LEVERAGING CO-BENEFITS BETWEEN GENDER EQUALITY AND CLIMATE ACTION FOR SUSTAINABLE DEVELOPMENT

Mainstreaming Gender Considerations in Climate Change Projects

October 2016 version

UN WOMEN

The guidebook is based on a one-day training event on gender and climate change delivered by UN Women during the Green Climate Fund's (GCF) Accelerating Direct Access Week for National Designated Authorities and Focal Points, held in Songdo, South Korea, in April 2016. The GCF requested UN Women to deliver this training to support the integration of gender in its climate change interventions and investments.

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UN WOMEN

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ACRONYMS

AF	Adaptation Fund
AFREA	Africa Renewable Energy Access Program
BECCS	bioenergy with carbon capture and storage
CBD	Convention on Biological Diversity
ccGAPs	Climate Change Gender Action Plans
CDM	Clean Development Mechanism
CEDAW	Convention on the Elimination of All Forms of Discrimination against Women
CIFs	climate investment funds
COP	Conference of the Parties
CPEIRs	Climate Public Expenditure and Institutional Reviews
CSA	climate-smart agriculture
CSOs	civil society organizations
CTF	Clean Technology Fund
DESA	Division of Social and Economic Affairs
ECOSOC	United Nations Economic and Social Council
EU	European Union
FAO	Food and Agriculture Organization
FIP	Forest Investment Programme
FMO	Netherlands Development Finance Company
GCF	Green Climate Fund
GEF	Global Environment Facility
GGCA	Global Gender and Climate Alliance
GHG	greenhouse gas
ICRAF	World Agroforestry Centre / International Council for Research in Agroforestry
ICT	information and communications technologies
IEA	International Energy Agency
INDCs	Intended Nationally Determined Contributions
IPCC	International Panel on Climate Change
IUCN	International Union for Conservation of Nature
LDCs	Least Developed Countries

M&E	monitoring and evaluation
MDBs	multilateral development banks
MFIs	multi-lateral financial institutions
NAMAs	Nationally Appropriate Mitigation Actions
NAPAs	National Adaptation Programmes of Action
NCs	National Communications
NDAs	National Designated Authorities
NDBs	national development banks
NGFs	national green funds
ODA	official development assistance
OECD	Organization for Economic Co-operation and Development
PES	payments for ecosystems services
PPCR	Pilot Programme for Climate Resilience
SCF	Strategic Climate Fund
SDGs	Sustainable Development Goals
SMEs	small and medium enterprises
SREP	Scaling Up Renewable Energy Programme
TLFF	Tropical Landscape Finance Facility
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
USD	United States dollars
WB	World Bank
WFP	World Food Programme
WMO	World Meteorological Organization
WOCAN	Women Organizing for Change in Agriculture and Natural Resource Management

FOREWORD

In September 2015, world leaders from 193 nations adopted the 2030 Agenda for Sustainable Development at the United Nations General Assembly. While some have hailed this adoption as a historic moment – where, for the first time, all countries have agreed to a universal agenda to end poverty, save the planet and ensure prosperity for all – others have questioned how realistic the 2030 Agenda is, with its 17 Sustainable Development Goals (SDGs), 169 targets and 230 unique indicators. Based on existing trends, the SDGs are not attainable by 2030. For example, Sustainable Development Goal 5 aims to ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life. But current estimates indicate that it will be 50 years before gender parity in politics is achieved and 81 years before the gender gap in economic participation and opportunity is closed.

In December 2015, world leaders from 195 countries adopted the first universal, legally binding global climate accord at COP21 in Paris. Notably, they agreed to a long-term goal of holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels. Once again, it was hailed by some as a historic agreement while others questioned how realistic its goals were. Even if all countries meet their present commitments, it is estimated that temperatures will increase by 2.6°C to 3.1°C by 2100.

While implementing each SDG in isolation would indisputably exceed the capacity of the world community, the 2030 Agenda for Sustainable Development is an integrated and indivisible vision for change. This means that a limited number of policy levers can facilitate simultaneous implementation of several SDGs, dramatically reducing costs and increasing co-development benefits. UN Women strongly believes that gender equality and women's empowerment are both fundamental human rights and solutions to seemingly intractable sustainable development challenges. Achieving SDG 5 on gender equality and empowerment of all women and girls would boost efforts to meet every single SDG and, similarly, progress in the other 16 SDGs will greatly contribute to the attainment of SDG 5.

Optimizing development benefits across SDGs holds the key for the successful implementation of the integrated and indivisible 2030 Agenda and of the Paris Agreement on climate. And advancing gender equality and women's empowerment is a particularly powerful solution to avoid or mitigate trade-offs between climate and other sustainable development priorities. Instead, substantial development co-benefits could be obtained. However, this signifies a paradigm shift that puts gender concerns and the voice and agency of women and girls, and men and boys, at the center of adaptation, mitigation, and disaster risk management efforts. This guidebook aims to facilitate such a paradigm shift by providing methodologies and tools to mainstream gender in climate project design and implementation. Our hope is that this guidebook will prompt a conversation between climate and gender practitioners on how to best leverage co-benefits between gender equality and climate action for sustainable development.

Dr. Phumzile Mlambo-Ngcuka
Under-Secretary-General
Executive Director of UN Women

EXECUTIVE SUMMARY

The ambition of this guidebook is to help practitioners and stakeholders integrate gender equality considerations in climate projects and leverage co-benefits between gender equality and climate action for sustainable development. It is divided into three parts: 1) an overview of co-benefits between gender equality and climate action; 2) an introduction to climate finance concepts, sources and instruments, and a discussion of their associated gender dimensions; and 3) a review of mainstreaming methodologies and tools to incorporate gender in climate change projects.

Lessons from the process of integrating gender perspectives in climate negotiations over more than two decades, from the 1992 adoption of the United Nations Framework Convention on Climate Change (UNFCCC) to the twenty-first UNFCCC Conference of the Parties (COP21) Paris Agreement in December 2015, form the backdrop for an analysis of the co-benefits between gender equality and climate action. With the UNFCCC COP21 Paris Agreement in December 2015, 196 countries adopted the first universal, legally binding global climate accord. Governments agreed to a long-term goal of "holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change".

Meeting this commitment will require an unprecedented capital reallocation, measured in trillions of dollars, to ensure a rapid transition to low-carbon and climate-resilient economies and societies. Developed countries have committed to raising USD 100 billion per year by 2020 to assist developing countries in addressing climate change. Even if this level of financing is raised, public expenditures alone will be insufficient to adequately transform economies. The Paris Agreement relies on the power of data and reporting to ensure that the parties not only honor their promises but also commit to stronger greenhouse gas (GHG) abatement measures as their capacity to scale up action increases. It also relies on the improved attractiveness of low-carbon and climate-resilient investments to catalyze large private financial flows as new cost-effective options materialize. In essence, leveraging co-benefits between climate action and other sustainable development goals – including gender equality and women's empowerment – is central to the implementation of the Paris Agreement.

A brief review of potential synergies between gender equality and climate action across four key climate change sectors – energy, agriculture, urban development and natural disasters – reveals considerable opportunities. However, women's roles as agents of change to both drive and benefit from climate investment have so far been modest. While the gender-differentiated impact of climate change on women is well understood and recognized in both the climate literature and, increasingly, in the safeguard arrangements of climate investments, their contributions as agents of change to scaling up climate action are often overlooked. Women's participation is marginalized when they are categorized solely as a "vulnerable group". This categorization only emphasizes their needs, while their participation and leadership in accelerating the adoption of renewable energy technologies and climate-smart agricultural practices, promoting sustainable transport and urban development, and acting to reduce and respond to climate-related disaster risks are overlooked: unmeasured, unnoticed and unsupported.

Leveraging co-benefits between gender equality and climate action requires a paradigm shift that puts gender concerns and the voice and agency of

women and girls, and men and boys, at the center of climate management efforts and investments. While the Paris Agreement does not specifically mention gender equality considerations in relation to the critical theme of climate finance, it is indisputable that making climate finance gender-responsive is vital to enable such a paradigm shift. The overview of existing climate finance sources and instruments shows that potential co-benefit gains between gender equality and climate action are seldom factored into climate investment decisions. However, an increasing number of options exists to finance climate investments that further gender equality and women's empowerment.

For example, the growth of green bonds offers such an option. Green bonds enhance an issuer's reputation, as they help showcase commitments towards sustainable development. They also provide issuers access to a specific set of global investors who only invest in green or social ventures. As a result, the cost of capital for project proponents is lowered. Green bonds can be designed to intentionally leverage co-benefits between gender equality and climate action to maximize sustainable development impacts and provide a triple dividend to investors. Similarly, the commitment of the three financial mechanisms under the UNFCCC – the Green Climate Fund (GCF), the Global Environment Facility (GEF), and the Adaptation Fund (AF) – can unlock additional public, private and innovative sources of finance for gender-responsive climate investment.

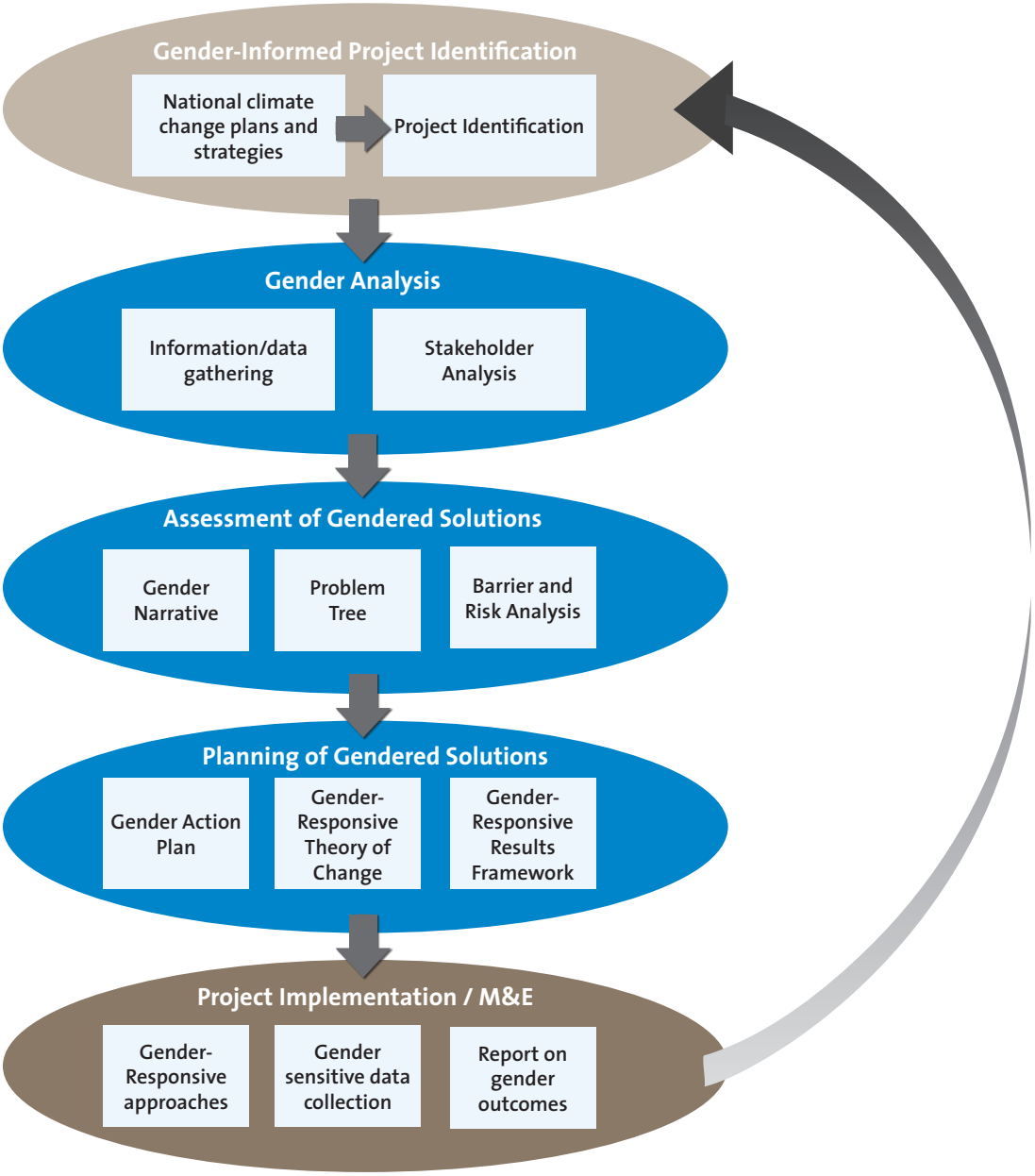
To seize these opportunities, a key challenge will be for practitioners and stakeholders to mainstream gender considerations in climate investment decision-making processes. Gender mainstreaming for climate change is the process of assessing and responding to the differentiated implications for women and men of any planned climate action, including legislation, policies or programmes. Gender mainstreaming is not simply about adding a "women's component" or even a "gender equality component" into an existing or planned activity. It goes beyond ensuring and increasing women's participation. Gender mainstreaming is about thinking differently, modifying climate and development interventions so that they will benefit men and women equally, and transforming social, economic and institutional structures towards gender equality and women's empowerment in climate action and resilience building.

Gender equality considerations should be mainstreamed into the entire project cycle to enhance the efficacy of climate change mitigation and adaptation interventions, starting from the identification of priority interventions to achieve the climate management goals of a given jurisdiction or entity. This applies to all projects, not only the ones that are intended from the outset to be women-centered or to have a gender focus. Gender mainstreaming does not mean additional costs; in fact, it makes climate interventions more effective and efficient.

The specific methodologies and tools appropriate for gender mainstreaming depend on the focus and depth of the envisaged climate initiative. Projects aiming at establishing a conducive policy environment to reduce climate investment risks and catalyze private finance might require the use of dedicated tools, such as gender-sensitive problem trees and barrier and risk analyses. These tools can serve to identify the gender-differentiated risks and underlying structural barriers involved in market transformation efforts, as well as potential gender-responsive solutions. The figure below summarizes some gender mainstreaming tools and methodological approaches that can be employed in designing climate initiatives.

FIGURE ES:

Gender mainstreaming methodologies and tools for climate projects



INTRODUCTION

This guidebook addresses two of the greatest sustainable development challenges of our time: climate change and gender inequality – the most pervasive human rights violation. It aims to help practitioners and stakeholders integrate gender equality considerations in climate action and leverage development co-benefits between gender equality and climate action.[1]

The latest report by the International Panel on Climate Change (IPCC, 2014b) highlights vulnerability to climate change due to gender and other factors, including class, ethnicity and age:

> Differences in vulnerability and exposure arise from non-climatic factors and from multidimensional inequalities often produced by uneven development processes... These differences shape differential risks from climate change...People who are socially, economically, culturally, politically, institutionally, or otherwise marginalised are especially vulnerable to climate change and also to some adaptation and mitigation responses...This heightened vulnerability is rarely due to a single cause. Rather, it is the product of intersecting social processes that result in inequalities in socio-economic status and income, as well as in exposure. Such social processes include, for example, discrimination on the basis of gender, class, ethnicity, age, and (dis)ability.

The impacts of climate change, including on access to productive and natural resources, amplify existing gender inequalities. Climate change affects women's and men's assets and well-being differently in terms of agricultural production, food security, health, water and energy resources, climate-induced migration and conflict, and climate-related natural disasters (Goh, 2012). Women's dependence on and unequal access to land, water, and other resources and productive assets – which are compounded by limited mobility and decision-making power in many contexts – mean that they are disproportionately affected by climate change. In addition, women and girls typically carry the largest burden of unpaid care and domestic work, which only increases in a changing climate. Women often have primary responsibility for water and fuel provisioning; thus changes in their availability due to climate-induced drought and scarcity affect the time and level of effort required to collect, secure, distribute and store these resources.

Women are also powerful change agents to address climate change at scale. They are key actors in building community resilience and responding to climate-related disasters. Women tend to make decisions about resource use and investments in the interest and welfare of their children, families, and communities (UNEP, 2016a; UN Women, 2015a). Women as economic and political actors can influence policies and institutions towards greater provision of public goods, such as energy, water and sanitation, and social infrastructure, which tend to matter more to women and support climate resilience and disaster preparedness (Beaman and others, 2011; UN Women, 2014).

Systematically addressing gender gaps in responding to climate change is one of the most effective mechanisms to build the climate resilience of households, communities and nations. The growing recognition of the disproportionate impact of climate change on

1 For more on these twin challenges and opportunities, please see: UN Women (2014), *The World Survey on the Role of Women and Development: Gender Equality and Sustainable Development* (New York); Lorena Aguilar, Margaux Granat and Cate Owren (2015), *Roots for the Future: The Landscape and Way Forward on Gender and Climate Change* (Washington, D.C., IUCN and GGCA); and UNEP (2016a), *Global Gender and Environment Outlook* (Nairobi).

women and girls has been matched in recent years by the rising awareness of their roles as change agents and the tremendous value of gender equality and women's empowerment for producing social, economic, and climate resilience benefits.

This evolution is reflected in the progress made towards integrating gender into climate negotiations, climate planning and climate action, as demonstrated by the efforts for the adoption and implementation of the United Nations Framework Convention on Climate Change (UNFCCC), Lima Work Programme on Gender (2014, FCCC/CP/2014/10/Add.3, Decision 18/CP.20) and the gender equality considerations in the recent UNFCCC Paris Agreement (2015, FCCC/CP/2015/L.9/Rev.1). Yet the key challenge remains: to systematically incorporate gender equality and women's empowerment strategies in climate change responses at the local, national and international levels. This signifies a paradigm shift that puts gender concerns and the voice and agency of women and girls, and men and boys, at the center of adaptation, mitigation, and disaster risk management efforts.

This guidebook is part of UN Women's and its partners' efforts to champion such a paradigm shift. It is divided into three parts. The first part offers an overview of the development co-benefits between gender equality and climate change. The second part introduces climate finance concepts, sources and instruments. The third part covers gender mainstreaming in the project cycle, emphasizing gender-responsive project formulation and design.

Because of their critical importance in catalyzing climate finance, the guidebook addresses in greater details the three UNFCCC financing mechanisms: the Green Climate Fund (GCF), the Global Environment Facility (GEF) and the Adaptation Fund (AF). Notably, a companion manual, *Mainstreaming Gender in Green Climate Fund Projects*, illustrates how the methodologies and tools discussed in this guidebook can be applied to mainstream gender in GCF project design and implementation.

This guidebook is also linked to a UN Women Training Centre web page on *Leveraging Co-Benefits between Gender Equality and Climate Action for Sustainable Development* at https://trainingcentre.unwomen.org. UN Women project documents applying the methodologies and tools described in this guidebook to address the gender gaps in sustainable energy and climate-smart agriculture can be found on the same web page. Peer-reviewed papers describing the technical foundations of these methodologies and tools in greater detail are also available on the same web page.

Part I

GENDER EQUALITY AND CLIMATE CHANGE

This part offers an overview of efforts to integrate gender perspectives in climate negotiations over more than two decades from the adoption of the United Nations Framework Convention on Climate Change (UNFCCC) to the twenty-first UNFCCC Conference of the Parties (COP21) Paris Agreement, and of the development co-benefits between gender equality and climate management across four key sectors.

1.1

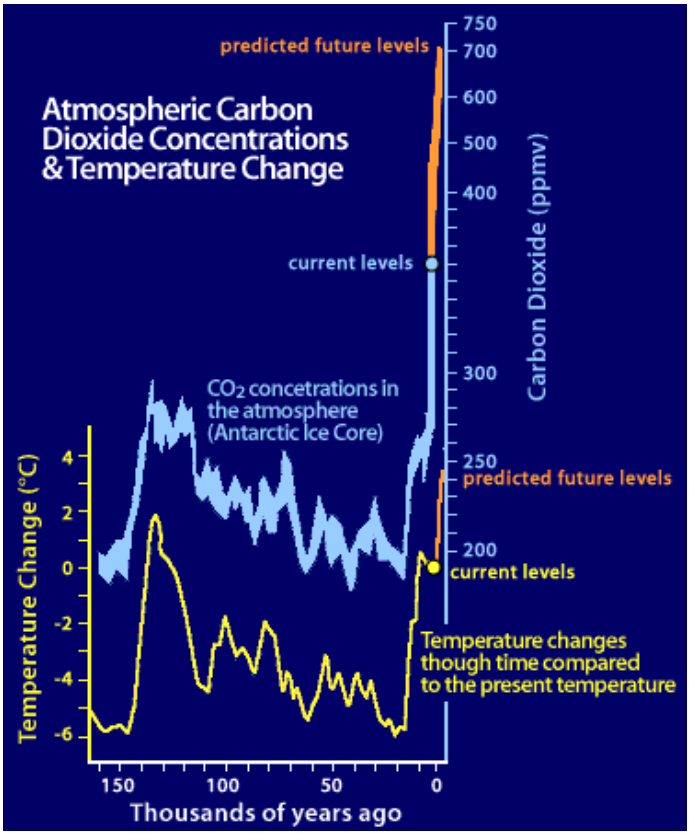
From the adoption of the UNFCCC to the Paris Agreement

a. The physical science basis

The goal of the UNFCCC, adopted at the United Nations Conference on Environment and Development in Rio de Janeiro in 1992 and entered into force in 1994, is to stabilize greenhouse gas concentrations "at a level that would prevent dangerous anthropogenic [caused by human activity] interference with the climate system ... within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner". The UNFCCC responds to the scientific finding that the concentration of greenhouse gases (GHG) in the atmosphere is directly connected to the global average temperature, both of which have increased steadily over the past one hundred and fifty years (IPCC, 2014a). A greenhouse gas is any gaseous compound in the atmosphere that is capable of absorbing infrared radiation, thereby trapping and holding heat in the atmosphere.

FIGURE 1.

Correlation between GHG concentration and global average temperature



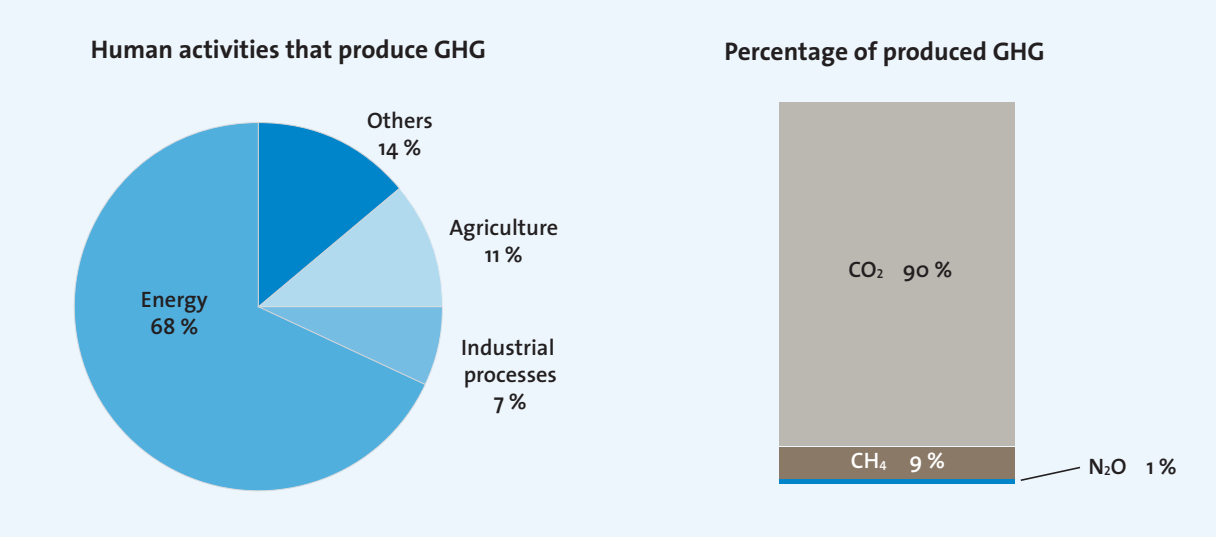
Atmospheric carbon dioxide concentration and temperature change (°C) observed during the past 160 thousand years and predicted during the next 10 thousand years. Historical carbon dioxide data was collected from Antarctic ice cores; temperature changes through time are relative to the present temperature.

Source: www.cotf.edu.

Industrialization, deforestation, energy production and consumption, and other human activities have been the main sources of greenhouse gas emissions, most significantly carbon dioxide, which is produced by burning fossil fuels. Carbon dioxide accounts for 90 per cent of total anthropogenic GHG emissions.

FIGURE 2.

Energy sector produces largest share of anthropogenic greenhouse gas (GHG) emissions leading to climate change



Source: UNEP (2016a) based on IEA (2015)

The Intergovernmental Panel on Climate Change (IPCC), in its Fifth Assessment Report (2014a), estimates that between 1880 and 2012 the global average temperature increased by 0.85°C.[2] The consequences for humans and environments of the continued concentration of greenhouse gases and rising global average temperature are now well understood: warming, acidifying and deoxygenizing oceans; melting ice caps and rising sea levels; variable weather patterns and extreme weather events associated with floods, droughts and wildfires; changes in flora and fauna populations and regimes, and loss of habitats; and threats to agricultural production, food security, human settlements and human health, among others (IPCC, 2014b).

Addressing climate change risks requires both mitigation and adaptation actions for "avoiding the unmanageable and managing the unavoidable" (Scientific Expert Group on Climate Change, 2007). Box 1 provides a concise definition of mitigation and adaptation. A detailed analysis of international peer-reviewed literature on adaptation and mitigation options can be found in the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (2014).

2 Because some global temperature records only begin in 1880, the period from 1880 to 1899 is the easiest "pre-industrial" baseline for measuring warming. It somewhat understates the actual warming, though, because the 1880s were particularly cold after the eruption of the Krakatoa volcano.

BOX 1.

Climate change action: mitigation and adaptation

Actions responding to climate change fall into two distinct but related groups: 1) climate change mitigation actions; and 2) climate change adaptation actions.

Climate change mitigation actions are designed to reduce or eliminate GHG emissions (e.g. replacing coal power plants with solar power plants, planting more trees that can absorb CO2 from the atmosphere). In other words, mitigation tries to stop or slow climate change.

Climate change adaptation, on the other hand, aims to deal with its effects. Adaptation actions are measures to limit or counteract the expected and already occurring effects brought on by climate change (e.g. building sea walls to protect against increased flooding, changing agricultural practices to contend with changes in regional temperatures or precipitation patterns).

In many cases, actions to address climate change can have both mitigation and adaptation benefits, for example, protecting tropical forests reduces GHG emissions by absorbing CO2 from the atmosphere, while simultaneously protecting freshwater supplies and critical biodiversity.

Source: Lorena Aguilar and others (2015).

b. Integrating gender perspectives in climate change negotiations

The UNFCCC first addressed gender concerns in 2001 at COP7 in Marrakech, Morocco, when it was mandated that national adaptation programmes of action should be guided by gender equality. Subsequently, COP18 in Doha, Qatar, in 2012 adopted a decision to promote the goal of gender balance in bodies of (and delegations to) the UNFCCC, and to include gender and climate change as a standing item on the COP agenda. At COP20 in Lima, Peru, in 2014 the UNFCCC called for an action plan to develop a two-year programme on gender (the Lima Work Programme on Gender). This work programme included mapping of decisions and conclusions on gender and climate change adopted, in order to identify areas of progress, potential gaps, and areas where further support and greater collaboration are needed. As a result of this preparatory work, the UNFCCC Paris Agreement in 2015 formally recognized the intersection of climate change and gender equality, empowerment of women, and realization of their rights:

> Acknowledging that climate change is a common concern of humankind, Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights, the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity.

The Paris Agreement also mandates gender-responsive adaptation actions and capacity-building activities. In article 7.5, "Parties acknowledge that adaptation action should follow a country-driven, gender-responsive, participatory and fully transparent approach ... with a view to integrating adaptation into relevant socioeconomic and environmental policies and actions". Article 11.2 states that "...Capacity-building should be guided by lessons learned ... and should be an effective, iterative process that is participatory, cross-cutting and gender-responsive".

However, this political commitment remains to be translated into action. The Paris Agreement requires all

parties to prepare and communicate Intended Nationally Determined Contributions (INDCs) as a means of reporting regularly on emissions and on mitigation efforts. An analysis of the 162 submitted INDCs shows that only 65 (40 per cent) explicitly mention "gender" or "women" in the context of their national priorities and ambitions for reducing emissions. The total emissions of the 65 parties that mention gender or women account for only 19 per cent of greenhouse gas emissions as per the 2012 baseline. Moreover, 33 of the 65 INDCs that mention "gender" and/or "women" identify gender as a cross-cutting policy priority or commit to integrating or mainstreaming gender into all climate change actions, strategies and policies rather than as a set of discrete interventions to scale up action and sustainable development (IUCN, 2016).

BOX 2.

Gender considerations in the INDCs

Some 40 per cent of the INDCs submitted mention gender-related issues, although to a varying extent:

- Seven countries inform about the status of women in the national context (e.g. literacy rate, gender equality, inclusion in development) without further including the topic in their contributions.
- Twelve countries point out the special vulnerability of women to climate change.
- Thirty-six countries mention gender in the adaptation section, most often associated with adaptation goals, capacity-building, or mainstreaming in policies and plans.
- Four countries intend to strengthen the resilience of women to disasters, through safety nets and other support systems, or by implementing gender-sensitive disaster risk management initiatives.
- Seven countries mention gender concerns in relation to agriculture, either in stating explicit measures in adaptation (e.g. strengthening capacities, especially of women farmers, in the context of intensified and sustainable modes of production); or in pointing to the co-benefits for women that arise from mitigation and adaptation actions (e.g. rural poverty reduction, particularly among women).
- Four countries mention gender in connection with the benefits of renewable energy and increased efficiency (better cook stoves, etc.). More than half of the countries that refer to this topic promote an active role for women during the implementation process of their INDC and in future policy design.
- Three countries explicitly mention the engagement of women or their representatives (such as ministries for gender equality and women's organizations) in the stakeholder process.

Source: FAO (2016).

c. The imperative of leveraging development co-benefits

With the UNFCCC COP21 Paris Agreement in December 2015, 195 countries adopted the first universal, legally binding global climate accord. Governments agreed to a long-term goal of "holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change".

Meeting this commitment will require rapid transition to low-carbon and climate-resilient development strategies, technologies, investment and practices. The Paris Agreement, however, does not include provision for global mandatory carbon pricing as recommended by a majority of economists (Tirole, 2016) or for a global carbon budget as advanced by the IPCC (2014a). The Paris Agreement relies on the power of data and reporting, and on development co-benefits to ensure

that the parties not only honor their promises but also commit to stronger GHG abatement measures down the road as new cost-effective options materialize.

On the power of data and reporting, the Paris Agreement requires that all parties prepare and regularly report INDCs. Yet even if countries meet their present INDCs, it is estimated that temperatures will increase by 2.6°C to 3.1°C by 2100 (Rogelj and others, 2016). The threshold of a 1°C rise in global average temperatures since the pre-industrial era was reached by the end of 2015.

To close the present gap between ambition and action, parties made a commitment "to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century" (FCCC/CP/2015/L.9/Rev.1). The IPCC Fifth Assessment Report (AR5) considered more than 100 scenarios that had a likelihood of limiting the increase in global average temperatures to less than 2°C relative to the pre-industrial era. Most of these scenarios required negative emission technologies (NETs) in the second half of the century.

Today, the most cost-effective approach would be to promote bioenergy with carbon capture and storage (BECCS). BECCS solutions aim to remove diffuse CO_2 from the air with plants, burn them, and then bury the carbon in concentrated form underground. A major issue with BECCS is the availability of land and water. It is estimated that deploying BECCS at scale to stabilize the climate at less than the 2°C increase would require about 25 per cent to 46 per cent of total arable and permanent crop area. Such approaches immediately raise the problem of trade-offs with food and water security and, as such, their political feasibility is doubtful (Glemarec, 2016).

This brings to the fore the key issue in the Paris Agreement. Given current trends, both mitigation and adaptation action must be urgently accelerated. Yet climate change responses should not come at the expense of socioeconomic development, food security or other essential aspects of sustainable development to be politically feasible and ethically acceptable. The development of synergies and development co-benefits between climate action and other sustainable development goals – including gender equality and women's empowerment – are a precondition for successful implementation of the Paris Agreement and the achievement of the 2030 Agenda for Sustainable Development (A/RES/70/1).

1.2

Leveraging development co-benefits between gender equality and climate change management

Gender equality is both a fundamental human right and a solution to seemingly intractable development challenges. This guidebook rests on the conviction that advancing gender equality and women's empowerment is an unequivocal way to avoid or mitigate trade-offs between climate and sustainable development action, and instead lead to substantial development co-benefits. As such, harnessing gender equality and women's rights concerns is one of the most powerful instruments available to implement the Paris Agreement.

The following section briefly lays out potential synergies between gender equality and climate action in four key sectors: sustainable energy development; climate-smart agriculture; climate-compatible urban development and transport; and disaster risk management. However, it should be underscored that this discussion is not exhaustive and does not by any means cover all the possible sectors involved in the gender equality and climate change nexus; the following sections are intended to be solely illustrative. We expect the development of approaches to optimize synergies between climate action and gender equality to be an active field of research in the coming years.

a. Women's entrepreneurship for sustainable energy

In the absence of a global mandatory carbon pricing structure or budget, it is critical to establish a conducive policy environment to incentivize low-carbon and climate-resilient investment, which could be potentially deployed at scale on a commercial basis.

The recent IPCC (2014a) report has shown that the entire global economy could be decarbonized at low costs by the end of the century. To a large extent, it reflects the significant decline in the cost of renewable and efficient energy, which have become the cheapest sources of distributed energy and are competitive in most locations with fossil fuel power plants. In 2011, 82 gigawatts[3] in renewables were installed for a global investment of USD 279 billion (UNEP, 2012). In 2015, two thirds more (134 gigawatts) was installed at a similar investment cost of USD 286 billion (UNEP, 2016). Cost reductions have been particularly pronounced for solar energy, and these costs are expected to continue to fall in the foreseeable future. This record was achieved despite falls in oil, coal and gas prices that improved the competitive position of fossil fuel generation and massive fossil fuel subsidies (see Box 3). Renewable energy technologies also have other advantages. Notably, they can be deployed faster (UNEP, 2016). Wind farms can be built in nine months or so, solar parks in three to six months, and small decentralized solar systems in a matter of days, whereas coal, gas and nuclear plants can take several years to build.

BOX 3.

Fossil fuel subsidies

A fossil fuel subsidy is any government action that lowers the cost of fossil fuel energy production or consumption. In essence, it functions as a negative carbon price. According to the International Energy Agency (IEA), the value of fossil fuel subsidies worldwide totaled 493 billion in 2014. When externalities are included, as in a 2015 study by the International Monetary Fund (IMF), the unpaid costs of fossil fuels are upward of USD 5.3 trillion annually. Removing fossil fuel subsidies, which primarily benefit the wealthy (car owners, large companies, etc.), is a powerful solution to free up revenues to finance education, health and other fundamental social services and infrastructure for all. Such social investments are critical to reduce unpaid domestic and care work, promote women's empowerment and achieve sustainable economic growth.

Sources: IEA (2015); Coady and others (2015).

Yet investment in seemingly profitable sustainable energy opportunities faces a range of informational, technical, institutional and financial barriers. For example, complex, inconsistent or opaque licensing procedures for clean investment or limited local supply of technical and managerial skills lead to transaction costs and deter investment. A number of policy instruments have been developed to address investment barriers and associated risks, and transform energy markets.

Most barrier and risk analyses underlying these market transformation efforts are gender-blind, but it is the case that women entrepreneurs usually face a number of gender-differentiated barriers and risks. As highlighted by Anatole France in his famous aphorism, "In its majestic equality, the law forbids rich and poor alike to sleep under bridges, beg in the streets and steal loaves of bread", laws are not income neutral. By the same token, they are rarely gender neutral. Out of 173 countries, 155 have at least one law impeding women's economic opportunities and 18 where husbands can prevent their wives from working (World Bank, 2015). The effect of these discriminatory

3 As a handy comparator, 1 gigawatt is approximately the power generation capacity of an average nuclear plant.

laws is often compounded by harmful social norms and gender-differentiated tasks. For example, women spend on average 2.5 times more time than men on unpaid domestic and care work (UN Women, 2015a). These structural barriers translate into unequal access to productive resources such as land, finance, technology, labour, markets, justice and information, and, in turn, higher investment risks for women than for men.

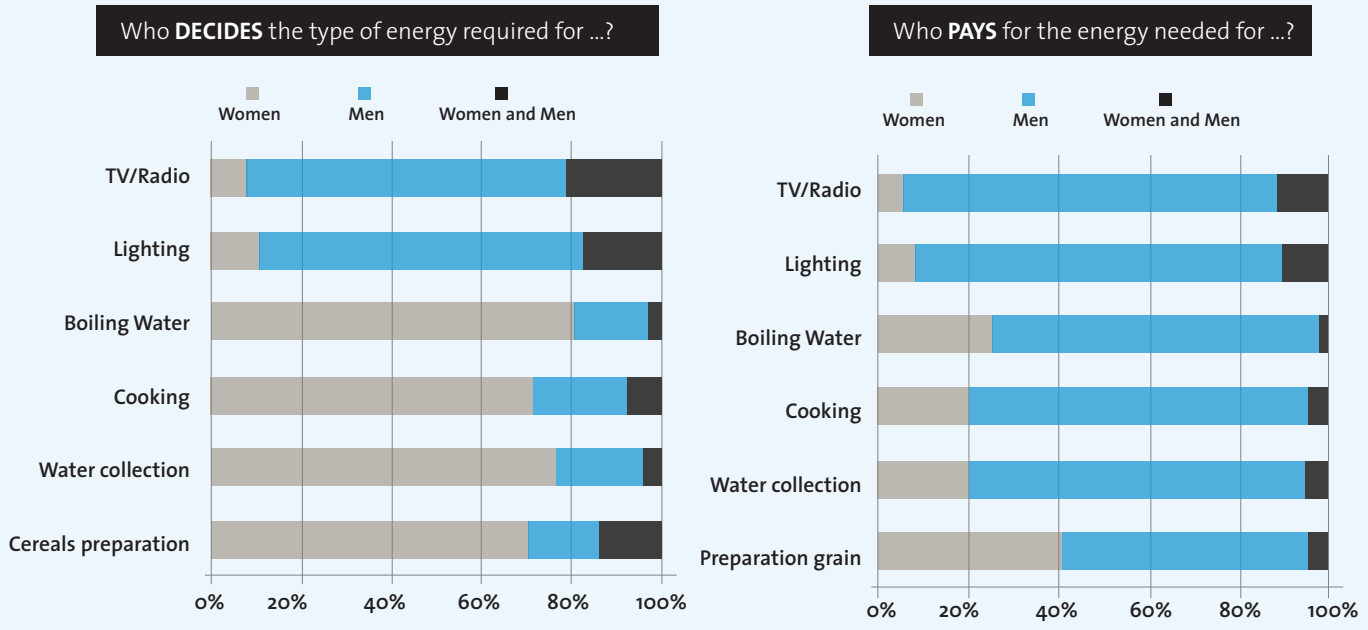
Addressing the gender-differentiated investment risks in energy has the potential to accelerate universal energy access and decentralize renewable energy development while reducing poverty. Based on current trends, it will take until 2080 to achieve universal access to electricity, and the mid twenty-second century for access to non-polluting energy for cooking. Highly centralized energy systems often bypass the poor in low-income countries, especially in rural areas and particularly women. Yet in most developing countries women are the primary household energy managers and can also be powerful agents of change in the transition to sustainable energy (see Figure 3).

As decentralized sustainable energy technologies increasingly become the most cost-effective energy options for the poor, women entrepreneurs have enormous potential to create distribution and service networks in rural areas, helping to lower the cost of customer acquisition and increasing access to sustainable energy.

However, this potential to accelerate the energy transition is vastly underutilized and women are underrepresented in the sustainable energy sector. Support for women's entrepreneurship in the energy sector must tackle these policy, capacity and financing barriers, and promote women energy entrepreneurs and women's productive use of sustainable energy, particularly in agriculture and microenterprises, and reduce their time dedicated to unpaid domestic and care work.

FIGURE 3.

Women are the primary household energy managers in developing countries



WB Multi-topic Household Survey modified by AFREA to collect data related to gender issues in rural energy. Survey data from 195 respondents in 12 localities between July and August 2011.

Source: Malian Agency for the Development of Household Energy and Rural Electrification (2011).

b. Women's economic empowerment through climate-smart agriculture

In agriculture, climate change exacerbates the existing barriers to gender equality faced by women farmers. Globally, women comprise 43 per cent of the agricultural workforce and play a critical role in supporting household and community food security. However, due to discriminatory policy frameworks or inequitable social norms, women farmers have less access than men to secure land tenure, agricultural inputs, financing, water and energy, appropriate infrastructure, technologies, and extension services.

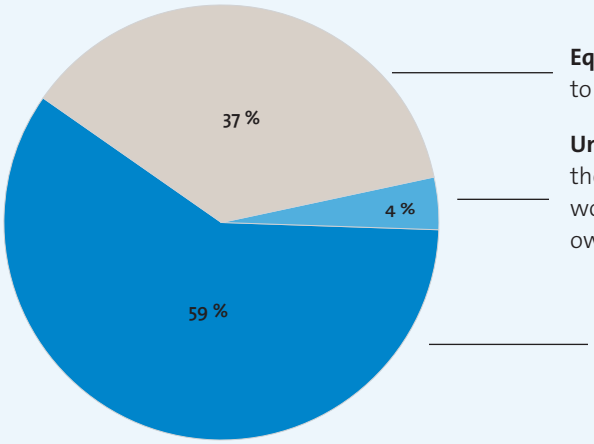
According to some estimates, closing the gender gap in access to land and other productive assets could increase agricultural outputs by up to 20 per cent in Africa, whereas globally, according to FAO (2011), if women in rural areas had the same access to land, technology, financial services, education and markets as men, agricultural production could be increased and the number of hungry people reduced by 100-150 million.

As mentioned in the previous section, it would help minimize potential trade-offs between food security and carbon management by increasing overall agricultural productivity. It would also enable women farmers to adopt climate-smart agricultural approaches at the same rate as men, as key initiatives that address these gender gaps such as secured land tenure, greater financial inclusion and access to information are also essential to accelerate the adoption

BOX 4.

Gender inequalities in climate change issues: access and control over land and resources

The gender-differentiated consequences of climate change can intensify the pressure on women who rely on agriculture and use of natural resources, such as land, for their livelihoods. Climate change impacts exacerbate existing gender inequalities in, for example, access and control over land. These inequalities are reflected in the Organization for Economic Co-operation and Development (OECD) Social Institutions and Gender Index (2014), which shows that in only 37 per cent of the 160 countries with data do women and men have equal rights to own, use and control land. In more than half, while the law guarantees women and men the same rights to own, use and control land, customary practices prevent access for women. In 4 per cent of these countries, women explicitly have no legal right to own, use and control land. Insecure land tenure means that women have fewer resources and capacity to cope with climate change impacts through mitigation and/or adaptation action. Hence, tackling gender inequality in women's rights to land and increasing women's access to secure land tenure contributes to strengthening climate resilience in both rural and urban settings.



Equal land rights: The law guarantees the same rights to own, use and control land to both women and men.

Unequal land rights: The law does not guarantees the same rights to own, use and control land to women and men, or women have no legal rights to own, use and control land.

Legal land rights are not followed in practice: The law guarantees the same rights to own, use and control land to women and men, but there are some customary, traditional or religious practices that discriminate against women.

Source: UNEP (2016a).

of climate-smart agricultural practices. In essence, providing equal access to women and men farmers to land and other productive resources can provide a "triple dividend" of gender equality, food security and climate management, thereby offering a cost-effective and transformative approach to the pursuit of the Sustainable Development Goals.

Yet a changing climate means that there is a shrinking window of opportunity to close gender gaps in agriculture. Climate change aggravates existing barriers, limiting women farmers' access to long-term affordable finance and agricultural extension services, and increasing their unpaid care work burdens as water and fuel become scarce. Women farmers are at risk of being trapped in a downward spiral in the absence of concerted efforts to close these gender gaps.

Therefore, it is a priority to foster women's empowerment through climate-smart agriculture approaches such as: (i) engendering climate-resilient agricultural policies; (ii) increasing women's land tenure security; (iii) facilitating women farmers' access to finance to invest in climate-resilient and time-saving assets; (iv) enhancing women farmers' access to climate-resilient information; and (v) expanding opportunities for women farmers to participate in and move up the climate-smart agricultural value chain.

c. Women's engagement in sustainable urban development

Cities produce an estimated 70 per cent of global greenhouse gas emissions. By 2050, two thirds of the world's population will be located in urban areas. Urbanization and population growth are projected to add 2.5 billion people to the world's urban population by 2050, with nearly 90 per cent of the increase concentrated in Asia and Africa. Unless appropriate measures are taken, the environmental and climate impacts of cities will increase significantly. While urban density can make public transport and other services more efficient in terms of energy use and emissions, urban sprawl and the increased consumption of urban dwellers reduce efficiency and have greater climate and environmental impacts (UNEP, 2016a). In urban settings, the energy sector, transport, and public and private buildings are key to cutting GHG emissions. Climate action means deploying renewable energy and energy efficiency solutions for electricity supply and consumption, retrofitting buildings and homes, and providing safe and sustainable transport.

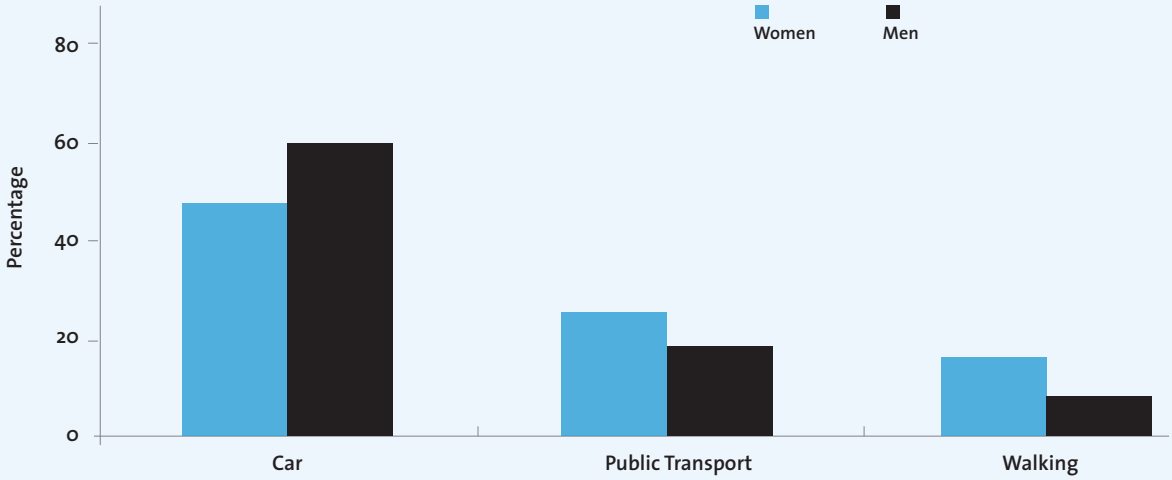
According to the McKinsey Global Institute, additional annual investments in energy productivity of USD 170 billion through 2020 could halve the growth in global energy demand at an average internal rate of return of 17 per cent (Farrell and Remes, 2008). Such outlays would also achieve significant energy savings and cuts in greenhouse gas emissions. Similar to the barriers to women's investment in renewable energy enterprises and climate-smart agriculture discussed earlier, the gender gap in access to inheritance and property rights, finance and information can limit the capacity of women home and business owners to invest in energy-efficient buildings, appliances and technologies.

Energy use in the home may also be reduced by about 20 per cent through changes in behavior. Women and men respond differently to policies encouraging behavioral changes. The success of these policies will depend heavily on how they affect the workload and well-being of both women and men. Energy efficiency policies and investment should be designed based on a gender-differentiated understanding of opportunities and constraints to optimize their social and climate impact.

Effective mass transport systems are key elements for sustainable urban development, with significant implications for economic growth, social progress and environmental protection. They can also contribute substantially to reductions in global greenhouse gas emissions. Women rely more than men on public transport and can be powerful champions for the development and success of mass transit systems. Figure 4 below provides information about the transport preferences of men and women in Europe.

FIGURE 4.

Preferred mode of transport, by sex in Europe (2010)



Data from the European Union indicate gender differences in the preferred mode of transport: 59 per cent of men and 47 per cent of women said they were more likely to use a car for daily transport; 16 per cent of women and 9 per cent of men said they usually walk; and 25 per cent of women and 18 per cent of men responded that they usually use public transport. Emissions from transport have increased by some 17 per cent since 1990 (EU-15 countries), as a consequence of the increase in transport demand, both for passengers and goods.

Source: European Institute for Gender Equality (2012).

However, the design of these mass transit systems must reflect gender differences in use to attract women riders to the new transit systems. As primary caregivers and workers in the informal and formal labour force, women's movement through the city tends to involve multiple places and destinations for diverse purposes. Women in many urban areas travel long distances every day on foot or by public transport to access employment, education, health care, and other services. These trips also have the potential to be less than secure since many women must walk through, or wait in, unsafe areas in order to access public transit and thus face the threat of violence or harassment.

Yet most public transportation is designed to serve commuting trips to work, principally those of men, not women's multiple roles as workers, mothers, producers and entrepreneurs that require off-peak travel to a multitude of destinations (World Bank, 2006). When land-use policies and transportation plans are developed independently of each other, gender inequalities in accessibility and threats to safety can be further perpetuated (UN Habitat, 2012).

Designing safe public transport based on the recognition of women's and girls' distinct uses and concerns can result in a wide spectrum of transportation solutions that address priority safety and social needs, and generate substantial climate, economic, and gender co-benefits (UN Women, 2016). To be effective, safe public transport planning must be part of comprehensive and integrated approaches to gender-responsive urban planning. Increasing the number of women in local government and elected positions, using local to local dialogues (Goldman, 2008), participatory budgeting and social audits, and capacity development to incorporate a gender approach in municipal departments. This will help to

ensure that the needs of women and girls (and men and boys) and potential co-benefits for sustainable development are also addressed in policies on health, housing, sanitation, recreation, urban renewal, economic development, policing, disaster management, and climate/environment.

d. Gender dimensions of climate-related disasters

Gender inequality is also a major issue in disaster risk reduction. Disaster risks are different for men and women, girls and boys. Women and men bring different capacities in different contexts to risk management. Yet disaster risk management plans, systems and investments rarely take into account these differences.

In the past 10 years, 87 per cent of disasters have been climate-related and this number is expected to grow. The same structural barriers that limit women's roles in climate-resilient agriculture and universal clean energy access make women more vulnerable in disaster and post-disaster situations. Women and girls are generally more affected by climate-related disasters than men because of underlying gender inequalities and discrimination. For example, girls are less likely to be taught how to swim than boys, and as a result die in larger numbers in flooding. Economic disruption following disasters can affect women more than men since they tend to be in more insecure forms of employment. Sexual exploitation and trafficking can rise in the aftermath of disasters. Conversely, women often play the largest role at family and community levels in building back after disasters. They look after children, shoulder the largest burden of unpaid care for the sick or injured, and typically make decisions about resource use and investments in the interest and welfare of their children, families and communities (UNEP, 2016a; UN Women, 2015a). They also understand some issues much better than men in many contexts, such as practical concerns for access to clean water, and are able to bring this perspective to disaster preparedness (Beaman and others, 2011; UN Women, 2014).

An analysis of 141 countries found that natural disasters lower the life expectancy of women more than that of men (Neumayer and Plümper, 2007), as the table below suggests. For example, more than 70 per cent of the fatalities from the 2004 Asian tsunami were women. Similarly, when Cyclone Nargis hit the Ayeyarwady Delta in Myanmar in 2008, the death rate of those aged 18 to 60 for women was double that of men. In contrast, in La Masica, Honduras, there were no reported fatalities after Hurricane Mitch (1998), in part thanks to gender disaster training and equal participation by women and men in disaster risk management that allowed for rapid response to the hurricane and evacuation by communities (Aguilar and others, 2015).

The increased vulnerability of women and girls to gender-based violence in the aftermath of disasters arises in large part to breakdowns in social norms and regulations, a lack of a social safety net, and limited opportunities for income generation, and food insecurity. These put women and girls at risk of sexual exploitation, such as transactional sex to access food and other basic necessities for family members and themselves. Preventing violence against women and ensuring that survivors have access to essential services are only recently being seen as emergency relief priorities like food or shelter.

Women's contributions to disaster risk reduction are often overlooked and their participation marginalized when they are categorized solely as a "vulnerable group". This categorization only highlights their needs – and the roles of female participation and leadership in disaster risk reduction go unmeasured, unnoticed and unsupported. Women are key actors as first responders in community response and resilience[4] in post-disaster situations, as they attend to both the immediate and early recovery needs of their families as well as promoting community cohesion, e.g. organizing collective meals.

4 UN ISDR, *Global Assessment Report on Disaster Risk Reduction: Risk and Poverty in a Changing Climate* (Geneva, Switzerland; UNISDR; 2015).

TABLE 1.

Climate-related disasters and female mortality

Year	Disaster/Country	Female Mortality
1991	Cyclone 0B2 – Bangladesh	90%
2004	Tsunami – Aceh-Indonesia	77%
2004	Tsunami – Tamil Nadu-India	73%
2008	Cyclone Nargis – Myanmar	61%
2009	Tsunami – Tonga and Samoa	70%
2014	Solomon Island Floods	96% women & children
2015	Nepal Earthquake	55%

The lack of progress on addressing the underlying risk drivers has been recognized by the international community. States and other duty bearers are required by international law to take immediate action to prevent and mitigate the negative human rights impacts of disasters in a changing climate. In its concluding observations on state party reports and in several of its earlier general recommendations, the Committee on the Elimination of Discrimination against Women has reiterated that State parties and other stakeholders have obligations under the Convention on the Elimination of All Forms of Discrimination against Women to take concrete steps to address the gender-related dimensions of disasters in a changing climate through the adoption of targeted, country-specific policies, strategies, legislation, budgets and other measures. In its 44th session, in 2009, the Committee stated that "all stakeholders should ensure that climate change and disaster risk reduction measures are gender-responsive, sensitive to indigenous knowledge systems and respect human rights. Women's right to participate at all levels of decision-making must be guaranteed in climate change policies and programmes."[5] The CEDAW is currently working on a general recommendation on disaster risk management and climate change.

Similarly, the Sendai Framework on Disaster Risk Reduction (2015-2030)[6] emphasizes that "women and their participation are critical to effectively managing disaster risk and designing, resourcing and implementing gender-sensitive disaster risk reduction policies, plans and programmes; and adequate capacity-building measures need to be taken to empower women for preparedness as well as build their capacity for alternative livelihood means in post-disaster situations". It calls for a paradigm shift through dedicated action to tackle underlying disaster risks. It provides a unique opportunity for alleviating the gender inequality of risks by: (i) assessing the gender dimensions of disaster risks in a changing climate; (ii) engendering all disaster risk management policies and practices; (iii) closing the financing gap for gender-responsive disaster risk management; and (iv) strengthening women's capacity to prevent, prepare for, and recover from natural hazards in a changing climate.

Practically, this requires:

- Assessment: women and women's organizations are more engaged in disaster risk assessments, including capacity development for this purpose; data for disaster risk management are

5 CEDAW, 44th Session, 2009, Statement of the CEDAW Committee on Risk Reduction, Gender and Climate Change.

6 United Nations (2015). *Sendai Framework for Disaster Risk Reduction 2015-2030.* Available from: http://www.preventionweb.net/files/43291_sendaiframeworkfordrren.pdf.

disaggregated by sex and income to provide information on the inequality of risk among the poor specifically; a view of gender-differentiated risks is available to decision-makers and guides planning and financial allocations

- Engendering policies and practices: policies for disaster risk management explicitly address differentiated risks for women and girls; inter-sectoral and multi-level coordination mechanisms are established to address the issue; the results for women and girls of disaster risk management policies and practices are monitored and evaluated and the results fed into future policy design

- Closing the financing gap: proper financial allocations for gender-differentiated risk are in place; finance instruments such as insurance are accessible to women; private sector investments are leveraged

- Women's capacity: women and girls have access to information and can participate in disaster risk management design, implementation and monitoring; and enjoy equal access to support after disasters

Strengthening women's engagement in disaster risk management is a fundamental right. It is also a powerful solution to reduce the likelihood of crisis, improve the efficiency of the response and accelerate socioeconomic recovery and societal resilience.

PART II

GENDER EQUALITY AND CLIMATE FINANCE

Women's agency, knowledge and leadership in climate action – for mitigation, adaptation and resilience – are increasingly recognized as essential. While the Paris Agreement does not specifically mention gender equality considerations in relation to the critical theme of climate finance, making climate finance gender-responsive is vital to its successful implementation. But making climate finance gender-responsive does not mean increasing investment costs. On the contrary, it means increasing the development impact and/or improving the risk-return profile of investments through leveraging co-benefits between gender equality and climate action.

The second part of this guidebook provides a window onto the vast and complex world of climate finance, and the opportunities associated with mainstreaming gender dimensions into investment decision-making processes. It addresses private, public and innovative climate finance sources and instruments. Because of their critical importance in catalyzing private climate finance, the three financial mechanisms under the UNFCCC – the GCF, the GEF and the AF – are discussed as a subsection of public finance in greater detail.

2.1
Climate finance: an overview

Climate finance can be understood as funding which supports activities that reduce emissions (mitigation), or which supports countries to adapt to the impacts of climate change (adaptation). An unprecedented capital reallocation is required, measured in trillions of dollars, to ensure the transition to low-carbon and climate-resilient economies and societies. In China, annual investment in green industry could reach USD 320 billion in the next five years, with public finance estimated to provide no more than 10 to 15 per cent of the total (UNEP b, 2015).

Overall, recent estimates indicate that the world needs some USD 1 trillion a year until 2050 to finance a low-emission transition and stay within the 2°C threshold for global warming (IEA, 2015). The New Climate Economy report estimates that additional investment of USD 4.1 trillion will be required by 2030 to align global infrastructure investment with the low-carbon trajectory on top of an existing USD 89 trillion. Additional costs of adaptation to climate change in the developing world are also significant with estimates ranging between USD 50 and 100 billion a year (World Resources Institute, 2010).

Developed countries have committed to raising USD 100 billion per year by 2020 to assist developing countries in addressing climate change. Even if this level of financing is raised, public expenditures alone will be insufficient to adequately transform economies. Public investment can, however, catalyze much larger scale private investment. This is particularly the case

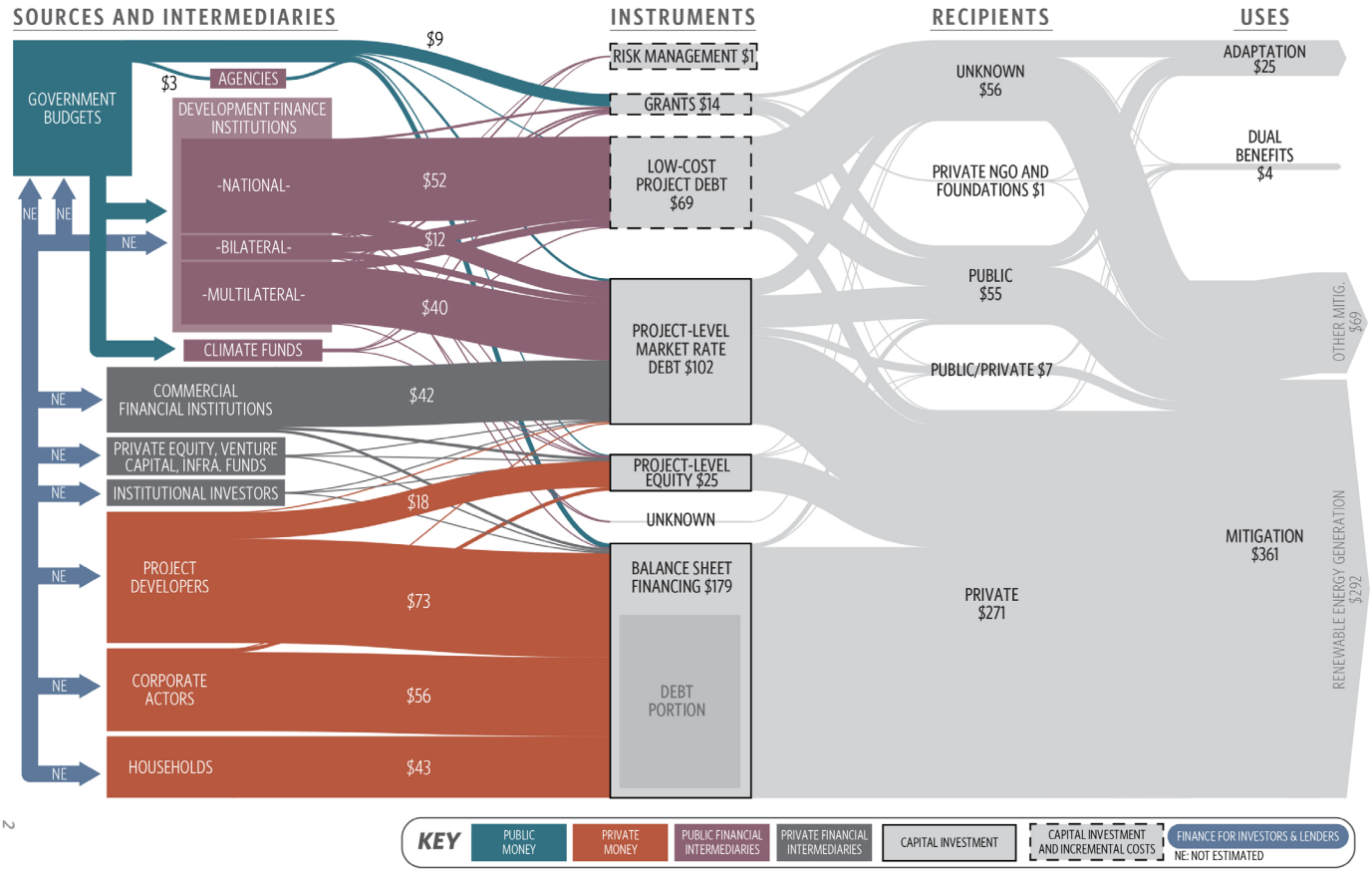
in the area of climate change mitigation activities, where climate investments can offer an attractive return and can be well suited to private sector investment. As such, public climate finance is increasingly programmed with the objective of market transformation, supporting developing country governments to create an enabled investment environment which can attract additional public and private finance into climate activities (Glemarec, 2011; Waissbein and others, 2013).

The financial sums involved in a rapid shift to a low-emission and climate-resilient economy are considerable but not impossible to achieve. Global capital markets have the size and depth to step up to the investment challenge. Rather than being a problem of capital generation, the key challenge of financing the transition toward a low-emission and climate-resilient society is to redirect existing and planned capital flows from traditional high-carbon to low-emission and climate-resilient investments. Over the past few years, the international community has developed a number of regulatory and market-based instruments to shift investments from fossil fuels to more climate-friendly alternatives. As a result, investments in the sustainable energy market grew from USD 22 billion in 2002 to USD 286 billion in 2015; they could well reach USD 400-500 billion by 2020.

In 2014, annual global climate finance flows totaled approximately USD 391 billion, of which 38 per cent or USD 148 billion came from public sources and the rest from various private sector actors. Climate finance architecture is extremely complex with financing coming from a variety of sources and taking a multitude of forms (see Figure 5). It can be international or national, public or private, or market-based. Within international public climate finance, a variety of sources exist (including multilateral vertical funds, bilateral initiatives and donors, and development banks). The funds are then channelled via a range of agents (including multilateral, bilateral, national and non-governmental actors). These actors utilize a variety of financial instruments, encompassing both grant instruments and non-grant instruments (for example public loans, guarantees and public equity). The following section unpacks these different sources, actors and instruments of climate finance.

FIGURE 5.

Global climate finance architecture



Source: Climate Policy Initiative (2015).

2.2

Climate finance: sources, agents and instruments

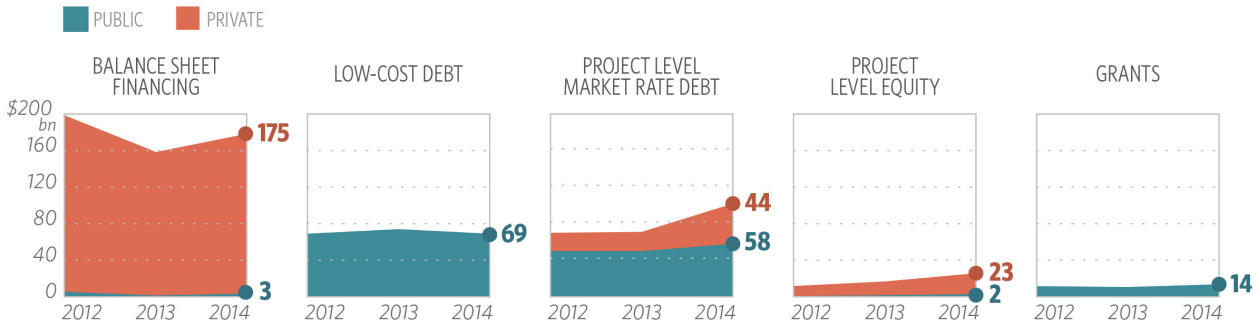
a. Private finance and corporations

Between the sources of investment capital and those who need capital to develop climate-friendly projects, a range of intermediary players exists. This range includes those who "own" the financial assets (e.g. households), those who have a fiduciary responsibility to invest the financial assets (e.g. commercial banks, pension trustees) and those who actually invest the assets for a fee (e.g. investment managers). Alongside these three main groups, investment consultants, research analysts, brokerage firms and credit rating agencies contribute to the investment process. It is this complex constellation of financial actors which decides what gets financed and what does not, as well as the cost of this financing.

Business can finance climate investment projects by using either on-balance sheet financing or borrowing funds from a bank in the form of a loan, or through

equity capital from selling a stake in the business itself. By far the most widespread instrument is the balance sheet financing of clean energy projects (see Figure 6). The borrowing capacity of corporations to finance climate action is great. With a current market capitalization of the global electricity market estimated at USD 1.5 to USD 2 trillion, power utilities could, for example, potentially raise USD 3 trillion to USD 6 trillion in debt to fund clean energy projects (Glemarec, 2011).

FIGURE 6.
Breakdown of climate finance by instruments, 2012-2014, in USD billion



Source: Climate Policy Initiative (2015).

Private actors are increasingly experimenting with new approaches to financing climate projects: the emergence and rapid expansion of green bonds is one of the most significant and promising trends in this respect. In 2015, climate-aligned bonds amounted to USD 694 billion outstanding, including USD 118 billion outstanding in labelled green bonds (Climate Bonds Initiative, 2016).

Green bonds are standard bonds but with one key difference: the money raised by the issuer is earmarked for financing projects that are environment-friendly. The long-term tenor of bonds is particularly adapted to low-carbon investment projects with high upfront capital costs and a long pay-back period. Such projects could be in the areas of renewable energy, energy-efficient building, low-carbon transportation, sustainable water management or forest conservation. Moreover, bonds have been successful in financing vast infrastructure projects throughout history – rail, sewers and highways. Given that bonds are the largest single pool of capital (USD 80 trillion vs USD 53 trillion in equities), mobilization of the bond market is key to meeting climate finance targets. Green bonds could become a major source of low-cost debt for both climate mitigation and adaptation projects in the future.

Private climate investment in women

Women's roles as both driving and benefiting from private climate investment have so far been relatively limited, but they are gaining momentum as part of a broader field of gender lens investing. Much of the work in gender lens investing is directed toward making finance smarter by incorporating a gender analysis into the financial analysis (Criterion Institute, 2015). This approach posits the financial return on gender-responsive investment is likely to be higher as it better reflects gender-differentiated risks and opportunities and leverages the voice and agency of women. Box 5 provides an example of gender lens climate investment that illustrates these emerging trends.

The growth of green bonds could offer new avenues for increasing women's roles in climate finance and maximize development co-benefits between gender and climate action. Green bonds enhance an issuer's

BOX 5.

Qvinnovindar – women-only green energy cooperatives in Sweden

An innovative investment group, Qvinnovindar, was formed in 2007 by 10 women with a common motivation to own wind power and invest in renewable energy. Noting that women own a relatively infinitesimal part of the earth's resources, Qvinnovindar decided to change this. Today the cooperative has mobilized over 80 women and invested USD 1.5 million in wind turbine energy generation from north to south in Sweden. Their vision is to create a bigger international network for women who want to invest in renewable energy in developed and developing countries alike (Qvinnovindar, n.d.).

reputation, as their use helps in showcasing their commitment towards sustainable development. It also provides issuers access to a specific set of global investors who only invest in green and/or social ventures. As a result, they are substantially helping to reduce the cost of capital for project proponents.

A key issue for the continued growth of the market is the credibility of green labelling. Standards, assurance and certification are essential to improved confidence and transparency. An avenue to leverage co-benefits between gender and climate action would be to require that, for designating an issue of a corporate bond as a green bond, the issuer would have to disclose additional information on the gender-differentiated impact of the use of proceeds.

Alternatively, co-benefits between gender equality and climate action could be intentionally built into a new generation of green bonds to improve the development impact as well as the risk-reward profiles of the supported investments and further lower financing costs for entrepreneurs. As an illustration, Box 6 describes the recently launched Tropical Landscape Finance Facility, which aims to provide a triple dividend to investors (social and gender inclusion, financial return and climate management) and increase the debt tenor and lower the financing cost to investors.

BOX 6.

The Tropical Landscape Finance Facility in Indonesia

Several government, private sector, and UN partners have come together in October 2016 to launch the private sector-focused Tropical Landscape Finance Facility (TLFF) to stimulate inclusive and green economic development in Indonesia. The Facility, expected to mobilize USD 1-5 billion in loans and USD 100 million in grants, aims to achieve climate targets set under the Paris Agreement while creating new livelihoods opportunities for vulnerable populations in the country. It will provide long-term concessional loans (10-12 years) to finance renewable energy production and sustainable landscape management. The projects will be identified and developed by ADM Capital and other project managers. The loans will be securitized through a Medium Term Note by BNP Paribas. The availability of credit guarantees (USAID and FMO) of the bonds ensure that capital can be made available at rates below current market rates. ICRAF, UNEP and UN Women will provide technical assistance to optimize co-benefits for sustainable development. For example, women's roles as sources of information and knowledge in communities are often underestimated and their engagement is crucial to secure community buy-in and acceptance of the proposed technical solutions for local power supply or sustainable land management and accelerate their scale up. By mainstreaming gender considerations into the design of its investments from the onset, the TLFF should both improve their risk-rewards profiles and optimize development impacts at no additional cost.

b. Public finance

Climate finance is increasingly public policy-driven private finance. Even if the sums involved are dwarfed by private finance flows, public finance is critical to catalyze private investment.

National budgets are the main source of public finance for climate change, including in developing countries. Pilot Climate Public Expenditure and Institutional Reviews (CPEIRs) conducted by UNDP in Asia and Africa revealed that governments are already allocating 3 per cent to 15 per cent of their budgets to climate change-related expenditures. In addition to direct public budget expenditures, many countries channel public funding through National Development Banks (NDBs) to support long-term low-carbon and climate-resilient investment. Today there are around 750 NDBs in the world with varying regional distribution, different characteristics and mixed forms of ownerships: private, public and mixed (DESA, 2005). NDBs in G20 countries have combined assets exceeding USD 3 trillion (DESA, 2013).

However, NDBs worldwide are at diverse stages of "readiness" to fully promote climate-related programmes. Many still need to build capacity, and to acquire experience in the preparation, risk assessment, monitoring and evaluation of climate projects.

Most developing countries have also established national green funds, often to manage extrabudgetary resources (including earmarked environmental taxes, nature-for-debt swaps, international and national environmental grants, etc.). These funds mostly provide technical assistance and capital, grant or manage revolving national green funds. Recognizing the limitations of public finance, some national green funds (NGFs) are also expected to raise complementary innovative sources of domestic climate finance and developing public-private partnerships, such as the underwriting of green bonds and the capitalization of public-private equity funds (Glemarec, Bardoux and Roy, 2014).

While the short-term and longer-term potential of NGFs to channel green finance and act as an agent of change is well understood, the capacity of countries "to blend domestic and international, public and private, and concessional loans and grant climate finance at the national level" remains, in practice, a challenge. A UNDP study of seven national climate funds in Asia and the Pacific (2012) highlighted the discrepancy between their objectives and actual means of implementation. Most funds remain undercapitalized, and are facing institutional and human resource capacity constraints, and issues of efficiency and cost-effectiveness.

In line with the principle of common but differentiated responsibilities, domestic public resources are supplemented by international public transfers. The objective of these transfers from developed to developing countries is to meet part of the incremental costs for climate action placed on domestic budgets of developing countries by historical and current GHG emissions from developed countries. International public grants account for less than 4 per cent of the total climate finance tracked by the Climate Policy Institute. However, they play a central role in enhancing the capacity of developing countries to design and implement public policy and financing mechanisms to access private financial resources.

By pledging USD 30 billion in climate change finance by 2012 and up to USD 100 billion annually by 2020, governments have ushered in a new era of funding for climate change. Only ten years ago, climate finance was managed by a few vertical funds associated with the UNFCCC process. Since then there has been a significant rise in public, private, bilateral and multilateral sources, with more than fifty international public funds, 55 carbon pricing mechanisms and countless public-private equity funds in operation.

Unfortunately, this apparent abundance masks the undercapitalization of most of these new funds. Rather than reflecting increasing available resources, the development of new financing instruments appears as a suboptimal response to an unresolved financing gap. In particular, present uses of international and

domestic public finance are currently insufficient to address existing deficiencies in domestic policy infrastructure and unlock private finance, especially in developing countries.

Gender dimensions of public climate finance

A budget is the most comprehensive statement of a government's social and economic plans and priorities. In tracking where the money comes from and where it goes, budgets determine how public funds are raised, how they are used and who benefits from them. Therefore, implementing commitments towards gender equality or climate finance requires intentional measures to incorporate these objectives in planning and budgeting frameworks (please see Box 7). To date, efforts to engender domestic budgets and to incorporate climate considerations into public investments have been pursued in isolation by different communities.

Neither approach is about creating separate budgets for women or climate, or solely increasing spending on women's or climate programmes. Rather they seek to ensure that the collection and allocation of public resources is carried out in ways that are effective and contribute to advancing national goals on gender equality or climate action. Common in-depth analysis could identify effective interventions for implementing policies and laws that advance both sets of goals and leverage sustainable development co-benefits. Similarly, steps could be taken to mandate NDBs and NGFs to systematically include gender sustainable development co-benefits as part of financial due diligence. As loan officers might find it difficult to conduct meaningful gender assessments in climate sectors in the absence of appropriate gender databases and analysis, investments will need to be made in the collection and analysis of data disaggregated by sex and income.

BOX 7.

Using fiscal policy to increase gender equality outcomes

SDG Indicator 5.c.1. "Percentage of countries with systems to track and make public allocations for gender equality and women's empowerment" seeks to measure government efforts to track budget allocations and actual expenditures for gender equality throughout the public finance management cycle and to make these publically available.

Fiscal policies that are responsive to women's needs and have gender equality objectives can contribute to better economic outcomes and higher social benefits, according to a recent IMF paper (Stotsky, 2016). Tax reforms and the effective use of public resources can reduce gender disparities by ensuring that women have equal access to services. Gender responsive budgeting (GRB) is a strategic policy approach that explicitly seeks to address inequality and discrimination in fiscal policy. UN Women supports gender responsive budgeting in over 70 countries. Where gender allocations are systemically tracked, like in Nepal and Ecuador, resources targeting gender equality have increased: In Ecuador budget allocations for gender equality doubled in 2012 reaching 4.77 per cent of the total budget, while Nepal reported increased allocations from USD 0.877 billion in 2012/2013 to USD 1.13 billion in 2013 to 1.36 billion in 2014/2015 accounting for 22 percent of the total budget. Aligning fiscal policy to prioritize investment in gender equality and women's rights can stimulate economic growth and achieve the objectives of inclusion and non-discrimination (UN Women, 2015d). It can be further aligned to promote investment that supports development co-benefits between gender equality and climate action.

c. Vertical funds

An unintended consequence of this emerging financial landscape has been a dramatic increase in complexity. Requirements, processes and reporting differ markedly across funds and instruments. Countries are faced with the task of identifying which funds are appropriate for them and are currently capitalized, how to access resources, how to blend them to support transformative change, and how to develop cost effective methods to monitor and evaluate results (Glemarec, 2013). The coming years are likely to see a continued increase in complexity as environmental aid is increasingly provided through bilateral channels. Furthermore, over the past decade development assistance flows have shifted from traditional donors towards "non-traditional" sources (foundations, emerging donors, etc.). These non-traditional donors tend to rely on their own mechanisms, adding to those already established for Official Development Assistance (ODA).

This proliferation of financing instruments has attracted increasing attention within international policy discussions. Notably, the United Nations Framework Convention on Climate Change established the Green Climate Fund in 2010 to manage a "significant share" of these resources and reduce the fragmentation of the international climate finance architecture. The Green Climate Fund (GCF) focuses on achieving transformational impact in climate change, supporting a paradigm shift to low-carbon and climate- resilient development. To date, as of April 2016, USD 10.3 billion has been pledged to the GCF from 42 countries, including from nine developing countries. The GCF has accredited 41 entities as implementing partners to access and channel its resources. From October 2015 to October 2016, the GCF allocated more than USD 1 billion to 27 approved funding proposals, covering 37 countries, including USD 562 million for public sector investments and USD 607 million for proposals leveraging private sector resources..

The Green Climate Fund complements the support provided by the other two vertical funds serving as financial mechanisms for the UNFCCC: the Global Environment Facility and the Adaptation Fund. The Global Environment Facility (GEF) was established in 1991 to help tackle our planet's most pressing environmental problems. It was founded by the World Bank, UNDP and UNEP, which were also its original implementing agencies. Today, the GEF now partners with 18 implementing agencies in total. The GEF was originally entrusted as the financial mechanism of the three UN Rio Conventions (UNFCCC, UNCCD, CBD), and has since added several additional multilateral agreements on the way to becoming the world's largest public funder of environmental projects. The GEF is replenished every four years and since its inception has provided USD 14.5 billion in grants and mobilized USD 75.4 billion in additional financing for almost 4,000 projects.

The Adaptation Fund (AF), established in 2001, finances interventions aimed at increasing climate resilience in agriculture, coastal zone management, disaster risk reduction, food security, rural development and water management. Since 2010, the AF has invested over USD 330 million to support 61 countries, including 22 Least Developed Countries and 13 Small Island Developing States, and benefiting some 3.5 million people directly. To date, there are over 40 accredited entities to the AF, spanning national, regional and multilateral entities (including UNDP, UNEP, UNESCO, UN-Habitat, WFP and WMO). The AF is financed by government and private donors, and also from a 2 per cent share of proceeds under the Kyoto Protocol's Clean Development Mechanism.

As shown in Figure 5, the dominant share of climate finance has been dedicated to climate change mitigation, reaching 93 per cent of the total in 2014. However, the amount of international climate finance available to developing countries to adapt to climate change and strengthen climate resilience has increased in recent years with the establishment of the Adaptation Fund, which complements the GEF's Least Developed Countries Fund and Special Climate Change Fund. More recently the GCF has committed to aim for a 50:50 balance between mitigation and adaptation investments over time.

In additional to the UNFCCC funds, a number of multilateral and bilateral vertical funds support climate investment in developing countries. Among the most notable are the Climate Investment Funds (CIFs), which are implemented by the multilateral development banks (MDBs) to provide capital assistance. CIFs are two distinct funds: the Clean Technology Fund (CTF) and the Strategic Climate Fund (SCF), which include three programmes: the Pilot Programme for Climate Resilience (PPCR), the Forest Investment Programme (FIP) and the Scaling Up Renewable Energy Programme (SREP). The funds were established in July 2008 and have since channelled USD 8.3 billion in concessional finance to 72 developing and middle income countries to empower transformations in energy, climate resilience, transport and sustainable forest management. CIF concessional financing offers flexibility to test new business models and approaches, build track records in unproven markets, and boost investor confidence to unlock additional finance from other sources, particularly the private sector and the multilateral development banks that implement CIF funding. Total CIF pledges of USD 8.3 billion are expected to attract an additional USD 58 billion of co-financing.

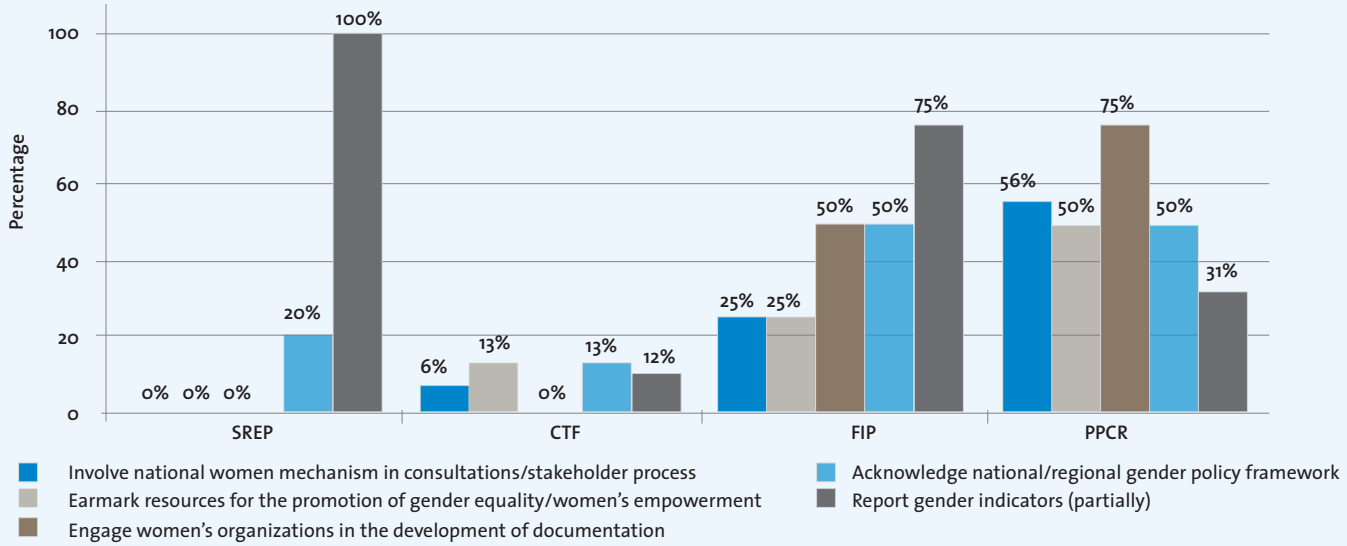
Gender dimensions of vertical funds

Because they aim at catalyzing larger private financial flows and are implemented by a number of capital and development assistance agencies, the importance of these vertical funds goes beyond their capitalization. They act as gravity centers to enable the international community to develop common theories of change to address climate change at scale. They are also leading efforts to balance mitigation and adaptation action. Engendering the main multilateral vertical funds is critical given their linchpin role in international public climate finance.

Several evaluations have faulted the CIFs and GEF for insufficiently incorporating gender into their investment decisions in the past. For example, a 2012 review of the CIFs found that none of the CTF projects had engaged women's organizations in the design of its projects (see Figure 7). Similarly, an analysis of 68 Global Environment Facility (GEF) projects worth over USD 4.8 billion in South East Asia and Pacific found that gender issues were poorly considered in the design, implementation and monitoring phases of climate change projects. Some 73 per cent of projects focus on energy, agriculture, water resources, promotion of community resilience, and coastal zone management – areas that are either within the domain of women's activities, roles and responsibilities or have a direct impact on women and girls. Of the 68 projects, only five included financial and technical resources for supporting gender equality. A little over 30 per cent of the projects had some analysis of gender equality and related activities, but most pertained to limited activities such as the participation of women in meetings. Almost 30 per cent of the projects made no mention of the differential impacts of climate change on gender equality or women at all (UN Women, forthcoming). It should be noted, however, that the analysis was based on the review of project documents rather than assessment of how the projects were implemented in reality, which means that projects that appeared to be largely gender-blind could have strengthened the gender dimensions in practice (and not reported this) or vice versa.

FIGURE 7.

Incorporation of gender considerations in design of CIF projects



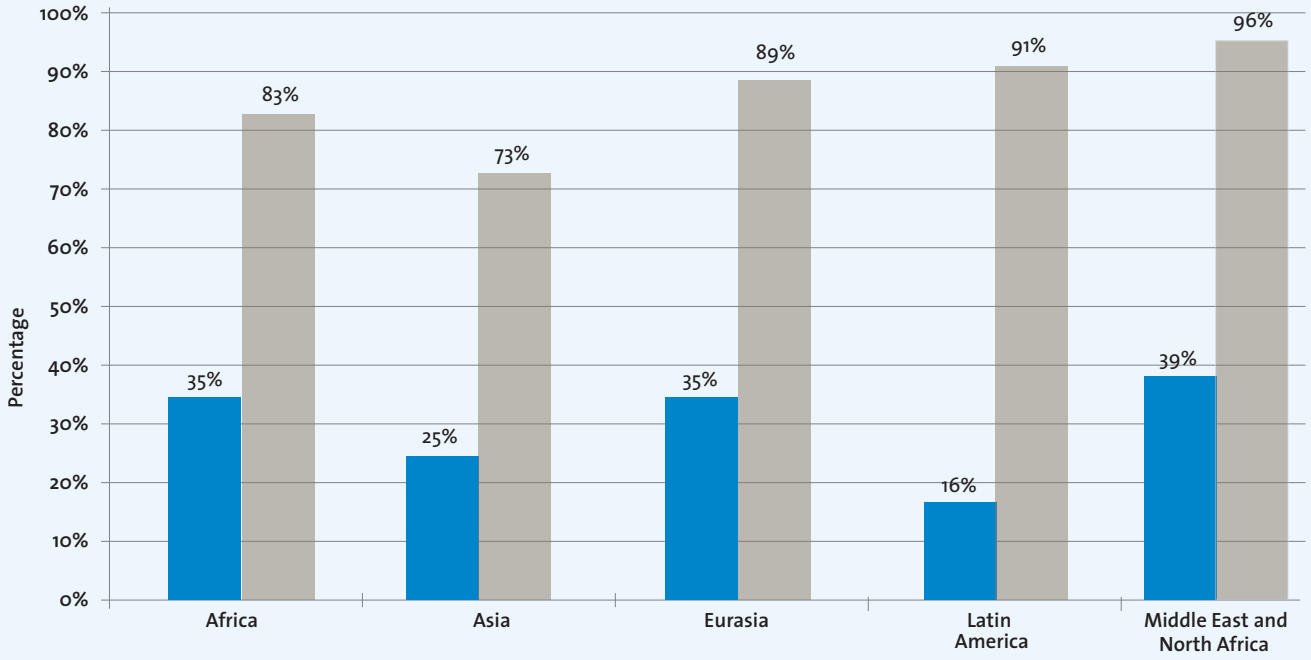
CTF: Clean Technology Fund, FIP: Forestry Investment Program, PPCR: Pilot Program for CLimate Resilence, SREP: Scaling Up Renewable Energy Program
Source: Asian Development Bank (2014). *Gender and Climate Finance Policy Brief*.

These vertical funds rapidly acted on the evaluations and have become more gender responsive. A number of useful lessons and good practices have emerged that demonstrate the value of mainstreaming gender considerations into project design and implementation, which can improve their effectiveness and efficiency. The CIFs, along with partners, governments, MDBs, and other entities, have made a number of concerted efforts towards including gender considerations in operations after adoption of the Strategic Environmental, Social and Gender Assessment (2010) and a CIF gender fact sheet (2011). As a result, a number of projects in the CIF portfolios can be considered best practices of gender-responsive climate project design (IUCN, 2013).

The GEF adopted a gender policy in 2011, which required GEF agencies to have "policies or strategies that satisfy seven minimum requirements to ensure gender mainstreaming" in all projects funded by the GEF. The proportion of gender-responsive projects more than doubled in every region as a result of this policy's implementation (see Figure 8). The GEF Gender Equality Action Plan, adopted in 2014, details the required tools and guidelines to build capacity and support effective implementation. To facilitate gender-responsive programming, the GEF incorporated a specific section on gender mainstreaming into the templates and guidelines for the project identification form, the Chief Executive Officer endorsement request form, the project implementation report, the midterm and terminal evaluation reports, and other relevant monitoring and evaluation (M&E) documents.

FIGURE 8.

Percentage of gender-responsive GEF projects before (blue) and after (beige) implementation of the 2011 gender policy



Source: IUCN (2015).

For its part, the Green Climate Fund adopted a gender policy from its very inception. A companion manual to this guidebook specifically addresses the opportunities the policy provides to engender GCF projects and ensure that climate initiatives benefit women and men equally and fully leverage women's agency to scale up climate action.

d. Innovative finance: carbon markets and payments for ecosystem services

Fiscally constrained governments around the world are increasingly turning to market-based schemes to finance climate change. This global trend is being observed in the biodiversity and water sectors as well. The objective of environmental markets is to pay communities or individuals to adopt production systems that conserve or increase the supply of these valuable ecosystems services. Environmental finance markets can be broadly broken down into two main categories: carbon finance and payments for ecosystems services (PES). There are considerable overlaps between these two categories as carbon finance could be assimilated to a payment for climate stabilization and regarded as a payment for ecosystems services. However, the scale and the specificity of carbon finance mechanisms warrant a separate treatment.

For most ecosystem services, there are generally three types of payments: (1) payments directly from the government; (2) voluntary payments from businesses, non-governmental organizations and individuals; and (3) payments made to comply with government regulations. The ratio between private sector and public sector payments will vary depending on countries'

conditions. In contrast, carbon finance is an innovative, policy-based private source of finance. The Kyoto Protocol under the UNFCCC broke new ground with the introduction of innovative cap-and-trade and credit-and-trade carbon markets. Based on the principle that the effect on the global environment is the same regardless of where GHG emissions reductions are achieved, countries could meet their targets through a combination of domestic activities and use of the Kyoto Protocol "Flexibility Mechanisms", which are designed to allow Annex I parties (industrialized countries and economies in transition) to meet their GHG reduction targets in a cost-effective manner through support of low-carbon initiatives in developing countries, and thus to assist developing countries (non-Annex I parties) in particular to achieve sustainable development.

The absence of a carbon budget and associated cap-and-trade market in the Paris Accord has brought an end to the specific Kyoto Protocol "Flexibility Mechanisms". However, non-Kyoto carbon markets (European Union emissions trading system (ETS), voluntary offset markets, etc.) continue to represent a substantial portion of climate finance: some 6.2 gigatons in emission allowances and carbon offsets, worth over USD 70 billion, were traded in 2015. Regarding the future of carbon finance, a long-standing focus of climate change management has been on "getting prices right", that is, ensuring that energy and other product prices properly reflect production costs and environmental damages. Carbon markets continue to be regarded as an option to price carbon and to scale up private investment in climate change. Even in the absence of a Kyoto-type global carbon market, regional, national and subnational carbon pricing initiatives continue to grow and could ultimately exceed international public finance.

Gender equality considerations in carbon markets

Despite a recent decrease in volume, the Clean Development Mechanism (CDM) – one of the Flexibility Mechanisms – and voluntary certified emission reduction continue to exist and offer valuable insights about integrating gender dimensions in climate change mitigation projects. Many carbon buyers are seeking to enhance their corporate social responsibility image by paying a premium for projects that not only offset their carbon footprint but also bring additional co-benefits to local communities. The most promising practices involve certification schemes with links to voluntary carbon markets. For example, the most popular, Gold Standard certification, enables projects to earn certifications and increase purchase prices by meeting additional sustainability criteria. These criteria include promoting livelihoods and educational opportunities for women. In the same vein, the Women Organizing for Change in Agriculture and Natural Resource Management (WOCAN) introduced a Women+ Standard that uses women's empowerment screening tools to certify projects for premium credits (see Box 8).

BOX 8.

Women+ Indonesia domestic biogas programme

The project aims to disseminate domestic biogas digesters as a local and sustainable source of energy. Prior to its implementation, many households were dependent on firewood and fossil fuels (e.g. kerosene and liquefied petroleum gas) for their energy needs. An estimated 13,035 digesters have been built and installed in nine provinces of Indonesia. WOCAN estimated that the most significant observable impact of biogas installment for women is the time saved, on average one hour a day for women biogas users. The time saving accrues largely from reduced time in cooking and collection of fuel wood, as well as spending less time in cleaning the kitchen and cooking pots. The clean energy produced by the biogas produces minimal smoke soot, which in turn decreases cleaning time. The total time savings generated by the project is 16,041,962 hours or 2,005,245 days saved for the project participants (WOCAN, 2015).

Part III

GENDER MAINSTREAMING IN THE PROJECT CYCLE

The overview of climate finance shows that women's roles as both driving and benefiting from climate investment have so far been modest, but that numerous opportunities exist to enhance their roles and optimize development co-benefits between gender and climate action. This will require a new paradigm that puts gender concerns and the voice and agency of women and girls, men and boys, at the center of climate management efforts. This signifies going beyond the present categorization of women as a "vulnerable group" and recognizing women's contributions as leaders and agents of change. Similarly, it means that the focus of gender mainstreaming must go beyond its traditional safeguard remits and rather aim to shape the overall theory of change underlying climate initiatives.

To support such an objective, this part introduces a number of gender mainstreaming tools and methodological approaches which can be employed in designing projects, several of which are explored here, including gender analysis, gender assessment and action plans, and gender-responsive results or logical frameworks based on an engendered theory of change.[7] These methodologies and tools are applicable to a broad range of public, private and civil society initiatives.

3.1
Gender mainstreaming

Bringing gender issues into the mainstream of development was clearly established as a global strategy for promoting gender equality in the Beijing Declaration and Platform for Action, adopted at the United Nations Fourth World Conference on Women in 1995. Building on CEDAW, the Beijing Platform for Action highlighted gender equality as a primary goal in all areas of sustainable development (UN Women, 2015b). The United Nations Economic and Social Council (ECOSOC) defined the concept of gender mainstreaming as follows:

> Mainstreaming a gender perspective is the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in any area and at all levels. It is a strategy for making the concerns and experiences of women as well as of men an integral part of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres, so that women and men benefit equally, and inequality is not perpetuated. The ultimate goal of mainstreaming is to achieve gender equality (UN Women, 2015c: 7).

7 Please also see the recent technical paper by the UNFCCC Secretariat (2016), *Guidelines or Other Tools for Integrating Gender Considerations into Climate Change Related Activities under the Convention* (FCCC/TP/2016/2).

Gender mainstreaming is, therefore, the process of assessing and responding to the differentiated implications for women and men of any planned climate action, including legislation, policies or programmes. Gender mainstreaming should help impel necessary changes in the business-as-usual climate and development agenda – in objectives, strategies, actions, and outcomes – so that both women and men can influence, participate in, and benefit from climate mitigation and adaptation interventions.

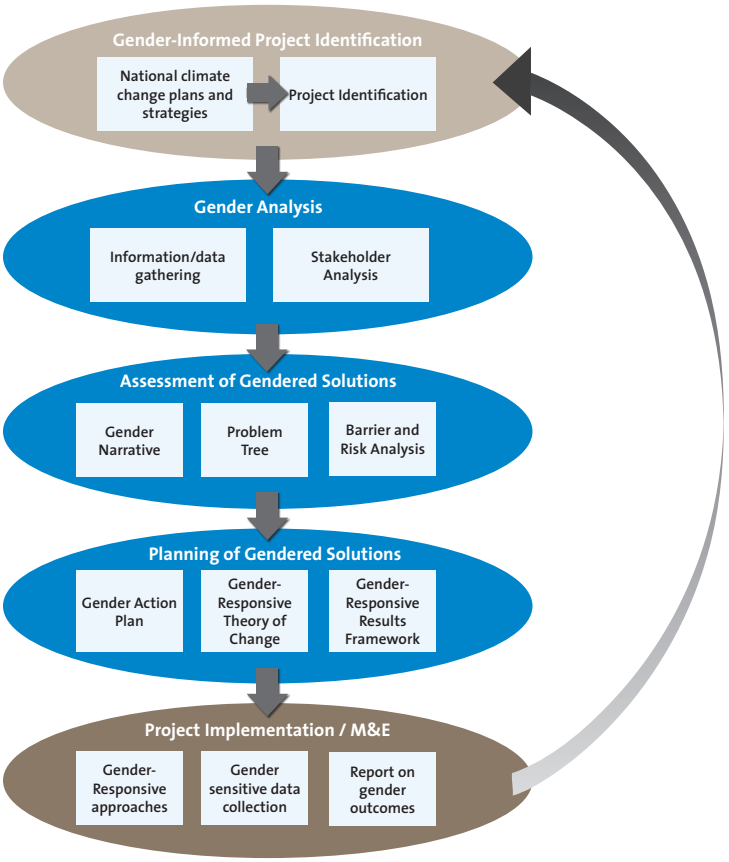
Gender mainstreaming can also lead to targeted gender-responsive interventions or integration of gender efforts across priority sectors in order to address the multiplicity of factors causing and perpetuating gender inequalities in the context of climate change. Mainstreaming can include gender-specific activities and affirmative action whenever women or men are in a particularly disadvantageous position. Gender-specific interventions can target women exclusively, men and women together, or only men, to enable them to participate in and benefit equally from climate and development efforts.

Gender mainstreaming is not simply about adding a "women's component" or even a "gender equality component" into an existing or planned activity. It goes beyond ensuring and increasing women's participation. Gender mainstreaming is about thinking differently, modifying climate and development interventions so that they will benefit men and women equally, and transforming social, economic and institutional structures towards gender equality and women's empowerment in climate action and resilience building.

Figure 9 below depicts gender mainstreaming in the project cycle and the major processes and products therein, which will be detailed in the following sections.

FIGURE 9.

Gender mainstreaming in the project cycle



Gender mainstreaming in the project cycle begins with the incorporation of gender considerations in national climate change plans and strategies, which facilitates **gender-informed project identification**.

Gender analysis is at the core of gender mainstreaming and, through gender-sensitive data collection and stakeholder analysis, reveals existing gender inequalities in relation to the social, economic, and political factors underlying climate change.

The next step involves the **assessment of gendered solutions** through problem tree and barrier and risk analyses that may be articulated in a gender narrative.

The **planning of gendered solutions** means the elaboration of a gender-responsive theory of change and results framework to incorporate gendered solutions into a climate change project.

Finally, the **implementation and M&E of gendered solutions** should yield new data and information about the outcomes and impacts on women's and men's resilience to climate change, which can then inform national climate change plans and strategies and new project identification.

Gender equality considerations should be mainstreamed into the entire project cycle to enhance the efficacy of climate change mitigation and adaptation interventions, starting from the identification of priority interventions to achieve the climate management goals of a given jurisdiction or entity. This applies to all projects, not only the ones that are intended from the outset to be women-centered or to have a gender focus. Gender mainstreaming and gender analysis are fundamental to any project intervention and do not mean additional costs; in fact, they make climate interventions more effective and efficient.

Depending on the focus and depth of the project under development, the gender assessment may be based on additional tools, such as a gender-sensitive problem tree, and barrier and risk analyses, which can serve to identify the gender-differentiated risks and underlying structural barriers involved in market transformation efforts, as well as potential gender-responsive solutions. The gender analysis and assessment of gendered solutions generate the elements needed to build a gender action plan and a gender-responsive theory of change and results framework.

It is expected that, based on the application of a series of gender-sensitive tools and approaches in project identification, formulation and design, project implementation and monitoring and evaluation (M&E) will be similarly gender-responsive. Nevertheless, it is important to actively select and deploy gender-responsive approaches, engage in gender-sensitive data collection, and report on outcomes from a gender perspective, all of which will ideally influence the project cycle from the beginning once again.

3.2
Project identification

Gender equality considerations should ideally inform the development of climate change projects from the very conceptualization of the project idea. Under the UNFCCC, a number of national instruments have been established to support countries to assess GHG emissions and climate change impacts and to identify climate change priorities, strategies and actions. The following table outlines several of the national climate change instruments that should inform climate project identification and preparation.

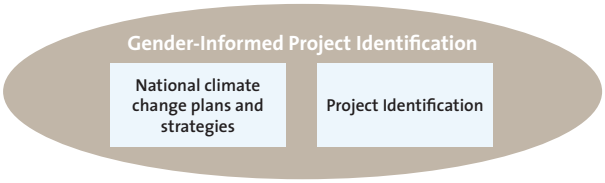


TABLE 2.

National climate change instruments

National Communications (NCs)	NCs from developing countries provide information on greenhouse gas inventories, and measures to mitigate and to facilitate adequate adaptation to climate change.
	NCs from Annex I parties provide information on emissions and removal of greenhouse gases; national circumstances; policies and measures; vulnerability assessment; financial resources and transfer of technology; and on education, training and public awareness.
Nationally Appropriate Mitigation Actions (NAMAs)	Developing country parties will take NAMAs in the context of sustainable development. NAMAs are defined in two contexts: At the National Level as a formal submission by parties declaring intent to mitigate greenhouse gas emissions in a manner commensurate with their capacity and in line with their national development goals. At the Individual Action Level as detailed actions or groups of actions designed to help a country meet their mitigation objectives within the context of national development goals.
National Adaptation Programmes of Action (NAPAs)	NAPAs allow Least Developed Countries (LDCs) to identify priority activities that respond to their urgent and immediate needs with regard to adaptation to climate change – those needs for which further delay could increase vulnerability or lead to increased costs at a later stage.
Intended Nationally Determined Contributions (INDCs)	The Paris Agreement requires all parties to prepare and communicate INDCs as a means of reporting regularly on emissions and on mitigation efforts.

Source: unfccc.int.

These national climate change plans and strategies include gender considerations to a "varying but increasing extent" (Aguilar and others, 2015; please also see Box 2 on gender references in INDCs). To ensure that gender mainstreaming influences the very prioritization of climate initiatives, it is essential that national government gender equality mechanisms and women's civil society organizations are engaged in national climate change planning processes and that they are capacitated to do so.

A number of practical solutions exist to create space for gender equality mechanisms and women's civil society organizations in national climate planning processes. For example, the GCF Readiness and Preparatory Support Programme supports National Designated Authorities (NDAs) to engage with the Fund in the following four activity areas:

- Establishment and strengthening of National Designated Authorities (NDAs) or focal points
- Development of strategic frameworks for national engagement with the GCF, including the preparation of country programmes
- Selection of implementing entities or intermediaries, and support for accreditation
- Initial pipelines of programme and project proposals

The GCF Readiness and Support Programme aims to help developing countries effectively access and deploy resources from the GCF. It can ensure that the gender dimensions of country GCF programmes are fully acknowledged and realized from the onset (see companion GCF manual, *Mainstreaming Gender in Green Climate Fund Projects*).

As a complementary approach, some 16 countries have prepared Climate Change Gender Action Plans (ccGAPs), and the number is expected to grow. The

ccGAPs build on national climate change plans and strategies to address gender concerns in priority sectors and formulate action plans to enhance mitigation, adaptation and resilience-building efforts for women and men (Aguilar and others, 2015).

Box 9 details measures to make national climate change plans and strategies more gender responsive, and to ensure the effective participation of national gender equality mechanisms, as well as civil society gender advocates and women's organizations, in national climate change planning processes. Engendered national climate change planning and programming processes should help facilitate the identification of gender-informed projects.

BOX 9.

Engendering national climate change plans and strategies

To move towards gender-responsive climate policies and plans, the following measures can be recommended:

- Build capacity of government and civil society stakeholders on the nexus of gender equality and climate change across sectors and at all levels, and articulate the international climate change framework with the national level
- Support mainstreaming gender and climate change into national development policies, plans, and budgets, with the participation of climate change institutions and gender equality mechanisms; this may require setting up an inter-ministerial coordination mechanism
- Ensure that NAPAs, NAMAs and other forms of national low-carbon and climate-resilient development planning are aligned with national development and poverty reduction strategies as well as gender commitments such as CEDAW and the Beijing Platform for Action
- Address "mainstreaming fatigue" by institutionalizing the application of existing gender commitments to climate change portfolios, providing gender and climate change tools covering the entire project or programme cycle, addressing institutional disconnects between gender equality and climate change responsibilities, and providing technical assistance on gender auditing and budgeting to policymakers in climate-relevant sectors
- Promote women's active participation, voice, and agency in national decision-making processes on climate change by advocating for membership in relevant steering committees and inter-agency bodies
- Engage gender equality advocates and climate change practitioners to better understand women's and men's roles in climate change mitigation and adaptation and how to derive development co-benefits
- Address knowledge and best practice gaps in participatory ways that capture men's, women's and young people's ideas and knowledge, particularly in areas where the gender dimensions of climate change impacts and responses are not immediately obvious, such as transport and infrastructure, energy access, housing, and formal or informal employment
- Undertake gender analyses and assessments for the planning, implementation, and monitoring of climate change projects, and train and build capacity of project management and staff accordingly

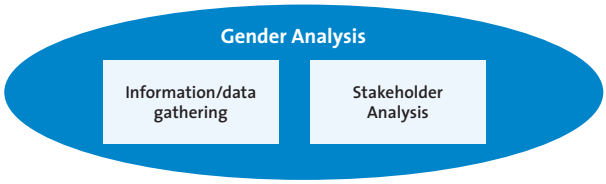
Sources: Adapted from Otzelberger (2011) and Aguilar and others (2015).

3.3

Gender analysis

Once the project has been identified, the next step in mainstreaming gender considerations in the project cycle is gender analysis. Gender analysis helps to reveal the significance of existing gender inequalities and gaps in relation to climate change and the potential contributions of women and men to climate action.

The objective of gender analysis is to understand the specific roles, needs, and priorities of women and men, as well as the barriers, risks and opportunities they face, in the context of a changing climate. **To conduct gender analysis**, the first step is to **gather relevant data and information**, including through **stakeholder analysis**.



Gender-sensitive data collection

Sex-disaggregated data and gender statistics are certainly necessary for gender analysis but also for establishing virtually any project baseline that deals with people and environments, including climate change. Yet to capture gender-differentiated risks and impacts, it is essential to understand how these are defined by income, particularly for poor and marginalized groups; location, whether rural or urban at a minimum; and age, as circumstances change at different points in the life cycle. It is important to first identify and analyze existing data and information through a literature review, including reports and evaluations of related projects and programmes. Most countries will have some publicly available gender statistics and data disaggregated by sex, income, age and location. However, such data related to climate, environment and resources are not systematically collected and are quite scarce (see Box 10).

BOX 10.

Gender statistics on climate and the environment

The links between gender and the environment are increasingly recognized by statisticians, including in the recently revised UN Framework for the Development of Environment Statistics. However, in many countries, gender statistics on environment are not yet part of the regular programmes of statistics in national statistical systems – a huge obstacle for gender analysis and policymaking.

Adequate monitoring of the impact of the environment and climate change on the lives of women and men may require that some data disaggregated by sex and age are recorded for smaller areas of a country. At most, the traditional system of social statistics has been focused on urban/rural areas and regions.

Technologies such as Global Positioning Systems (GPS) and remote sensing need to be further explored as sources of geospatial information that can be layered upon the sex-disaggregated information on a population produced by household surveys and censuses to determine the exposure of women and men to various natural hazards or pollution factors.

Statistics to assess the active participation of women and men in environmental protection and decision-making at all levels are scarce. Information on local decision-making, on environmental resources, extreme event preparedness and post-disaster reconstruction efforts has remained largely a domain of qualitative and small case studies.

Source: United Nations (2015), *The World's Women 2015. Trends and Statistics* (New York).

A number of sources of information and data are available at international, regional and national levels, including reports issued by the UN system (UNDP Human Development Reports, reports issued by the UN Division of Social and Economic Affairs and the Regional Economic Commissions, UN Women and other development agencies' country gender profiles, etc.), the World Bank, and national offices of statistics (censuses and household surveys).

In many cases, data will need to be collected in order to conduct the gender analysis and to construct the project baseline – the starting conditions of the proposed intervention against which advances in implementation can be measured and evaluated.

Gender-sensitive data collection can employ quantitative and qualitative methods (FAO, 2016):

Quantitative methods:

- Involve primary data collection through individual or household standardized questionnaires and surveys (disaggregated by sex, but also income, age, and location if possible), which can be costly both in terms of time and funds.
- Based on identification of what data already exists and data gaps, and what data is feasible to design and collect.
- Require reliable questionnaires, data entry, cleaning and empirical validation.

Qualitative methods:

- Employed when the outcome of interest is not reducible to standard measurement techniques or quantitative analysis.
- Qualitative approaches enable respondents to express opinions freely without constraints caused by pre-determined questionnaires.
- Qualitative information helps to understand the roles and needs of women and men, inter- and intra-household dynamics, and other sensitive topics.

Examples of qualitative data and information gathering include:

- Stocktaking based on a literature reviews.
- Compiling gender-related lessons, methodologies and results from previous initiatives.
- Conducting key informant interviews based on stakeholder analysis (see below).

A combination of quantitative and qualitative methods is typically employed. The numerical data produced by quantitative methods can help to build the case for addressing gender inequalities and gaps, while qualitative methods allow for a more in-depth examination of social processes, relations and power dynamics surrounding gender (in) equalities.

Stakeholder analysis from a gender perspective

Among the qualitative methods, stakeholder analysis should be undertaken to assess the problems, interests, needs, and potential of different groups of stakeholders – including potential project participants – from a gender perspective. In-depth interviews and focus groups may both be employed. Depending on the context, dividing the groups by sex may be the only way to successfully engage both men and women so that they may freely express themselves. It can also be helpful to identify and consult with gender advocates

For example, if land tenure security is a key issue for climate resilience, and women have limited rights to land, it is salient to examine national legal and statutory frameworks – and involve the government authorities responsible for implementing them – as well as to understand customary practices; and also involve the associated community and traditional leaders. Women's land rights advocates at local and national levels should also be consulted.

and women's rights groups at local and national levels on the gender and climate issues to be addressed.

The questions in the following table are examples of what might be asked in an interview or discussed in a focus group to understand the context of a potential project intervention, the individuals and groups involved, their roles and responsibilities, the work they do, their decision-making power in their daily lives, how a project intervention might respond to their needs and priorities, and how they might benefit from it.

TABLE 3.

Guiding questions for gender analysis

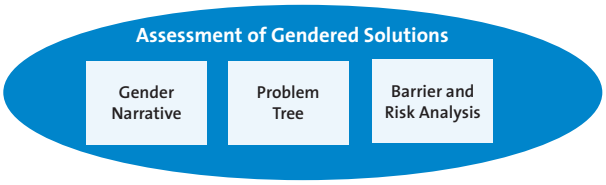
What is the context?	• What demographic data disaggregated by sex, income, age, and location, including percentage of women-headed households, are available? • What are the main sources of livelihoods and income for women and men? • What are the needs and priorities in the specific sector(s) to be addressed by the planned intervention? Are men's and women's needs and priorities different? • What impacts are men and women experiencing due to specific climate risks? • What is the legal status of women? • What are common beliefs, values and stereotypes related to gender?
Who has what?	• What are the levels of income and wages for women and men? • What are the levels of educational attainment for girls and boys? • What is the land tenure and resource use situation? Who controls access to or owns the land? Do women have rights to land and other productive resources and assets? • What are the main areas of household spending? • Do men and women have bank accounts? Have they received loans? • Do men and women have mobile phones, access to radio, newspapers, TV? • Do women and men have access to extension services, training programmes, etc.?
Who does what?	• What is the division of labour between men and women, young and old, including in the specific sector(s) of intervention? • How do men and women participate in the formal and informal economy? • Who manages the household and takes care of children and/or the elderly? • How much time is spent on domestic and care work tasks? • What crops do men and women cultivate?
Who decides?	• Who controls/manages/makes decisions about household resources, assets and finances? Do women have a share in household decision-making? • How are men/women involved in community decision-making? And in the broader political sphere? • Do men/women belong to cooperatives or other sorts of economic, political or social organizations?
Who benefits?	• Will the services/products of the proposed intervention be accessible to and benefit men and women? • Will the proposed interventions increase the incomes of men/women? • Will the proposed intervention cause an increase/decrease in women's (and men's) workloads? • Are there provisions to support women's productive and reproductive tasks, including unpaid domestic and care work?

Source: Based on UNIDO (2014) and further elaborated by UN Women.

3.4

Assessment of gendered solutions

The results of the gender analysis, based on the information and data collected together with the stakeholder analysis, are synthesized into a **gender narrative**, which constitutes the basic component of the gender assessment. The gender analysis and the narrative that it yields typically uncover and describe the issues, gaps and problems that will be addressed by project interventions.



As mentioned above, the formulation of projects aiming to create an enabling policy environment to private finance for climate investments (often referred to as market transformation initiatives) usually requires a deeper analysis to identify the central problem, the risks and underlying barriers, and the gender-responsive solutions. A **problem tree analysis** helps to clearly define the central problem, its causes and effects, and to develop solution pathways. A gender-responsive investment **barrier and risk analysis** takes it a step further by identifying a range of gender-differentiated risks and underlying barriers associated with a climate change problem, which will affect the levels and kinds of investments and gender-responsive interventions needed.

Problem tree analysis

The problem tree analysis defines the causal chain in which the central problem is embedded. A problem tree is in effect an analysis which models causes and effects. Problem tree analysis helps to find solutions by visually mapping the causes and effects around a problem and the linkages among them. The central problem does not need to be women-centered or gender-focused, but the gender analysis conducted thus far will inevitably lead to identification of gender-specific causes, effects and impacts.

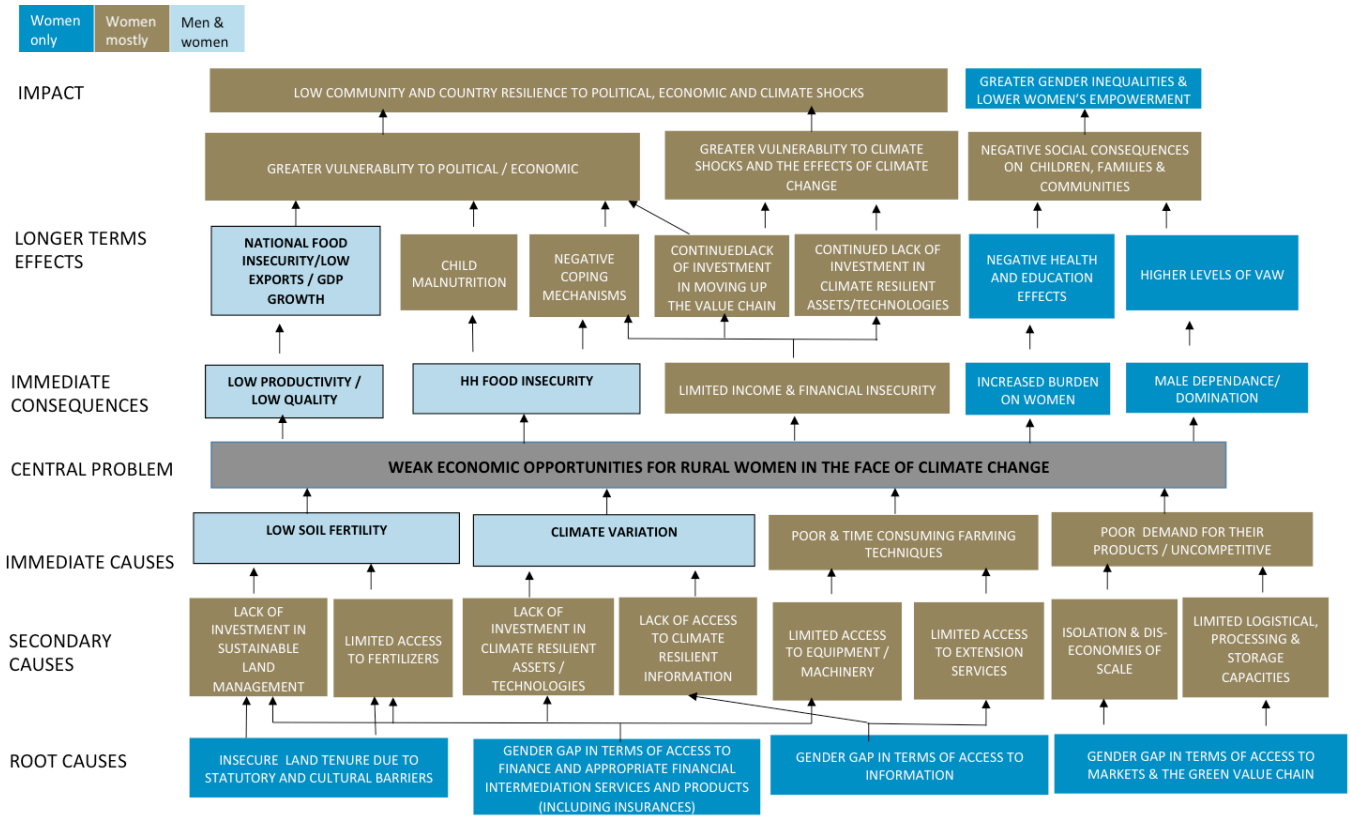
In order to construct a problem tree, the following steps may be useful:

- Identify the central problem: the climate change situation that requires attention or the central problem that women face in the sector. It is important to note that there are many potential problems or points for entry.
- Determine the causes of the problem by asking "why" until it is not possible to go further. There are immediate or the most obvious and visible causes, and less evident but important underlying or secondary causes. The fundamental or structural causes of the main problem are the root causes.
- Identify the effects of the main problem by asking "what are the consequences?" until it is not possible to go further.
- Connect the problem with cause-effect arrows clearly showing key links.

Problem tree analysis provides a more grounded analysis in a particular context as illustrated by the problem tree developed for addressing the gender gap for climate-smart agriculture in Democratic Republic of the Congo given in Figure 10.

FIGURE 10.

Problem tree – climate-smart agriculture in Democratic Republic of the Congo



Source: UN Women (2016).

The problem tree analysis readily allows for the identification of solution pathways, including gender-responsive actions to redress gender-specific causes and effects. For example, in Figure 10, the identification of women's insecure land tenure due to statutory and cultural barriers as a **root cause** of the **central problem** of weak economic opportunities for rural women in the face of climate change clearly indicates that action should be taken towards women's land tenure security.

Barrier and risk analysis

Barriers and risk analysis are a complementary approach to identify the causes of a development challenge and possible solution pathways. It is a powerful instrument to support the formulation of market transformation initiatives aiming to catalyze climate investment.

As described in chapter I, many climate investments are potentially profitable but face a range of informational, technical, institutional and financial investment risks and underlying barriers. These barriers and risks can be mapped in a systemic and transparent manner with specific associated policy instruments. A wide range of policy instruments has been developed to address investment barriers and associated risks. But most barrier and risk analyses used to guide market transformation efforts are gender blind.

Barrier and risk tables allow for the systemic identification of risks and underlying barriers and their mapping with remedial policy instruments. To ensure that gender-differentiated risks for climate investment are identified and addressed, it is critical to overlay a gender analysis onto a generic barrier and risk table. This gender analysis will assess the gender-differentiated probability of occurrence and potential severity of the generic risks identified, as well as reveal additional gender-specific barriers.

Taking into account the results of the gender analysis thus far, the barrier and risk analysis:

- Groups barriers into independent risk categories, associated with the stakeholder group best placed to address or mitigate that risk category (if this analysis has not already been conducted as part of the generic project formulation).
- Identifies gender neutral barriers that affect investment in climate action.
- Uses available data and information to identify the gender-specific barriers, those barriers that have an increased probability of occurrence or severity of impact for women.
- Forms the basis for identifying suitable instruments to address all risks and barriers.

A large variety of public instruments exist to address generic and gender-differentiated climate investment risks (see Box 11). For example, the Global Renewable Energy Policies and Measures Database listed 554 renewable energy policies and measures in October 2015. A barriers and risks analysis can assist decision makers in identifying and combining an optimal mix of instruments in terms of the variety and complexity of instruments.

BOX 11.

Typology of public instruments to reduce investment risks

Public instruments to reduce investment risks can be broadly divided into three groups:

- **Policy derisking instruments**: Facilitate removing the underlying barriers that are the root causes of risks. As the name implies, these instruments deploy policy interventions to mitigate risk and include, for instance, local skills development; regulatory and legal development; strengthened market governance institutions; and long-term, stable, coherent and transparent national policies. These instruments provide a foundation for investment.
- **Risk transfer instruments**: Some investment risks such as small market size, limited infrastructure or political instability can only be partially addressed through policy measures. Risk-sharing instruments do not directly address the underlying barriers, but instead transfer some of the risks that private investors face to public actors. These instruments can include, for example, loan guarantees, political risk insurance and public co-investments.
- **Financial compensation instruments**: Recognizing that all risks cannot be eliminated through policy derisking or risk transfer instruments, efforts to reduce risks can be complemented by additional financial incentives to compensate for any residual above-average risks and costs.

There is no single, best instrument to promote low-carbon and climate-resilient investment. Most investment faces a number of barriers and a portfolio of mechanisms will be necessary to lower them in a cost effective manner (Glemarec and others, 2016). These public instruments come at a cost – to industry, to consumers and to the taxpayer. Furthermore, they usually involve trade-offs among stakeholders, and can affect the comparative advantages of industries and locations. Ultimately, they embed a set of political choices and societal values.

Table 4 shows the extract of a gender-sensitive barrier and risk table aimed at identifying gender neutral and gender-differentiated risks and associated remedial instruments for climate-smart agriculture. The full table can be found in the peer-reviewed paper, "Addressing the gender-differentiated investment risks to climate-smart agriculture", available on the UN Women web page on "Leveraging co-benefits between gender equality and climate action for sustainable development". UN Women project documents for addressing the gender gap in sustainable energy and climate-smart agriculture can be found on the same page at https://trainingcentre.unwomen.org.

TABLE 4.

Extract of barrier and risk table for climate-smart agriculture

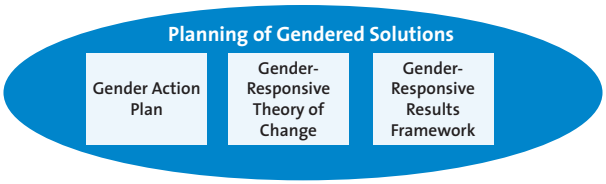
Barriers and Risks			Menu of selected public instruments		
Risks and key stakeholder Group	**Underlying Barriers**	**Increased Probability of occurence and severity of impact on women**	**Policy Risk Reduction Instruments**	**Risk Transfer Instruments**	**Financial Compensation Instruments**
1. Production Risk: Risks associated with adoption of new farming practices in a changing socio-economic and physical environment Key Stakeholder Group: Farmers growing food and vash crops on less than 1 ha of land on average, and have household income of $1,500 a year	Limited awareness of the impact of climate change and knowledge of CSA practices	Lower access to information about climate change and knowledge	Raise awareness about climate-induced risks		Challenge grant to climate and weather information providers to develop appropriate information services for women farmers
	Limited access to climate-resilient farm inputs and new and/or improved technologies such as solar-powered irrigation pumps.	Gender gap in membership in farmer associations to generate economies of scale to procure inputs and technologies	Gender assessment of leadership structures of farmer organizations and reform of membership policies to promote women empwerment		Tax breaks to facilitate the entry of new equipment and farming input suppliers
	Limited agricultural extension services	Lower accesss extension services	Leverage new ICTs to provide access to relevant information. Leverage the supply chain of agribusinesses; inter-sectoral cooperation; partnership with civil society		Challenge grant to CSA information providers to develop appropriate services for women farmers
			Capacity development of extension agents on the gender information gap and possible remedial measures; train women farmers on how to leverage ICT to access relevant climate smart agriculture infromation		
	Limited capacity to interpret and apply climate and weather information to adjust farming practices	Information might privilege crops cultivated by male farmers and overlook crops and farming practices of greater economic importance to women (horticulture, etc.)	Develop crop specific training and support demonstration activities		
			Ensure that training and demonstration activities cover priority crops for women farmers		

Undertaking a gender-responsive barrier and risk analysis is demanding and, moreover, does not necessarily apply to all situations. However, it should be systematically undertaken for market transformation initiatives to ensure that gender-differentiated risks are addressed and that these efforts benefit women and men equally.

3.5

Planning of gendered solutions

Irrespective of the tools deployed, the gender analysis and assessment of gendered solutions should be translated into a dedicated set of activities to address the gender risks and opportunities identified and maximize climate and gender co-benefits: these are elaborated in the **gender action plan** and/or **theory of change** that together yield a **gender-responsive results or logical framework**.



Gender action plan

The purpose of a gender action plan is to operationalize the constraints and opportunities for women and men that were identified during the gender analysis towards fully integrating them into the project design. The plan should include: (i) gender-responsive actions that address and strengthen the voice and agency of women and men in climate action; (ii) gender performance indicators and sex-disaggregated targets that can be incorporated into a results framework; and (iii) presentation of gender-responsive development impacts.

Developing a theory of change

As a complementary approach, the results of the gender analysis (problem tree and barrier and risk analyses, solution pathways) can be organized into a full-fledged gender-responsive theory of change that lays out the rationale for the proposed interventions to address the problem, the desired outcomes and outputs, and the associated assumptions and risks.

While a logical framework aims to answer the question "what needs to be done?", a theory of change answers the question "why do you think doing A will lead to B?" It interrogates the arrows of the results chain or framework, and exposes potential "magical thinking" whereby we simply assume that if we do A, then B will necessarily follow – when there is actually no basis for that assumption. So a theory of change is not about articulating results, but rather articulating **why** what we propose to do will lead to the identified results.

> Adopting or developing a theory of change is an important first step in "mapping out" what is known, assumed and envisaged as part of the design process of a holistic and multidimensional strategy, and can help in the prioritization of investment and action, the definition of roles and responsibilities, and the building of robust performance monitoring frameworks.
>
> *Source:* Fergus (2012).

Once developed, a theory of change "enables us to share these ideas with others and create a shared vision of the long-term change we all want to see in a given community, how this change will be reached, and how we will measure our progress along the way" (Keystone Accountability, n.d.). A theory of change should therefore be considered as both *process* – the process of working out the theory by practitioners and stakeholders – and *product* – a narrative and visual document of the change model showing how and why a goal will be reached (Taplin and others, 2013). Both aspects are equally important, especially in terms of taking climate action and working towards gender equality, and realizing women's rights in the context of a changing climate.

Various formats exist to develop a theory of change. The Theory of change reproduced in Table 5 aims to describe both the how and the why of a given set of interventions, and to facilitate the conversion of a theory of change into a project results framework and results-based budget. Having identified the central problem to be solved and possible solution pathways through the problem tree and barrier and risk analyses (if conducted), the goal – the long-term vision of the change to be accomplished – is then elaborated and the assumptions and risks underpinning the proposed activities necessary to achieve that goal are spelt out.

For example, in Table 5 below, the first outcome refers to women's land tenure security, which was identified as a root cause to be addressed in the problem tree in Figure 10 above. The goal statement reflects the logical causality between the outcomes and the goal. The "outcomes ToC" row lays out the causal underpinnings or changes needed to achieve the outcomes. The outputs directly help to achieve the outcomes. The theory of change includes a different outcome for each root cause identified in the problem tree in Figure 10.

A theory of change involves asking a series of questions, such as:

WHAT do we want to change?

What is the ultimate goal?

HOW will that change occur?

What needs to happen NOW and LATER?

WHO/WHAT are the main drivers of change?

Are they our partners? What do we assume they will do (differently)?

Is this ENOUGH? What and who else is necessary to reach the long-term goal?

HOW do we influence other factors which are outside our control?

HOW will we know that the change has occurred?

The theory of change tool is particularly appropriate for multi-stakeholder programmes that aim to achieve transformative results in a collaborative manner.

TABLE 5.

Generic theory of change for climate-smart agriculture

Goal	Goal TOC Statement	Women farmers are economically empowered and resilient in a changing climate Key indicators: Share of women among agricultural land owners by age and location (U/R); Legal framework includes special measures to guarantee women's equal rights to land ownership and control Guiding normative frameworks include CEDAW (article 14); Beijing Platform for Action; SDGs; CSW56; UNFCCC & UNCCD gender provisions		
		If (1) agricultural policies are gender-responsive and women farmers realize rights to land and secure land tenure; if (2) they have the financial capacity to invest in climate-smart asset, tools and technologies; if (3) they have access to climate-smart information; and if (4) they participate fully in green value chains and markets; then (5) women farmers are economically empowered and resilient in a changing climate; because (6) the root causes and drivers of gender gaps in agriculture have been addressed.		
Outcomes	1. Climate smart agricultural (CSA) policies are engendered and women's land tenure security is increased. Key indicators: Share of women among agricultural land owners by age and location (U/R); Legal framework includes special measures to guarantee women's equal rights to land ownership and control	2. Women's capacity to invest in climate smart and time saving assets, tools and technologies is increased. Key indicators: % change in loans to women small-holder farmers; % change in women using financial services	3. Women small holder farmers' access to climate smart information is increased. Key indicators: % change in women accessing climate-related information services	4. Opportunities for women farmers to move up the value chain promoted. Key indicators: % of women's participation in cooperatives; % of women farmers with access to extension services
Outcome TOC	If (1) gender-differentiated CSA barriers are recognised and remedial interventions are integrated; if barriers to women's equal rights and access to land are addressed; and if an enabling legislative framework, supported by strong technical capacities are in place, then (2) CSA policies will be engendered and women's land tenure security will increase; because (3) discrimination against women has been addressed.	If (1) women have access to affordable and appropriate financing services, products, business skills, and insurances; then (2) women will have increased capacity to invest in climate-smart and time saving assets, tools and technologies; because (3) key financing barriers for rural women are removed.	If (1) extension services and digital technology are accessible for women, and if women have the capacity to use such services in an enabling social environment; then (2) women's access to invest in climate-smart information will increase; because (3) women will have the required means, skills, and social support.	If (1) the agency and decision-making capacity of women farmers is strengthened; and if they have access to local infrastructure, processing and storage capacity; and if they are included in green agricultural supply chains; then (2) women will have opportunities to move up the value chain; because (3) they will have equitable access to markets.
Outputs	1.1. Capacity of government institutions and policy makers to assess gender differentiated CSA barriers and integrate remedial interventions into budgeting, planning, programming and monitoring is increased (gender-assessment of policies, cross reference CSA policies with other sectors; training for policy makers; technical support for policy reform 1.2. Voice of women farmers and influence on CSA policies and strategies enhanced, notable within farmers associations (gender-assessment of leadership structures of farmer associations, gender awareness and leadership trainings) 1.3. Gender-biased statutory and customary land tenure frameworks, laws and policies reformed (gender-assessment of land and property rights laws, engagement with communities, farmer associations and policy makers; technical support for policy reform) 1.4. Strengthened capacity of land registry institutions to improve systems and ease access (strengthen land mapping and registration systems; increase women's access)	2.1. Improved regulatory and economic incentives for public and private financial institutions to provide credit to women farmers (e.g. directed lending, direct lending, credit enhancement mechanisms; capacity and awareness building of financial institutions to change gender-biased lending(ces) 2.2. Development of financial intermediary services for women farmers including through digital finance at the local level (e.g. micro-finance, savings and loans groups, working capital fund, mobile phone services, rental/lease finance, weather insurance, rural bank branches, training of financial intermediaries, increasing access to digital finance) 2.3. Improved and targeted access to training, peer to peer learning, and skills development (capacity development of women farmers on financial and business skills at times that take into consideration their unpaid care and domestic work; trainings combined with legal support to help women open and use a bank account, apply for a loan etc.)	3.1. Improved access to climate-smart agricultural extension services for women (capacity development for women farmers on using new technologies and apply local and indigenous knowledge; increase the proportion of trained women extension agents) 3.2. Improved access to digitally enabled agricuturla information for women farmers (promote the use of technology to share agricultural information, e.g. locally produced videos on improving agricultural practices, agricultural hotline with text messages containing up to date agronomic information) 3.3. Increased women's voice and agency to promote recognition of women's role in agriculture and their use of technology (assess root causes of negative attituds / practices; advocacy/media campaign; awareness raising with men and women farmers, extension workers and policymakers; outreach to community/religious leaders)	4.1. Increased capacity of women farmers and cooperatives to access markets and move up the value chain (establish women's cooperatives, training, use of digital technology to connect farmers; increase access to machinery and technologies to move from production to aggregation, processing and distribution) 4.2. Local infrastructure, processing and storage capacity developed to improve access to markets, (rural roads and sustainable transport, post-harvest storage facilities, cooperative processing plants and quality control, etc.). 4.3. Dedicated production and procurement platform for women farmers to link them to the national, regional and international supply chain (promote fair trade, link private companies with women small holders and cooperatives, preferential access, quotas/targets, tax exemptions for women small holders and cooperatives)
Key Assumptions	-CSA policies tend to be gender-blind; - Lack of land and property rights is a structural cause of gender inequality; -; -Land/water/forest rights are connected; -Women's demonstrated land tenure security or ownership is important collateral for access to finance.	-Gender gap in access to affordable finance and insurance; – Women are in a weaker intra-household bargaining positioning, which reduces their ability to save and invest; - Women farmers have access to energy; New technologies and tools will save women time and be less physically intensive.	- Gender gap exists for agricultural practices, information and digital technologies; - Women's use of technologies is not always supported by enabling social norms and practices.	- Gender gap in women's access to markets and in the value chain (aggregation, processing, distribution, decision-making) - Greater access to markets and moving higher in the value chain will increase incomes.
Risks & Barriers	- Social and cultural attitudes and political will cannot be changed in favour of equal land rights; -Equal rights in laws and policies are not translated into practice.	- Social and cultural attitudes, and political will cannot be changed in favour of increasing women's equal access to finance; - Macroeconomic policies do not support micro-lending and financial services for the poor; -Local financial institutions are under-capitalized.	- Uncertain social acceptance of new technologies and practices; - Women's unpaid domestic and care work reduce time for learning new technologies; - Men resent women having access to new technologies if they do not have the same.	- Social/cultural/political/trade barriers to women moving up the value chain and having preferential access to markets; - Private sector unwilling to pay slightly more for products from women small holders or engage with new women distributors; -Macroeconomic policies do not support women farmers in national/global value chains.

Results framework

Both the gender action plan and the generic theory of change must be translated into a results-based framework to guide project implementation and monitoring and evaluation (M&E), as in Table 6 below. A results framework lays out a project's indicators at the goal, outcome and output level. It also establishes baselines, targets and the means of verification. Indicators should capture the impact on women and men. To do so, indicators should, to the extent possible, be disaggregated by sex and geographic area – as well as other characteristics, such as age and income, depending on the intervention and the context. Specific indicators to track the project's impacts on women may also be required. Please see Annex 2 for examples of gender-responsive indicators for climate change projects at the outcome and output levels.

TABLE 6.

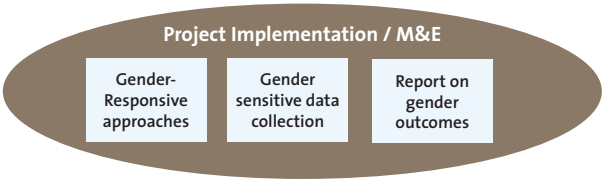
Part of results framework for women and sustainable energy programme

Strategic Statements	Indicators	Baseline	Target	Means of Verification
Programme Goal: Women's entrepreneurship and leadership accelerates universal sustainable energy access	• % of population with electricity access (SDG 7.1); • % of population with primary reliance on non-solid fuels (SDG 7.1); • % of renewable energy share in the final energy consumption (SDG 7.2).			A. SDG database
Outcome 2: Energy planning and policy development is gender inclusive, participatory and responsive.	• % of women involved in designing energy plans/policies; • Existence of targets in energy plans/policies on women's production and use of energy (Y/N).			• Surveys of national energy ministries and agencies • Project reports
Output 2.1: Improved capacity of women's associations and policymakers to understand gender-responsive energy policies and effectively engage in planning and policy development.	• Number of women's associations and policy makers who report a better understanding of gender-responsive energy policies; • Number of engagements by women stakeholders in the energy planning and policy development process.			
Output 2.2: Targeted gender-responsive SE instruments are incorporated into energy policies and linked with other relevant sectoral plans.	• Number of policy instrument packages developed; • Has energy policymaking been linked with other sectors (Y/N).			
Output 2.3: Implementation of gender-sensitive provisions of energy policies are financed, monitored and evaluated.	• % change in budget allocations to implementation of gender-responsive energy plans.			

3.6

Implementation and monitoring and evaluation of gendered solutions

Clearly gender analysis may be conducted and gender considerations mainstreamed into project design and formulation, without the projects necessarily being gender-focused or women-centered. Yet in any project the objective is to ensure that women and men can equally access project resources and services; equally participate in project activities, decision-making, and management; and equally benefit from training, capacity-building, and technical assistance offered by the project. Therefore, the processes of project implementation and M&E also require particular attention from a gender perspective, which means applying **gender-responsive approaches** and **gender-sensitive data collection. Reporting on gender outcomes** should inform future project identification and development and, ideally, influence national climate change plans and strategies so that they become more gender responsive.



Project implementation

The following recommendations are intended to support both the implementation of gendered solutions and to undertake gender-responsive approaches to project implementation:

- Use the gender analysis and assessment of gendered solutions to establish a project baseline against which progress can be measured, which should be reflected in the results framework.

- Ensure sufficient resources – people and funds – are available for gender equality and women's empowerment activities.

- Based on the problem tree and barrier and risk analysis (if conducted), as well as the overall theory of change, assess the potential impact of proposed activities on women and men.

- Develop gender-responsive approaches to address these impacts to ensure men and women are not negatively affected, and can equally access project resources, services, technologies and training, and equally benefit (see Table 7). For example:
  - Seek local women's groups and wider women's networks in outreach efforts.
  - Ensure equitable representation of women and men on project committees and management, and in planning and conducting project activities and meetings.
  - Make sure that workloads are not unduly increased and that women's and girls' disproportionate share of unpaid care and domestic work is not further increased.
  - Include targeted training for women or men who need to develop skills in order to access new technologies involved in the project.
  - Schedule training when women have childcare or offer childcare during training events.
  - Take into account particular social or legal restrictions that may prohibit women or men from accessing resources, such as access to productive resources and assets, finance and credit.
  - Include provisions to address women's limited mobility and security challenges, if they exist.

- Ensure project partners have been trained in gender and gender-sensitive approaches.

- Include gender expertise in project and partner implementation team.

- Engage with women's civil society organizations and gender advocates as project counterparts and gender advisers. Build capacity within the project team and among stakeholders to ensure gender-responsive implementation and the continued integration of gender perspectives.

TABLE 7.

Climate change-induced drought and water scarcity: searching for gender-responsive solutions

Applying a gender lens to possible adaptations options		Recommended gender sensitive approach
Men	Women	
Solution: Increase water access through a community cistern with solar pump		
May decrease workload as women can now collect water too More likely to receive training for use of solar pump Men may have a higher migration rate and are more likely to leave a skills gap in a household/ community if only men are responsible for accessing water from the cistern	Women will be able to collect water,; this may give them more flexibility, but will also increase their workload Less likely to receive training to operate the solar pump Women may have a lower migration rate, therefore knowledge and skills are more likely to be retained in the community	Conduct gender analysis of water use and management patterns Ensure men and women are informed and receive training on the ue and maintenance of solar pumps Facilitate open dialogue about water priorities and gender imbalances of water collection and water-related tasks Facilitate open dialogue about gender dimensions of participation and decision-making in water governing structures Encourage the inclusion of women in water management committees Provide technical training to women and men in coommunity management structures and ensure that skills, and opportunities to increase them are not limited by sex

Source: The Pacific Gender & Climate Change Toolkit (2015).

For example, in this adaptation project, the impacts of the proposed solution on women and men were assessed and a multifaceted gender-sensitive approach was proposed to mitigate potential negative impacts. This approach covered a specific sector-based gender analysis; appropriate training for women and men; open discussion of their needs and priorities, and equitable participation in decision-making and governance structures; and equitable inclusion of women in sector and project management committees.

Such measures help to ensure that project implementation involves women and men equally; that women's voice and agency are reflected in project decision-making, activities, and results; and that women and men benefit equally.

Monitoring and evaluation

The objective is to assess the outcomes and impacts of interventions on women and men, support the equal participation of women and men in monitoring and evaluation activities and decision-making processes, and collect sex-disaggregated data to track gender impacts and benefits for women and men.

In order to conduct gender-sensitive M&E, the foundation is a results framework (such as in Table 6) with gender-responsive indicators and targets (sex-disaggregated). The collection of data disaggregated by sex, income, age, and location is essential for M&E and for reporting on gender outcomes so that lessons learned and best practices are reported and disseminated and fed back into project design.

Gender mainstreaming in M&E

- Ensure that project indicators are gender-responsive so that they track gender-related changes over time; this includes across all outcome areas, not just those focused on gender equality or women's empowerment issues.
- Determine if there is a set of nationally relevant gender-specific indicators, and use gender indicators in existing national M&E systems wherever possible, but also refer to the SDG targets and indicators as feasible.
- Employ both qualitative and quantitative data collection methods to contribute to triangulation of results and to capture change that is difficult to measure.
- Capture qualitative lessons learned and best practices through narrative reporting – sometimes these lessons are the most significant for achieving change and are the most difficult to discern.
- Use gender-sensitive data collection techniques, such as separate focus groups for women and men so that their voices are heard.
- Interview project participants, men and women separately or together depending on the context.
- Ensure the evaluation team is gender-sensitive and gender-balanced, with adequate gender expertise, and includes both male and female evaluators.
- Ensure gender is a cross-cutting theme in each of the evaluation topics, with gender-related questions mainstreamed into M&E plans and other M&E documentation.
- Make available key gender-related evaluation reports, scorecard exercises, and other documentation that proves useful for the M&E team.
- Build capacity and provide technical assistance to partners on gender-sensitive M&E, including building the capacities of national statistical entities to generate and analyze data disaggregated by sex, income, age, and location.
- Use participatory methods involving women and men to increase ownership and sustainability. Tap into the expertise of CSOs to support this process.

Reporting on gender outcomes

Based on gender-responsive approaches and gender-sensitive data collection that should be built into project design, implementation and M&E, reporting on gender outcomes should be a component of all project reporting processes:

- Include mechanisms to monitor and report on gender impacts in project design.
- Document and disseminate gender-relevant best practices and lessons learned throughout the project cycle.
- Ensure that progress reports, implementation status reports, aides-memoires, management

information systems and completion reports report on gender equality results and lessons learned.

Reporting on gender outcomes should be robust enough to inform future project identification and development as a means of deepening and increasing development co-benefits between gender equality and climate action. An optimal result would be the growing capacity to influence national climate change plans and strategies so that they become more gender-responsive.

ANNEX 1: EXAMPLES OF GENDER-RESPONSIVE INDICATORS IN CLIMATE CHANGE PROJECTS

1.
Sample indicators at the outcome/impact level

Well-being and livelihood
• Number and percentage of poor women and men with increased resilience to deal with climate change (e.g. use of climate-resilient crops and farming techniques, improved land management, clean technologies, increased knowledge and strengthened networks on climate change issues, number / percentage of women-headed households provided with resilient home) • Number / percentage of (female-headed) households / people with (no) access to low-carbon energy or transport solutions and infrastructure • Time saved in collecting and carrying water, fuel, and forest products due to environmentally sustainable and climate change adaptation activities • (Female-headed) household expenses on energy (electricity) / percentage change in expenditure on purchasing fuel for household energy needs by women • Number of casualties from natural disasters, by sex • Number of communities and the percentage of women in these communities benefiting from effective, climate-resilient watershed management • Number of cases of respiratory disease, carbon monoxide poisoning, and fire accidents, by sex (adults and children) • Level of women's mobility (e.g. in relation to low-carbon transport) • Level of gender violence (e.g. in relation to lack of street lighting)

Economic empowerment
• Number of female entrepreneurs with adequate access to financing for low-carbon and climate-resilient investment • Number and percentage of women and men with increased employment and income due to climate change adaptation or mitigation activities (e.g. improved energy facilities and services, improved farm productivity, etc.) • Number and percentage of jobs (person-days) generated for women and men in the community • Propensity of rural women to work outside the home thanks to electrification (2) • Increase in labour / work effectiveness / productivity due to project • Increased market opportunities for women-headed SMEs
Participation and decision-making
• Level of women's and men's awareness on women rights and rules for access to financial, natural and energy resources • Evidence that policies, strategies and plans are based on gender analysis of the different impacts of climate change on poor women and men, and include gender equality objectives for each sector of climate change adaptation and mitigation • Evidence that relevant sectoral sector policies, strategies, and plans require participatory approaches and the targeting of both women and men to use and manage low-carbon and climate-resilient solutions and technologies • Proportion of women in sectoral ministry in senior management positions
Capacity development
• Sectoral policy, strategies and reforms include gender equality objectives based on gender analysis of need, demand and supply • Number and percentage of women and men trained in energy-saving and sustainable agricultural technologies (e.g. adaptations to land management practices in marginal and fragile lands, adaptations related to changed rainfall patterns) • Existence of new or improved gender equality supporting sectoral regulatory and legal documents • Evidence of the type of incentives designed to recruit women, increase their capacity, and provide career development in targeted sector agencies and service providers • Level of institutional and staff capacity to mainstream gender in the relevant sector • Minimum percentage of participants in capacity development activities are from marginalized stakeholder groups: women and ethnic minorities

2.

Sample indicators at output level

Sectoral planning and policies
• Sex-disaggregated data routinely collected and applied to sectoral policy, planning, implementation, monitoring and evaluation
• Existence of gender-sensitive sectoral sectors' statistics and / or monitoring and evaluation frameworks (national / local-level databases)
• Evidence that national / local development policies, programmes and plans require participatory approaches and the targeting of both women and men to use and manage low-carbon and climate-resilient solutions and technologies
• Evidence that relevant sector-enabling policies, strategies and plans require participatory approaches, and the targeting of both women and men to use and manage low-carbon and climate-resilient solutions
• Evidence that policies, strategies and plans supporting low-carbon and climate-resilient solutions are based on gender analysis of the different impacts of climate change on poor women and men / women and men from remote rural areas, and include gender equality objectives, measures, indicators and targets
• Budget allocated to gender equality supporting measures in sectoral planning and programming – gender-responsive budgeting
• Evidence that enabling policies and regulations for green SMEs include gender equality supporting provisions
• Existence of practically applied tools and techniques to incorporate women's role in relevant sector planning and consultations
• Number and percentage of women and men (from remote rural areas) who attend / are actively involved in sectoral planning and consultation meetings
• Female staff in organizational set-up
• Existing institutional structure / capacity to address gender-environment-climate change nexus

Business model and technology solutions
• Number and percentage of women adopting low-carbon and climate-resilient solutions
• Number and percentage of women with new / improved income-generating opportunities due to access to low-carbon and climate-resilient solutions
• Number and percentage of women involved in the design, distribution, management and utilization of low-carbon and climate-resilient solutions
• Proportion of women-led businesses / SMEs engaged in design / manufacturing / maintaining / distribution of low-carbon and climate-resilient solutions
• Number and percentage of (full-time equivalent) jobs (person-days) generated by the project for women and men, by pay rate and type of job: unskilled / technical / management / and supervisory roles (e.g. meter readers technicians, bill collectors, customer service staff)
• Number and percentage of enterprises established or expanded using low-carbon and climate-resilient solutions by women and men, by type of enterprise

Access to finance
• Evidence of the type of financial incentives used to encourage women's entry into the market for provision of low-carbon / climate-resilient products and services (e.g. finance packages, tax benefits and rebates, subsidies, pilot schemes, partnerships with financial institutions, the private sector or women's associations) • Number / proportion of women with improved access to financial mechanisms (equity investment, affordable loans, etc.) for low-carbon / climate-resilient products and services • Number of women / female-headed households benefiting from (innovative) financing and business models • Number of low-carbon / climate-resilient supporting MFIs and other financial institutions with gender-sensitive crediting / lending policy

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