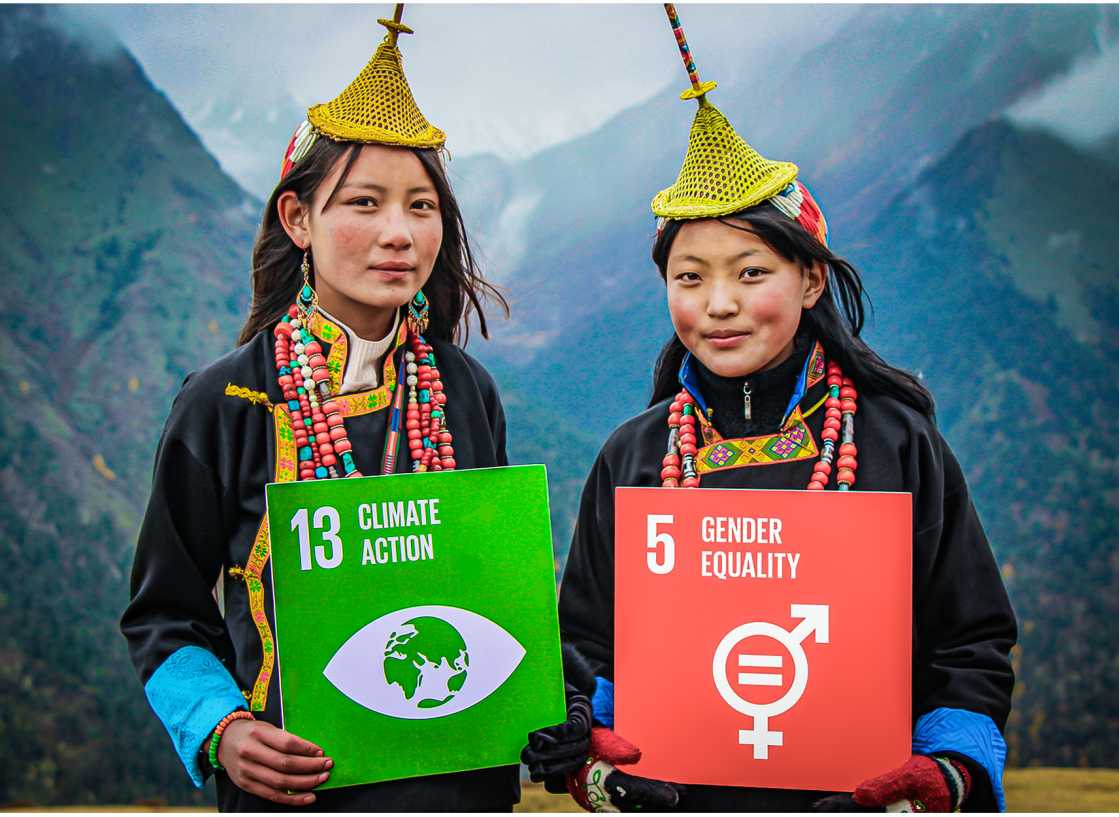
Gender and Climate Change in Bhutan

with a Focus on Nationally Determined Contribution Priority Areas: Agriculture, Energy and Waste



Summary Report

National Commission for Women and Children
Royal Government of Bhutan

February 2020

This summary report reflects the findings and recommendations of the research report entitled 'Gender and Climate Change in Bhutan, with a focus on selected Nationally Determined Contribution (NDC) Priority Areas: Agriculture, Energy and Waste'. It deals with the gender-climate change nexus in Bhutan, particularly in the areas of agriculture, energy and waste, which represent three of the 13 priority areas identified in Bhutan's NDC.

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ROYAL GOVERNMENT OF BHUTAN

རྒྱལ་ཡོངས་ཨམ་སྲུ་དང་ཨ་ལོའི་ལྷན་ཚོགས།

NATIONAL COMMISSION FOR WOMEN AND CHILDREN

Chairperson

Making a difference

Foreword

The National Commission for Women and Children (NCWC), as the nodal agency for gender equality has made substantive efforts to mainstream gender into sectoral plans, policies and programs. Gender mainstreaming into programs are initiated through sector specific projects to enable effective delivery of outcomes. The Royal Government of Bhutan has now embarked on mainstreaming gender into climate sectors to enable gender responsive climate actions through the project "Gender Responsive Nationally Determined Contributions (NDCs) implementation in Bhutan". The brunt of climate change cannot be escaped, and its impacts are different and non-discriminatory due to the differing roles of men and women. Despite the recognition of differential vulnerabilities and capacities in coping with climate change, the impacts of climate change continue to overly burden the poorest and most vulnerable sections of the population. In general, women bear the brunt of climate change compared to men due to existing gender inequalities and other developmental gaps as well as the nature of the job that they are engaged in. Similarly, the increasing temperature as a consequence of climate change has adverse but varying consequences on the lives of both men and women due to their differential adaptation and mitigation capacities.

Therefore, a Study on Gender Analysis in three NDC sectors - Agriculture, Waste and Energy - was conducted to develop concrete short-term and long-term recommendations to inform future projects and programs in mainstreaming gender in climate actions. The study deep dives into areas of governance and provides concrete, action-oriented recommendations.

The NCWC is pleased to present this policy brief which will set a basis for understanding gender climate linkages in these three NDC priority areas. We are hopeful that this document will help to guide in incorporating gender approach analyses into climate change and its sectors to promote understanding of how the identities of women and men determine different vulnerabilities and capacities to deal with climate change.

The NCWC would like to acknowledge the support and contribution of all stakeholders involved during the study. Due to its cross-cutting interlinkages, climate and gender require collaboration and coordination among all stakeholders to deliver effective outcomes. As such, I would like to urge all our stakeholders for your support and cooperation in implementing the recommendations.

Tashi Delek!

(Dr.Tandi Dorji)
Chairperson
National Commission for Women and Children

Acknowledgments

The National Commission for Women and Children (NCWC), in partnership with the National Environment Commission (NEC), would like to express our sincere gratitude to all organisations and entities who have contributed to this study and the development of this report.

This study would not have been possible without the participation of the 600 respondents in towns and villages throughout the country, who gave their time to share their personal views in the field survey. Likewise, the work of the 12 enumerators, who travelled over long distances to interview households as part of this study, was essential to its successful conduct. Our gratitude also to all those professionals from the government, academia, private sector, non-government and civil society organisations and development partner organisations, who shared their valuable inputs through interviews and consultations, based on which this assessment was shaped.

We would also like to express our appreciation to the team of consultants who worked on this study: Ms. Irene Dankelman, lead International consultant; Ms. Manju Giri, National Consultant; and Mr. Cheku Dorji, Kuenden Statistical Services; as well as to the copy-editor, Ms. Tashi Choden, and the graphics designer, Mr. Sonam Phuntsho.

The study was conducted under the guidance of the Director and the Women Division, NCWC. We also wish to acknowledge UNDP Bhutan, for their financial as well as technical support to this project. We would like to acknowledge Gender Expert Group, Gender Focal Points, and focal points from the agriculture, climate , energy and waste sectors who were actively engaged during the consultation and review of the study.

Finally, this project was made possible through the financial support of the European Union, the Government of Spain and the Government of Germany to the Royal Government of Bhutan.

Acronyms

APA	Adaptation Plan of Action
CCA	Climate Change Adaptation
CC	Climate Change
CCM	Climate Change Mitigation
CCTV	Closed-Circuit Television
CRA	Climate Resilient Agriculture
CSA	Climate Smart Agriculture
CSI	Cottage and Small Industries
CSO	Civil Society Organization
DRE	Department of Renewable Energy
ECCD	Early Childhood Care and Development
EE&C	Energy Efficiency and Conservation
FYP	Five Year Plan
GEG	Gender Expert Group
GFP	Gender Focal Point
GHG	Greenhouse Gas
GLOF	Glacial Lakes Outburst Flood
GNHC	Gross National Happiness Commission
GNH	Gross National Happiness
IETC	International Environmental Technology Centre
MoAF	Ministry of Agriculture and Forests
NCHM	National Centre for Hydrology and Meteorology
NCWC	National Commission for Women and Children
NDC	Nationally Determined Contribution
NEC	National Environment Commission
NSB	National Statistics Bureau
PHCB	Population and Housing Census of Bhutan
RET	Renewable Energy Technology
RGOB	Royal Government of Bhutan
SDGs	Sustainable Development Goals
STEM	Science, Technology, Engineering and Mathematics
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
VAWG	Violence Against Women and Girls
WWF	World Wildlife Fund

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I Introduction

This study was undertaken to assist with the country's ongoing efforts to achieve carbon-neutral, resilient and sustainable development in a gender-responsive way. It seeks to provide a clearer understanding of national climate change (CC) frameworks, with particular focus on gender equality and empowerment of women and girls.

The study—in general and specifically with regard to the NDC sectors of agriculture, energy and waste—analyses the following areas:

(i) Climate change and its impacts on gender dynamics and women's empowerment; and

(ii) Climate actions (mitigation and adaptation) in the context of gender dynamics and women's empowerment in general and in the selected priority areas—with regard to access and or control over resources, participation, decision-making, benefit-sharing, and livelihood security.

The methodology applied included a desk review of existing literature, interviews with 30 organisations, and a field study through a national survey. A multi-stage stratified cluster sampling procedure was adopted for the field study. A sample of 600 households in 10 *dzongkhags* (districts) was selected for enumeration, covering three agro-ecological regions of the country. The study was executed by a team of national and international consultants, and trained enumerators. National stakeholder and validation workshops were also conducted.

II Summary of Key Findings and Conclusions

1. Bhutan and Climate Change

Bhutan is a net sink of Greenhouse Gases (GHGs) because of its large forest coverage (which stands at more than 70 percent of total land area), relatively low levels of industrial activity, and almost 100 percent electricity generated by hydropower. However, emission level is rising gradually, with an almost 33 percent rise in GHG emissions recorded between 2000-2015[1]. GHG emissions in key sectors such as industry, transport and waste show particularly rapid increases.

1 Royal Government of Bhutan, 2020. Third GHG Inventory (DRAFT). RGoB/NEC, Thimphu.

Bhutan's position in the Hindu-Kush Himalayas determines much of the effects of CC. These include rise in average temperature (with a mean temperature increase of +0.8 °C between 1976-2005; NCHM, 2019a)[2], extreme cold and hot weather events, melting of glaciers, increased flooding including glacier lakes outburst floods (GLOFs), landslides, and wildfires. This affects water supply and agriculture, and contributes to increase in pests and diseases, more frequent and intense disasters, and destruction of infrastructure.

According to study, all these effects are already taking place, becoming more and more serious over time, and affecting their lives and daily workloads. Over 90 percent of the respondents reported experiencing warmer and more unpredictable weather—conditions that are linked to climate change. Similarly, more than three-fourths of the survey population reported experiencing 'increased landslides' and 'hail storms'. Over eight in ten people reported that climate change affects the availability of natural resources on which they depend for their livelihood.

A little over half of the respondents agreed with the statement 'my household is well prepared in the event of a disaster'. On the other hand, more than one-third of respondents also disagreed with the statement, which indicates their lack of preparedness for CC-induced disasters.

In the CC-related legal and strategic framework for Bhutan, including the *NDC 2015*, gender concerns are not integrated. However, the recently adopted *Climate Change Policy 2020* includes gender issues. Within the institutional framework—including in the National Environment Commission (NEC)— gender expertise is currently limited.

2. Gender Equality Situation in Bhutan

Although women have significant rights in Bhutan, the gender equality status shows a mixed picture. Important progress has been made for women and girls over the years, with gender parity in education (up till the secondary level), decrease in maternal mortality, and increase in women's participation in society and work. At the same time, while Bhutan is signatory to many international gender conventions and agreements, and equal rights are enshrined in the country's Constitution and other legal frameworks, there are still areas where gender inequalities persist. These include, among others, unequal land ownership, women's low representation in

2 National Centre for Hydrology and Meteorology (NCHM), 2019. Analysis of Historical Climate and Climate Projection for Bhutan. NGHM/RGoB, Thimphu.

public and political institutions, and unequal participation beyond secondary education—especially in science, technology, engineering and mathematics (STEM) subjects. As well, women experience a higher unemployment rate, gender payment gaps, and gender-based violence.

Male dominance in household decision-making is indicated by the survey findings. At the same time, men spend more time than women outside the home, while females spend more time on household tasks. Male participation in various social groups and associations is 56 percent as compared to 48 percent for females; and in climate initiatives male participation is 10 percent as compared to only 3.5 percent for females. While over 70 percent of the survey respondents reported that the groups or associations they belong to promote women's equal participation, a relatively lower proportion of females than males was positive in this respect. Likewise, a relatively higher proportion of males reported being 'fairly' to 'very comfortable' in speaking publicly.

A majority of respondents identified violence against women and youth as serious problems. Violence against people with accessibility needs, elderly people, and men, was also reported. A higher proportion of females than males (strongly) agreed that domestic violence is perpetrated against different groups.

Gender policies and action plans are present in the country, and gender mainstreaming takes place through other policies and plans. Recently, climate change issues have been integrated in the *National Gender Equality Policy* and the *National Plan of Action for Gender Equality* (2019-2023). Several gender mainstreaming tools and instruments are available, but application is still a challenge. The institutional architecture is comprehensive with the presence of the National Commission for Women and Children (NCWC), Gender Focal Points (GFPs), and a Gender Expert Group (GEG)—but human capacity and resources are still limited.

3. Gender and Climate Change

Gender differences are visible in CC vulnerability, participation in CC decision-making and action, and diverse levels of benefit-sharing. With changing weather patterns (including heat stress), overall production is decreasing, and more pests as well as human-wildlife conflicts have become evident. As male out-migration

increases, the responsibilities and roles of women become more difficult and working conditions deteriorate. Violence Against Women and Girls (VAWG)—including sexual exploitation—and health problems intensify. A higher proportion of male respondents than females reported the occurrence of warmer weather, increased flooding, and hail storms; and more females reported increase in unpredictable weather, occurrence of wildfires, and landslides.

The felt effects of climate change on a person's personal life varies by gender. For instance, a relatively higher proportion of males reported 'difficulties in food production', 'increased use of electric fan', 'increased household waste', and 'more conflicts in the household'. On the other hand, a relatively higher proportion of females reported 'decrease in household income' and 'changes in household food habits'.

A slightly higher percentage of females than males affirmed the effect of climate change on the natural resources that they depend on, for their livelihood. About half of the surveyed population also agreed 'strongly' that 'climate change increases women's workload more than men's', and that 'climate change impacts women more than men'.

With regard to coping strategies, most respondents reported that they would 'receive aid' (60%) to cope with CC impacts, followed by 'changing consumption patterns' (56%), and 'changing farm practices' (59%). Coping strategies such as 'taking children out of school', which is least desirable from a social point of view, is reported by about five percent of the population. Males are more inclined to 'look for alternative employment' and also more likely to 'migrate to a city' than females, as measures to alleviate impacts of climate change. On the other hand, a higher proportion of females than males reported that they 'change their consumption patterns' and 'buy water' to cope with the impacts of climate change.

Adaptation measures related to farming practices, forest management, and protected areas require women's active and informed participation, in order to be effective. However, women's active participation and gender balance in climate policy development and decision-making overall is significantly lower than that of men. Although according to some interviewees the role of women in climate change mitigation (CCM) and adaptation (CCA) is not clear yet, others share

examples where this role becomes more visible. For example, women in Bhutan are engaged in community forestry; there is, however, little information about how they participate and benefit from these efforts. This is even more the case with regard to climate mitigation measures.

The study indicates that at present, the gender and climate nexus receives very limited attention in Bhutan's education system—but a review of the present curricula offers opportunities to start such integration, particularly at secondary and tertiary level.

3.1 Agriculture, Gender and Climate Change

More than 60 percent of Bhutan's population lives in rural areas, and a majority is engaged in low productive crop- and livestock-production, and forest use. However, a transformation from traditional subsistence to more market-based agriculture is taking place, and organic agriculture is also being promoted. The agricultural sector is a prominent GHG emitter in Bhutan, contributing to 32.4 percent of total emissions in 2015[3]. On the other hand, agriculture itself is extremely vulnerable to the effects of climate change. Challenges such as loss of agro-biodiversity (30 percent of traditional varieties are lost already), loss of agricultural land, increased human-wildlife conflicts, and farm labour shortages are exacerbated by climate change. Most interviewees mentioned that while half of farmers are female, the feminisation of agriculture is taking place due to male out-migration. In 2017, almost 60 percent of employed women were active in agriculture, as compared to more than 34 percent of the employed men[4].

While women have access to land and other resources, they have less control over these than males. The study findings indicate a 63 percent male and 32 percent female land ownership. However, land ownership does not automatically imply wealth and the opposite can actually be the case as well.

In rural households, gender-specific tasks include livelihood tasks such as collection of drinking water by females and irrigation water by males; household tasks which are mainly carried out by females; non-farm work/off-farm employment especially of males; and decision-making and attending meetings mainly by males. Like men, women are also actively engaged in agriculture-related Cottage and Small Industries (CSIs), including agri-businesses and market place.

3 Royal Government of Bhutan (NEC), 2020. Third GHG Inventory (DRAFT). RGoB/NEC, Thimphu.
4 National Statistics Bureau, 2018. Population and Housing Census Bhutan (PHCB) 2017. NSB, Thimphu.

Overall, women in Bhutan perform 71 percent of unpaid household and care work,[5] because of all their roles and responsibilities, rural women are more vulnerable to the effects of climate change, and they are more affected than men when climate-induced disasters hit. The survey learned that a majority of rural males (84%) and fewer females (68%) are aware of climate-smart and -resilient agriculture (CSA/CRA) initiatives. They are particularly aware of promoting 'kitchen gardening', 'organic agriculture', 'increasing organic matter in the soil', 'soil conservation measures', and 'planting indigenous crops'.

The survey also found that more males than females are participating in CSA/CRA activities such as 'promotion of kitchen gardening', 'organic agriculture', 'increase organic matter in the soil', 'soil conservation measures', 'planting of indigenous crops', 'participating in training', 'managing local seeds banks', 'agroforestry', 'waste conservation', and 'changing health care livestock'.

On the other hand, more females are participating in activities such as 'changing planting dates', 'introduction of new crops', 'increase in the area of land planted', 'change animal species/breeds', and 'more efficient use of irrigation'.

A higher proportion of males (83%) than females (73%) have access to CSA/CRA information, training, and inputs to enhance climate-smart agriculture. Access to decision-making on CSA/CRA support systems is also different at 25.5 percent for males and 11.7 percent for females. Over 90 percent of the survey respondents, without much gender difference, reported the need for CSA/CSR support systems, including access to information, training, appropriate technologies, inputs, and decision-making.

The study showed that there is an urgent need to empower and build the leadership of female farmers, and to enhance their communication skills—so as to strengthen their voice and decision-making abilities in (local) governance and farming decisions, including those related to CSA/CRA.

Gender equality and climate change are both identified as important issues in Bhutan's 12th Five Year Plan (FYP) and the Gross National Happiness (GNH) screening tool for national policies. However, there is minimal integration of gender issues in agricultural policies. The study also showed that although the Ministry of

5 National Commission for Women and Children, 2019. Accounting for Unpaid Care Work in Bhutan. NCWC, Thimphu. (authors: Joo Yeoun Suh and Changa Dorji)

Agriculture and Forests (MoAF) has carried out many gender-related initiatives through project-tied activities, integration of gender into plans, programmes and policies has always been a challenge due to lack of proper knowledge and skills. The role of GFPs and Plan Focals, and sensitisation programmes at the national and *dzongkhag* levels are important in that respect. As well, the collection and use of gender-disaggregated data for all activities carried out by departments and agencies form important steps towards strengthening knowledge and expertise.

3.2 Energy, Gender and Climate Change

Bhutan's energy production depends on a mix of energy sources i.e. fossil fuels (37%), biomass (36%) and hydropower (28%). Per sector energy use is 37 percent by industry, 33 percent by construction, 19 percent by transport, and two percent by agriculture and auxiliary[6]. Electricity access — from hydropower—has increased from 30 percent in 2000, to about 100 percent at present.

During the period 2000 to 2013, emissions from energy use have increased almost three times due to economic development.

For example, GHG emissions from the industrial sector has increased from 0.24 to 0.6 million tons of CO2 during that period[7]. In 2015, GHG emissions from the transport sector was 55 percent of the total energy-related GHG emissions, whereas manufacturing industries and construction accounted for 40 percent[8]. At the same time, inefficient use of biomass as an energy source causes environmental health problems due to indoor-pollution by particles and emissions, particularly for women and children.

Bhutan has pledged to remain carbon neutral at all times and strives for low-carbon development by advancing renewable energy, energy efficiency, and conservation—for example through the use of improved cooking stoves and LEDs. Development of hydropower and alternative renewable energy are promoted,

6 Department of Renewable Energy, 2015. Bhutan Energy Data Directory. DRE, Thimphu; Yangka, D. and Newman, 2018. Bhutan: Can the 1.5oC Agenda be Integrated with Growth in Wealth and Happiness? in Urban Planning, Vol. 3(2), pp.94-112.

7 Royal Government of Bhutan, 2000. First GHG Inventory Bhutan. RGoB/NEC, Thimphu; Royal Government of Bhutan (NEC), 2011. Second National Communication from Bhutan to UNFCCC. RGoB/NEC, Thimphu.

8 Royal Government of Bhutan (NEC), 2020. Third GHG Inventory (DRAFT). RGoB/NEC, Thimphu.

such as solar (including the distribution of solar panels and solar farms), biogas, and wind energy. However, the sustainable use of these energy sources was reported by less than 10 percent of households in the survey.

Women's energy demands differ from men's, as women are mainly responsible for housework, including cooking and heating, and rely largely on fuelwood/biomass. The survey showed, however, that by large males are responsible for energy supply, even though women also take care of energy supply from diverse sources, with fuelwood collected by 45 percent of males and 30 percent of females; LPG by 55 percent of males and 21 percent of females; kerosene by 20 percent of males and nine percent of females; biogas by six percent of males and five percent of females; and solar installation by four percent of males and three percent of females.

Modern sustainable energy services—including on-grid electricity, biogas and solar power—and fuel- and labour-saving technologies such as improved cookstoves, contribute to reduction of indoor air pollution, drudgery and harmful impacts on women's health. However, these technologies are not widespread and not easily accessible particularly for (individual) rural women.

With a slightly higher proportion of females than males, more than 70 percent of the survey population is aware of initiatives that promote energy-saving. However, use of energy-efficient cooking appliances, such as cooking stoves, was identified by only one percent. About three-fourths of the survey population reported that they have access to information about saving energy.

Over half of the survey population are aware of biogas and solar, and a quarter are aware of wind as some of the sustainable renewable energy sources.

Only a very small proportion reported meeting their household energy requirements from biogas and solar. A higher proportion of males than females reported having access to information about sustainable renewable energy.

With respect to receiving necessary support to save energy or promote the use of sustainable renewable energy, 52 percent of the survey population reported support in terms of 'access to information'. Less than 10 percent reported receiving support in terms of 'access to technical training', 'access to appropriate technologies', 'access to finance', and 'access to decision-making'. Except with regard to 'access to technical training', a slightly higher proportion of females than males reported such support.

Most employees in the energy sector are male, and women and men are often impacted differently by energy projects. In STEM education women are still a minority, but their participation is increasing. In the CSI-sector, sustainable energy production and consumption offer important opportunities for enhancing efficiency, sustainability and women's empowerment.

Until recently, energy policies and legal frameworks had limited reference to gender aspects; the *Integrated Energy Management Master Plan 2010* was an exception. However, the development of new and the review of existing legal frameworks offer important opportunities to integrate gender aspects—as reflected in the rationale for the *National Energy Efficiency and Conservation Policy (EE&C) 2019* and the actions identified in the *Energy Efficiency Roadmap 2019*.

Information and expertise in the areas of gender, energy and CC in Bhutan is limited. There is a need for gender training, and for the collection and use of gender-disaggregated data and gender analysis in energy polices, projects and studies, including on household energy needs and women's energy enterprises.

Transport uses 20 percent of energy in Bhutan, and within the energy sector it is the most prominent GHG emitter (55 %)[9]. The sector also causes air pollution from particulate matter and nitrogen dioxide. Therefore, transport forms an important area for CCM and CCA, including the promotion of public transport and improvement of infrastructure. The study revealed that the ownership of cars is increasing; presently about 27 percent of households own a car or any other transportation equipment.

Transport is not gender-neutral. Overall, women have inferior access to transportation compared to men. They use urban public transportation more than men, and prefer taxis more than buses and other modes of transport.

Personal safety while using urban transportation is of high concern, both for passengers and (female) drivers; therefore, in some places, CCTV has been installed. Similarly, pedestrians are exposed to dangerous situations, and especially female pedestrians might be exposed to (sexual) harassment.

Employment in the transport sector is largely male-dominated, and only few women are engaged in local decision-making about roads. However, rural women

9 Royal Government of Bhutan (NEC), 2020. Third GHG Inventory (DRAFT). RGoB/NEC, Thimphu.

in particular carry disproportionate shares in the maintenance of farm roads. Their work in road construction is often hard and unsafe, especially under deteriorating weather conditions, including heat stress and road flooding. There is only a small number of female taxi drivers (35 of the 2,200 registered taxi drivers in 2017 were women[10]), although, in the government's promotion of electric taxis there is a preference for female drivers to benefit from subsidies. There are a few transport-related policies that have integrated a gender perspective. For example, one of the objectives of the *National Transport Policy* (second draft, 2017) is to address gender disparity and to promote social equity.

3.3 Waste, Gender and Climate Change

In Bhutan the amount of solid waste (including hazardous and toxic waste) is increasing steadily alongside improvements in economic welfare, a more open market system, changing lifestyles, urbanisation, and inadequate public awareness and advocacy. Around the country, 861.36 MT solid waste is generated per week[11]. Waste forms a small but increasing contributor to GHG emissions (particularly CH_4), especially from solid waste disposal on land via landfills/dumps (87% in 2015) and wastewater handling (13% in 2015:)[12].

Waste management in urban centres follows the following steps: households dispose of their own waste; wet waste (58%) and dry waste (42%) can be disposed separately, although this is not always done[13]. Then it is collected by trucks of private companies, and transported to transfer stations where it is further segregated; the remaining waste—often still solid and wet waste— is dumped in a landfill. Recycling of some paper, glass and plastics takes place, mainly via scrap dealers.

Food-waste composting has a huge unlocked potential, but is still limited and mainly based on projects. There are plans for large-scale composting (hotels, markets), and for the education of people to compost at home. Such plans are just being developed, so most wet waste is still dumped. Implementation of waste management takes place through *dzongkhags* and *thromdes,* and engages private companies.

The gender gap in the waste sector is quite large, including in the division of labour,

10 Choden, T., 2017. Gender Analysis for Bhutan Sustainable Low Emission Urban Transport Service. RGoB, UNDP and GEF, Thimphu.
11 NEC and WWF, 2018. "Waste Inventory and Baseline Study for developing National and City Level Waste Management Strategies and Action Plans". NEC & WWF, Thimphu (Chhimd Consulting), pp.2627.
12 Royal Government of Bhutan (NEC), 2020. Third GHG Inventory (DRAFT). RGoB/NEC, Thimphu.
13 Ibid.

power structures, payment, access to information and equipment, and unequal roles and opportunities[14]. Women are the main handlers of household waste and are engaged as small recycling entrepreneurs, often in informal settings. They are active in waste segregation at source, some in home composting, and teaching children.

Segregation at source (for example into wet and dry waste) is key to successful waste management. However, men and women may have different views and experiences with segregation, disposing methods, recycling, and reduction of waste. The survey showed that household members responsible for waste management are 63 percent female adults, 11 percent male adults, 24 percent both adults, and two percent children. A higher proportion of females segregate wastes into dry and wet waste, with 50.2 percent females and 45.6 percent males segregating almost completely; and 26.4 percent females and 23.3 percent males segregating partially. No segregation was applied by 23.4 percent females and 31.1 percent males.

The proportion of women and men active in household waste management who reported trying to reduce waste, reuse waste, and compost organic waste, differs slightly—with 93 percent of males and 89 percent of females reducing the volume of household waste; 64.5 percent of males and 62 percent of females reusing materials and products; and 39 percent of males and 42 percent of females composting organic materials.

Decisions on initiatives to improve local waste management at the community level (for example through composting and waste segregation training) are male-dominated, as most community leaders are men. In the public and private sector, women are often absent at senior levels or as professionals (with some exceptions), and work mainly as office staff. At the operational level, the gender division is clear: truck drivers are males; waste segregation in transfer centres is mainly done by women; and waste pickers and sweepers are predominantly women.

Most scrap dealers or repair shops are owned by men, but many women work at the scrapyard. Recycling waste materials is mostly seen as a female activity. Female engagement in the waste sector is often more informal with less job security; workers are often unaware of adverse health effects of working with waste; and protection is scarce. Some Non-Governmental Organisations empower women or their CSIs in recycling businesses, prevention of waste, and composting.

14 UNEP-IETC and GRID-Arendal, 2019. Gender and Waste Nexus: from Bhutan, Mongolia and Nepal. UN Environment, Nairobi.

In terms of awareness of waste management methods, 41.5 percent reported awareness on reusing wastes, 29 percent on recycling waste, and six percent on proper disposal of waste. Almost 76 percent of the survey respondents (71% male and 80% female) reported that they have access to information on sustainable waste management. However, apart from access to information, there is a major discrepancy in the support that respondents presently receive for sustainable management of waste and the need for such support. For example, while 96 percent need access to technical training, only 12 percent receive such support; and while 98 percent need support in the form of appropriate technology, only seven percent has such access. The differences by gender are marginal.

There is an extensive legal framework regarding waste management. However, it is only in the more recent *National Waste Management Strategy 2019* that gender issues are identified as cross-cutting and the need for gender integration is aimed for. Both at national and local levels, the institutional capacity connecting waste management, climate action, and gender issues is limited. Apart from a few recent studies, gender-disaggregated data on waste management and related research (including solid baseline information) and expertise are lacking.

A woman in Ngawang Dramtoe community (under Samtse district) fetches drinking water from a distant source.

III Recommendations

Based on the research results, recommendations that relate to all climate change-related sectors, including the selected NDC priority areas, have been identified. These are organised along areas where action is needed in order to make climate action gender-responsive. Together, these actions are intended to contribute to a gender-transformative trajectory.

1) General Recommendations

A. POLICY SPHERE

A1. Integrate gender and climate aspects in the formulation and review processes of existing policies, programmes and projects on climate change and related sectors (including the NDC and APA) by conducting a gender analysis of climate-related policies and policy action plans, through the involvement of internal and/or external gender experts/ expertise, and with close monitoring of the implementation using gender-specific indicators.

A2. The important but undervalued contributions that women make to climate mitigation and adaptation in households, communities and larger society need to be acknowledged and recognised, including in the national accounting system.

B. INSTITUTIONAL SPHERE

B1. Ensure organisational mandates and commitments are in line with national and international gender-CC commitments, and include gender and climate change as mandatory indicators for relevant sectors in Annual Performance Agreements.

B2. Enhance institutional capacity building, including short-term and long-term training on gender-responsive climate action in institutions, ministries, agencies, CSOs, and private companies, including for male local leaders. Disseminate findings of this study on Gender-Climate Change in NDC sectors to management and staff.

B3. Strengthen the role and position of Gender Focal Points (GFPs) within institutions and agencies, and institute a mechanism to include the GFPs in all climate change actions within the various sectors.

B4. Enhance capacity by including the National Commission for Women and Children (NCWC) in the C4 committee (on climate change policies and actions), reviving the central Mainstreaming Reference Group to provide backstopping for mainstreaming cross-cutting issues across all policies, including in the NDC sectoral priority areas.

C. AWARENESS RAISING - CAPACITY BUILDING

C1. Inform and raise awareness of government officials at all levels, professionals, private sector, academia, students, CSOs, and the broader public about the gender dimensions of climate change, climate policies, and related mitigation and adaptation strategies and practices in Bhutan—with a focus on the agricultural, energy and waste sectors. Engage the media—including mass media and social media—in this endeavour. To facilitate this, provide training to journalists on the gender dimensions of climate change and climate action.

C2. Make the gender-CC nexus part of the agendas of leadership forums, such as the Executive Forum, Annual Gup Conferences, and District Head Annual Conferences.

C3. Ensure that in activities addressing CC causes, impacts and actions, the perceptions and attitudes are gender-sensitive and critically monitored, preventing stereotypes about gender roles.

D. EVIDENCE BUILDING

D1. Guarantee the systematic collection of sex-disaggregated data, development of gender-sensitive statistics and other information in design, planning, implementation, monitoring and evaluation of climate mitigation and adaptation efforts in all sectors and at all levels. Apply existing sex-disaggregated data, indicators and information with regard to climate change action, including in NDC priority sectors. As well, make sex-disaggregated climate information, data and statistics

available in a coordinated way, for example through a national repository on gender and climate change.

D2. Develop research and document case studies in the area of gender and climate change in Bhutan—in particular on women's and men's engagement in climate action in the NDC priority areas, on gender-based violence & climate change (e.g. on human-wildlife conflicts and increasing violence against women and girls guarding the fields), and on gender, health and safety in the context of climate change and climate action.

E. PARTICIPATION AND EMPOWERMENT

E1. Strive for gender equality and parity at all levels within agencies, institutions and organisations dealing with climate action, by promoting inclusive, active and meaningful participation and decision-making of women.

E2. Empower and train women to take on leadership roles and act as change agents in CC action from community to management levels, locally and nationally, building on the existing leadership trainings of CSOs and other agencies.

F. EDUCATION

F1. Integrate gender and climate change issues in education at all levels, from primary education to academic levels, vocational training and informal education, through the review of existing curricula and the development of new courses and curricula. As well, encourage girls at all levels to engage into STEM-education.

F2. Promote innovations on addressing issues related to agriculture, energy and waste in the context of climate change through universities, academia and schools, involving a broad community of male and female students and teachers.

F3. Organise learning and awareness programmes for children on social issues, gender and climate change in Bhutan, incorporating these

in existing forums/initiatives, such as school camps, scouts camping, and other vacation activities, seminars and workshops.

G. IMPLEMENTATION

G1. Climate change adaptation and mitigation programmes need to address differentiated needs, priorities and knowledge systems of women and men. In order to do so, apply a participatory gender analysis or gender impact assessment (GIA) as well as gender-sensitive monitoring and evaluation for all climate-related initiatives, including in NDC priority areas. Ensure gender expertise is included in the development and implementation of such climate mitigation and adaptation programmes and projects.

G2. Enhance women's livelihoods and promote women-led green enterprises by ensuring their access to finance, including climate finance, insurance, technical training, and sustainable technologies, specifically in climate-related sectors such as agriculture, energy, transport and waste. Apply health, safety and labour standards in these initiatives. As well, enable women's participation in CSA/CRA, renewable energy, and sustainable transport and waste management sectors, by supporting Early Childhood Care and Development (ECCD) and creches for children of employees.

2) Sector-Specific Recommendations

H. GENDER-RESPONSIVE CLIMATE SMART AND RESILIENT AGRICULTURE

H1. Target CC mitigation and adaptation programmes, through CSA/CRA, towards the needs and priorities of rural women and men, minimising the shocks induced by climate change. Enhance rural women's access to and control over productive resources of good quality, such as land and water sources, agrobiodiversity and livestock, as well as labour and extension services.

H2. Ensure rural women's access to sustainable technologies, inputs, credit and financial services for CSA/CRA, including organic agriculture. Promote

access to agro-meteorological information and Climate Information Systems (CIS) through mobile phone/applications or radio in national and local languages.

H3. Promote awareness of female and male farmers (including groups and cooperatives) on climate smart and resilient agriculture, and gender-differentiated contributions, through training, extension services, mass media and social media.

H4. Facilitate women and men's equal participation in and access to benefits from CSA/CRA activities. Support the empowerment and leadership-building of rural women, and their full and meaningful involvement in the development and implementation of agricultural mitigation and adaptation activities—including CSA/CRA and organic agriculture. Enable rural women to participate actively in relevant groups such as farmers groups, cooperatives, forests groups, and water-user groups.

I. SUSTAINABLE ENERGY CONSUMPTION AND PRODUCTION

I1. Ensure equal participation of women and men in sustainable energy use, awareness-raising and promotion, including by recognition and empowerment of women as agents of change for energy efficiency inside and outside the household. Promote women's increased participation in decision-making, supply and use of renewable energy technologies (RETs)—like solar for lighting and heating, biogas plans, improved cook stoves and improved heating stoves.

I2. Decrease women's workloads and explore options for investments in and subsidies for programmes promoting use of improved cookstoves and other labour-saving energy-efficient devices. Enhance women's access to finance, technical training, and appropriate sustainable technologies for promoting the use of sustainable renewable energy, contributing to the enhancement of women's welfare, environmental health and gender equality.

I3. Support women's participation in sustainable energy-related livelihoods and entrepreneurships, advancing their economic

opportunities. Target women's organisations and enterprises as possible producers and suppliers of renewable energy products.

I4. Increase women's participation as employees, professionals and managers in the energy sector, and involve women's organisations and gender expertise in energy planning, monitoring and evaluation.

J. PROMOTING SUSTAINABLE TRANSPORT SYSTEMS

J1. Change the mindset that everybody needs a car, building on awareness campaigns that address the general public. Promote clean transport technology; sustainable public transport and energy efficiency in public infrastructure and monitoring; and explore and introduce alternative modes of transport, such as cable cars, water transport, electric mass transport and railways.

J2. Emphasise the role of public transport investments and its affordability in improving mobility and quality of life, in order to address gender issues and CCM/CCA, with clear gender and climate assessments. Induce gender-friendly public transport services through an inclusive transport policy.

J3. Ensure safety for women and girls on roads, in transport services, and public spaces. Enhance facilities for taxi stands, to create safe, affordable and accessible parking places. Strengthen and streamline women's safety on the road.

J4. Explore and promote employment opportunities for, and entrepreneurship of women in sustainable transport services. Improve working conditions and guarantee better payment including in road construction. Build women's capacity to drive electric vehicles (EVs), and give priority to female taxi drivers for subsidies on EV taxis.

K. SUSTAINABLE WASTE MANAGEMENT

K1. Ensure women's participation in all levels of waste management, including having more women in leadership roles. Promote female leadership and women's entrepreneurship in the waste sector, with Government, CSO and private sector support.

K2. Give urgent attention to the occupational health and safety aspects of dealing with waste, and provide workers in the waste sector with knowledge about and protection against the health effects of waste management. Train sweepers and all workers at the landfill and segregation sites about the health aspects of dumped waste. Ensure the provision of safety equipment for all workers in the sector.

K3. Enhance education, and conduct awareness-raising and advocacy on waste management—including on prevention, segregation and composting—using media in this process. Build appreciation for women's and men's work in this sector, and advocate for waste management (including in the waste value-chain) as a valued occupation. Raise awareness to change cultural notions of household management—including household waste management—as a female domain and responsibility.

K4. Improve support systems for sustainable waste management—particularly in terms of access to finance, technical training and appropriate technologies—and ensure their availability to local women and men. Set up and support community (women's) groups to establish composting units.

National Commission for Women and Children

Royal Government of Bhutan
Telephone #: +975 - 2 - 334549 / 334553
Woman & Child Toll Free Helpline: 1098
Fax #: +975 - 2 - 334709
Website: www.ncwc.gov.bt

United Nations Development Programme (UNDP, Bhutan)

UN House, P.O. Box 162, Peling Lam, Kawangjangsa,
Thimphu, Bhutan.
For more information:
www.bt.undp.org

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

IN CONTRIBUTION TO THE NDC PARTNERSHIP
ACCELERATING CLIMATE AND DEVELOPMENT ACTION

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