this, a special Social Charter was signed in 2004 recognising the importance of social equalities and women's issues. Under the SAARC Development goals (2007–2012), Goal 8 specifically targets gender equality and justice by ensuring the effective participation of the poor and women in anti-poverty policies and programmes. It has also established the SAARC Gender Policy Advocacy Group (SAARC-GPAG) and created SAARC Gender Information Base (SGIB). The SAARC-GPAG was established in 2014 to advocate and keep gender high on the policy agenda of the SAARC Countries, enhance political and administrative will on gender equality, and ensure implementation of commitments by member states to empower women and achieve gender equality. The SGIB was formed as a repository of qualitative and quantitative data related to gender-issues (violence against women, poverty, and women's health). The SGIB works directly with the line ministries of the member states. Another important document is the Regional Convention on Combating the Crime of Trafficking Women and Children for Prostitution 2002 and the Standard Operating Procedure. In 2015, SAARC developed a three-year action plan in collaboration with UN Women, which had the following key priorities: women in leadership and decision-making, economic empowerment of women, violence against women and girls, and women's health issues. Upon approval and endorsement of the plan, the countries were to be asked to align their national gender development plans with the goals proposed in the action plan.

However, SAARC declarations are not legally binding on member states. Apart from these there are several other issues, such as geopolitical sensitivities, and the differential levels of interest and political will to pursue issues of gender equality and women's empowerment, which have resulted in low level of influence and implementation of SAARC policy documents (Eltan et. al. 2017).

*BIMSTEC:* BIMSTEC focuses on sectors such as tourism, agriculture, fisheries, poverty alleviation and climate change. Although these sectors have a strong GESI dimension and the adverse impacts of climate change cuts across these sectors, there are no such direct initiatives or policy directives that promote gender equality within the BIMSTEC secretariat and regional platforms. BIMSTEC Summit Declarations (July 2004, November 2008, March 2014, and August 2018) do not acknowledge the roles and economic empowerment of women and deprived groups. The BIMSTEC Leaders' Retreat Outcome Document and 16-point Agenda of Action, Goa, India (16 October 2016) and BIMSTEC's Sectoral Objectives on Environment and Climate Change, focus only on the biophysical science of climate and weather, and regional cooperation on these; there is no objective on social aspects and adaptation. The BIMSTEC Secretariat in Dhaka faces several challenges related with inadequate human resources, funding, and the capacity to plan and implement regional cooperation and integration (RCI) initiatives (ADB, 2019:2).

*BBIN:* Although all the member countries of BBIN are committed to promoting gender equality and social inclusion policies and address climate change in the region, there have been inadequate efforts to promote women in trade in the region. The deep fundamental structures continue to reinforce patriarchal relations in this part of the region that hinders women's participation in trade. Therefore, agencies struggle to find ways to incorporate gender in trade policy processes (Prasai and Diya 2017). Nevertheless, multilateral agencies have taken up small initiatives to identify challenges and expand opportunities of trade for women in the BBIN countries in partnership with development agencies. A study on the

programme design primer to expand the benefits of trade to women in the BBIN region was conducted by Asia Foundation with the support of the World Bank in partnership with Australian Department of Foreign Affairs and Trade (Prasai and Diya 2017).

*Indian Ocean Rim Association (IORA)*: IORA, an inter-governmental organisation comprised of coastal countries that border the Indian Ocean, was formed in 1997 to foster regional economic cooperation and achieve sustainable development within the Indian Ocean. From South Asia and the HKH, Bangladesh, India, Maldives, and Sri Lanka are members. The institution is committed to foster women's economic development and established women's economic empowerment as a special area of focus in 2013. IORA is committed to internalising gender mainstreaming in their policies and activities by ensuring gender balanced representation of women and men on an average of 40:40:20 in all the meetings, activities, and within the management position of the secretariat. IORA recognises meaningful participation of women in decision-making to achieve its objectives and have established a Working Group on Women's Economic Empowerment (WGWEE) with a mandate to promote gender mainstreaming in all its activities and women empowerment principles (Kotze and Bohler-Muller 2018; UN Women 2020b).

In the HKH, ICIMOD, which is an intergovernmental organisation of the eight HKH countries<sup>ix</sup> has developed two important regional documents – the Hindu Kush Himalaya (HKH) Call to Action and the Nine Mountain Priorities (ICIMOD, 2020a; Wester et al. 2019).

**The HKH Call to Action** (ICIMOD 2020a) is based on the *Hindu Kush Himalaya Assessment: Mountains, Climate Change, Sustainability and People*, which was drafted in response to requests from governments in the region, meeting a demand for a comprehensive assessment of the region's mountains, environments, and livelihoods. The HKH Call to Action identifies 6 actions<sup>x</sup> and was signed by all the eight regional members countries in 2020. Three of the Actions directly link to GESI: Action 2 emphasises on strengthening and including the “voices for the HKH and its people, including indigenous communities, and youth”, promoting actions for gender equality and inclusive development. Action 4, which states: “Take accelerated actions to achieve the Sustainable Development Goals in the HKH based on the nine mountain priorities, focusing on transformative adaptation, tackling poverty and inequality, inclusive development, and leaving no one behind”. Action 6 calling to promote regional data and information sharing, specifically calls for generating consistent social and gender disaggregated data as well as methodologies for this. Apart from this, in its vision for 2030 the Call asserts “equitable access and equal opportunities and equal access to benefits from resources—regardless of gender, social class, or other historical drivers of socio-economic inequity” (ICIMOD n.d., p. 5).

*Mountain Priorities*: The HKH Assessment report identifies nine mountain priorities that are consistent with the SDGs. The first four priorities include GESI directly. These are:

1. End poverty in all its forms everywhere in the mountains and ensure that women, men, and children of the HKH lead prosperous and healthy lives in an inclusive and equitable environment.
2. Build resilient, equitable and inclusive mountain communities empowered by economic opportunity and investment in mountain infrastructure and connectivity.
3. Achieve gender and social equity through inclusive and transformative change in the mountains.
4. Promote sustainable production systems to assure food security, nutrition security, and income for mountain people, with particular attention to women's changing roles in agriculture.

The other priorities do not refer to GESI directly but does have specific targets related to GESI.

1. Priority 5 on access to clean energy sources - Target 4: "Increase access to clean energy sources for women to decrease their workload, time and drudgery, and empower them as energy entrepreneurs."
2. Priority 6 on secure water supply has two targets (Targets 3 and 6) on women: "Reduce the workload and time spent by women and children in collecting water by 2030. Create secure water supply for key development sectors (agriculture, energy) that are viable year-round", and "Support and strengthen the participation and decision making of mountain women and men communities in water management".
3. Priority 7 on biodiversity loss, land degradation, sustainably manage forests and other ecosystems and ecosystem resilience has two GESI targets: "Ensure 100 per cent meaningful community participation in biodiversity programmes at the local level" and "Increase women's representation and meaningful participation in decision making processes by 50 per cent in natural resource access and benefit sharing programmes".
4. Priority 8 on integration between adaptation to climate change, disaster risk reduction, and sustainable development has one target directly related to women and children: "Reduce mortality rates, especially for women and children due to extreme climate events".
5. Priority 9 on promoting a mountain-specific agenda for achieving the SDGs through increased regional cooperation has two GESI targets: "Enhance capacity-building support to the HKH countries to significantly increase the availability of high quality, timely, reliable data that is specific to mountain regions, disaggregated by income, gender, age, race, ethnicity, migratory status and disability" and "Equal protection of migrants under effective rule of law and good governance".

Apart from the above, there are several other regional initiatives<sup>vi</sup> in South Asia and the HKH. In recent times due to geopolitical sensitivities, BIMSTEC and BBIN initiatives are considered the key regional initiatives and most active in the region. However, these regional initiatives do not have focused GESI related policy documents.

**National policy documents:** The member states of South Asia and the HKH have committed to promoting gender equality through their constitutional mandates and their ratification of international instruments. The key policy documents that promote gender equality (and social inclusion) are the basis to determine women's and men's equal access to resources and decision-making for the national plan of action are highlighted below (Table 4).



Table 4. Major national policy documents that promote gender equality in the HKH and South Asia

| Member states              | Key policy documents which promote gender equality   |
|----------------------------|--|
| <b>Afghanistan</b>         | <p>The Constitution 2004</p> <p>Elimination of Violence against Women 2009</p> <p>National Action Plan for the Women of Afghanistan (NAPWA), 2008–2018</p> <p>The Afghanistan National Development Strategy 2008 – gender equality is a cross-cutting issue.</p> <p>The Afghanistan Compact 2006 recognises women and men have equal rights and responsibilities in all policies and programmes</p> <p>Family Response Units (FRUs) 2006 staffed with policewomen in provincial headquarters and districts as a response mechanism to gender-based violence</p>  |
| <b>Bangladesh</b>          | <p>The Constitution 1972, Article 28</p> <p>The Penal Code 1860</p> <p>Women and Children Repression Prevention Act 2000 (WCRPA)</p> <p>Guidelines for workplaces and educational institutions 2009 and 2011 - promotes awareness on sexual harassment and ensures effective mechanisms for prevention of offenses of sexual abuse and harassment</p> <p>Domestic Violence (Prevention and Protection) Act 2010</p> <p>The Overseas Employment and Migrants' Act 2013</p> <p>The Rights and Protection of Persons with Disabilities Act 2013</p> <p>National Women Development Policy 2011</p> <p>National Action Plan on Violence against Women 2013-2025</p> |
| <b>Bhutan</b>              | <p>The Constitution 2008, Articles 7, 8, and 9</p> <p>Bhutan Gender Policy Note 2013</p> <p>National Plan of Action for Gender 2008-2013</p> <p>Domestic Violence Prevention Act 2013</p> <p>Gender Equality Strategy Framework 2016 (Bhutan Trust Fund for Environment Conservation)</p> <p>National Gender Equality Policy 2019</p>  |
| <b>China<sup>xii</sup></b> | <p>Outline for the Development of Chinese Women (2001-2010)</p> <p>Revised Marriage Law 2001</p> <p>The Population and Family Planning Law 2001</p> <p>Implementation Outline for the Project for Enhancing the Moral Standards of Chinese Citizens, 2001</p> <p>Care-for-Girl Action 2003</p> <p>The Law on Rural Land Contracting 2003</p> <p>Law on Protection of Rights and Interests of Women 2005</p>  |

| Member states   | Key policy documents which promote gender equality  |
|-----------------|---|
| <b>India</b>    | <p>The Constitution 200, Articles 13, 14, 15, 39,<br/> National Commission for Women Act 1990<br/> National Policy for the Empowerment of Women 2001<br/> The Sexual Harassment of Women at Workplace 2013<br/> The Hindu Succession Act 1956<br/> The Maternity Benefit Act 1961<br/> The Immoral Traffic (Prevention) Act 1956<br/> The Indecent Representation of Women (Prevention) Act 1986<br/> The Special Marriage Act 1954<br/> The Dowry Prohibition Act 1961<br/> The Commission on Sati (Prevention) Act 1987<br/> 73<sup>rd</sup> and 74<sup>th</sup> Constitutional Amendments of 1992 (Establishment of Rural and Urban local bodies where one-third of the total seats are reserved for women, scheduled castes, and scheduled tribes)<br/> Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) 2005<br/> National Policy on Skill Development 2009<br/> Protection of Women from Domestic Violence Act 2005<br/> The Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act 1995 and Amendment Ordinance, 2014</p>  |
| <b>Maldives</b> | <p>The Constitution 2008, Articles 17, 18, 62<br/> National Gender Equality Policy and Framework for Operationalisation 2009<br/> The Domestic Violence Act (Act No 3/2012)<br/> The Employment Act (Act No 2/2008)<br/> Prevention of Human Trafficking 2013<br/> The Sexual Harassment and Prevention Act 2014<br/> The Sexual Offences Act 2014<br/> The Cooperative Society Governance Code 2010 – provides 20 per cent female membership in cooperative societies<br/> The Capital Market Development Authority established under the Maldives Securities Act 2/2006 – aims to fulfil 30 per cent female representation on the board of directors<br/> The Decentralization Act 2010 and Amendment 2019 mandates establishment of women development committees and 33 per cent reservation for women in local bodies<br/> The Family Act (Act No 4/2000)<br/> Strategic Action Plan (2009-2013)<br/> Gender Equality Act 2016<br/> Gender Action Plan 2017<br/> Maldives Strategic Action Plan (2019–2023) - recognises women's economic participation, representation in government, sexual harassment, and domestic violence as policy priorities<br/> The Gender Equality Action Plan 2020-2025</p> |

| Member states  | Key policy documents which promote gender equality   |
|----------------|--|
| <b>Myanmar</b> | <p>The Constitution 2008, Sections 347, 348</p> <p>The Social Security Law 2013</p> <p>The Framework for Economic and Social Reforms and the Comprehensive National Development Plan (2011-2030)</p> <p>The National Strategic Plan for the Advancement of Women (2013–2022)</p> <p>Myanmar Sustainable Development Plan (2018–2030) - envisions equal participation and reservation of seats for women in union and state/region parliaments</p> <p>Prevention of and Protection from Violence Against Women (PoVAW) bill is introduced in the parliament, but has been criticised as falling short in protecting women and addressing violence against women<sup>xiii</sup>.</p>   |
| <b>Nepal</b>   | <p>Constitution of Nepal 2015, Articles 18, 21, 38, 47, 283</p> <p>The National Penal (Code) Act 2017 – criminalises various forms of violence against women.</p> <p>Domestic Violence (Offence and Punishment) Act 2009</p> <p>Human Trafficking and Transportation (Control) Act 2007</p> <p>The Crime Victims Protection Act 2018 – contains provisions on right to justice, compensation, and social rehabilitation to prevent violence against women</p> <p>The Integrated Legal Aid Policy 2019 strengthening access to justice for women</p> <p>The Safe Motherhood and Reproductive Health Rights Act 2018</p> <p>The Labour Act 2017 - prohibits gender-based discrimination in wages</p> <p>The Land Act (2021), The Industry Policy (2010), The Financial Act (2019) – provision of rebate to women when land and industry are registered in their name, including income tax</p> <p>Caste-based Discrimination and Untouchability Act 2011</p> <p>Sexual Harassment at Workplace (Prevention) Act 2015</p> <p>Witchcraft-related Accusation (Crime and Punishment) Act 2015 - addresses various forms of violence against women</p> <p>The Local Government (Operation Act) 2017</p> <p>The Local Body Election (Procedures) Act 2016 - mandates 40 per cent women representative from all political parties in local government bodies</p> <p>Election Commission Act 2017, The Political Parties Registration Act 2017, and The Electoral Rolls Act - mandates 33 per cent seats reserved for women</p> <p>National Gender Equality Policy 2021</p> <p>Gender Equality and Social Inclusion Strategy (2021-2023)</p> <p>National Dalit Commission Act 2017</p> |

| Member states    | Key policy documents which promote gender equality  |
|------------------|---|
| <b>Pakistan</b>  | <p>The Constitution 200, Articles 25, 26, 27, 32, 34</p> <p>National Gender Policy Framework 2022</p> <p>Prevention and Control of Human Trafficking Ordinance 2002</p> <p>The Dissolution of Muslim Marriage Act 1939</p> <p>Protection of Women (Criminal Laws Amendment) Act 2006</p> <p>Protection against Harassment for Women at the Workplace Act 2010</p> <p>Criminal Law Amendment 2009 (enacted 2010) - protects the rights and dignity of women</p> <p>Acid Control and Acid Crime Prevention Act 2011</p> <p>Prevention of Anti-Women Practices (Criminal Law Amendment Bill 2011)</p> <p>Women in Distress and Detention Fund (Amendment Act) 2011 to provide financial and legal assistance to deserving women</p> <p>National Commission on Status of Women Act 2012</p> <p>Domestic Violence (Prevention and Protection) Act 2012</p> <p>National Commission for Human Rights Act 2012</p> <p>Transgender Persons (Protection of Rights) Act 2018</p> |
| <b>Sri Lanka</b> | <p>The Constitution 200, Articles 12, 14</p> <p>Women's Charter 2013</p> <p>The Policy Framework and National Action Plan to address Sex and Gender-based Violence (2016-2020)</p> <p>Prevention of Domestic Violence Act 2005</p> <p>Local Authorities Election (Amendment) Bill 2016 - reserves 25 per cent of seats for women</p> <p>The National Framework for Women-headed Households (2017–2019) - to improve the socio-economic conditions of women affected by conflict</p>   |

Across member states, multiple laws and policies promote GESI, but their implementation remains weak. South Asia and the HKH countries have undergone several political changes and turmoil, which has also represented a challenge to women's rights and achieving gender equality in the region (Htun and Jentsensius 2020). For example, Myanmar, the first country in Asia to grant women the right to vote (in 1935), passed four bills to "protect race and religion" in 2015, which contradicts its commitment under CEDAW (Minoletti 2016). In Sri Lanka, despite several years of protest by women's organisations and administrators' assurances, discrimination continues to persist in inheritances for women within the Land Development Ordinance (1935), as it gives precedence to male heirs over female heirs (ADB 2015). Again, most institutions do not comply with the gender guidelines, and some lack the general understanding and awareness, including among law enforcers (ADB 2006; ADB 2014; ILO, 2020). Consequently, despite having laws related to protecting women against violence, the conviction rates for rape and sexual offences



are low compared to rates of acquittals for cases brought forward by the prosecuting bodies (Noreen and Musarrat 2013). Furthermore, budgetary provisions are often not adequate for the implementation of such laws and policies. For instance, in the case of Nepal and Maldives, the policy directives emphasise formulation of gender operational guidelines across sectors and appointment of gender focal points in each sectoral ministry, but the gender focal points lack the capacity in gender mainstreaming within the sectoral ministries, are challenged by frequent changes, lack clarity in roles, and are unable to influence their sectoral ministries due to lack of gender mainstreaming strategy (ADB 2014; Goodrich et al. 2021).

On the social inclusion front, despite the constitutional guarantee of fundamental rights and protection for all, marginalised and other minority groups, still lack confidence in justice delivery systems (Haque, 2019). Recognition of citizenship rights for the third gender is a typical example of how community members struggle in the HKH and South Asia. For example, although lesbian, gay, bisexual, transgender, queer (LGBTQ) community members are recognised constitutionally in Nepal, the struggle for citizenship, marriage, and social justice persists. Moreover, when national gender inclusion policies and strategies are formulated, the LGBTQ community is not effectively represented (ADB 2020b).

### 3.4.2 Policy landscape on climate change in the region

Climate change mitigation and adaptation are achievable at scale and speed if the right enabling conditions and policies are put in place, accompanied by better integration of climate change objectives in relevant policy areas such as energy, transport, building, agriculture or forestry, and other measures to speed technological innovation and diffusion (Wester et al. 2019).

**National policy landscape:** All South Asian and HKH countries have climate related laws, policies, and institutional frameworks for implementing their climate action targets and the Nationally Determined Contributions (NDCs) along with achieving Sustainable Development Goals (SDGs) in general and SDG 13 on Climate Action in particular. Table 5 gives an overview of the climate change laws and policies in the countries of the region. Most of countries in the region are transitioning to low-emission development pathways that integrate mitigation and adaptation solutions across sectors, including water, energy, agriculture, forestry, transportation, industries, health, urban settlements, rural economy, and environment, to limit global warming to 1.5 °C and reach net zero emissions by 2050 (Das 2022).

Apart from the universal key sectors viz. forest conservation and management, energy efficient transportation, low emission agriculture and industries, climate resilient water management, waste management, biodiversity and ecosystem conservation as key sectors for mitigating climate change and contributing to climate change adaptation, some countries have additional specific measures – rangeland management in Afghanistan and Nepal, Bangladesh's focus on energy efficient appliances at home, Bhutan's aim to remain carbon neutral while also pursuing sustainable hydropower development, China's investment in rural hydropower and green development, Maldives' investment plans for protecting coastal areas and conserving coral reef biodiversity, Nepal's emphasis on nature-based tourism, Sri Lanka's emphasis on incorporating traditional tree and food crops into agroforestry systems, Pakistan's efforts in nature-based solutions and river basin management, and India's efforts to conserve its Himalayan ecosystems. To achieve climate targets, all nations have either developed or are in the process of developing a country-specific National Adaptation Programme of Action (NAPA)<sup>xiv</sup>.

Table 5. Climate change laws and policies in South Asian and HKH countries

| Countries          | Laws  | Policies  |
|--------------------|---|---|
| <b>Afghanistan</b> | <p>Legislative Decree on the Endorsement of the Power Services Regulation Act 2015</p> <p>Law on Disaster Response, Management, and Preparedness 2012</p> <p>The Law on Regulating Forest Affairs 2011</p>                                      | <p>Afghanistan National Peace and Development Framework (ANPDF) (2017-2021), 2017</p> <p>National Comprehensive Agriculture Development Priority Program (2016 - 2020) 2016</p> <p>National Renewable Energy Policy 2015</p> <p>National Biodiversity Strategy and Action Plan 2014</p> <p>Disaster Management Strategy 2014 (2014–2017)</p> <p>Rural Renewable Energy Policy (RREP) 2013</p> <p>Strategic National Action Plan for Disaster Risk Reduction (SNAP) 2011</p> <p>The National Environmental Action Plan (NEAP) 2009</p> <p>Energy Sector Strategy 1387-1391 (2007/8–2012/3) 2007</p>  |
| <b>Bangladesh</b>  | <p>Sustainable and Renewable Energy Development Authority Act 2012</p> <p>Disaster Management Act 2012</p> <p>The Climate Change Trust Fund Act 2010</p> <p>The Bangladesh Energy Regulatory Commission (BERC) Act 2003</p>                     | <p>Mujib Climate Prosperity Plan (up to 2030) 2021</p> <p>National Action Plan for Clean Cooking (2020–2030) 2019</p> <p>Bangladesh Delta Plan-100 2018</p> <p>National Plan for Disaster Management (2016–2020) 2017</p> <p>Energy Efficiency and Conservation Master Plan (up to 2030) 2015</p> <p>Bangladesh Climate Fiscal Framework (CFF) 2014</p> <p>Bangladesh Climate Change and Gender Action Plan 2013</p> <p>Action Plan for Energy Efficiency and Conservation 2013</p> <p>National Sustainable Development Strategy (2010–2021) 2013</p> <p>500MW Solar Programme (2012–2016) 2013</p> <p>Bangladesh Climate Change Strategy and Action Plan (BCCSAP) 2009</p> <p>Renewable Energy Policy 2008</p> <p>Bangladesh National Action Plan (NAP) for Reducing Short Lived Climate Pollutants (SLCPs) 2018</p>   |
| <b>Bhutan</b>      | <p>Water Regulation of Bhutan 2014</p> <p>Disaster Management Act of Bhutan 2014</p> <p>Water Act 2011</p> <p>National Environment Protection Act 2007</p> <p>Electricity Act of Bhutan 2001</p> <p>Forest and Nature Conservation Act 1995</p> | <p>Bhutan Sustainable Hydropower Development Policy (SHDP) 2021</p> <p>Renewable Natural Resources (RNR) Strategy 2040, 2021</p> <p>National Environment Strategy 2020 “the middle path”</p> <p>Bhutan Electric Vehicle (EV) Roadmap (2020-2025) 2020</p> <p>National REDD+ Strategy and implementation framework 2020</p> <p>Climate Change Policy of the Kingdom of Bhutan 2020</p> <p>National Waste Management Strategy 2019</p> <p>12th Five Year Plan (2018–2023) 2018</p> <p>Renewable Energy Master Plan (2017–2032) 2017</p> <p>National Energy Efficiency and Conservation Policy 2017</p> <p>Economic Development Policy 2016</p> <p>Domestic electricity tariff policy of the Kingdom of Bhutan 2016</p> <p>Disaster Management Rules and Regulation 2014</p> <p>Alternative Renewable Energy Policy 2013</p> <p>National Strategy for Community Forestry 2010</p> <p>National Forestry Policy 2009</p> |

| Countries    | Laws   | Policies   |
|--------------|--|--|
| <b>China</b> | <p>Forest Law of the People's Republic of China 2019</p> <p>Electric Power Law 1995 (updated in 2018)</p> <p>Law on the Prevention and Control of Atmospheric Pollution 2016</p> <p>Renewable Energy Act 2006 (updated in 2009)</p> <p>Circular economy promotion law 2008</p> <p>Energy Conservation Law 2007</p> | <p>Implementation plan on promoting green consumption (notice 107 of the National Development and Reform Commission) 2022</p> <p>14th Five-Year comprehensive work plan for Energy saving and Emission reduction 2021-2025 (Notice 33) 2021</p> <p>Climate Investment and Financing Pilot Work Plan 2021</p> <p>The Overall Plan for the Pilot Program of the Comprehensive Reform of the Market-based Allocation of Production Factors (Notice 51 of the State Office) 2021</p> <p>Action Plan for Carbon Dioxide Peaking before 2030 ('1+N') 2021</p> <p>White paper on China's Policies and Actions to Address Climate Change 2021</p> <p>Notice 655/2021 on Pollution Control, Energy Conservation and Carbon Reduction 2021</p> <p>14th Five-Year Plan 2021</p> <p>New Energy Vehicle Industry Development Plan and New Energy Vehicle Promotion Subsidy Plan 2020</p> <p>National Innovation-Driven Development Strategy Outline 2016</p> <p>Energy Development Strategy Action Plan (2014-2020) 2014</p> <p>National Plan for Tackling Climate Change (2014-2020) 2014</p> <p>The National Strategy for Climate Change Adaptation 2022</p> <p>12th Five-Year Plan for the Development of National Economy and Society (2011-2015) 2011</p> <p>Regulation 530/2008 on energy conservation in buildings of civil usage 2008</p> |
| <b>India</b> | <p>Compensatory Afforestation Fund Act (Act No. 38) 2016</p> <p>Energy Conservation Act 2001 (updated in 2010)</p> <p>The Finance Bill 2010-11 and the Clean Energy Cess Rules, 2010</p> <p>Electricity Act 2003</p> <p>The Disaster Management Act, 2005</p>  | <p>Notification S.O. 4259(E) creating the Apex Committee for Implementation of Paris Agreement 2020</p> <p>Union Budget 2019-2020 (up to 2023) 2019</p> <p>National Electricity Plan (Generation) 2012 (updated in 2016)</p> <p>Prime Minister's Farmer Energy Security and Upliftment Campaign (PM-KUSUM scheme) 2019</p> <p>Tariff Policy 2006</p> <p>National Auto Fuel Policy and Auto Fuel Vision and Policy 2025, 2014</p> <p>National Urban Transport Policy 2014</p> <p>National Agroforestry Policy 2014</p> <p>National Mission for Electric Mobility Plan 2020</p> <p>National Policy on Biofuels 2009</p> <p>National Afforestation Programme - Revised Operational Guidelines - 2009</p> <p>National Action Plan on Climate Change 2008</p> <p>Integrated Energy Policy 2006</p> <p>National Electricity Policy 2005</p>  |

| Countries       | Laws   | Policies  |
|-----------------|--|---|
| <b>Maldives</b> | <p>Environmental Levy (Budget Amendment) Act (No. 36) 2017</p> <p>Environmental Protection and Preservation Act of the Maldives 2008</p> <p>Disaster Management Act 2007</p>   | <p>Climate Change Policy Framework 2015</p> <p>Strategic National Action Plan for Disaster Risk Reduction and Climate Change Adaptation (2010-2020) 2010</p> <p>Maldives National Strategy for Sustainable Development 2009</p> <p>Maldives National Energy Policy and Strategy 2006</p> <p>Regulation on the Protection and Conservation on Environment in the Tourism Industry 1999</p>   |
| <b>Myanmar</b>  | <p>Electricity Law 2014</p> <p>Law No. 21/2013 on Disaster Management 2013</p> <p>Law No. 9/2012, The Environmental Conservation Law 2012</p> <p>The Forest Law 1992</p>   | <p>Myanmar National Environmental Policy 2020</p> <p>Myanmar Climate Change Master Plan (2018 – 2030) 2019</p> <p>Myanmar National Climate Change Policy 2019</p> <p>Climate Change Strategy (2018-2030) 2019</p> <p>Myanmar Sustainable Development Plan (2018-2030) 2018</p> <p>Myanmar Agriculture Development Strategy and Investment Plan (2018-19/ 2022-23) 2018</p> <p>Myanmar Action Plan for Disaster Risk Reduction 2012 (updated in 2017)</p> <p>Climate Change Strategy and Action Plan (MCCSAP) (2016-2030) 2017</p> <p>The Myanmar National Framework for Community Disaster Resilience 2016</p> <p>Myanmar Energy Master Plan 2015</p> |
| <b>Nepal</b>    | <p>Forests Act 2019</p> <p>The Environment Protection Act 2019</p> <p>Disaster Management Act 2017</p>   | <p>National Climate Change Policy, 2019</p> <p>Biomass Energy Strategy 2017</p> <p>National Urban Development Strategy 2017</p> <p>Renewable Energy Subsidy Policy 2016</p> <p>Forestry Sector Strategy (2016-2025) 2016</p> <p>Agriculture Development Strategy (2015-2035) 2015</p> <p>National Framework for Local Adaptation Plans for Action (LAPAs) 2012</p> <p>Priority Framework for Action: Climate Change Adaptation and Disaster Risk Management in Agriculture (2011-2020) 2011</p> <p>Industrial Policy 2011</p> <p>The National Strategy for Disaster Risk Management in Nepal 2008</p>   |
| <b>Pakistan</b> | <p>Global Change Impact Studies Centre Act, 2013</p> <p>Pakistan Climate Change Act, 2017</p> <p>National Energy Efficiency and Conservation Act 2016</p> <p>Alternative Energy Development Board Act 2010</p> <p>The Pakistan Council of Renewable Technologies Act 2010</p> <p>The National Disaster Management Act 2010</p> | <p>National Electric Vehicle Policy 2020</p> <p>Green Stimulus Package 2020</p> <p>10 Billion Tree Tsunami Programme (Plant4Pakistan) 2018</p> <p>National Forest Policy 2010 (updated in 2015)</p> <p>Pakistan 2025: One Nation, One Vision 2014</p> <p>National Power Policy 2013</p> <p>Framework For Implementation of Climate Change Policy (2014-2030) 2013</p> <p>National Climate Change Policy 2012 (updated in 2021)</p> <p>National Sustainable Development Strategy (NSDS): Pakistan's pathway to a sustainable and resilient future 2010</p>   |

| Countries | Laws  | Policies   |
|-----------|---|--|
| Sri Lanka | Coast Conservation Act 57/1981 as amended by Act 49/2011<br>Sri Lanka Sustainable Energy Authority Act 2007<br>Disaster Management Act (Act No. 13) 2005<br>Water Resources Board Act No. 29 1964 | National Policy on Sustainable Consumption and Production for Sri Lanka 2019<br>National Action Plan for Haritha Lanka Programme 2019<br>National Energy Policy and Strategies of Sri Lanka 2019<br>Coastal Zone and Coastal Resource Management Plan 2018<br>National Biodiversity Strategic Action Plan (2016-2022) 2016<br>National Adaptation Plan for Climate change impacts (2016-2025) 2016<br>Sri Lanka Energy Sector Development Plan for a Knowledge-based Economy (2015-2025) 2015<br>National Disaster Risk Management Plan 2015<br>Technology Needs Assessment and Technology Action Plans for Climate Change Mitigation 2014<br>National Climate Change Policy of Sri Lanka 2012<br>National Policy on Disaster Management 2010<br>National Climate Change Adaptation Strategy for Sri Lanka (2011–2016) 2010<br>National Environmental Policy and Strategies 2003 |

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**Regional policy landscape:** Environmental problems, especially concerning climate change, water hazards, air pollution, disease, and biodiversity have no political boundaries. Adverse and transboundary impacts of climate change on diverse sectors such as agriculture, water resources, and health can impede the process of development. The problems transcend countries and therefore require regional governance mechanisms through interregional engagements among governments and institutions to effectively tackle the problems (Roy 2017; Zafarullah and Huque 2018; Wester et al. 2019).

Depending on the issues and opportunities, many countries in the region have bilateral agreements. For instance, Nepal and China have agreements for cooperation in disaster risk reduction, commerce, industries, and infrastructure development (MOFA 2019). India and Pakistan have the Indus Waters Treaty for using water from the Indus River system (The World Bank 2018). Bilateral treaties are important but tackling climate change and disaster risks demands regional collaboration and cooperation for sharing knowledge and expertise to pursue climate resilient development in the region.

It was in the spirit of collaboration that SAARC was conceived in 1985 as a regional platform for multilateral cooperation and diplomacy that can play a useful role in environmental management (Zafarullah and Huque 2018). At the 18th SAARC Summit in Kathmandu in 2014, member countries committed to work together against climate change, and raise a collective voice at international fora (Pokhrel 2021). They recognised that these challenges are severely undermining the development process and prospects of the member countries, and 'decided to intensify regional cooperation with a view to strengthening their disaster management capabilities'. Within most SAARC declarations, the role of the UNFCCC and the NAPAs is emphasised as a focal point of climate action.

Despite a sizable number of declarations to combat climate change and its security risks, many policies in South Asia are still not operational, and others are yet to be agreed upon (Krampe et al. 2018). However, like some other regions of the world, South Asia faces challenges to implementing regional environmental governance because of the diverse approaches each country takes to environmental matters, which they consider from a local or national rather than regional viewpoint (Zafarullah and Huque 2018). However, some smaller South Asian states, such as Bangladesh, Bhutan, Nepal, the Maldives, and Sri Lanka, have increased their climate security collaboration at state level and through non-governmental pathways. One of these initiatives is the Asian Disaster Preparedness Center, which brings together the national disaster management organisations of different states in the region to facilitate the implementation of disaster and climate risk management (Krampe et al. 2018).

The BIMSTEC region is one of the most vulnerable regions in the world to climate change. The establishment of BIMSTEC Centre for Weather and Climate Change is one of the notable initiatives being taken at the regional level through the MoU signed by the Governments of Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka, and Thailand (Roy 2017).

The HKH is experiencing positive transformation from a regional cooperation perspective. The ministers from the eight HKH countries have agreed on taking urgent steps to sustain mountain environments and improve livelihoods in the HKH (ICIMOD, n.d.). The eight ministers in a joint declaration signed in 2020 agreed to support both the HKH Call to Action, which calls for a prosperous, poverty-free HKH that is food, energy and water secure, as well as climate and disaster resilient communities in the mountains, downstream and beyond (ICIMOD 2020a) as well as the ICIMOD policy paper “COVID-19 impact and policy responses in the Hindu Kush Himalaya”, which calls for resilient recovery from the pandemic (ICIMOD 2020b).

### 3.5 Regional and national priorities on climate action and gender integration

#### Regional

The key regional priorities on climate action pertain to SAARC, BIMSTEC and ICIMOD's policy documents (Table 6). These regional policy documents range from being gender blind to moving towards a gender transformative approach.

**SAARC:** The SAARC Social Charter (2004), SAARC Action Plan on Climate Change (2008), Thimphu Statement on Climate Change (2010), and the guidelines of the SAARC Gender Policy Advocacy Group (2014) are the key climate action documents under SAARC. The Charter is gender neutral in its approach to gender (and social inclusion) as it outlines the social issues related to children and youth, gender, and health, but it does not clearly frame the measures for gender equality in response to changing climate, nor does it have targets or measures to ensure GESI in the member countries. The Dhaka Declaration and SAARC Action Plan on Climate Change (2008) and the Thimphu Statement on Climate Change 2010 are GESI sensitive as both these are aware of and recognise the differential impacts and risks on the lives and livelihoods of the people, especially also mentioning vulnerable communities, but do not address the vulnerabilities they face, nor do they provide guidance to promote principles of equity. The Plan specifically focuses on regional cooperation on technology and knowledge transfer, regional level action plan, and building regional common understanding to support the global negotiation process of the UNFCCC but it does not suggest any gender/GESI focused target or action. SAARC-GPAG, 2014 has targets to improve women's empowerment and gender equality in the SAARC member countries and thus it moves towards being gender responsive. However, specific strategies on GESI and climate linkages are not developed, and therefore, around climate action it remains at the stage of being gender sensitive.

**BIMSTEC:** BIMSTEC's priorities are economic and social development through mutually beneficial cooperation in the identified priority areas. Its sectoral objectives on

environment and climate change focus only on the biophysical science of climate and weather, and regional cooperation on these; there is no objective on social aspects and adaptation of people, even though the sectors have a strong GESI dimension and the adverse impacts of climate change cuts across them. The priorities tend to fall under the category of gender blind.

**ICIMOD-HKH:** ICIMOD's two key policy documents on climate action – HKH 9 Mountain Priorities and the HKH Call to Action – integrate GESI well and in fact move towards being GESI transformative as they go beyond just being aware and responsive. The 9 Mountain Priorities not only acknowledge the gendered differences but also set up clear indicators to address and eliminate gender and social gaps. Priority 3 specifically calls for achieving gender and social equity through inclusive and transformative change in the mountains. Apart from these, Priorities 1 and 2 are about achieving equitable and inclusive communities. The other priorities too also have targets that aim to challenge and transform the existing discriminatory norms and inequities e.g., empowering women as energy entrepreneurs, strengthening the role of women in decision making in water management, increasing women's representation and meaningful participation in decision making processes by 50 per cent in natural resource access and benefit sharing programmes. The Call to Action promotes actions and policies that lead to gender equality and inclusive development and suggests enabling mountain specific policies and development pathways that are pro-poor, and gender and socially inclusive. Thus, it challenges the existing social and gender norms and practices to bring about changes.



Table 6. Regional priorities on climate action and gender integration

| Priorities on climate action                                    | Gender Integration   | Ranking on gender continuum |
|---|--|-----------------------------|
| SAARC Social Charter, 2004                                      | Outlines social issues related to children and youth, gender, and health. However, it does not clearly frame the measures for gender equality in response to a changing climate.   | Gender neutral              |
| SAARC Action Plan for Climate Change, 2008                      | The plan focuses on regional cooperation on technology and knowledge transfer, regional level action plan, and building regional common understanding to support the global negotiation process of the UNFCCC. The plan does not suggest any gender/GESI focused target or action.   | Gender blind                |
| Thimphu Statement on Climate Change 2010, SAARC                 | The statement is aware about the differential impacts on the lives and livelihood of the people, but does not provide guidance to promote principles of equity   | Gender neutral              |
| SAARC Gender Policy Advocacy Group (GPAG), 2014                 | SAARC-GPAG was established in 2014 to advocate and keep gender high on the policy agenda of the SAARC Countries, and to enhance political and administrative will on gender equality and ensure implementation of commitments by member states to empowerment of women and achieve gender equality.<br><br>Specific targets related to gender/GESI linkages with climate change are not set  | Gender sensitive            |
| BIMSTEC's Sectoral Objectives on Environment and Climate Change | Only focus on biophysical science of climate and weather (weather prediction and climate modelling, and regional cooperation on these). No objective on social aspects and adaptations of people.  | Gender blind                |
| HKH 9 Mountain Priorities, ICIMOD                               | HKH mountain priorities acknowledge the gendered differences across its priorities and set up clear HKH indicators to address and eliminate gender and social gaps.  | Gender responsive           |
| HKH Call to Action, ICIMOD                                      | The HKH Call to Action presents a shared vision for the future of the HKH in which its societies and its people—children, women, and men—are prosperous, healthy, peaceful, and resilient in a healthy environment.<br><br>The Call promotes actions that lead to gender equality and inclusive development and suggests enabling mountain specific policies and development pathways that are pro-poor, and gender and socially inclusive | Gender responsive           |

### National

The countries in the region are at various stages with regard to climate action and policy documents on climate change. National priorities are reflected in the national policies, NDCs, and NAPAs. These national priorities range from being gender blind to gender responsive. A brief overview of the level of integration of GESI in the major national climate policy documents are outlined in Table 7.



Table 7. Gender integration in key national priorities on climate action

| Country     | Policy document                    | Key priority areas on gender equality   | Ranking on gender continuum |
|-------------|------------------------------------|---|-----------------------------|
| Afghanistan | NDC 2016                           | <p>The document presents the actions both on climate mitigation and adaptation. The document acknowledges that climate-induced risks and challenges can enhance social inequalities, poverty, and food insecurity, causing considerable and fundamental threats to human life, livelihoods, property, political stability, the economy, and the environment. However, it does not reveal any commitment or goal nor presents any policy measures and actions to address and reducing the social and gender inequalities. Further, the language and terms used are very general such as “country”, “farmers” and “people” with no attempt to differentiate between the different sexes, genders, or other social groupings.</p> <p>Note: The country’s NAP has not been officially submitted to UNFCCC, but its key objectives are presented in the NDC which do not show any commitment to reduce gender and social inequalities.</p> | Gender sensitive            |
| Bangladesh  | NDC 2021                           | <p>Identifies specific achievement/initiatives for women and marginalised groups e.g., National Action Plan for Clean Cooking, women-led businesses, and shelter project for landless and homeless people</p> <p>However, clear measures and actions on GESI are not found under priority sectors on mitigation and adaptation.</p> <p>NDC and NAPA development process followed a gender sensitive participatory process involving national level and local level agencies and organisations, local communities, indigenous people as well as women in the consultation process</p>  | Gender sensitive            |
|             | NAPA 2009                          | <p>Identifies specific activities targeting women and various marginalised groups such as poor farmer and specifically lays down gender equality as a criterion for identifying priority activities</p> <p>Calls for GESI responsive research and knowledge management, and to conduct analysis from gender differentiated and poor and non-poor perspectives while looking at the impacts.</p> <p>NAPA development process followed a gender sensitive participatory process involving national level and local level agencies and organisations, local communities, indigenous people as well as women in the consultation process</p>  | Gender responsive           |
|             | Mujib Climate Prosperity Plan 2021 | <p>‘Gender equality and women’s empowerment’ is among the planning principles.</p> <p>Promotion of female labour participation across all sectors is one of the priority areas</p> <p>Livelihood protection including for women in ecologically fragile areas is among the priorities</p>   | Gender responsive           |

| Country | Policy document                                      | Key priority areas on gender equality  | Ranking on gender continuum |
|---------|--|--|-----------------------------|
| Bhutan  | NDC 2021   | <p>Acknowledges the importance of gender and climate change nexus in Bhutan</p> <p>The important role women play in climate-relevant sectors is recognised and gender responsive planning and budgeting has been approved, calling for inclusion of gender in the environment, climate change and poverty concerns in budget proposals</p> <p>However, (a) the proposed actions, particularly around mitigation, are technical in nature and do not respond to GESI concerns; (b) GESI is not mainstreamed in actions and targets.</p> <p>Note: The planning process was gender responsive. The process included technical assessments, and wide-ranging stakeholder consultations with technical experts from government agencies, representatives of private sector, academia, civil society and youth groups, and high-level government consultation and review</p> | Gender sensitive            |
|         | Climate Change Policy 2020                           | <p>Includes and defines vulnerable groups from an intersectional angle considering factors such as age, health, and income, and it also focuses on gender particularly in the processes of implementation and integration</p> <p>Promotes the identification and transfer of appropriate technologies to support gender responsive mitigation and adaptation actions</p> <p>Considers gender as a cross cutting aspect in developing guidance and tools for assessing, planning, integrating and implementing adaptation and mitigation measures at all levels</p>   | Gender responsive           |
|         | NAPA 2006  | <p>Gender equality and women's empowerment is taken as a key guiding principle and state objective</p> <p>Promotes participatory methodology</p> <p>However, activities identified do not address gender differential needs, and they are gender neutral</p>   | Gender sensitive            |
| China   | NDC 2021   | Emphasises improving the resilience of social systems but does not mention about any action or policy for women and socially marginalised groups   | Gender neutral              |
|         | National Strategy for Climate Change Adaptation 2013 | By 2020, the document aims to improve adaptive capacity of farmers through training and technological support but does not mention about any action for women and social marginalized groups   | Gender neutral              |

| Country  | Policy document                               | Key priority areas on gender equality  | Ranking on gender continuum |
|----------|---|--|-----------------------------|
| India    | NDC 2016                                      | <p>The document acknowledges the importance of gender equality and women's empowerment</p> <p>However, both mitigation and adaptation strategies do not clearly suggest measures and actions on gender and social inclusion.</p>   | Gender sensitive            |
|          | National Action Plan for Climate Change 2008  | <p>The guiding principles of the plan include a principle on 'protection of the poor and vulnerable sections of society through an inclusive and sustainable development strategy, sensitive to climate change'</p> <p>It recognises that women are impacted first and worst by climate change and suggests specific actions that different government and non-government agencies must take to ensure that women are able to adapt to climate change</p> <p>It recognises how women can contribute to the overall development of the country by contributing to climate change adaptation</p> <p>However, the policy approach is geared towards only voicing concern for women's problems and highlighting their vulnerability, and "not taking into account their contribution to climate-change-policy implementation, especially in adaptations" (Hans et al.2019, p.3)</p> <p>There are no clear measures on gender and social inclusion under eight national missions<sup>xv</sup></p> | Gender sensitive            |
| Maldives | NDC 2020                                      | <p>Acknowledges the disproportionate burden on women, elderly, persons with disabilities and children caused by climate induced health issues</p> <p>Highlights the importance of the agriculture sector for income for many women, especially smallholder farmers and island communities</p> <p>However, specific measures and actions on women empowerment and gender equality are not committed in the document under any sector.</p> <p>There is no mention of gender in the mitigation plans and neither in any sector wise issues and plans</p>  | Gender sensitive            |
|          | Maldives Climate Change Policy Framework 2015 | <p>'Intergenerational equitability' (including gender equality and sensitivity) is among the core principles of the policy document</p> <p>Aims to develop cooperative and coordinated agreements between sectors to ensure respect for human rights, the rule of law, gender equality and sensitivity</p>   | Gender sensitive            |

| Country | Policy document                                     | Key priority areas on gender equality   | Ranking on gender continuum |
|---------|---|---|-----------------------------|
| Myanmar | The Myanmar Climate Change Policy 2019              | <p>Gender equality and women's empowerment is among the guiding principles of the MCCC, particularly in the guiding principles on multilevel decision-making, impacts of climate change (women and girls in Myanmar are disproportionately affected by climate change), protection of rights (covering the poorest, most vulnerable and marginalised segments of society, including indigenous peoples, all ethnic groups, local communities, women, children, the elderly, and persons with disabilities), and gender equality and protection of women's equal rights (through strengthening gender-responsive climate change policy)</p> <p>Gender responsive actions are given high attention in the sectors/ action areas of agriculture, fisheries, livestock, capacity building, and research and technology transfer</p> <p>These gender responsive actions are framed for maintaining growth and productivity of food systems, and to enhance capacity, knowledge, and skills of relevant stakeholders</p>      | Gender responsive           |
|         | NDC 2021  | <p>Reveals the government's commitment to ensure gender equality and inclusiveness, particularly in the areas of capacity building, and the reduction of loss and damage induced by climatic hazards</p> <p>Calls for institutional capacities for a monitoring and reporting system of agroforestry, and capacity development for farmers at the local level to support development of gender inclusive production systems and value chain enhancements, SMEs, cooperatives, and association</p> <p>Includes gender and socially inclusive considerations in the practice and policies of the agriculture, fisheries, and livestock sectors</p> <p>It elaborates that for reducing loss and damage induced by hazards, Myanmar will improve social protection, gender considerations, and risk finance capacity to prepare for and recover from potential loss and damage resulting from climate change</p>  | Gender sensitive            |
|         | Myanmar Climate Change Strategy (2018-2030) 2019    | <p>It recognises women as more vulnerable and as agents of change</p> <p>Makes it mandatory to involve women in planning processes</p> <p>Has some well-defined activities and indicators to capture gender mainstreaming</p>   | Gender responsive           |
|         | Myanmar Climate Change Master Plan (2018-2030) 2019 | <p>The Master Plan details out the CC Strategy:</p> <p>The CC Strategy has a well-defined section on gender considerations which highlights gender differentiated impact of climate change due to existing inequalities, responsibilities and roles among men and women in Myanmar.</p> <p>It recognizes that women are more vulnerable to climate change but highlights that women can lead the way in adaptation to climate change impacts.</p> <p>Outlines capacity building and guidance as an important measure to - mainstream gender into climate change actions, ensure equal participation of men and women in interventions and improve the availability of sex disaggregated data</p> <p>Highlights inclusiveness and inclusive development as an important concept. The definition includes poor, landless, marginalised, and vulnerable women and men as agents of change, and all geographic regions to shape and benefit from opportunities provided by climate resilient and low carbon development</p> | Gender responsive           |

| Country | Policy document                     | Key priority areas on gender equality   | Ranking on gender continuum |
|---------|-------------------------------------|---|-----------------------------|
| Nepal   | NAPA 2010                           | Identifies gender as a cross-cutting theme and gender sensitive analysis is conducted across the six thematic working groups <sup>xvi</sup><br><br>However, (a) the results of the gender analysis are not incorporated in the document and (b) there is no specific funding allocated for gender   | Gender sensitive            |
|         | National Adaptation Plan 2021       | Ensures gender responsive and socially inclusive actions to engage people of all genders in all stages of climate adaptation planning, budgeting, implementation, and monitoring and evaluation<br><br>Focuses on diversifying and enhancing livelihoods of marginalised and vulnerable people through GESI responsive adaptation programmes<br><br>Considers gender equality and social inclusion as a cross cutting aspect across all eight targeted thematic sectors<br><br>Provides for planning and implementing programmes on gender equality and social inclusion (i.e., women, children, elderly, and other vulnerable groups)  | Gender responsive           |
|         | National Climate Change Policy 2019 | Women and marginalised groups (social inclusions) are among the target groups in policy measures in agriculture and food security<br><br>Gender equality and social inclusion and good governance are considered cross-cutting aspects across themes/sectors  | Gender responsive           |
|         | NDC 2020                            | The mitigation component commits to 50 women's representation and proportional representation of Dalit and Indigenous people in community-based forest management committees. Fair and equitable distribution of benefits from sustainable forest management, watershed management, and biodiversity-conservation will also be ensured among local communities, women, and Indigenous people.<br><br>In agriculture, it commits to ensuring increased access to climate-smart agricultural technologies for women, Indigenous people, smallholder farmers, and marginalised groups<br><br>Action Plan for integrating GESI in achieving NDC targets will be developed by 2030 with focus on gender-disaggregated data in reporting (performance and achievements), capacity, participation and leadership of women, youth, and Indigenous groups in climate policy development, planning, implementation (all levels) and monitoring.<br><br>By 2030, all local governments are asked to prepare and implement climate-resilient and gender-responsive adaptation plans | Gender responsive           |

| Country   | Policy document   | Key priority areas on gender equality  | Ranking on gender continuum |
|-----------|---|--|-----------------------------|
| Pakistan  | National Climate Change Policy 2021   | <p>Acknowledges the gendered differences in climate change drivers and impacts</p> <p>Presents the women focused measures to understand and address these differences</p> <p>However, the focus remains on women, and there is no clear policy measure on transgender and marginalised and deprived communities</p>  | Gender responsive           |
|           | NDC 2021  | Gender sensitive programming is among the guiding principles of the document, and all sectors have gender specific policy measures and actions   | Gender sensitive            |
|           | Climate Change Gender Action Plan 2022  | <p>The plan is considered a tool to enhance knowledge and capacities, identify gaps and enabling conditions, and build coordination and actions to strengthen gender-responsive strategies and results to meet the country's climate change objectives</p> <p>It aims to integrate gender and climate fully in key sectors of the economy, particularly agriculture and food security, water and sanitation, disaster risk management, forests and biodiversity, coastal management, energy, and transportation</p>  | Gender responsive           |
| Sri Lanka | National Climate Policy 2012  | No mention of 'gender', 'women' or any terms related to social inclusion in the document   | Gender blind                |
|           | National Climate Change Adaptation Strategy for Sri Lanka (2011 to 2016) 2010     | Interventions and indicators target women and different vulnerable groups such as farmers, fisherfolk, and the poor  | Gender sensitive            |
|           | National Adaptation Plan for Climate Change Impacts in Sri Lanka (2016-2025) 2016 | <p>Identifies nine priority sectors and suggested priority actions in these sectors.</p> <p>Presents action areas under the cross-cutting needs of adaptation.</p> <p>However, no clear policy measures or actions have been found on gender equality and social inclusion in any of the sectors and cross cutting areas</p>   | Gender neutral              |
|           | NDC 2021  | <p>Mainstreaming gender and social inclusion (women, young children, people living with disabilities and elderly) into adaptation priorities is considered as an important strategy</p> <p>Gender-responsive strategies are planned to consider the differentiated needs of men and women within the sectors and to explore ways to improve access to knowledge, technology, and finance in a way that creates enabling conditions for adaptation</p> <p>Shows commitment to investment in some selected areas including incentives for women to engage in agricultural productivity and food security efforts</p> <p>Contains a separate Chapter 7 on Integrating Sustainable Development Goals and Gender into the NDCs.</p> | Gender responsive           |

International laws and frameworks increasingly recognise that climate change and gender equality are strongly interlinked, but the countries in the region have generally “been slow to integrate gender and human rights concerns in their climate policies and commitments” (Pross et al. 2020, p.13). Although climate change is a central agenda for most governments in their planning and policies, often “the focus on gender is not clear so far and has not been given due attention” (Patel et al. 2019, p.147). Consequently, most national policy documents fall within the bracket of being accommodative to gender (and social inclusion) concerns, but not actually changing them. The documents seem to move from being gender sensitive, to moving towards being gender responsive. Most of the governments in countries are aware of the gender differences and acknowledge them, but not enough is being done to change the situation in a proactive manner. The Myanmar Climate Change Strategy (MCCS, 2018–2030) and Myanmar Climate Change Master Plan (MCCMP, 2018–2030) are the only policy documents that move beyond women’s vulnerability and highlight them as agents of change as they can lead the way in adaptation to climate change impacts.







## **IV. Sectoral assessment and GESI integration**

## 4.1 Drivers, pressures, state, and trends of climate change in key sectors

The South Asian countries, with their large populations, and increasing urbanisation and industrialisation, face huge challenges in ensuring water, energy, and food security for their people while protecting the ecosystem and environment. The key drivers and pressures in agriculture, energy, and water sectors in the HKH and South Asia are population growth, rapid urbanisation, unsustainable agricultural and industrial practices, weak management systems, environmental pollution, and climate variability and change. South Asia is the most densely populated region of the world hosting about 25 per cent of the global population in only about 3.7 per cent of the global land area (Mishra et al. 2016). The population in the Indus, Ganges, and Brahmaputra river basins is expected to grow from 900 million in 2010 to 1.1–1.4 billion in 2050, which will likely be accompanied by rapid urbanisation (Klein Goldewijk et al. 2010; Rasul 2016). The urban population here increased to 35 per cent of the total population in 2021 and is expected to grow further (The World Bank 2022).

All these are resulting in degradation of the natural resource base and this can lead to scarcity of water resources and food insecurity. Around 170 million (9 per cent of the population) in the region lack access to basic drinking water services, and about 78 million (4 per cent of the population) have no access to electricity (The World Bank 2022), and more than 200 million face chronic food shortages and suffer from malnutrition (FAO 2017).

### 4.1.1 Agriculture sector

In South Asia, around 60 per cent of the population is involved directly or indirectly in the agriculture sector for income, food security, and livelihoods (Khan and Imran 2021). The sector absorbs 47 per cent of the total employed population of the region and contributes around 19 per cent to the GDP (2016) in the region (Liu 2020). However, its share in GDP has declined over time (from 22 per cent in 2003). Climate change is one of the key factors for this decline (Mishra et al. 2016). The major climate induced risks in agriculture in South Asia include changes in precipitation, temperature rise, increase incidences of hazards (i.e., drought and floods), and sea level rise (Shaw et al. 2022).

Globally, agriculture<sup>xviii</sup> is the third largest contributor (22 per cent) of greenhouse gases (IPCC 2022). In South Asia and the HKH, GHG emissions from agriculture sector are around 11 per cent of the total emissions in the region (Table 8). Use of synthetic fertilisers, burning of crop residue, and land degradation are some of the main causes of GHG emissions in the agriculture sector. These need to be addressed through sustainable agricultural practices, with an ecological and socioeconomic focus, with co-benefits for climate change adaptation. Management options that reduce vulnerability to soil erosion and nutrient loss include growing green manure crops and cover crops, crop residue retention, reduced/zero tillage, and maintenance of ground cover through improved grazing management (IPCC 2019; Rasul et al. 2022).

The agriculture sector in the region is vulnerable to climate change (IPCC 2014) because the major agricultural crops are water intensive (Rasul 2014), and large agricultural areas in the region are still rainfed. Moreover, irrigation systems such as Indus Basin Irrigation System are dependent on glacier and snow meltwater (Qureshi et al. 2010). Uncertainties in precipitation and rapid melting of glaciers and snow have resulted in variability in water availability from small scale irrigation systems in mountainous areas to large scale ones in the plains (Qamar and Muhammad 2022). Rising temperature is likely to increase evapotranspiration, further increasing water stress and resulting in decreased production of major crops in the region (Rasul et al. 2019). Increasing incidences of disease and pest outbreaks have also resulted in crop loss in the region (Chhogyel and Kumar 2018).

Table 8. Total greenhouse gas emissions and emissions from the agriculture and energy sectors

| Country      | Total GHG emissions (MtCO <sub>2</sub> e) | GHG emissions from agriculture sector |                             | GHG emissions from energy sector |                             |
|--------------|---|---------------------------------------|-----------------------------|----------------------------------|-----------------------------|
|              |   | MtCO <sub>2</sub> e                   | Per cent of total emissions | MtCO <sub>2</sub> e              | Per cent of total emissions |
| Afghanistan  | 28.79                                     | 15.54                                 | 15.54                       | 8.27                             | 28.73                       |
| Bangladesh   | 237.70                                    | 87.19                                 | 36.68                       | 102.75                           | 43.23                       |
| Bhutan*      | 0.36                                      | 0.50                                  | 138.89                      | 0.70                             | 194.44                      |
| China        | 12055.41                                  | 662.55                                | 5.50                        | 10618.71                         | 88.08                       |
| India        | 3363.59                                   | 719.82                                | 21.40                       | 2422.24                          | 72.01                       |
| Maldives     | 2.60                                      | 0.003                                 | 0.12                        | 2.11                             | 81.15                       |
| Myanmar      | 242.95                                    | 86.89                                 | 35.76                       | 39.56                            | 16.28                       |
| Nepal        | 48.37                                     | 26.00                                 | 53.75                       | 13.70                            | 28.32                       |
| Pakistan     | 439.49                                    | 194.41                                | 44.24                       | 200.60                           | 45.64                       |
| Sri Lanka    | 37.90                                     | 5.74                                  | 15.15                       | 24.16                            | 63.75                       |
| <b>Total</b> | <b>16457.16</b>                           | <b>1798.64</b>                        | <b>10.9</b>                 | <b>13432.80</b>                  | <b>81.6</b>                 |

MtCO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; 2019 data

\*Bhutan's total emissions are less than the emissions from agriculture and energy sectors because of the high capacity of forests to absorb carbon dioxide annually.

Source: ClimateWatch 2019

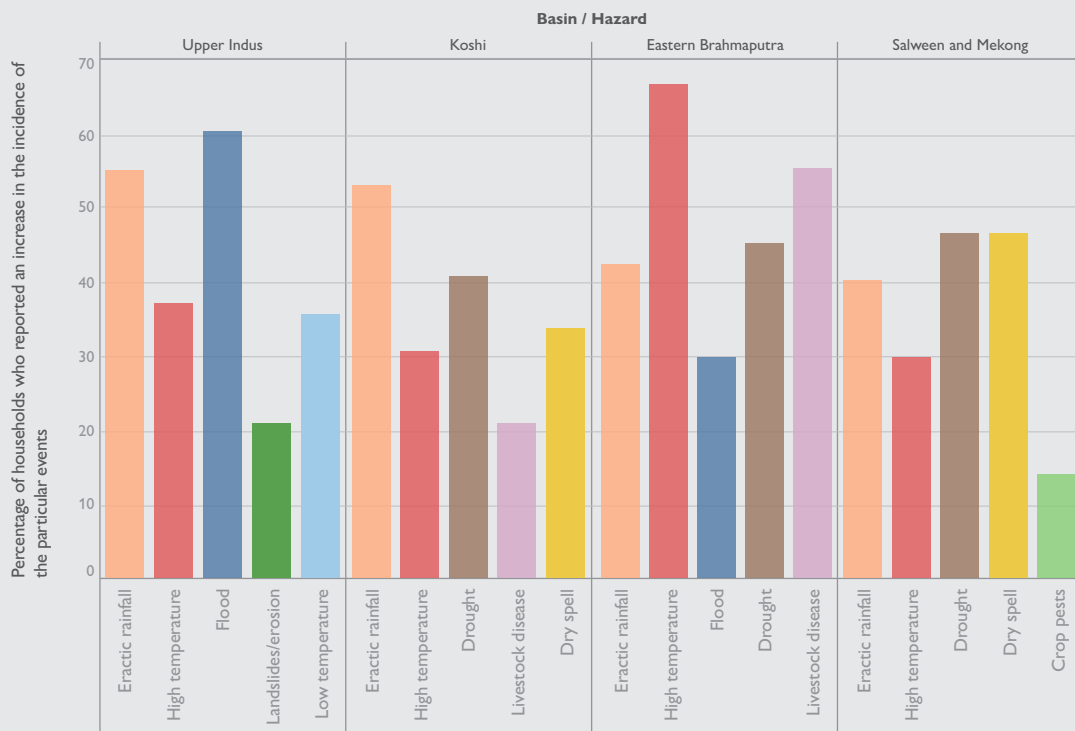
Temperature increase of 1.5°C is expected to decrease wheat yield by 7 per cent in Swat, Pakistan (Hussain and Mudasser 2007). The rice and wheat production in Bangladesh are expected to decline by 8 per cent and 32 per cent, respectively by 2050. Continued rise in temperature risks heat stress during critical growth stages of rice plants in Pakistan (October), South India (April-August) and Bangladesh (March-June) (Wassmana et al. 2009) that will reduce crop production.

Sri Lanka experienced its worst drought in 2016, which resulted in a decline in rice production by 40 per cent in 2017 (Gunaratne et al. 2021). Temperature increases during 1967-2016 in India decreased productivity of tea, maize, jowar, sugarcane, and wheat (Praveen and Sharma, 2019). In mountainous areas of the region, there has been a significant drop in the productivity of major horticultural crops like apples and apricots due to rising temperature and decrease in snowfall (Dilshad et al. 2019). Climate change is likely to result in a decline in crop diversity as well (Chaudhary et al. 2020). A study in Bangladesh revealed a shift in crop choices among farmers implying changes in future rice cropping patterns (Moniruzzaman 2015). A recent study (Yan and Alvi 2021) in four countries – Bangladesh, India, Pakistan, and Sri Lanka – projected a decline (by 2050) in the yield of cereals respectively by 16.4 per cent, 7.1 per cent, 10.7 per cent and 9.5 per cent due to the impacts of climate change. The recently released IPCC 6th Assessment (Shaw et al. 2022) also presented evidence that shows a projected decline in the yield of cereals in South Asia in the coming decades.

Sea level rise and flooding in the coastal areas will decrease arable areas as well as crop production, particularly rice (Kalhor et al. 2016; Perera et al. 2018; Roy et al. 2022). Agriculture in the coastal areas is also susceptible to tropical cyclones, and areas along the Bay of Bengal in India will be more vulnerable to crop destruction (Rasul et al. 2012; Wickramasinghe et al. 2021). The coastal areas of Bangladesh lost 12.1 per cent of their crop production to major disasters during 1970–2017 (Hasan and Kumar 2021).

Climate change-induced hazards have increased in the HKH (Figure 4). Glacial lake outburst floods have caused a lot of damage to agriculture and infrastructure in the central and western parts of the HKH (Hussain and Qamar 2020). Extreme weather events have also caused significant damage to the agricultural sector in the region.

**Figure 4.**  
Climate induced changes and hazards in the HKH



**Note:** Figure 4 is based on analysis of a household survey (n= 8083) conducted in 2012 in four river basins of the HKH – Upper Indus (Pakistan), Koshi (Nepal), Eastern Brahmaputra (India), and Salween and Mekong (China). The data presented in figures is household-level perception on the increase of incidence of hazards/events in 2012 compared to 10 years ago (2002 or earlier).

Climate change is also resulting in an increase in the degradation of rangelands and pastures, leading to negative impacts on livestock productivity and the food security of pastoral communities in mountain areas. A prolonged drought from 1998 to 2002 in the Balochistan province of Pakistan resulted in serious water stress on agriculture and shortages of water and fodder, leading to the death of 1.76 million heads of livestock and affecting agricultural activities on around 1 million hectares of cultivable land (Shafiq and Kakar 2006). In India, climate change is also predicted to lead to boundary changes in areas suitable for growing certain crops (Srinivasa Rao et al. 2016).

On the other hand, some crops and areas may benefit from climate change. An increase in temperature is benefitting high mountain regions through an upward shift of crops such as vegetables, beans, and maize (Manandhar et al. 2011). Further, temperature increase is expected to increase wheat yield in Chitral, Pakistan (Hussain and Mudasser 2007) and parts of Nepal (Malla 2008).

#### 4.1.2 Energy sector

Climate change and energy are intertwined in numerous ways. The use of non-renewable energy sources such as fossil fuels is adding to GHG emissions. On the other hand, the use of renewable energy such as solar, wind and hydropower is not only playing a role in reduction of GHG emissions but also in adaptation options across sectors (Wester et al. 2019). For instance, solar energy is being promoted in the HKH for irrigation (ICIMOD 2016) and green value chains (ICIMOD 2021).

Climate change is also impacting the production of renewable energy. For instance, climate change induced floods and rains affect the very sources of energy production, like the flow of water for hydropower, wind patterns for wind energy, and rain and cloud cover for solar energy production. Extreme events and hazards such as glacial lake outburst floods, and unexpected rains and floods have damaged dams, hydropower projects, and other infrastructure in South Asia and the HKH. For instance, Nepal experienced massive floods linked to rains and glacial lake outburst which damaged dams and powerhouses (The Third Pole 2021), while recently in Hunza Pakistan, a glacial lake outburst flood damaged powerhouses leading to a complete electricity cut in central Hunza, (The Sama 2022). Similarly, the degradation of forests, a major source of energy particularly for the poor, has meant scarcity of such energy resources.

At the same time, the demand for energy has exponentially increased all over the world. Energy demand in the region has risen by 50 per cent since 2000 and is expected to increase further with population growth, industrialisation, and urbanisation (The World Bank 2021; ENERGIA, 2019). Environmental degradation and GHG emissions are on rise due to this increase. Energy is also the largest contributor (nearly 82 per cent contribution) of greenhouse gases in South Asia and the HKH (Table 8). China is also the largest contributor (79 per cent) to the emissions from energy sector in South Asia and the HKH countries. India contributes around 18 per cent to emissions from energy sector in the region (Table 9).

Currently, fossil fuels are the major source of energy in the region, and the contribution of renewable energy is very small in most countries. The share of renewable energy (RE) in total energy supply (TES) in the region is only 12 per cent. However, in Bhutan and Nepal, share of RE is significantly high (80 and 73 per cent, respectively) compared to non-renewables. In Myanmar, renewables contribute 50 per cent to the TES. In other countries of the region, the share of renewables is significantly lower compared to that of non-renewables (Table 1A).

Analysis of sources of energy supply revealed that in Afghanistan, nearly 80 per cent of the total primary energy supply (TPES) is contributed by fossil fuels (i.e., primary coal and peat,

coal and peat products, primary oil, oil products, and natural gas). The share of biofuels and waste (renewable sources) is around 9 per cent and share of electricity is 12 per cent in TPES (Table 2A). In Bangladesh, the share of fossil fuels in TPES is 71 per cent. Biofuels and waste contribute 27 per cent to TPES. In China and India, fossil fuels contribute respectively 90 per cent and 80 per cent to TPES, respectively. In Myanmar, Pakistan and Sri Lanka, fossil fuels contribute 60 per cent, 75 per cent, and 61 per cent to TPES, respectively. In Bhutan, primary biofuels and waste contribute almost 68 per cent to TPES. Electricity and fossil fuels contribute 14 per cent and 18 per cent to TPES, respectively. In Nepal, primary biofuels and waste contribute 73 per cent to TPES. Electricity and fossil fuels contribute 5 per cent and 22 per cent to TPES, respectively. In Maldives, fossil fuels contribute more than 99 per cent to TPES (Table 3A).

Statistics on electricity generation show that in Afghanistan, Nepal and Bhutan, electricity is mainly generated by large hydropower plants. In Afghanistan, Bhutan, and Nepal, nearly 85 per cent, 98.8 per cent and 99.97 per cent electricity is generated by large hydro plants (Government of Afghanistan 2020, Government of Nepal 2020, Government of Bhutan 2020). In Bangladesh, nearly 80 per cent of the electricity is generated from natural gas (Bangladesh Power Development Board 2022). In China, 65 per cent of electricity is generated from coal lignite, and 18 per cent by large hydro plants (China Energy Portal 2019). In India, nearly 75 per cent electricity is generated from coal lignite, and only 10 per cent is generated by large hydro plants (Ministry of Power 2020). In Pakistan, 67 per cent of electricity is generated from thermal sources, and only 21 per cent is generated by large hydro plants (Government of Pakistan 2019). In Myanmar, almost half of the electricity is generated by large hydro plants, and 41 per cent is generated from natural gas (Government of Myanmar 2020). In Sri Lanka, thermal and coal contribute 45 per cent to TPES, and hydropower contributes around 20 per cent (ITA 2021, IHA 2022). In Maldives, more than 90 per cent of electricity is generated from non-renewable sources (fossil fuels), and solar power contributes 5 per cent (IRENA 2021). The literature reveals that energy related emissions associated with abundant use of fossil fuel for cooking, cleaning, heating, electricity, transport, and industry pose a greater danger to environmental health (EEA 2017; Van et al. 2017; Brown, et al 2012). More than 60 per cent of households in South Asia rely on solid biomass for cooking and heating (Haque et al. 2022). The reason why people prefer or use fossil fuels is because many governments in South Asia and HKH subsidise gas (natural gas and liquefied petroleum gas (LPG), petroleum products, and coal. This makes them comparatively cheaper and therefore people prefer using these energy sources instead of the currently more expensive alternatives that are renewable energy sources. For instance, China provides USD 18 billion in subsidies on petroleum products and USD 12.4 billion on gas. Likewise, India provides USD 21.0 billion in subsidies on oil and USD 0.9 billion on gas. Pakistan provides USD 1.7 billion in subsidies on gas and Bangladesh provides USD 0.9 billion in subsidies on gas (IEA 2019; Global Subsidies Initiative-IISD and BIDS 2020).

The region has significant renewable energy potential such as hydro power, solar, wind, and biomass. For instance, major rivers originate from the mountains of China, India, Pakistan, and Nepal that are a source of hydropower and Sri Lanka, Maldives, Bangladesh, India, and Pakistan have oceans which can be tapped for wind and tidal energy. The HKH alone has over 500GW of hydro energy production potential whereas only a very small per centage of it is in use (Dhakal et al. 2019). Thus, this region has the potential to reach net zero carbon emissions (ADB 2017; REN21 2019; The World Bank 2021).

However, some caution is called for. Hydropower development in the region has led to “adverse socio-environmental impacts [...] particularly common at the local level”, as these projects are more focused in “national and regional economic priorities” and do not pay much attention “to the adverse impacts on affected local populations (mostly mountain communities)” (Shrestha et al. 2016, p. 1). Hydropower development policies

and strategies in the region pay little attention to gender, regardless of the climate merits assigned to clean energy development. Thus, there are significant risks for local communities in hydropower development in these regions, but as noted by Resurrección et al (2019, p. 509) “the analytical scale of the ‘local’ remains essentially unpacked”.

The region is gradually transitioning to renewable energy particularly in remote and mountainous areas that are extremely difficult to connect to the national electricity grid. Governments in the region are making attempts to increase use of renewable energy and alternate fuels such as gas (natural and LPG). For instance, in the absence of grid electricity, low-cost solar lighting systems are being used in many rural areas in most of the countries of the region (Haque et al 2022). In India, the government has introduced several initiatives, including subsidies for the rural poor to reduce their dependence on firewood (Thomas et al 2022), and in Bangladesh accessible and appropriate market chains for LPG have been developed for rural areas (Bari et al 2022).

### 4.1.3 Water sector

The problems associated with the water sector can be summarised as there being either too much or too little water, i.e., floods, flash floods, glacial melt, erosion, and drought (Vinke 2017). Due to the South Asia and HKH's ever increasing water use, with 90 per cent used for the agriculture sector (Maja and Ayano 2020; Rasul 2016), and the rest for industrial and drinking purposes, it is highly susceptible to climatic events (Ullah et al. 2022). Any change in temperature and precipitation patterns has a daunting impact on water resources and human wellbeing. In the HKH, there are 25,614 glacial lakes covering an area of 1,444km<sup>2</sup> (Maharjan 2015). The temperature rise has accelerated glacier recession and increased the number of glacial lakes in last three decades (1990-2015) (Mal et al., 2021) threatening the lives and livelihoods of over 2.3 billion (Shrestha et al. 2015; Mahanta et al. 2018). In Bhutan, climate-induced glacial retreat is likely to be higher than in Nepal or any other country in the HKH (Mahanta et al. 2018). The glacier changes that affect runoff of meltwater in the Himalaya and Karakoram ranges have increased the frequency and intensity of GLOFs, flash floods, and debris flows (Nie et al. 2021). Although glacial melt is considered a vital source of freshwater, monsoon rainfall is still the principal source of freshwater for the region. However, studies have shown that monsoon precipitation is declining (Safdar et al., 2019) with very high variability in terms of annual precipitation and mean precipitation (Shrestha et al. 2015). Where rainfall intensity is less, the water table is falling rapidly (Kumar 2012).

Mekonnen and Hoekstra (2016) identified South Asia as a severe water scarcity region, particularly during January to June. Some parts of South Asia are already experiencing water stress, while water demand for agriculture, energy, industry, and human and livestock use in the region is predicted to rise by 55 per cent in 2030 compared to 2005 (Rasul 2014). The water sector in South Asia and the HKH remains undeveloped. Water resources management and the provision of clean water and improved sanitation are already a challenge in the region, with many people still using unimproved drinking water sources. The urban population rose to 33 per cent of the total population in 2016 and is expected to grow further (The World Bank 2017). Surface water scarcity will become more severe in already water scarce regions such as the southeastern part of the Indus basin and southwestern part of the Ganges basin (Biemans et al. 2013).

The most available potable water source for human consumption and irrigation is groundwater, but its use is not regulated (Kumar 2012). The surface and groundwater sources are contaminated by industrial effluents, overextraction, and urbanisation. The increasing demand for water due to population growth, energy demand, urbanisation, agricultural intensification, land use change, and industrial production has led to mounting pressure on water resources (Rasul 2016). Population growth and the demand for food



have led to agricultural intensification involving the use of high yielding varieties of seeds, fertilisers and pesticides that negatively impact water bodies. Over the years, with the increasing energy demands of a growing population, the construction of hydropower plants and the hydrological interdependence among riparian communities have increased conflicts and tension on the use and management of water resources (Khalid 2010; Goodrich et al. 2017b; Devkota et al. 2018; Saklani et al. 2020). This has led to increasing inequality within the water sector (Pulla et al. 2018).

In addition, the change in temperature and precipitation has affected natural springs. Studies cited by Panwar (2020) highlight that about 36 per cent of the springs in Koshi River Basin (Nepal) have dried up entirely, and more than 20 per cent have become seasonal. Similar trends in the drying of springs are observed in the other HKH member countries (Shrestha et al. 2017; Panwar 2020; Akbar 2020; Daniel et al. 2021).

Temperature rise has intensified extreme climatic events across South Asia, such as heatwaves and forest fires, and this is projected to increase into the future (Ullah et al. 2022). With changes in precipitation patterns and water availability, parts of Afghanistan, India, and Pakistan are water distressed, leading to desertification (Hasnat et al. 2018). Unpredictable precipitation patterns and overreliance on groundwater for irrigation and urban water supply have led to its overextraction in Pakistan (Qureshi et al. 2010). Increasing urbanisation and demand for megacities have further increased the demand for groundwater sources (Rasul 2016; Hasnat et al. 2018). In many parts of Bangladesh, India, Myanmar, Pakistan, Sri Lanka, and the plains of Nepal (Terai region), groundwater sources are contaminated with arsenic, iron, and other chemicals (Kanel 2005; Kumar 2012; Ray and Ray 2019), making it unsafe for human consumption.



## 4.2 Impacts of climate change on GESI in the sectors

Understanding the gendered implications of climate change on agriculture, energy, and water is imperative to developing adaptation and mitigation strategies that cater to the needs and interests of various groups of people. The way that women and men experience climate change is shaped by diverse social and historical processes that have resulted in social inequalities between men and women. Gender relations and spaces are mediated by cultural norms, values, religious beliefs, caste identities, class, education, geographical location, physical abilities, and other social structures (Goodrich et al. 2019a; Singh et al. 2021).

In general, in the developing countries, including in countries in the HKH and South Asia, the impacts of climate change are disproportionately felt by the poor, particularly the rural poor, as they often depend directly on natural resources for their livelihoods (Ganguly 2013; Mitra and Rao 2016). By virtue of their gender roles, women are not only the first observers of environmental change but also the victims of the adverse impacts of climate change (Yadav and Lal 2018). Women are in general impacted more negatively based on the prevalent gender-based discrimination in access to and control over productive resources, their restricted mobility, and their limited voice in decision making (Mitra and Rao 2016; Goodrich et al. 2017a). As per the prevailing gender division of labour, women generally bear the responsibility of the family's food and water needs and climate change poses more challenges to women in carrying out these tasks (IUCN 2015). Additionally, outmigration of men due to extreme events and limited livelihood options further increases the challenges and workload for women (Patel et al. 2019; Goodrich et al. 2019b; Resurrección et al. 2019). Even among women, the poor and those residing in rural parts, and in remote and fragile areas, who depend on the availability and sustainability of the natural resources for their livelihoods are worse affected (Ganguly 2013; UNDP 2013a; Goodrich et al. 2019b; Resurrección et al. 2019).

### 4.2.1 Agriculture sector

As discussed above agriculture is one of the sectors that climate change has affected immensely, whether through rapid or slow onset disasters. Disasters affect the rural poor more directly as many of these families and households are thrown into deeper poverty and debt in addition to facing food insecurity and malnutrition. Women farmers, and women from farming families may face further challenges due to their unequal access to land, labour and capital, and limited or no role in decision-making. These have implications on their ability to adapt to the stresses of climate change.

A major effect of climate change in the agriculture sector is reduced agricultural productivity. The yield of cereals in the region is projected to decline in the coming decades (Krishnamurthy et al. 2015; Shaw et al. 2022). In the HKH, around 80 to 90 per cent of agricultural activities are handled by elderly women (Hussain et al. 2021), and in most instances it becomes difficult for them to handle both household and laborious farm activities, leading to abandonment of agricultural land (Hussain et al. 2021; Hussain et al. 2016). In the HKH and South Asia, women have become the "main cultivators, seed savers, and users" and so "are the most affected by climate change" (Resurrección et al. 2019, p. 499). In general, women-headed, and women-maintained households are hardest hit due to limited or no access to productive resources such as land and credit and even quality services and timely information. This may result in their inability to diversify their livelihood options and cope with the changes in the absence of adult men (Mitra and Rao 2016). In the HKH, there are many instances of agricultural land abandonment due to the additional workload on women and their limited access to required resources and information services (Hussain et al. 2016; Hussain et al. 2021).

Reduced agricultural yields will also have more severe impacts for women and children in terms of food insecurity and malnutrition (Ramachandran 2013; WHO 2014; Alston

2015; Rasul et al. 2019). The sociocultural norms in the region still discriminate against women and girls in the allocation of food, whereby women and young girls get less food and often eat last. In emergencies, such as disasters, when there are limited food stocks, priority is usually given to the male members of the family (Mitchell et al. 2007; Datar et al. 2013; Sugden et al. 2014). In states in India that faced crop failure due to drought, the percentage of acutely malnourished pregnant women was higher than the prevalent WHO cut-off values (UNICEF 2016); in Bangladesh, women often gave their share of food to the children while they themselves starved (Kabir et al. 2016); while in Nepal, due to crop failure, women resorted to eating millet gruel and nettle broth, which are relatively less preferred than rice (Gentle and Maraseni 2012).

Climate change has led to an increase in the outmigration of economically active men in search of better livelihood options and employment, leaving behind women, children, and the elderly. This has adversely affected agricultural production and more so in the HKH mountain areas of China, India, Nepal, and Pakistan (Hussain et al. 2016; 2018; Rasul et al. 2014; Shi et al. 2018; Xu et al. 2019). A major gendered impact of this is the increasing feminisation of agricultural labour, (Mu et al. 2011; Anderson et al. 2016; Slavchevska et al. 2016; Mitra and Rao 2016; Goodrich et al. 2017b, 2019b; Paudyal et al. 2019; Resurrección et al. 2019; BMGF 2020) resulting in an increase in women's workload and time poverty. Strong evidence from the Upper Indus Basin of Pakistan (Gioli et al. 2014; Abbasi et al. 2017), Nepal (Bhawana and Race 2020), and in some part of India (Saha 2021) revealed feminisation of labour and added workload of women due to prolonged migration of male members of the households for better income opportunities.

Apart from these broader impacts across the region, there are country-specific impacts on women. In Bangladesh and Sri Lanka, women lived in constant fear of theft and faced harassment (Rabbani et al. 2015; Dias 2019); in Nepal, due to cultural factors, women are unable to take up ploughing, which is one of the reasons for the reduced size of farms and farm income for women (Jaquet et al. 2016); in Sri Lanka, female-headed smallholder farming households receive less options to sell and earn less profits than men due to discrimination faced by women in selling the produce (Kurukulasuriya and Ajwad 2007). In China the young population, both women and men, are migrating to urban areas leaving the elderly and children to look after the farms and agriculture, often leading to security issues for them (Murphy 2008; Mitra and Rao 2016; Resurrección et al. 2019)

Overall, the gender differential impacts of climate change in agriculture in the region are mainly driven by (a) gender division of labour, (b) feminisation of agriculture, (c) gender-based inequalities in access to and control over productive resources, viz. land, labour, financial capital, and information (BMGF 2020, p.4), and (d) discrimination against women and girls in families and communities. These skewed gender relations manifests in food insecurity, malnutrition, increased workload, time poverty, and stress due to limited or no options for incomes.

All these – less food and malnutrition, increased workload, stress due to limited or no options for income – could have cascading and intergenerational effects on (a) the health of women and girls, including on their reproductive health, related to pregnancy, lactation, and childbirth (Rylander et al. 2013), and (b) on education, as girls are more likely to be pulled out of school and /or to be married off earlier (Vincent et al. 2010; Goodrich et al. 2017a). They could also widen the existing gender and social gaps and aggravate problems, including gender-based violence (Castañeda et al. 2020)

#### 4.2.2 Energy sector

Agenda 2030, under SDG 7, emphasises energy access for all, and it is now increasingly accepted that energy is an essential resource for redressing historic gender and social inequities (UNDP 2016a). Yet, energy poverty for many people persists – 5 per cent of the people in South Asia do not have access to electricity (The World Bank 2020a).

There is a big disparity in energy access among urban, rural, and mountainous settings in South Asia and the HKH countries (ENERGIA 2015; Patel et al. 2019; Ezeilo 2020). Most households in cities have access to energy mostly generated through fossil fuels such as coal and natural gas, leading to emissions that have implications on climate change (UNEP 2013; ADB 2017; IRENA 2019; Ezeilo 2020). Due to accessibility and affordability issues related to other sources of energy, most people living in rural and mountainous regions largely depend on biomass for their energy needs, which has environmental as well as health implications, especially for women due to their gendered role and responsibility of cooking and their curtailed mobility that limits them to the house most of the time (UNEP 2013; Power Division 2016; Rewald 2017; ADB 2017; Ezeilo 2020; UNEP 2020a). It is worth mentioning here that a huge population remains disadvantaged in terms of energy access. In Pakistan, 30 per cent of the population does not use electricity due to various reasons such as inadequate transmission lines and poor socio-economic status of communities in remote rural areas (USAID 2015; Khalid 2019; Moeen et al 2016). In Bangladesh, most of the population (62.9 per cent) uses grid electricity produced by natural gas for lighting; however, the situation is dire in rural areas where only 42 per cent are connected to the grid (Power Division, 2016; Islam et al., 2017; The World Bank



2021). In Nepal, most of the people in rural and mountainous areas, who make up 79 per cent of the total population, depend on biomass for cooking, heating, and washing due to accessibility and affordability issues, and almost 30 per cent do not use electricity (ADB 2017; Power Division 2016; Mahat 2020). Major reasons for the above are: (a) access to electricity in far flung areas is challenging due to unavailability of transmission lines and power generation units (Khalid 2019; Mohideen 2013; 2019; Ezeilo 2020); (b) poor people prefer cheaper and easily available resources as compared to electricity with high charges; in Bhutan for example, energy access between female and male headed households shows significant difference where lack of affordability among female-headed households also affects the uptake of modern energy solutions (ActionAid and OCI 2011; UNEP 2013; Tsai 2015; ENERGIA 2015; Mohideen 2013; 2019); and (c) unavailability of electricity in peak times especially in extreme cold and hot weather due to low stream levels or flooding (UNEP 2020; IPCC 2012; Moss and McGann 2011).

Energy poverty is intrinsically linked to economic poverty and has distinct gender characteristics that disproportionately affect women and girls. Unavailability and lack of access to clean and sustainable energy affects women and men differently due to their pre-existing responsibilities, vulnerabilities, and positions within society (UNEP 2013; ENERGIA 2019; IDS 2020; UNEP 2020a). The patriarchal systems followed in most of the countries of the region that result in gender-based discrimination pose obstacles and challenges to women in purchasing green energy and energy-efficient appliances for their household tasks (Koengkan and Fuinhas 2021). The use of dirty or polluting fuels to meet the households' basic needs, adds to women and girls' drudgery and increase their exposure to pollutants.

Given the prevalent gender division of labour, women and girls are the one who are tasked with the primary responsibility of collecting fuel and water. With the impact of climate change that leads to reduction or degradation of forests, women, and girls often must walk further distances to collect fuelwood, thus increasing their drudgery and risks of gender-based violence. Women spend a substantial amount of time collecting biomass for household energy needs. Studies in the HKH and South Asia have shown that women spend five to six hours every day for firewood collection (UNEP 2013; ADB 2017; UN Women, 2015; UNEP and UN Women 2019; Ezeilo 2020); similarly a study in India, Bangladesh and Nepal found that women in South Asia spend more than 20 hours per week in collecting biomass energy (Practical Action 2015). The consequence of this is time poverty, i.e., lack of time for other income earning activities, for studying or attending school, for taking care of themselves, and spending time with their families and children.

This increase in the workload and drudgery has clear health impacts. Given the sociocultural customs whereby women and girls are often the ones who have poor nutrition, such increased workload and drudgery exposes them to more health risks, including reproductive health risks such as perinatal mortality and postnatal complications (Lim et al. 2016; WHO 2014; Mohideen 2013, 2019). Moreover, continuous burning of firewood, agricultural residue, and animal waste can lead to respiratory problems, especially in women and children as they are the ones who are inside the house (Lim et al. 2016 UNEP 2013; ENERGIA 2015; UN Women 2015; Rewald 2017; IUCN 2017; Mohideen 2019; UNEP 2020a).

### 4.2.3 Water sector

“The gendered nature of water-related work – who does it, who controls it and, often, who pays the biggest price for its poor quality and lack of access” (Goodrich et al. 2017, p. 16) has deep implications for various groups of women and men in a changing climate. Traditionally, women carry the main responsibility for providing water for household use and consumption, for animal husbandry, and kitchen gardening. Furthermore, they are also involved in protecting water resources and maintaining water systems (Khadka et al. 2014; Singh and Singh 2015) and play a substantial role in agriculture and farming. These responsibilities, coupled with gender-based inequality in the access and control of the water resources, decreases women’s ability to deal with adverse climatic events (Price 2018). Along with gender, the social structures of caste and religious beliefs, among others, also shape the management and use of water. The struggles of socially marginalised groups like Dalits<sup>viii</sup>, ethnic groups, scheduled castes and scheduled tribes, and other minority groups are often ignored and unheard (Ramakrishnan 2021; van Koppen et al. 2022).

In the arid and semi-arid regions of South Asia, within India, Pakistan, and Afghanistan, where water shortages are chronic, the impacts of climate change have affected traditional water reservoirs. In these areas, the water reservoirs are already degraded, and many have disappeared, leading to rapid fall in the groundwater table. These incidences have forced women to collect drinking water for domestic purposes and livestock from far flung places. In many parts of South Asia, including in the mountainous communities, women and young girls regularly walk long distances to fetch drinking water. Such conditions hinder young girls’ opportunities to education, and access to health care needs (Singh and Singh 2015; Yadav and Lal 2018).

In the context of irrigation and agriculture, the impacts of climate change have adversely affected farm production, water supply and its market price, resulting in increased food insecurity and poverty (Bhandari 2021). There is evidence of deterioration in water quality, for instance through increase in salinity and contamination by arsenic.

Reduced rainfall and over-extraction of water for irrigation has turned the groundwater saline across the region, making it unfit for consumption by humans and livestock (Kanel 2005; Ray and Ray 2019). This has not only reduced the availability of potable water in rural communities, but also negatively impacted water availability for irrigation. From a gender lens, this means that women workers face multiple constraints for agriculture production not only as labourers and but also as producers. As mentioned above, men involved in this sector have migrated out due to low agricultural production. Implications of this are provided in detail under section 4.2.1. Women are still not recognised as farmers and do not participate in decision-making within water institutions in the region. This is because groundwater use for irrigation has remained under the purview of men as it is related to land rights (Price 2018).

Handling and ingesting arsenic water leads to a chronic health condition called arsenicosis, which has been documented in communities across Nepal (Terai region), India, and Bangladesh. People suffering from this condition are often ostracised and ridiculed, and it is mostly the poor who lack resources to install filters and access safe water. Due to their water related responsibilities of collection, cooking, and washing, women and girls are often the ones to suffer from arsenicosis (Mazumder et al. 2010; Sultana 2011).

Furthermore, the reduced availability of water has huge implications on sanitation and hygiene. Given the reproductive health issues of women and girls, they are the ones who are at more risk to reproductive tract infections (RTI), and urinary tract infections (UTI), as safe sanitation services are determined by the socio-cultural practices and norms followed across the Terai region of Nepal, Pakistan, and in the northern parts of Bihar in India (Adil et al. 2021; Dhital et al. 2022; Ashraf et al. 2022).



Gender and social power inequalities shape the way in which various groups of men and women cope, experience and suffer from water-related hazards and disasters (Sultana 2010). In general, it is the poor and marginalised who suffer disproportionately during such hazards and disasters in terms of mortality, displacement, and damage, as they are the ones who live in places that are most at risk such as close to rivers or fragile slopes. Even among these groups, women are the first victims (Yadav and Lal 2018; Mirza 2011), mainly due to the stringent and discriminatory socio-cultural norms and practices and social sanctions in the name of *ijjat* (honour) and *lajja* (shame) that regulates women's mobility and their presence in public spaces that makes them more vulnerable, particularly in India, Afghanistan, Pakistan, Bangladesh, and Nepal (Udas et al. 2018; Sultana 2011). Furthermore, they are last to get information about such disasters due to the social structures that make women dependent on male members for receiving disaster information, risk awareness, preparedness, and evacuation (Dhungel and Ojha 2012; Sharmin and Islam 2013; UNDP 2016b). There is ample evidence of this in the region – whether it is the lack of access to warning systems and information, or the inability of women to leave the house to escape disasters without the permission of male members. Similarly, during the aftermath of such disasters too it is women and girls who face greater negative impacts in terms of school dropouts, human trafficking, insecurity, harassment, gender-based violence, and health issues (Goodrich et al 2017a; 2019b; Resurrección 2019).

Overall, it can be said that the impacts of climate change on agriculture, energy and water play out differently for women and men. In general, it is women, the poor and other marginalised communities who bear and will continue to bear the brunt of adverse impacts of climate change on their resource base. This in turn exacerbates and perpetuates pre-existing systemic inequalities and gender biases.

### 4.3 Integration of GESI in the key regional and national policy documents of the three sectors

Policy decisions and processes impact women and men differently due to their gender-specific roles, responsibilities, and position in society. Inclusive policies are critical for achieving the SDGs and benefiting women and marginalised segments equitably. Moreover, implementation of policies and their institutionalization are critical to ensure the effectiveness of programmes, initiatives, and interventions (Kabeer 1994; ENERGIA 2015; IEA 2020 APEC 2019; IDS 2020; UNEP 2020a).

#### 4.3.1 Agriculture sector

Policy documents that promote and support women's access to and control over agricultural resources and services are critical, particularly in the context of climate variability and the increased role of women in agriculture due to large scale outmigration of men.

##### Regional level

At the regional level in South Asia, there are several agreements and declarations of the SAARC summits that focus on agriculture. Agriculture has been a major area of cooperation among the SAARC member countries since its inception. Agriculture ministers from the SAARC countries met six times between 1996 and 2019 and provided guidance for the Technical Committee on Agriculture and Rural Development (TCARD) and SAARC Agricultural Centre. The SAARC Food Bank and Seed Bank are some of the regional efforts to address the common challenges of food security. The regional cooperation has focused on agricultural research, extension and farmers' linkages, and exchange of farm technology. The reviewed agreement and declaration relating to food security and agriculture are gender neutral.

The BIMSTEC Charter (signed and adopted on 30 March 2022) neither specifically mentions any goals on the development of the agricultural sector, nor any measures to address gender and social inequalities.

Beside these regional cooperation mechanisms, there are bilateral agreements on trade of agricultural products between the South Asian countries such as Bhutan-India and India-Nepal (Kardar 2011). These bilateral agreements are more focused on tariff liberalisation (Kardar 2011), without any specific mention of gender (Suleymenova and Syssoyena-Masson 2017). Moreover, women in the bordering areas of the countries in the region are engaged in informal trade of agricultural products and inputs in significant volume (CUTS International 2018a; 2021). Since it is informal trade, there are no regional or national policy measures to safeguard women.

ICIMOD's document on 'Nine mountain priorities for achieving SDGs in the HKH' addresses the gender and social inequalities in the HKH. The document highlights the changing roles of women in agriculture, their increased drudgery because of outmigration of men, inadequate participation in decision making, and limited control over resources. One of the priorities focuses on the promotion of sustainable production systems to ensure food and nutrition security, income for mountain people, with particular attention to women's changing roles in agriculture.

### National Level

Given the importance of agriculture in the region, the countries of HKH and South Asia have numerous policy documents focusing on agriculture. Key policies and programmes are presented in Table 9.

In general, the national agricultural policies recognise the vital role of women in the sector; however, most of the policies are silent about the persistent pay gap between men and women in the agricultural sector throughout the region. The reviewed policies are mostly silent about the issue of women's lack or limited access to and control over resources necessary for agriculture, except for a few, such as the National Strategy on Women in Agriculture (2015-2020) of Afghanistan and the Overarching Agricultural Policy (2020–2025) of Sri Lanka. Even the policies that recognise this do not have any provisions to address the issue.

Overall, the policies mostly emphasise encouraging participation of women in the sector and improving their access to agricultural technologies through skill development training. Skill development of women farmers is essential for building the resilience of agricultural communities (ICIMOD 2020b). There is no mention of schemes focused on women to foster their engagement in agricultural enterprises or market-based production systems. Overall, the national policies mostly lack explicit provisions for addressing the specific vulnerabilities of women in the sector.



Table 9: Integration of GESI in agriculture sector policies and programmes

| Country     | Policy   | GESI Mainstreaming  | Ranking in gender continuum |
|-------------|--|---|-----------------------------|
| Afghanistan | National Comprehensive Agriculture Development Priority Programme (2016–2020) 2016 | The vision of the document is to achieve food and nutrition security through growth in agricultural production resulting in economic empowerment of men and women. The document acknowledges the barriers and challenges faced by women. It prioritises enhancing women's skills to access and use agricultural inputs and ensuring their food and nutrition security.  | Gender sensitive            |
|             | National Strategy on Women in Agriculture (2015–2020) 2015                         | This is a framework for the Ministry of Agriculture, Irrigation and Livestock on women's empowerment in the agricultural sector. It highlights the gender issues in the agriculture sector such as inequalities in access to and control over resources, feminisation of the agricultural workforce, and pay gap. It lays out numerous provisions such as institutional capacity building for developing gender sensitive policies and improving women's access to land and agricultural inputs.  | Gender sensitive            |
| Bhutan      | Food and Nutrition Security Policy of the Kingdom of Bhutan 2014                   | The policy realises the fact that food and nutrition security programmes must be gender sensitive and socially inclusive of the interests of poor and vulnerable communities and individuals.<br><br>The policy aims to ensure equal access of smallholder women and men farmers to credit, and the implementation of targeted microcredit programmes for women and youth to enhance incomes in both rural and urban areas. It also aims to develop special employment schemes to capture the interests and needs of vulnerable groups.   | Gender responsive           |
|             | Agricultural Marketing Policy of Bhutan 2013                                       | The document recognises the importance of women and youth participation in the agriculture sector, and emphasises economic benefits for women and youth engaged in agriculture. It also aims to improve women's skills and capacity through women's participation in decision making, research, extension and training, technical support to them on family nutrition, crop production, post-harvest activities (handling, processing), agricultural businesses and agricultural product-based cottage industry.<br><br>The policy aims to establish youth farmer clubs, promote small and medium agricultural industries, capacity building on agricultural entrepreneurship, farm mechanization, and initiatives on involving youth in the agricultural industry. | Gender responsive           |
| Bangladesh  | National Agricultural Mechanisation Policy 2020                                    | The document encourages the participation of women and youth in agricultural enterprises and use of machinery through skill development training programmes.  | Gender responsive           |
|             | National Agriculture Policy 2018   | The document recognises the importance of women and youth participation in the agriculture sector, particularly vegetable farming. It emphasises economic benefits for women and youth engaged in agriculture.  | Gender responsive           |

| Country  | Policy   | GESI Mainstreaming   | Ranking in gender continuum |
|----------|--|--|-----------------------------|
| China    | National Food Security Mid-term and Long-term Planning Framework (2008–2020) 2008 [translated brief version]         | The objective of the policy is to stabilise grain sown area and establish modern grain storage system for maintaining grain self-sufficiency of over 95 per cent. The policy highlights key tasks, essential policy measures and programmes to achieve its objectives. There are no specific programmes or measures targeting women or marginalized groups.                        | Gender neutral              |
|          | Action to Achieve Zero Growth of Chemical Fertilizer Use by 2020 (2015)  | The action plan aims to attain annual growth rates of chemical fertiliser use below 1 per cent during 2015 and 2019, and zero growth by 2020. The plan acknowledges health risks to farmers due to overuse of chemical fertilisers but does not distinguish the risks to men and women. Also, the tasks and measures in the plan are gender neutral.                               | Gender neutral              |
|          | Action to Achieve Zero Growth of Pesticide Use by 2020 (2015)  | The objective of the action plan is to maintain the average use of pesticides per unit of land area as it was during 2012–2014 and achieve zero growth in use of pesticides by 2020. The action plan is gender neutral.  | Gender neutral              |
|          | White Paper on Food Security in China 2019   | The document states that food security is the top priority of the government, and it is committed to “ensuring basic self-sufficiency of grain and absolute security of food”. It highlights the government’s efforts, achievements, and strategies, particularly in economic and technological aspects, for ensuring food and nutrition security. The document is gender neutral. | Gender neutral              |
| India    | The State/ Union Territory Agricultural Produce and Livestock Marketing (Promotion and Facilitation) Act 2017        | The Act enables agriculturists to sell their products, promote agri-business, and develop marketing infrastructure. There are no special provisions for women.   | Gender neutral              |
|          | The State /UT Agricultural Produce and Livestock Contract Farming and Services (Promotion and Facilitation) Act 2018 | The act is aimed at overcoming the agricultural challenges such as land fragmentation, production uncertainties, and market unpredictability. There are no provisions for women.   | Gender neutral              |
| Maldives | National Food Safety Policy (2017–2026) 2017   | The goal of the policy is to ensure supply of safe and nutritious food by strengthening institutional capacity, improving coordination among responsible agencies, and raising public awareness on nutrition and healthy food habits. The document does not include any social dimensions of food security, including gender.  | Gender neutral              |

| Country   | Policy  | GESI Mainstreaming   | Ranking in gender continuum |
|-----------|---|--|-----------------------------|
| Myanmar   | National Land use Policy 2015                     | The policy recognises legitimate land tenure rights of people, with particular attention to vulnerable groups such as smallholder farmers, the poor, ethnic nationalities, and women, and ensures equal opportunities for men and women over land resources.   | Gender neutral              |
|           | Agriculture Policy 2016                           | The policy aims to support small scale farmers, livestock keepers and fisher folk, gathered into groups or cooperatives (in which women's participation is mandated)   | Gender neutral              |
|           | Myanmar Agriculture Development Strategy 2018     | The policy document aims to increase women's participation in agriculture development through their inclusion in development programmes, their capacity building (including other disadvantaged groups), and improvement of service delivery and extension services for them and other vulnerable groups.  | Gender responsive           |
| Nepal     | National Agriculture Policy 2004                  | The objective of the policy is to improve agricultural production through conservation and sustainable use of natural resources. It aims to increase participation of women in agricultural training programmes to 50 per cent. There are specific programmes targeted at marginalised communities, but no targeted programmes for women.  | Gender neutral              |
|           | Agriculture Development Strategy (2015–2035) 2015 | The strategy recognises the plight of women due to outmigration of men and women's labour contributions in the agriculture sector. It aims to increase women's land ownership from 10 per cent in 2010 to 50 per cent by 2030, and reduce the proportion of women with low BMI from 18 per cent in 2010 to 5 per cent by 2030. The strategy aims to promote growth of agro enterprises led by women, and implement nutrition programmes for pregnant and lactating women | Gender responsive           |
|           | National Agro Biodiversity Policy of Nepal 2006   | The vision of the document is to conserve and use agricultural genetic resources sustainably with participation of stakeholders. The policy plans to improve skills of stakeholders for technology transfer and conduct participatory breeding programmes. The policy does not indicate any specific programmes for women.   | Gender neutral              |
| Pakistan  | Agriculture and Food Security Policy 2018         | The policy aims to ensure gender disaggregated for accurately measuring food security. It also aims to improve women's contribution in value added agriculture and family nutrition and empower them and other vulnerable groups in highly fragile areas such as mountains and deserts. The policy targets to extend safety nets to all marginalised groups comprising women and older people with no source of livelihood.  | Gender responsive           |
| Sri Lanka | National Agriculture Policy 2021                  | The policy seeks to empower women and youth through technical capacity building and mechanisation and modernisation of the agriculture sector  | Gender responsive           |
|           | Overarching Agricultural Policy (2020–2025) 2019  | The document acknowledges high engagement of women in the agriculture sector and gender inequalities in access and control over land. It prioritises engaging women in the commercial activities in the sector. .  | Gender responsive           |



### 4.3.2 Energy Sector

When we study the energy policy landscape with respect to gender in energy sector, it is observed that most of them are not gender neutral. Although limited, there are some efforts being made with the help of international bodies to include concerns, develop mechanisms, and institutionalize (ENERGIA 2015).

#### Regional level

At the regional level, SAARC and BIMSTEC do have a focus on energy. SAARC has established a regional energy centre for cross collaboration and coordination among South Asian countries and agreements have been signed. However, GESI considerations are completely missing in the agreements, and objectives of strategies or actions.

The “SAARC Framework Agreement for Energy Cooperation (Electricity)” was signed in 2014, where cross-country bilateral interconnections between India-Nepal, India-Bhutan, and India-Bangladesh were established to promote regional trade in electricity to address the increased demand for energy in the region (Chauhan 2020). The framework stresses on non-discriminatory access to national grids and voluntary negotiations through bilateral, trilateral, and regional agreements; and highlights the need for regional institutions for system operations and dispute settlement. Social and gender issues do not feature in this.

Energy is one of the priority areas of BIMSTEC and the MoU for establishment of the BIMSTEC Grid Interconnection was signed in 2018 at the Fourth BIMSTEC Summit held in Kathmandu, Nepal. The MoU entered into force on 07 April 2019. However, very few contributions are underway for coordination among countries and gender considerations are not part of any agreement, policy, or strategy document.

The South Asia Regional Initiative for Energy (SARI/E) initiated by the US Agency for International Development (USAID) in 2000 is a major regional cooperation initiative. The aim of this regional initiative is to promote energy security in South Asia, through three focus areas: cross border energy trade (CBET); energy market formation; and regional clean energy development. SARI/E played a key role in integrating and promoting the energy policy and technology linkages across the South Asian nations. It is the only regional framework that specifically mentions gender in its fourth phase (2018-2022) where “linking to electricity access for livelihoods and gender mainstreaming” is outlined as an activity (USAID, SARI/E, IRADe 2019, p. 9). However, beyond this, there is not much mentioned.

Overall, there has been limited success in regional energy cooperation in the region. There have been instances where projects were cancelled due to political mistrust and strategic concerns and unresolved border issues, for example the Myanmar-Bangladesh-India (MBI) pipeline project, which was economically viable. Other aspects, such as differences in technical standards, and regulatory and policy frameworks in the respective countries also add to the challenges for regional cooperation (Chauhan 2020).

As such, cooperation in energy in the region exists only at the bilateral level and is focused on electricity trade between India-Nepal, India-Bhutan, and India-Bangladesh. In such a scenario, social and gender concerns do not feature.

#### National level

Countries of South Asia and the HKH have made some progress in including GESI concerns in electricity related policies and plans (Table 10). For instance, Nepal, India, Pakistan, and Bangladesh have amended policies to include enhanced access to energy for women and marginalised groups. However, more attention is needed in policies for productive use of energy to improve their livelihood and wellbeing and benefits for women from various energy options (IDS 2020; Yoshikawa et al 2019 Islam et al. 2017; IUCN 2017).

Table 10. GESI integration in energy sector policies and programmes

| Country            | Key energy policy   | GESI Mainstreaming  | Ranking in gender integration continuum |
|--------------------|---|---|---|
| <b>Afghanistan</b> | Afghanistan Energy Efficiency Policy 2016                             | Policy only focuses on increasing efficiency and productivity in the energy sector in which leadership is given to government departments. It talks about improving access and subsidising energy options in rural areas with the help of various organisations. However, differentiated needs of women and men are not mentioned (UNEP 2013; Angelou 2019; The World Bank 2019).   | Gender neutral                          |
| <b>Bangladesh</b>  | Energy Policy of Bangladesh 2008                                      | Does not consider the contributions, impacts, and benefits for women, and women are shown as passive users of the energy sector (Tuladhar 2012; UNEP 2013; UNEP 2020a; Abarca 2021)   | Gender neutral                          |
|                    | Renewable Energy Policy of Bangladesh 2014                            | The main goal is to develop renewable energy sources to meet 5 per cent of total power demand by 2015 and 10 per cent by 2020. There is no mention of gender issues.  | Gender neutral                          |
| <b>Bhutan</b>      | Alternative Renewable Energy Policy 2013                              | The policy mentions technologies (including improved cookstoves). However, there is no mention of improving access to renewable energy for cooking and heating. Gender relations at various levels and the role of women in productive activities are not mentioned in the policy or strategy document.   | Gender neutral                          |
| <b>China</b>       | 14th Five Year Plan for a Modern Energy System 2022                   | Deals with improving access to renewable energy sources. It does not categorically discuss different needs and priorities of women and men (ADB 2019; IPCC 2019).   | Gender neutral                          |
| <b>India</b>       | The Integrated Energy Policy 2006 and the National Energy Policy 2017 | <p>The energy policies in India recognise the importance of clean cooking fuel for women, its minimum negative health impacts, and reduced drudgery and hence substantial efforts have been made to provide clean fuels and technologies for cooking nationally like LPG. Despite all this, it has failed in its efforts to create a transformational impact.</p> <p>Energy policies in India, do not recognise the active role of women in production, distribution and critical role in decision making at various levels. There also exists large gaps in access between urban and rural areas. The energy policies are mostly focused on offering clean and modern energy as substitutes to traditional fuel but lacks in the supply of adequate and affordable electricity to home-based micro-enterprises, post-harvest technologies (e.g., power operated grain threshers and groundnut strippers) which are labour-intensive for women (UNEP 2013; IEA 2020).</p> | Gender neutral                          |
| <b>Pakistan</b>    | Alternative and Renewable Energy Policy 2019                          | Women and vulnerable segments of society are passive recipients. It struggles to improve energy access without taking the differential implications of policies, strategies, and practices into consideration (USAID 2015; Khalid and Malick 2021).   | Gender neutral                          |
|                    | National Electricity Policy 2021                                      | The policy does not consider gender and social inclusion in its goals and measures.   | Gender blind                            |
| <b>Maldives</b>    | Maldives Energy Policy and Strategy 2016                              | This contains an action plan that aims to provide energy sources for cooking and cleaning to reduce some of the burden on women (Ministry of Housing and Environment 2010, IUCN 2017).  | Gender responsive                       |

| Country   | Key energy policy                                       | GESI Mainstreaming   | Ranking in gender integration continuum |
|-----------|---|--|---|
| Myanmar   | Myanmar Energy Master Plan 2015                         | Promotes alternative energy for household energy use, to utilize fuel types other than firewood/ charcoal as a household fuel (Government of Myanmar; National Energy Management Committee 2014; Tsai 2015; UNEP 2013), thus bringing in the GESI aspect.  | Gender sensitive                        |
|           | National Energy Policy 2014                             | Efforts made to improve involvement of women in renewable sector at various levels through credit and entrepreneurship facilities (IUCN 2017).   | Gender responsive                       |
|           | Myanmar Renewable Energy Policy (Draft as of 2014)      | The policy covers the issue of clean cooking sources. It ensures provision of alternative and clean energy sources and technology at household level.  | Gender sensitive                        |
| Nepal     | Renewable Subsidy Policy 2022                           | The policy document seems gender informed but GESI is not mainstreamed clearly in the policy measures. For example, concrete incentives for GESI are presented in the measures on solar mini grids, drinking water systems, solar thermal systems, solar-wind hybrid plants, and productive use of renewable energy.   | Gender neutral                          |
| Sri Lanka | National Energy Policy and Strategies in Sri Lanka 2019 | Aims to provide affordable energy services to support socially equitable development of the citizens. It refers to gender and social inclusion when it states that new productive uses for electricity in agriculture, rural and primary industries will be encouraged with an emphasis on 'empowerment of women and youth' and 'energy efficiency and conservation' as a central theme will be launched to empower women.<br><br>Primarily focuses on electricity by stating that biofuels are a source of commercial use without an explicit mention of cooking fuel and biomass. The biomass which is the main contributor of energy supply impacting the rural communities and women is not given proportional status in the policies. | Gender sensitive                        |

Countries of South Asia and HKH have made some progress in including GESI concerns in electricity related policies and plans at the national level. However, there is more that needs to be done to empower women through the energy sector by providing them opportunities in decision making and productive use.

### 4.3.3 Water sector

#### Regional level

The regional entities in the HKH and South Asia have several policy documents that promote gender equality in the region. Within the water sector, the regional bodies such as SAARC have initiated discussions around water, but it mostly pertains to transboundary river management (Pulla et al., 2018). In the region, most policy documents and cooperation are at bilateral level and related to management of water flows and allocation of waters. There are several bilateral treaties and agreements such as between India and Nepal over the Koshi, Gandaki, and Mahakali rivers. There are similar agreements between India and Pakistan (Indus Water Treaty), India and Bhutan, India, and Bangladesh (Ganges/Ganges Water Treaty), and India and China (Brahmaputra River) (Pulla et al. 2018; Trivedi 2020). Despite these countries being downstream e.g., India to Nepal, Pakistan,

and Bangladesh to India, none of them are members of the 1997 UN Watercourse Convention (UNWC) that recognises reasonable and equitable utilisation of water resources among member countries (Trivedi 2020).

These bilateral treaties mostly revolve around utilisation of water resources, hydropower development, and data sharing, but there is no mention of gender and socio-economic development. Similarly at a regional level, the BIMSTEC members have committed to address climate change through their respective NDCs (Khatun 2019). Other than hydropower development and improved transport connectivity (including inland water transport) the BIMSTEC member nations have not taken significant action collaboratively to promote effective management of resources that could save millions of lives and livelihoods. Nevertheless, the member countries are faced with several challenges that are transboundary in nature such as groundwater depletion and contamination, and frequent extreme events – floods and flash floods, cyclones, and heat waves, often exacerbated by climate change. The Mekong-Ganga Cooperation (MGC) is another six-member initiative (India, Myanmar, and other ASEAN countries – Cambodia, Laos PDR, Thailand, and Vietnam) where Asia's two powerful rivers are linked.

### National level

Many national policy documents address water and gender concerns, but only the key national initiatives that drive other policies in terms of GESI integration and have a larger impact on the development of water resources at a national scale are presented in Table 11.

In the HKH and South Asia over the years, there have been significant efforts carried out to mainstream gender within the water sector. However, there have been several gaps in the policy provisions and implementation on the ground (Caizhen 2009). In Pakistan and India, women are not recognised by the policies on groundwater or water for irrigation as they relate to land rights controlled by men (Memon et al., 2019). Water disputes are chronic, and there are several disputes within nations, between provinces, and in local communities (Jabeen et al. 2015). However, women are not engaged in the water conflict resolution mechanism. Furthermore, most of these water related policies and legal instruments are very old and have been in place since the colonial period, particularly in India, Pakistan, Bangladesh, and Sri Lanka (Jabeen et al. 2015; Cullet and Gupta 2009; Samad 2005).

The water sector predominantly reflects the patriarchal mindset of our society, such as the shared attitudes and mindset among men related to women's participation in water institutions – women are not interested, they lack the time, and men can represent the women farmers (Athukorala 2002). Such attitudes continue to hinder women's participation and engagement in policy making. In terms of training and education, very few women join as engineers; even if women are employed within water institutions, they are mostly assigned administrative roles (Liebrand 2014; Resurrección et al. 2019). The technocrats working in the water sector believe that addressing technical issues of flood management, groundwater accessibility and provision of clean drinking water for women, the poor and the marginalised will automatically benefit women (Shrestha and Gurung 2020).



Table 11. GESI integration in water sector policies and programmes

| Country     | Key water policy   | GESI mainstreaming   | Ranking in gender integration continuum |
|-------------|--|--|---|
| Afghanistan | Afghan Water Law 2009  | <p>Although the law stresses water as a human right, sectoral convergence, interlinkages, and stakeholder participation, it recognises the disproportionate impacts of water scarcity on women and priorities safe drinking water as the top goal for water provision</p> <p>It does target women and calls for gender mainstreaming. Unfortunately, due to stringent structural norms and beliefs, many women cannot exercise their rights equally to access and control water resources.</p> | Gender sensitive                        |
|             | National Rural Water, Sanitation and Hygiene (WASH) Policy 2016-2020   | The manual and the policy guidelines strongly advocate for women as key stakeholders in implementing the project. However, it also acknowledges that the elites control water, and women's access to the water points cannot be monopolised.   | Gender sensitive                        |
| Bangladesh  | Bangladesh Water Act 2013  | It is the key framework for integrating and coordinating water resource management in the country. In addition, it recognizes the water rights of the poor and the marginalized.   | Gender sensitive                        |
|             | National Water Policy 1999 (revised 2000)  | In its objectives, it talks about the needs of women and the poor and improving their knowledge and capabilities through addressing gender equity and social justice. However, the policy document does not integrate with other sectors, as there is no binding policy within institutions.   | Gender sensitive                        |
|             | Besides these key documents, others include the National Policy for Safe Water Supply and Sanitation (1998) and National Water Management (2001). However, there are several flaws in implementing these laws and policy guidelines as the outcomes have not contributed to enhancing women's rights and access to water (Clement 2012; Khan et al. 2021; Buisson et al. 2017). Overall, GESI dimensions within policies seem to address issues such as the case of transgenders. However, in its operational activities, it does not consider the gender-specific needs of these communities (Khan et al. 2021). In addition, it does not reflect water use efficiency (Jana 2021). |  |   |
| Bhutan      | Bhutan Water Act 2011  | The Water Act address water issues from an equity and human rights perspective but does not mention the differential needs of women and men. However, it encourages community participation through water users' associations at the local level but does not mandate equal participation of women and men within these institutions.  | Gender neutral                          |
|             | Bhutan Water Policy 2007   | The policy document views water resources more from a protection and conservation perspective than addressing the issues of equity and distribution. There is no mention of gender equity within the document.   | Gender neutral                          |

| Country  | Key water policy  | GESI mainstreaming  | Ranking in gender integration continuum |
|----------|---|---|---|
| China    | China Water Law 2002  | This is the major instrument that governs China's water governance framework. It encourages engagement of civil society groups but does not specify the mandate to include women's participation within the local institutions. It does not address women as users, providers, and protectors of water (Caizhen 2009). Gender, or even the word women, is not explicitly mentioned in the Water Law.  | Gender neutral                          |
|          | Regulation for Water Abstraction and Water Resource Fee Collection (2006), and Water Pollution Law (2008), are some of the national policy documents that govern water resources, but do not address gender explicitly. However, there are several other provincial level regulations on water resource management. |   |   |
| India    | National Water Policy 2012  | The policy document is governed by equity and social justice principles in the use and allocation of water resources and meaningful participation in decision-making. Women and the marginalized caste and tribal populations are considered important stakeholders in local bodies and water institutions. However, there are several gaps where such formal participation in institutions does not necessarily bring about transformative change (Kulkarni, 2016). Firstly, the policy does mention increased availability of water but does not focus on access and equitable distribution as women's need for water gets subsumed under household needs. Secondly, irrigation water ignores the role of women as farmers and treats them as homemakers. Thirdly, the focus is more on implementation than on addressing structural norms for empowerment (Paul, 2017).<br><br>It directs state governments in the federal structure to frame and adopt their respective state water policies. | Gender sensitive                        |
|          | The Water (Prevention and Control) Act 1974   | The Act protects and controls water pollution and maintains and restores water resources. It recognises the domestic use of water but does not bring in the gender dimension of the impact of pollution. Women are not represented in establishing the State Pollution Control Board or the Central Pollution Control Board.  | Gender neutral                          |
|          | Article 21 of the Constitution of India guarantees every individual the fundamental right to life with basic human dignity, which includes the right to water.  |   |   |
| Maldives | National Water and Sewerage Policy 2017   | The policy document affirms the right to clean and safe drinking water and sanitary needs at the household level. However, within its goals and strategies, there is no mention of inclusion of women and the marginalised in local institutions. Instead, the policy focuses more on strengthening the legal framework and private sector investment in the water sector.<br><br>The delivery of these services is subject to effective functioning of the local institutions. However, no institutional mechanism mandates women's participation in local committees. There is a need for meaningful participation of women in local bodies and gender-responsive needs are to be taken in consideration (ADB 2014).  | Gender neutral                          |

| Country | Key water policy  | GESI mainstreaming   | Ranking in gender integration continuum |
|---------|---|--|---|
|         | Water and Sewerage Act 2020   | The Act ensures the delivery of safe and clean water to all and the protection of water resources.   | Gender neutral                          |
|         | National Water and Sewerage Strategic Plan (2020-2025)  | The Strategic Plan is an inclusive document that aims to provide equitable access to clean drinking water and sewerage facilities. It aims to have 30 per cent of women employees in the water and sewerage facilities to build their capacity. It also aims to implement a gender-inclusive plan for the water and sewerage sector (MoE 2020).<br><br>However, as a targeted approach, more women could be encouraged and trained as engineers and technical staff. | Gender responsive                       |
| Myanmar | National Water Policy 2015  | The policy is the first integrated document to propose a framework for law (Jana 2021). Although the principles of equity and social justice guide the use and allocation of water, it does not mention women's participation and other inclusive strategies in water resource management. Differential needs and water use priorities based on gender roles need to be established.   | Gender neutral                          |
|         | There is no other specific water law except the most recent National Water Policy (2015). However, other legal instruments such as Conservation of Water Resources and River Law (2006) and Environment Conservation Law (2012) direct water resource management, but there is no mention of allocation and use of water by different groups of women and men. Most of the public laws related to water resources are 20 to 30 years old.   |  |   |
| Nepal   | National Water Resources Policy 2020  | The policy recognises the need for women's participation in decision-making across institutions (associated with the protection, development, management, and regulation of water resources). The policy seeks to address social-cultural norms and practices that negatively affect health  | Gender sensitive                        |
|         | National Water Plan (2002–2027) 2005  | It encourages women's engagement in water resource planning, operation, and maintenance, including in local committees such as water users groups, promotion of women's groups at the local level, in rural electrification, and disaster management (flood, GLOFs, drought, landslides/debris flows). In addition, the policy recognises women as farmers and encourages their participation.   | Gender responsive                       |
|         | There are several other key water resource policies: National Sanitation and Hygiene Plan (2011); Irrigation Policy (2014); WASH Sector Development Plan (2016-2030), all these documents strongly advocate gender mainstreaming strategies such as 50 per cent reservation for women in institutions, provision of loan facilities for economic empowerment, consideration of gender-responsive and disabled-friendly sanitary technologies, and promotion of women in leadership positions. |  |   |

| Country   | Key water policy   | GESI mainstreaming  | Ranking in gender integration continuum |
|-----------|--|---|---|
| Pakistan  | National Water Policy 2018   | The policy emphasises equity and participatory decision-making. However, women's role in water management is more a patriarchal view related to gender roles associated with domestic water supply and hygiene rather than water for irrigation and groundwater management.   | Gender sensitive                        |
|           | National Drinking Water Policy 2009  | Considers water a basic human right and ensures provision of safe and affordable drinking water to the poor. It recognises the gender role of women in meeting the drinking water needs and their engagement in planning, monitoring, operations, and maintenance of water supply facilities. It aims to build staff capacity through gender training programmes to understand the differential needs and encourage women to be part of the review councils and decision making forums. | Gender sensitive                        |
|           | Water resource is a national responsibility, but irrigation, agriculture, urban and rural water supply, and the other water sub-sectors remains provincial subjects. The various water instruments - the Indus Water Treaty (1960), Water Apportionment Accord (WAA) between the four provinces, Pakistan Environmental Protection Act (1997), Water and Power Development Authority Act 1958 (revised 1998) - all overlook the role of women, except the National Sanitation Policy, 2006   |   |   |
| Sri Lanka | National Water Resource Policy and Institutional Arrangements 2000   | Based on the principles of IWRM, it ignores the historical and cultural aspects of water resources and primarily focuses on safeguarding the private sector's investments in water resources.   | Gender neutral                          |
|           | National Drinking Water Policy 2001  | Ensure access to drinking water as a human right. It does not mandate the participation of women and the marginalised in local institutions.  | Gender neutral                          |
|           | Water Resource Board Act No 29, 1964 and Mahaweli Authority of Sri Lanka Act (No 23), 1979 regulate the use and development of the Mahaweli river or any other river of the country and the Participatory Irrigation Management Policy (1988) encourages farmers, water users' associations (WUAs) to handle the operations, and maintenance of irrigation systems. Although there have been significant institutional reforms to establish the Water Resources Council (WRC) and Water Resources Secretariat (WRS) for effective management of water resources (Samad 2005), these reforms have done little to promote gender equity in water resource management. There are other policies on Sanitation – National Policy for Rural Water Supply and Sanitation (2001), Urban Water Supply Policy (2002), and The Water Services Reform Bill (2003) (Chandrasekara et al. 2021b). |   |   |

## 4.4 Best practices

For achieving gender and social equality, it is important to have gender sensitive policy measures and equally effective implementation of these measures. In South Asia and the HKH, some national and regional policy documents have good policy measures on GESI. However, these measures are not adequately implemented to address gender and social inequalities. In this section, 'best practices' refer to the best policies and implementation strategies, initiatives and programmes which have mainstreamed measures and actions adequately to reduce gender inequalities and ensure social inclusion. Extensive review of policies, programmes, strategies, and initiatives revealed that there are only a few best practices in the region and most of them are from a couple of countries. It implies that there is need for a lot of efforts on this front.

### 4.4.1 Climate policy documents

One of the best practices in mainstreaming gender into climate related policies comes from Nepal. Inspired by the Constitution of Nepal and provisions in the National Climate Change Policy (2019), Gender Responsive Budgeting (GRB) has been made an integral part of Nepal's climate adaptation and mitigation planning. GRB is an important tool for integrating gender into climate and sectoral policies and plans. GRB is directed towards the needs and interests of women and men from different groups and ensures that these needs are addressed in public budgeting. To strengthen GRB institutionalisation, a Gender Responsive Budget Committee (GRBC) within the Ministry of Finance (MOF) guides the process and gives it continuity. The criteria for evaluating the gender responsiveness of government programmes and projects include women's participation in programme formulation and implementation, benefits accruing to them, capacity building, contribution to women's employment/income generation, and reduction in women's workload and qualitative improvement in their time use.

A Gender Management System (GMS) has been also established and maintained within the National Planning Commission of the Government of Nepal for institutional reform. According to Nepal (2016), the per centage of budgetary allocations for programmes directly benefiting women increased from 11.3 per cent in FY 2007-2008 to 21.75 per cent in FY 2014-2015. Integration of gender at local level planning is also improving due to the gender-sensitive Local Self Governance Act (LSGA) which has mandated women's participation in local governance institutions (NPC 2012).

Regarding the climate change budgeting, the Government of Nepal has developed the Chart of Accounts with computer-friendly numerical codes. The climate change budget code was developed by the National Planning Commission (NPC) with support from UNDP in 2012 (ADPC, 2021). These budget codes include pro-poor budget codes and gender responsive budget indicators.

The Myanmar Climate Change Strategy (2018-2030) recognises women as more vulnerable but also as agents of change, and makes it mandatory to involve women in planning processes<sup>xix</sup>. It has some well-defined activities and indicators to capture gender mainstreaming. The Myanmar Climate Change Master Plan (2018-2030) is also a good example of adequate inclusion of gender in actions. The document has a well-defined section on gender considerations, which highlights the gender differentiated impacts of climate change due to existing inequalities and responsibilities and roles of men and women in the country. It also recognises that women are more vulnerable to climate change but also highlights that woman can lead the way in climate adaptation. Overall, it highlights inclusiveness and inclusive development. It suggests the inclusion of the poor, landless, marginalised, and vulnerable women and men to act as agents of change and for all geographic regions to shape and benefit from opportunities provided by climate resilient and low carbon development.

#### 4.4.2 Agriculture sector

- The Agriculture and Food Security Policy (AFSP) 2018 of Pakistan includes a couple of policy measures which are very important to ensure GESI in agriculture sector development. One is the focus on gender disaggregated data. The AFSP of Pakistan aims to ensure a system of regular data collection for accurately measuring food security through disaggregated information by gender and age. It also aims to empower women and the vulnerable in highly fragile areas through their productive engagement and employment in agriculture and non-agriculture sectors. The policy specifically targets women, sharecroppers, tenants, the landless, and transhumant and other marginalised communities, thus addressing both gender and social inclusion.
- The Agriculture Development Strategy (2015 to 2035) of Nepal is one of the gender responsive policy documents in the agricultural sector in the region. The strategy specifically recognises the role and challenges of women in the agriculture sector, and explicitly emphasises skill enhancement to reduce drudgery and improve their employment opportunities and entrepreneurial skills. The strategy has set clear targets for increasing women's land ownership and reducing women's undernourishment over a period of twenty years. Moreover, the document envisages GESI responsive agricultural research and extension services, recruitment of GESI staff, and inclusion of GESI perspectives in planning, budgeting, and evaluation.
- Under the ADS framework, the Government of Nepal, in partnership with donor agencies, has been implementing various programmes, such as the Agriculture Sector Development Programme (ASDP). ASDP has mainstreamed gender and social inclusion into its programme design following gender-responsive approaches. For instance, ASDP has adopted multiple gender-responsive tools, including gender budgeting and auditing, participatory GESI analysis in planning, and Gender Action and Learning System (GALS) for sensitisation and capacity building of communities.
- ICIMOD's regional initiative on Resilient Mountain Solutions (RMS) is a good example of effective operationalisation of institutional targets on GESI. The RMS initiative has gender inclusion as one of the key pillars of resilience. It is enhancing the resilience of women and socially marginalised groups (such as smallholder farmers) to socio-economic and climate related changes in the HKH by scaling up and scaling out existing resilient solutions. The initiative has made progress in reducing women's drudgery in agriculture through gender responsive climate smart solutions in field activities and revival of springs (i.e., time and energy saving for women carrying water over long distances). Their capacity is being built as farm managers and entrepreneurs. Their role in decision making in household matters and farm operations too has improved significantly. The RMS initiative has tested and implemented the solutions in Nepal and Bhutan, and these are now being outscaled to other HKH countries (ICIMOD 2022b).

#### 4.4.3 Energy sector

- Nepal has incorporated GESI considerations into its energy policies, plans and strategies and experts have declared these as gender transformative because they not only consider women as active beneficiaries but also recognise the differential impacts of such interventions on women and men due to their existing roles and responsibilities. Women and marginalised groups are active stakeholders in policy formulation, decision making, and implementation processes. For instance, the 10th

FYP (2002–2007), the National Rural and Renewable Energy Programme (2012), and the National Energy Strategy (2013) recognise the important role of women in energy planning and decision making processes. Moreover, the policy recognises women's active participation in production, distribution, and consumption.

- Nepal's Subsidy Policy for Renewable Energy (2013) guarantees accelerated renewable energy service delivery and recognises women's productive role in this sector for more 'equitable economic growth', and 'to create rural employment'. This policy recognises and addresses income-related barriers and aims to enable low income and remote, rural households to use renewable energy technologies and attract private sector entrepreneurs. The policy has specific subsidies targeted to women and socially excluded groups. Following this trend, the Approach Paper for the 14th Three-Year Development Plan (2016/17–2018/19) seeks to address structural problems in the economy such as inequitable access to productive means and resources to ensure sustainable development and shared prosperity (ENERGIA 2015; Govindan et al 2020).
- In India, the Rural Electrification Policy and the Rajiv Gandhi Gramin Vidyutikaran Yojana (RGGVY) have targeted provisions for women, poor, and marginalised. The aim of the RGGVY is "to provide 100 per cent electrification of all villages and habitations in the country, electricity access to all households, free of cost electricity connection to BPL (below poverty line) households through renewable energy sources in those unelectrified remote census villages, unelectrified hamlets of electrified census villages where grid connectivity is either not feasible or not cost effective, and electrified villages/hamlets where power availability is less than six hours per day averaged over the year (Prakash 2018, p. 114). Regarding women, the RGGVY not only has targeted provisions for women, but they are also provided space in the decision-making processes – for instance women's representation is prominent in District Committees, and women self-help groups (SHGs) are involved in franchise development. Since RGGVY was later subsumed into the Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY), this scheme also has all these provisions (ENERGIA 2015; Govindan et al. 2020).
- India's Integrated Energy Policy (IEP), which has been in the making since 2005, was approved in December 2008. It is comprehensive policy on energy, which was drafted to explore alternative technologies and possible synergies that would increase energy system efficiency and meet the requirement for energy services. It emphasises the negative effects of traditional biomass fuels for cooking and affirms that biomass-based fuels provide 81 per cent of domestic energy. The IEP underlines that ensuring electricity and clean fuels for all is crucial while addressing the disproportionate burden on women. At the same time, it recognises that women's empowerment and energy security are closely linked, since a sustainable supply of energy is vital for the energy-intensive income-generating activities conducted by women in rural areas. It promotes empowering women's SHGs to manage franchises running local electricity networks and encouraging decentralised distributed and generation systems so that communities can organise their own reliable electricity supply. Moreover, it ensures finances to SHGs such as the Self-Employed Women's Association (SEWA) to access renewable energy solutions (ENERGIA 2015; Govindan et al 2020).



#### 4.4.4 Water sector

- In Nepal, there is increasing recognition of women's roles and responsibilities in natural resource management. In the water sector, the policies have moved beyond the inclusion of women towards more concrete measures by directing fixed quotas, bringing women into executive committees, and promoting interventions to achieve gender equality and women's empowerment. The key water policies in Nepal, such as National Water Resources Policy (2020) and the National Water Plan (2002-2027) recognise the gender differentials in access, control, and decision-making over the resource. It also recognises women as farmers and encourages their participation in addressing the socio-cultural norms and practices that negatively affect women's development.
- In the water sector, the Water, Sanitation Hygiene (WASH) Policies in Nepal are more GESI oriented and consider gender as a central component of the policy document. The recent WASH Sector Development Plan (2016-2030), builds on the earlier policies and includes a separate section on GESI. The Plan takes strong measures to move beyond technical solutions toward a GESI-oriented approach. It considers the power relations between women and men and between social groups. It explicitly states how the influence of power continues to interact in determining access to and control over resources and participation in the decision-making process. It also calls for understanding the differential paying capacity (equity-based water tariffs) and the skills to successfully secure WASH services – ease in using technologies by different groups of women and men. It also brings





in the dimension of understanding socio-cultural norms and values and the belief systems from an intersectionality perspective to reach remote communities and historically marginalised groups. It also brings in the interlinkages of sectors and other development needs where WASH services are required, particularly during disasters. Thus, it moves beyond GESI to address intersectoral convergences and synergies for sectoral cooperation to address gender equality, economic growth, maternal and child health, and education.

- Other countries in the region have also taken up several initiatives to promote gender equality in the water sector. Some of these progressive gender measures include: the Bangladesh National Water Policy (1999), revised in 2000; the Indian National Water Policy (2012), which promotes the inclusion of marginalised social groups; and the Myanmar National Water Policy (2015), which takes account the differential water needs of women and men.



## V. Policy recommendations and way forward

The prevalent social and gender structures, norms, and practices in South Asia and the HKH manifest themselves in the form of discrimination and exclusions, resulting in gender and social inequalities. Thus, there exist relations of inequality and hierarchy, marginalisation, and exclusion among different groups of women and men. In such a scenario, the implications of climate change are different for different groups, with the more marginalised groups such as women, poor, people living with disabilities, and those residing in remote and fragile areas being more vulnerable and facing higher risks.

Climate change is already increasing gender-based inequalities and creating new exclusions and constraints, and policies that do not consider gender and social inclusion may widen the gender gap. Therefore, it is imperative that gender and social issues and concerns are integrated into all climate actions and policy documents – from policy design to implementation, monitoring, and evaluation. This is crucial for building resilience, ensuring sustainable natural resource management, and achieving gender equality and social inclusion. A major reason for women not being included in discussions and decisions around climate change is that often “climate policy has relied on a scientific approach, with the focus being on mitigation, instead of a socio-political one” (Subramaniam 2016; Hans et al 2019, p. 4). As a result, policies (and programmes) on climate change predominantly focus on the technical aspects of climate change over its social ones, which include issues concerning equality, discrimination, and empowerment (Resurrección, et al. 2019).

Extensive review of the policies, programmes, strategies, and initiatives has revealed that while many of these policies and programmes have integrated GESI-related measures, sufficient institutional steps have not been taken to effectively implement them. There are only a few examples of best practices (policies, programmes, and strategies) that feature adequate mainstreaming of GESI along with the requisite institutional steps for effective implementation. And where they do exist, such practices are limited to a couple of countries, implying that there is still a lot to do.

Based on these findings, some key recommendations – overall (on climate action) and sectoral – are presented here. Their implementation would ensure effective integration of GESI concerns and contribute towards reducing the differential vulnerabilities of various groups of women and men in a changing climate (Table 13). An initial set of recommendations was presented during a consultation workshop (1 August 2022) for inputs from government stakeholders and experts to make them more realistic and actionable.

The recommendations are categorised in terms of the appropriate time period for action – short term (six months to two years), medium term (two to five years), and long term (five years and beyond) – and effective integration of GESI into policies and implementation plans. This does not mean that actions in the short and medium terms will be discontinued in the long term. More than one time period may be appropriate for some recommended actions.

## 5.1 Overall recommendations

### Short-term

- Integrate GESI perspectives (with clear indicators and monitoring mechanisms) into the planning, implementation, and review processes of sectoral and climate policies and programmes by using existing tools and mechanisms.

- Strengthen mechanisms to ensure the production and use of gender statistics on the differential needs and priorities of women, men and other groups at the national and regional levels to support decision making processes. Conduct regular GESI-sensitive assessments, analyses, and monitoring and evaluation of interventions in the agriculture, energy, and water sectors to assess the differential impacts of climate change across genders and groups, and the effectiveness of GESI-sensitive interventions to avoid any mismatch between policy measures and implementation plans and improve policy effectiveness.
- Guarantee the meaningful participation of networks of women and marginalised and disadvantaged groups in policy dialogues and in developing interventions related to climate change, agriculture, energy, and water.
- Provide technical support and capacity building to gender focal points and institutions to develop and implement gender-responsive policies and actions.
- Set up systems and develop guidelines to improve sectoral cooperation between ministries, departments, and line agencies to avoid silo approaches and improve their capacity to mainstream GESI into policies and actions through a nexus approach.

#### Medium-term

- Implement gender-responsive budgeting and gender audits to ensure that GESI issues are reflected in all stages and phases of development programmes.
- Conduct regular evaluations of policy implementation. These will help identify best practices, comprehend gaps and failures, and extract lessons learned to increase the impact of climate policies and action for women and socially marginalised communities, refine national policy, and ensure greater sharing at regional level.

#### Long-term

- Strengthening the existing regional mechanism for sharing knowledge, fostering cross-learning, and monitoring the performance of climate change and sectoral policies using GESI indicators. Any of the existing regional organisations could host the regional platform to facilitate this mechanism, which would allow countries in South Asia and the HKH to effectively share best practices and draw inspiration from one another to make their policies and initiatives gender responsive. This mechanism could also serve as a platform to support multistakeholder dialogues to engage governments with civil society organisations.

## 5.2 Agriculture sector

#### Short-term

- Ensure active, meaningful, and equitable participation of women, marginalised, and disadvantaged groups in all phases of policy formulation and implementation. These groups are on the frontlines of dealing with the impacts of a changing climate on agriculture and often have a wealth of indigenous knowledge. Multistakeholder consultations for the formulation of policy and preparation of implementation plans and programmes should bring women and marginalized groups on board at the local and national levels to integrate context-specific, gender-responsive, and socially inclusive measures in policies, plans, and programmes.

- Promote gender-responsive and climate-resilient technologies such as drudgery reduction farm-machinery operated by renewable energy to reduce the workload of women in agriculture, particularly in areas where the outmigration rates of active male members of the population are high.
- Improve smallholder and women farmers' access to financial services (i.e., credit and insurance) and useable climate services to reduce climate risks in agriculture. This is particularly important since climate extremes have become more frequent in recent times.

#### Medium and long-term

- Build on existing programmes to improve capacity of women and marginalised groups as farm managers and entrepreneurs.
- Promote diversity in agriculture systems to reduce the risks of climatic shocks (non-diverse agriculture is more vulnerable) and establish infrastructure (storage and processing) in vulnerable areas to promote value chains to improve income and livelihoods with a special focus on women and marginalised groups.
- Encourage gender-responsive private sector investment in technologies and women-led enterprises in agriculture.

## 5.3 Energy sector

#### Short-term

- Initiate national capacity building and skill development programmes for women entrepreneurs to enable them to benefit from jobs and entrepreneurship opportunities created by renewable energy development and use.
- Develop mechanisms for equitable benefit sharing from opportunities created by renewable energy sources. For example, programmes on the use of RE for food value chains and enterprises for capacity building, technology transfer and services related to climate, markets, and finance should focus equally on women and men farmers.

#### Medium-term

- Develop specific policies and programmes for improving access to affordable, appropriate, and innovative finance for women and marginalised groups to enable them to become successful energy entrepreneurs.
- Promote gender-responsive and gender-transformative investments from the public and private sectors to achieve renewable energy policy targets and fulfil energy needs.
- Ensure social safeguards and just transition in energy transition to renewables with the aim of minimising and compensating the socioeconomic adverse impacts on women and marginalised groups.

#### Long-term

- Improve women's control over resources by allocating productive resources to enable them to benefit from renewable energy options and to use energy sources for improving livelihoods and wellbeing.



## 5.4 Water sector

### Short-term

- Formalise, through programmes, the inclusion of women in decision-making processes regarding water resources management and distribution. Thus, all water programmes – not just WASH and household drinking water programmes – need to involve women meaningfully.
- Develop programmes to improve the access of women and marginalised groups to adequate water for agriculture, drinking, and domestic purposes.
- Ensure the development of gender-responsive water resource management projects to enable equitable access and benefits for women and men. For instance, agricultural water management continues to be seen as a man's job even when women provide most of the labour in irrigated fields. Such approaches should be re-evaluated and redesigned.

### Medium-term

- Formulate clear guidelines on water rights in policies. Water rights are most often tied to land rights, creating challenges and obstacles to ensuring equitable access to water, with women and the landless poor being adversely impacted. Clear guidelines and policies on water rights and access that are not tied to land rights would help ensure water access rights for women and the poor.

### Long-term

- Promote water systems that provide services for multiple uses of water and cater to the needs of varied groups. Such systems would fulfil the irrigation, domestic use, drinking, and ecosystems sustainability needs of large sections of all communities.

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## Annexes

Table 1A. Share (percentage) of renewables in total energy supply

| Countries   | Total energy supply (TES)<br>(terajoules) | Renewables in TES<br>(terajoules) | Share of renewables in<br>TES | Data year |
|-------------|---|-----------------------------------|-------------------------------|-----------|
| Afghanistan | 189007                                    | 22651                             | 11.98                         | 2019      |
| Bangladesh  | 2067680                                   | 570811                            | 27.61                         | 2019      |
| Bhutan      | 70331                                     | 56548                             | 80.40                         | 2018      |
| China       | 136602355                                 | 10783448                          | 7.89                          | 2019      |
| India       | 40565584                                  | 8850833                           | 21.82                         | 2019      |
| Maldives    | 24764                                     | 232                               | 0.94                          | 2018      |
| Myanmar     | 964934                                    | 486492                            | 50.42                         | 2019      |
| Nepal       | 608494                                    | 444367                            | 73.03                         | 2018      |
| Pakistan    | 3849006                                   | 846520                            | 21.99                         | 2019      |
| Sri Lanka   | 457151                                    | 179371                            | 39.24                         | 2019      |
| Overall     | 185399306                                 | 22241273                          | 12.00                         | -         |

Sources: UNSD 2019a,b,c,d,e

Table 2A: Share (percentage) of different sources in total primary energy supply (TPES)

| Energy sources         | Countries   |            |       |       |         |          |           |
|------------------------|-------------|------------|-------|-------|---------|----------|-----------|
|                        | Afghanistan | Bangladesh | China | India | Myanmar | Pakistan | Sri Lanka |
| Primary coal and peat  | 18.70       | 8.00       | 61.20 | 46.90 | 4.50    | 14.40    | 14.30     |
| Coal and peat products | 2.00        | 0.00       | 0.00  | 0.20  | 0.00    | 0.00     | 0.00      |
| Primary oil            | 2.70        | 3.20       | 20.80 | 27.50 | 10.40   | 12.30    | 17.10     |
| Oil products           | 52.90       | 8.30       | 0.00  | 0.00  | 29.30   | 13.00    | 29.50     |
| Natural gas            | 2.40        | 51.70      | 8.40  | 5.70  | 15.10   | 35.60    | 0.00      |
| Biofuels and waste     | 9.30        | 27.40      | 3.00  | 19.40 | 46.80   | 18.60    | 34.90     |
| Nuclear                | 0.00        | 0.00       | 2.80  | 1.20  | 0.00    | 2.60     | 0.00      |
| Electricity            | 12.00       | 1.40       | 5.00  | 2.40  | 3.10    | 3.50     | 4.30      |
| Heat                   | 0.00        | 0.00       | 0.00  | 0.00  | 0.10    | 0.00     | 0.00      |

Sources: UNSD 2019a,b,c,d,e



Table 3A: Share (percentage) of different sources in total primary energy supply (TPES)

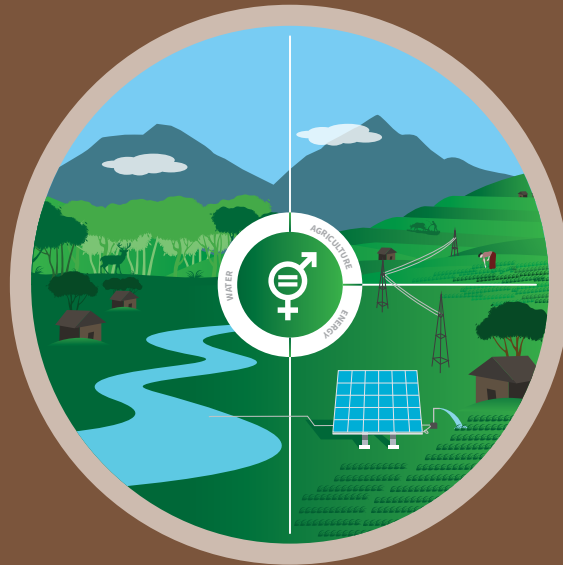
| Energy source          | Countries |          |       |
|------------------------|-----------|----------|-------|
|                        | Bhutan    | Maldives | Nepal |
| All coal               | 5.70      | 0.00     | 6.30  |
| All oil                | 12.40     | 99.06    | 16.30 |
| Natural gas            | 0.00      | 0.00     | 0.00  |
| Primary biofuels/waste | 67.50     | 0.60     | 72.70 |
| Charcoal               | 0.20      | 0.03     | 0.00  |
| Electricity            | 14.10     | 0.31     | 4.70  |

Note: Data year is 2019  
Sources: UNSD 2019a; UNSD 2019d

## Endnotes

- i. Ecofeminism claims that nature and women are interrelated as they are treated the same in the male-centred society. Mostly, women's biological structure is being misunderstood to keep them domestic, and they do not acquire social identity. Their dependence on men is normalised and they exist as objects in the society. Likewise, nature serves the patriarchal system with its renewable resources. Thus, the system perceives nature as an object that provides infinite resources and power. Overall, both women and nature are objectified and exploited in the masculine-dominated society (Öztürk 2020).
- ii. The Global Gender Gap Index benchmarks the evolution of gender-based gaps among four key dimensions (economic participation and opportunity, educational attainment, health and survival, and political empowerment) and tracks progress towards closing these gaps over time.
- iii. Global Gender Gap Index 2021 rank out of the 156 reviewed countries and its progress, represented on a 0-to-1 scale, towards closing the gender gap and achieving full gender parity (benchmark score of 1)
- iv. [https://www.ifc.org/wps/wcm/connect/region\\_\\_ext\\_content/ifc\\_external\\_corporate\\_site/south+asia/priorities/gender\\_in\\_southasia](https://www.ifc.org/wps/wcm/connect/region__ext_content/ifc_external_corporate_site/south+asia/priorities/gender_in_southasia)
- v. In climatology, the Coupled Model Intercomparison Project (CMIP) is a collaborative framework designed to improve knowledge of climate change.
- vi. Potentially dangerous glacial lakes are identified based on complex multidimensional criterion including characteristics of lake (i.e. extent and expansion of glacial lake as indicators of a breach threat), dam (i.e. condition of the dam is important in determining the stability of a lake), source glacier (i.e. disturbance in the lake stability due to source glacier, either by glacier melt that increases the lake area and volume, or by ice mass collapsing into the lake), physical surrounding (i.e. glacial lakes close to steep slopes or headwalls are more susceptible to mass movements) and the likelihood of seismic events and intense rainfall (i.e. factors such as intense rainfall or seismic events can also destabilise the lake or dam to trigger a GLOF) (ICIMOD 2022a).
- vii. U.N. Office of the High Commissioner for Human Rights.
- viii. The First CEDAW Impact Study: Final Report, York University Centre for Feminist Research and the International Women's Rights Project, June 2000, [http://www.iwrp.org/CEDAW\\_Impact\\_Study.htm](http://www.iwrp.org/CEDAW_Impact_Study.htm).
- ix. Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan
- x. 1) promote and strengthen regional cooperation at all levels to sustain mountain environment and livelihoods; 2) recognize and prioritize the uniqueness of the HKH mountain people; 3) take concerted climate actions; 4) take accelerated actions to achieve the SDGs, consistent with the nine mountain priorities; 5) take decisive actions to enhance ecosystem resilience; and 6) promote regional data and information sharing.
- xii. Bangladesh, China, India, and Nepal (BCIN); Bangladesh, China, India, and Myanmar Economic Corridor (BCIM-EC); Brazil, Russia, India, and China (BRIC); The Belt and Road Initiative (BRI); The Association of South East Asian Nations (ASEAN) – Myanmar from South Asia is the member of this regional international organisation.
- xiii. China has enacted more than 100 rules and regulations concerning the protection of women's rights and interests. <https://www.mfa.gov.cn/ce/cegv/eng/rqrd/jblc/t210715.htm>
- xiv. <https://www.ipsnews.net/2020/07/myanmars-protection-bill-falls-short-of-addressing-violence-against-women/>  
[https://www.globaljusticecenter.net/files/20200710\\_MyanmarPOVAWlawAnalysis.pdf](https://www.globaljusticecenter.net/files/20200710_MyanmarPOVAWlawAnalysis.pdf)
- xiv. UNFCCCb (n.d.). NAPA Priority Database. <https://unfccc.int/topics/resilience/workstreams/national-adaptation-programmes-of-action/napa-background>
- xv. National Solar Mission, National Mission for Enhanced Energy Efficiency, National Mission on Sustainable Habitat, National Water Mission, National Mission for Sustaining the Himalayan Ecosystem, National Mission for a Green India, National Mission for Sustainable Agriculture, and National Mission on Strategic Knowledge for Climate Change
- xvi. 1. Agriculture and Food Security, 2. Water Resources and Energy, 3. Forest and Biodiversity, 4. Public Health, 5. Urban settlements and infrastructures, 6. Climate induced disasters
- xvii. In the IPCC 6th Assessment (Working Group III contribution), agriculture is clustered with forest and other land use
- xviii. As per the Hindu caste system, which is a "hereditary and hierarchic system" (IDSN 2009, p. 2), society is divided into four groups or varnas – Brahmins or priests who are designated the highest caste group, followed by Kshatriyas or warriors, then the Vaishyas, who are the farmers, merchants and artisans, and finally the Shudras, who are the labourers. Dalits, who do not fall within these caste groups, are considered impure and thus deigned 'untouchable' (IDSN 2009; Subedi 2011)
- xix. Myanmar Climate Change Strategy was developed prior to the regime change in 2022.





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