



WORLD BANK GROUP GENDER THEMATIC POLICY
NOTES SERIES: **ISSUES AND PRACTICE NOTE**

PLACING GENDER EQUALITY AT THE CENTER OF CLIMATE ACTION

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ABSTRACT

Women and disadvantaged groups tend to be more affected by climate change across various dimensions, including health, livelihoods, and agency. Gender gaps are increasingly seen as barriers to effective mitigation and adaptation strategies. Women are also critical leaders and participants of low-carbon transitions. This policy note investigates how gender equality and climate change intersect; explores programmatic experience on the gender-climate nexus; identifies promising entry points and solutions; and offers recommendations for development practitioners, policymakers, and businesses.

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This thematic policy note is part of a series that provides an analytical foundation for the World Bank Group Gender Strategy (2024–2030). This series seeks to give a broad overview of the latest research and findings on gender equality outcomes; summarizing key thematic issues, evidence on promising solutions, operational good practices, and key areas for future engagement on promoting gender equality and empowerment. The findings, interpretations, and conclusions expressed in this work are entirely those of the authors. They do not necessarily reflect the views of the World Bank Group or its Board of Directors.

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Gender and climate change are intimately linked, and promoting sustainable development requires addressing both challenges together. The impacts of climate change are profoundly unequal: women and other vulnerable groups tend to be more impacted by climate shocks and stresses, including those arising from extreme weather events, droughts, floods, rising sea levels, and warmer temperatures. These shocks reverberate in unequal ways because women face systemic disadvantages in access to jobs, income, resources, finance, and information. Such barriers reduce their adaptive capacity, as well as their participation in mitigation solutions and disaster preparedness and response.

The transition to greener economies can create new opportunities for women, provided that an intentional mix of gender-inclusive policies and interventions is put in place to ensure women's participation. Women's informal contributions, workforce participation, remuneration, and decision-making power across sectors are unequal relative to those of men. Advancements in climate technologies and new green jobs and entrepreneurial opportunities in renewable energy, climate-smart agriculture, sustainable fisheries, and circular manufacturing processes are unlikely to benefit women to the same extent that they do men unless intentional actions are taken to address gender gaps.

Women's empowerment, leadership, and decision making in climate action is associated with better outcomes. Women's presence in local climate change responses is associated with better resource governance, conservation outcomes, and disaster readiness. Yet women are systematically under-represented in decision-making circles at the grassroots level, in project implementation, during stakeholder consultations, and in municipal planning networks; in governments and in transnational climate dialogues; in the private sector on corporate boards and in senior management; in climate finance; and in science, STEM research, and academia. This has serious repercussions for the equal status of women, but also prevents more inclusive and effective climate action, which requires local knowledge, community mobilization and buy-in, behavior change, innovation, and problem solving.

Evidence on the effectiveness of gender-smart and climate-smart development interventions remains fragmented, but some early entry points for action and effective approaches have been identified. The narrative on the gender-climate nexus is gaining traction in policy circles, in national climate roadmaps, and in climate finance and investments, although the systematic inclusion of women's leadership in these areas remains far from what is required. Several high-potential gender entry points are supported by a nascent, but growing, body of programmatic experience. These include enhancing access to green jobs and skills, providing adaptive social safety nets and livelihood diversification, investing in resilience and disaster risk reduction, and addressing gender-based violence (GBV) in climate action. Furthermore, five key systems—energy; agriculture, food, water, and land management; cities; transport; and manufacturing—are responsible for 90 percent of global greenhouse gas emissions and represent critical sectoral focus areas where gender objectives can simultaneously be achieved.



1. UNDERSTANDING GENDER AND CLIMATE



Introduction

Climate change is the defining challenge of our era.

Addressing it will require fundamental shifts away from business as usual towards green, resilient, and inclusive economies driven by regenerative, renewable, and nature-positive processes. Emphasis must be placed on a just transition; on strengthening community resilience and individual capacity to confront climate shocks and stresses; on the expansion of climate finance to local and underserved areas; and on transformative investments to improve climate adaptation and mitigation in critical sectors such as energy, agriculture, water, cities, transport, and manufacturing.

Climate change is already affecting millions of people and communities around the world, but its negative effects are profoundly unequal.

A growing body of evidence shows that the impacts of climate change, including more frequent and intense periods of drought, floods, hurricanes, extreme rainfall events, and rising sea levels, disproportionately affect the poorest, most marginalized groups, posing direct and immediate threats to their health and livelihoods ([UN Women, 2022](#); [UNFCCC, 2022](#); [IPCC, 2022](#)). **These inequities are reflected along gender lines and shaped by gendered norms** (Fruttero et al., forthcoming). Women have fewer resources to protect themselves against climate risks and recover from climate shocks, tend to be disproportionately affected by climate variability and stresses, and face more constraints in accessing climate-related opportunities.

Ensuring green, resilient, and inclusive growth requires placing gender concerns at the center.

Despite the growing emphasis on sustainable and inclusive development linking poverty eradication, planetary health, women's empowerment, and economic growth, there is limited integration of climate change action – both mitigation and adaptation—and efforts to close gender gaps. This is shifting with the growing recognition that progress on gender equality and climate change are inextricably linked. This relationship extends beyond the disproportionate impacts of climate change on women and girls and acknowledges that women are invaluable changemakers in climate action (e.g., [IPCC, 2022](#), [UNFCCC, 2022](#)). The behavioral, economic, political, and social transformations required to confront

and adapt to changing climactic conditions are increasingly regarded as opportunities to address entrenched and unequal power structures in households, communities, labor markets, governments, and businesses.

This policy note investigates the complex and multidimensional intersections of gender equality and climate change, contributing to the emerging dialogue on a people-centered approach to green and inclusive development.

It is organized into the following three sections. Section 2 outlines the challenges and opportunities in gender-smart climate action and presents how gender intersects with climate change and climate policies. Section 3 explores the intervention landscape to investigate how gender-smart climate solutions are operationalized across sectors and entry points. Section 4 outlines best practices and recommendations.

The Gender-Differentiated Impacts of Climate Change

Climate change has outsized impacts on women and disadvantaged groups.

Although the impacts of climate change vary across regional contexts, women's disadvantaged positions heighten their vulnerability and reduce their adaptive capacity.¹ In many contexts, pre-existing socio-economic factors, laws and regulations, and social norms create conditions that weaken women's social, financial, and economic outcomes following climate stresses and shocks (e.g., [Erman et al. 2021](#); [UNFCCC, 2022](#)). Differences in access to income, assets, and natural resources; access to services and skills; the gendered burden of responsibilities within the household; discriminatory laws and practices; and prohibitive gender norms reduce the bandwidth of response and the ability to derive benefits from climate programs (see Box 1).

These inequalities may be exacerbated by other aspects of social disadvantage.

Gender, including in its non-binary form, intersects with other aspects of identity, such as race, class, socio-economic status, nationality, education, migrant status, religion, and disability, to create multidimensional inequalities and heightened forms of social vulnerability.

¹ Adaptive capacity is the potential or ability of a system, region, or community to adapt to the effects or impacts of climate change. Enhancement of adaptive capacity represents a practical means of coping with changes and uncertainties in climate, including variability and extremes. (IPCC, 2022).

BOX 1. THE UNEQUAL EFFECTS OF CLIMATE CHANGE

Human Endowments

Health: Between 2030 and 2050, climate change is expected to cause 250,000 additional deaths each year from malnutrition, malaria, diarrhea, and heat stress, with outsized impacts on vulnerable groups, including women (WHO, 2021). Women and children are more likely to suffer from climate-induced food shortages and malnutrition (WFP, 2021; UNICEF, 2021), while exposure to household air pollution is estimated to be around 40 percent higher for women due to the gendered distribution of household activities (WHO, 2014). The evidence for gender differentiated mortality rates following climate disasters is mixed, although women's responses to such disasters are typically more constrained due to social disadvantages (Fruttero et al., forthcoming).

Education and Skills: Climate shocks have detrimental impacts on human capital, but women and girls are affected in different ways. In the wake of disaster or drought, girls may be removed from school or spend less time on schooling, either as a household coping strategy or to perform household chores, such as water or fuel collection, that become more time-consuming in settings of climate-induced resource scarcity (Castañeda et al., 2020; Malala Fund, 2021). Droughts and extreme rainfall can lead to either higher or lower dropout rates for girls, depending partly on the predominance of gender biases, but weather events affect the test scores and cognitive and socio-emotional skills of boys and girls in similar ways (Fruttero et al., forthcoming).

Economic Opportunities

Livelihoods, Employment, and Income-Generation: Women are overrepresented in employment in natural resource-based and climate-vulnerable sectors, including agriculture, fisheries, and forestry, often in poorly remunerated, low-status, and insecure positions (e.g., UN Women, 2020; Chanana-Nag & Aggarwal, 2018; WWF, 2019; UNWTO, 2019). The physical impacts of climate change, such as droughts, desertification, ocean acidification, and flooding, reduce the income-generating potential of these sectors (Jägermeyr et al. 2021; Lam et al., 2020), undermining women's livelihoods, community food security, and adaptive capacity. Droughts, extreme rainfall, and floods reduce women's employment, especially in households where parents have less education (Fruttero et al., forthcoming).

Time Poverty: Climate change can exacerbate women's time poverty, reducing the time women and girls have to learn, work, and earn. Water and solid fuel collection, and other household chores, are primarily carried out by women and girls (Ho et al., 2021), creating dependence on natural resources. Depletion of these resources because of deforestation, land degradation, and drought, force women and girls to walk longer distances in search of water or cooking fuel. This increases their time poverty and heightens the risk of GBV (UN Women, 2009; IUCN, 2020; UNFCCC, 2022).

Climate Migration and Livelihoods: Rising sea levels, extreme weather events and disasters, and prolonged droughts destroy rural livelihoods (McAuliffe et al. 2022). Several studies show an increase in climate shock-induced outmigration of men relative to women, as men search for new opportunities (Fruttero et al., forthcoming). This leaves women behind in precarious settings where they must secure livelihoods for their families. When women are displaced by disaster, they face increased risk of exploitation and trafficking, limited access to healthcare, and reduced access to formalized safety nets (UNHCR, 2022).

Voice and Agency

Gender-Based Violence (GBV): A growing body of evidence reveals that climate-induced stresses can lead to an increase in GBV, as households cope with the shocks of extreme weather events, environmental degradation, and climate-induced conflict and fragility (e.g., IUCN, 2020; Desai & Mandal, 2021; Rodrigues, 2022). Child marriage, as a particular form of GBV, has been observed to increase in some contexts as households cope with climate disasters (e.g., Human Rights Watch, 2015; UNFPA, 2021). The increase in violence reduces the adaptive capacity of women and girls, weakening climate resilience and creating negative feedback loops.



The Gender-Differentiated Impacts of Climate Action

The transition to low-carbon economies offers new opportunities to reduce gender inequality and empower women and vulnerable populations. Climate change mitigation efforts, together with adaptation measures, bring new opportunities for better jobs, green business innovations, and a chance to address entrenched disadvantages. World Bank Group research estimates that climate investments can generate 213 million cumulative jobs around the world between 2020 and 2030 ([IFC, 2021](#)). The global labor force participation rate for women is under 47 percent, compared to 72 percent for men ([ILO, 2022](#)), suggesting significant room for women to make labor market gains in Paris Agreement-alignment trajectories. Beyond this, just transition² principles—which aim to ensure that the process toward environmentally sustainable economies is well managed and contributes to the goals of decent work for all, social inclusion, and the eradication of poverty—call for better and more decent work³ for women, as well as locally empowered economies.

Despite these opportunities, gender-blind climate policies and interventions also risk exacerbating gender gaps. Gender-blind action to combat climate change risks reinforcing stratified economic and social systems that

create greater disadvantages to women in households, communities, labor markets, and public life. In low-carbon transitions, women are likely to be left behind without explicit interventions. For example, green jobs of the future will likely favor skills and fields related to science, technology, engineering, and mathematics (STEM)—areas where women and girls tend to be underrepresented, perpetuating longstanding patterns of occupational sex segregation. A recent study found that only 62 women for every 100 men are considered to have so-called green talent,⁴ a figure that has remained stagnant since 2015 ([LinkedIn, 2022](#)).

Sectors that are likely to see growth in green jobs, such as energy, manufacturing, construction, and transport, are traditionally male dominated (see Table 1). Women's participation is limited in these sectors due to discriminatory laws and social norms; biased hiring practices; lack of access to mentoring, networking, and training opportunities; lack of preventative measures against workplace sexual harassment; and inflexible childcare policies. This trend will likely continue in the absence of long-term strategies that remove legal barriers and challenge social norms, as well as corporate policies that enable women's ascension into technical fields ([UN Women, 2021](#)).

² The term "just transition" means greening the economy in a way that is as fair and inclusive as possible, creating decent work opportunities and leaving no one behind (ILO).

³ The term "decent work" refers to work that is productive and delivers a fair income, security in the workplace, and social protection, as well as creating equal opportunity and treatment for women and men (ILO).

⁴ Green skills are defined as those that enable the environmental sustainability of economic activities (LinkedIn, 2022).

TABLE 1. JOB POTENTIAL AND FEMALE LABOR FORCE PARTICIPATION (FLFP) RATE BY SECTOR

| High Potential Sector | New Direct Jobs (million) ^a | Global FLFP Rate (%) |
|--|--|---|
| Retrofit of buildings for energy efficiency | 24.9 | Energy: 22–32 ^d |
| Low-carbon municipal waste and water | 23.4 | Water: 18 ^e |
| Green urban transport | 53.4 | Transport: 17.3 ^f |
| Nature-based urban infrastructure | 42.0 ^b | |
| Decarbonization of heavy industry with carbon capture, utilization and storage, and green hydrogen | 22.5 | Manufacturing: 30 ^g |
| Scaling of climate-smart agriculture | 40.2 | Traditional agriculture: 43 ^h |
| Reinvention of textile and apparel value chains | 60.0 ^c | Traditional garment industry: 80 ⁱ |
| Low-carbon airlines and shipping | 6.1 | Engineering: 20 ^j Maritime/Shipping: 1.2 ^k |

^a All figures based on CTRL, ALT, DEL A Green Reboot for Emerging Markets (IFC, 2021).

^b Jobs globally between 2020 and 2030.

^c Maintained jobs in global supply chain.

^d FLFP is 22 percent in traditional energy sectors (Oil & Gas) (IEA, 2020) and 32 percent in the renewable energy sector (IRENA, 2019).

^e Based on a sample of 64 water and sanitation providers in 28 economies globally (World Bank, 2019).

^f Based on sample of 46 countries and includes civil engineering, land transport and transport via pipelines, water transport, air transport, warehousing and support activities for transport, postal and courier activities (Ng & Acker, 2020).

^g World Manufacturing Foundation.

^h Estimates from FAO and are likely to include subsistence farming, agricultural support activities, and informal work.

ⁱ Promoting Decent Work in Garment Sector Global Supply Chains (ILO, 2019).

^j Global Gender Gap Report 2021 (World Economic Forum, 2021).

^k Seafarer Workforce Report (BIMCO/ICS, 2021).

Women face significant financing gaps in green entrepreneurship, identified as a key lever to decouple growth and consumption from environmentally harmful processes. While investments into climate technologies aimed at mitigation and adaptation are growing rapidly,⁵ women-owned businesses are less likely to benefit without action to close gender gaps in access to finance. Women-owned businesses comprise 23 percent of micro, small and medium enterprises (MSMEs) globally, but account for 32 percent of the \$5 trillion finance gap (SME Finance Forum). In 2020, women received only 2 percent of venture capital funding (Crunchbase, 2020). They also make up only 30 percent of the world's scientists (Women's Forum for the Economy & Society, 2021). This means that women's entrepreneurial ambitions in green fora are cut short. Furthermore, green technologies and climate solutions are less likely to be developed with women's perspectives in

mind, reducing opportunities for women and communities to improve their climate resilience through technological innovations designed to meet their needs.

Women's Empowerment and Leadership on Climate

Women's economic empowerment and leadership is increasingly recognized as central to local climate action to achieve long-term climate goals. Owing in part to traditional gender divisions of labor, women possess knowledge, capabilities, and networks that can drive solutions in sustainability, resource scarcity, and climate resilience (ILO, 2015). Their experiences in agriculture, fisheries, tourism, conservation, nature-based solutions, and groundwater monitoring, for example, enable effective and informed action in these areas. Further, given their

⁵ Investment in climate technology totaled \$87.5 billion in the second half of 2020 and first half of 2021, increasing by 210 percent from what was invested in the 12 months prior. Climate tech now accounts for 14 cents of every venture capital dollar (PwC, 2021).

traditional responsibilities around managing water and other natural resources, women value these resources in different ways and represent key stakeholders to achieve effective conservation and management. Several studies find women to be more concerned and knowledgeable about climate change, while also exhibiting greater awareness for the wellbeing of families and communities (UN, 2019), including, the use of natural resources for food security, for example.

Women's presence in local climate change responses is associated with better resource governance, conservation outcomes, and disaster readiness. In Bangladesh, women play a pioneering role in community resilience (Roy, 2020), for instance, by reducing community reluctance to use emergency shelters (World Bank, 2010) and by engaging as active stakeholders in disaster preparedness efforts to ensure women's sanitation and security needs are met (IFC, 2021). In Nepal, local forest management groups with a higher proportion of women in decision-making bodies had greater forest conservation outcomes (Agarwal, 2009), while in Vietnam, women were crucial in protecting their communities against intensifying natural hazards by preserving and restoring mangroves (Wapner, 2020). The World Bank's Dedicated Grant Mechanism (DGM) projects, supported by the Climate Investment Funds (CIF), used country-based iterative strategies to foster Indigenous and local women's climate leadership and participation in decision making at local and national levels for improved conservation and climate outcomes (Canpolat et al., 2022). A recent study on the gender dimensions of disaster risk and resilience outlines the critical role that women play in preparedness, response, and recovery efforts, with the formalization of their participation leading to better outcomes (Erman et al., 2021).

Beyond local climate interventions, women's participation in ministerial and corporate decision-making bodies is associated with more effective climate action. Based on a large sample of countries, women's political participation results in more stringent climate change policies, and this effect is likely to be causal (Mavisakalyan & Tarverdi, 2019). Women in leadership positions are also more likely to invest in policy areas that are of significance to women, such as securing access to drinking water (Chattopadhyay & Duflo, 2004). This phenomenon extends to the private

sector as well: Companies with more gender-diverse leadership perform significantly better in eight out of nine climate action indicators; are twice as likely to develop decarbonization strategies (BoardReady, 2021); and are more likely to reduce the intensity of energy consumption, greenhouse gas (GHG) emissions, and water use (FP Analytics, 2020). A recent study found that a one percentage point increase in the share of women managers leads to a 0.5 percent decrease in CO₂ emissions (Altunbas et al. 2021), while banks with more gender-diverse boards provide more credit to greener companies and lend less to firms with high pollution intensity (Gambacorta et al. 2022).

Despite this, women are systematically under-represented in key decision-making settings, limiting their contributions and reducing the effectiveness of climate change action. Women hold only 21 percent of global government ministerial positions and one-quarter of national parliamentary positions (UN Women, 2020). Only 34 percent of COP26 committee members, and 39 percent of those leading delegations, were women, while at COP27, they represented only seven of the 110 world leaders (She Changes Climate). The proportion of Intergovernmental Panel on Climate Change (IPCC) authors who are women currently stands at 30 percent (IPCC, 2019), and only 122 out of 1,000 "most influential" climate scientists are women (Carbon Brief, 2021). Women represent a mere five percent of CEOs and 20 percent of boardroom members globally (Deloitte, 2021). These gaps point to widespread and systematic underrepresentation of women in climate policy and leadership, a pattern that constrains their contributions to climate action.

Moving beyond a victimhood narrative and positioning women as climate changemakers are critical, but it is equally important to avoid instrumentalizing women's leadership and empowerment to achieve climate objectives. Women and girls should not be positioned as environmental stewards based on preexisting social norms that emphasize them as family and community caretakers. Increasing women's voice and agency in climate action are not a means to an end, but standalone imperatives from a justice perspective. Local adaptation and mitigation measures should not add to women's existing burden but provide an avenue to increase their decision making and their choices in the context of increasing fragility.

2. EVIDENCE AND OPERATIONAL EXPERIENCE



The gender-climate operational landscape is complex and diverse. Interventions centered on closing gender gaps have focused on human capital endowments, removing constraints for more and better jobs, removing barriers to women's ownership and control of assets, and enhancing women's voice and agency. Climate action has typically centered on mitigation, adaptation, and resilience building, with efforts targeting high-impact emission reduction sectors, and more recently, highly climate-vulnerable areas. For some time, planning toward reaching emissions reductions targets negotiated under the Paris Agreement crowded out more people-centered approaches to broader resilience goals. Today, a greater level of understanding of how the gender-climate nexus is relevant for operationalizing mitigation and adaptation pathways is coming into focus among implementers.

Entry points have emerged within the public sector through policies, regulatory frameworks, and national roadmaps to reduce gender gaps and carbon emissions, as well as local initiatives around community resilience and women's participation. In the private sector, action on climate and gender is emerging slowly, but accelerating through corporate initiatives and capital flows, including in the environmental, social, and governance (ESG) space and through collaborative leadership among private, public, and voluntary actors innovating with the use of different instruments, indices, and bundling of products. For example, [the 2X Collaborative](#) has developed an investment toolkit that includes simultaneous gender and climate targets to guide the flow of capital.

Efforts to integrate climate and gender concerns at scale are growing. To date, projects with an integrated gender-climate focus have been smaller in scale, instituted at the local level in response to natural resource scarcity, climate risk management, and disaster response. However, global actors, such as multilateral development banks, the United Nations Framework Convention on Climate Change (UNFCCC), climate finance mechanisms, and the IPCC, have begun developing more systematic gender-responsive climate programs and approaches, including enhanced engagement with the private sector. These efforts reflect

growing aims to systematize or mainstream gender into climate action at scale, complementing local interventions that have historically linked women, livelihoods, and nature-based solutions.

The following section outlines emerging evidence and operational experience on the gender-climate nexus. It is organized around the areas of: a) financing and investment; b) institutions, policy, and regulation; c) high impact themes, including green employment and entrepreneurship, social safety nets and livelihood diversification, resilience building and disaster risk reduction, and gender-based violence; and d) sectoral priorities identified in the World Bank Group's Climate Change Action Plan (CCAP): energy; agriculture, forestry, and land use; cities; transport; and manufacturing. The areas are cross-cutting and reflect high-impact and high-priority areas for closing gender gaps and addressing climate change through mitigation and adaptation. The examples included in this section reflect a mix of mitigation and adaptation approaches and efforts led by the public and private sectors, prioritizing projects that apply an integrated lens to the gender-climate nexus. This selection of interventions balances innovative solutions (where impact measurement remains forthcoming) with programmatic experience that has demonstrated results advancing gender and climate.

Financing and Investments

While global climate finance has steadily increased over the past decade, reaching \$632 billion in 2019–2020, it is far below the \$4.35 trillion required annually by 2030 to limit global warming to 1.5 degrees Celsius (Buchner et al, 2021) and little reaches women (WOW, 2021). Only 10 percent of climate finance flows to the local level, only one percent of gender equality funding flows to women's organizations, and only three percent of environmental philanthropy supports women's environmental activism (Daniel, 2020). In 2017 to 2018, only four percent of bilateral aid was dedicated to gender equality as the principal objective, and only 30–40 percent of environmental aid focused on gender equality (OECD, 2020).

However, there is growing recognition that finance can be mobilized to address gender inequality and tackle climate change at the same time. Documented experience indicates that social inclusion can increase the efficacy, equity, and impact of climate finance and reduce the risk of capture by vested interests, while also ensuring the community buy-in necessary to achieve long-term impacts. Over the past decade, climate funds have made considerable headway in systematizing gender into fund structures and policies to ensure that climate finance reaches women.

For example, CIF has developed a [Gender Action Plan](#) to ensure the systematic inclusion of development outcomes for women and other marginalized groups in every CIF-funded project. The Adaptation Fund (AF) has identified gender equality and women's empowerment as targeted areas for investment, while the Green Climate Fund (GCF) has made gender assessments a prerequisite for all funding proposals ([UNDP, 2020](#)). The Enhancing Access to Benefits while Lowering Emissions (EnABLE) multi-donor trust fund seeks to enhance the inclusion of marginalized and disadvantaged groups, with its first contribution supporting gender equity in 15 Forest Carbon Partnership Facility (FCPF) countries ([World Bank, 2021](#)).

While these are positive trends, challenges remain to make climate finance truly gender transformative. These are linked to the low participation of local stakeholders and beneficiaries; the difficulty in transparent monitoring, reporting, and verification of gender equality results; and the discrepancy between intended and verified gender results ([ODI & HBF, 2021](#)). Comprehensive and balanced participation of local groups, like gender-focused organizations and women's networks, in climate financing decision making is still a critical concern among climate fund governance structures. Furthermore, early findings from portfolio assessments indicate insufficient granularity and comprehensiveness in accounting for gender benefits through fund-supported projects. For example, the most recent Global Environment Facility (GEF) report on gender implementation reveals that only half of GEF-funded projects reported on gender during implementation ([GEF, 2021](#)). Another issue is the lack of gender balance within funding institutions themselves, with limited efforts to address women's leadership as finance allocators ([UNDP, 2020](#)).

In the private sector, the connection between action on gender equality and action on climate change has rarely been made, but this is beginning to change. The emergence of innovative financing mechanisms, such as outcome-based (or results-based) financing, social bonds, and sustainability-linked financing, show capital mobilization toward development targets beyond climate. Sustainability-linked financing, either in the form of loans or bonds, can combine green and social use of proceeds and has an estimated market size of \$200 billion, up 23 percent from 2020⁶ ([Climate Bonds Initiative, 2021](#)). Furthermore, the total market size of social bonds⁷ is currently estimated at \$223 billion (ibid), slowly catching up to the green bond⁸ market, which has soared with volumes growing 75 percent from 2020 to 2021 to reach a market size of \$523 billion (ibid). IFC's recent investment in BIX Capital, to unlock financing for climate-smart household appliances for low-income households, reflects a more integrated gender and climate approach with an impact bond structure that seeks to quantify and monetize gender and health-related impacts ([IFC, 2018](#)). The Impact Investment Exchange (IIX) is launching a Women's Climate Bond focusing on Sub-Saharan Africa, while Schneider Electric launched the first sustainability-linked bond with indicators on gender diversity.

Significant challenges still remain to make private climate capital systematically gender inclusive. Investments reflect growing attention on gender and climate as core themes, but full integration of the two areas remains a challenge. This is linked to a variety of issues, including market barriers, perceived and actual risks in private sector-led financing in emerging markets, the difficulty of tracking gender and climate outcomes in the use of proceeds, the challenge in integrating gender and climate key performance targets, and the mindset that climate and gender are distinct investment areas. Furthermore, implementation experience suggests that social impact bonds, outcome funds are associated with high transaction costs linked to the relative complexity of developing and monitoring them. Rigorous evidence about their effectiveness, in comparison to traditional financing mechanisms, is still lacking ([Gustafsson-Wright et al. 2022](#)). This is where the deployment of blended finance tools and solutions, combined with technical assistance, can enable more favorable conditions for private sector-led, gender-smart climate finance.

⁶ Social use of proceeds targets outcomes beyond gender equality, making it difficult to assess the total capital outlay targeting gender and green activities explicitly ([Gouett, 2021](#)).

⁷ Social bonds are sustainable debt that supports social projects, including COVID-19 recovery, gender, housing, health, and education.

⁸ Green bonds are sustainable debt that supports projects, activities, and expenditures focused on environmental benefits.



Institutions, Policy, and Regulation

In the design of climate programs and national roadmaps, governments are increasingly acknowledging the outsized threats of climate change to women and girls, particularly those who are living in poverty. More countries are positioning women as changemakers in this space. According to the most recent synthesis report on 166 Nationally Determined Contributions (NDCs), parties are increasingly recognizing gender integration as a way to enhance the effectiveness of their climate action ([UNFCCC](#),

[2022](#)). A full 75 percent of parties provided information related to gender and 39 percent committed to consider gender in implementation. Of the 21 parties that referenced gender in their previous NDCs, 20 percent elaborated the language and 38 percent included information related to gender mainstreaming. Shifting institutions substantively will require empirical data to drive a strong business case, tools and resources to facilitate greater gender balance (for example, the World Bank Group's CCDRs in Box 2), and accountability mechanisms to track progress over time.

BOX 2. THE WORLD BANK GROUP'S COUNTRY CLIMATE AND DEVELOPMENT REPORTS (CCDRS)

[CCDRs](#) are new diagnostic reports that integrate climate change and broader development objectives, with the aim of helping countries identify and prioritize the most impactful actions to reduce GHG emissions and increase adaptation, while also ensuring sustainable development. The pathways toward lower emissions and reduced climate vulnerability are supported by rigorous analysis, contextualized for each country, and include challenges and opportunities.

At the time of writing, the World Bank Group has produced 24 CCDRs, several of which refer to women's differentiated vulnerability to climate change. For example, Malawi's CCDR sources evidence on the gendered effects of extreme weather events and recognizes modern cooking solutions as a priority action area to protect forests and bring health benefits to women and children ([World Bank Group, 2022](#)). The CCDR for Cameroon acknowledges the need to support women's agency in climate adaptation by overcoming structural disadvantages and disaggregates various employment scenarios by gender ([World Bank Group, 2022](#)). Türkiye's CCDR recognizes women's labor force participation as a short-term priority to trigger a low-carbon transition, and acknowledges the risk of widening gender pay gaps in green transitions that ignore women's lower participation in key sectors ([World Bank Group, 2022](#)).



An increasing number of countries are mandating gender equality goals in their policies and governance frameworks on climate change and accompanying development programming.

Public sector initiatives have also focused on strengthening the policy, legal, and regulatory instruments to drive gender-responsive climate action.

INTERVENTION EXAMPLES

Costa Rica, in response to decreasing forest areas and strong pressures on land use, is focusing on the involvement of women and Indigenous Peoples in sustainable productive landscape initiatives and other land use activities. Programs link income generation and livelihood improvements for women to conservation and sustainability efforts to protect the country's forest areas. Costa Rica was the first country among 12 tropical countries engaged in REDD+ to establish rewards for women conservationists, recognizing the leading role that women play in natural resource management ([World Bank, 2021](#)).

Nine Caribbean countries⁹ have implemented the Enabling Gender-Responsive Disaster Recovery, Climate and Environmental Resilience in the Caribbean (EnGenDER) Project, which seeks to integrate gender equality and human rights-based approaches into climate, disaster, and environmental management frameworks.

Pakistan has launched its Climate Change Gender Action Plan, a roadmap to incorporate gender equality in climate action ([IUCN, 2022](#)). This plan recognizes that women's representation in paramount in climate discourse and that equal participation of women and men leads to more effective climate solutions.

INTERVENTION EXAMPLES

In **Kenya**, the World Bank's Financing Locally Led Climate Action Program ([P173065](#)) aims to deliver locally-led climate resilience actions and improve capacity to manage climate risks by strengthening policy, legal, and regulatory instruments, as well as human capacity, to deliver climate resilience actions. It includes formal and informal training and peer-to-peer and experiential learning.

In **Zambia** ([P144254](#)), the World Bank is supporting efforts to strengthen the country's institutional framework for climate resilience and to improve the adaptive capacity of vulnerable communities, specifically targeting women-headed households, through community adaptation sub-grants, adaptation contingency funds, and improved management of traditional canals used for transport, drainage, irrigation, fisheries, and cultural ceremonies. The Farmer Income Support Program (FISP) and the provision of crop seeds and fertilizer resulted in a 20 percent increase in agricultural value added per worker.

In **South Sudan**, the World Bank's Enhancing Community Resilience and Local Governance Project ([P169949](#)) aims to enhance women's voice and agency through increased representation in decision-making bodies. Efforts also center on changing perceptions concerning the role of women as decision makers, increasing women's employment opportunities, and enhancing their economic empowerment.

⁹ Antigua and Barbuda, Belize, Dominica, Grenada, Guyana, Jamaica, Saint Lucia, Saint Vincent and the Grenadines, and Suriname.

In the private sector, regulatory efforts and business strategies reflect growing attention on climate change and gender equality to manage risks, realize new business opportunities, respond to growing external pressure, and remain competitive. The number of companies with net-zero pledges has doubled from 500 in 2019 to more than 1,000 in 2020, and the voluntary carbon market is estimated to be worth upwards of \$50 billion by 2030 (McKinsey & Company, 2021). Disclosures of climate-related financial information have been advanced through recommendations, such as those of the Financial Stability Board’s Task Force on Climate-related Financial Disclosures (TCDF). Increased transparency around the use of green proceeds has been advanced by the International Capital Market Association’s (ICMA) [Green Bond Principles](#) and IFC’s recent guidance on [Blue Financing](#).

The past decade has also witnessed the emergence of social responsibility, including gender topics, becoming a mainstream conversation in corporate decision making. A growing business case for gender diversity across company ranks (e.g., [IFC, 2017](#); [BCG, 2019](#); [McKinsey & Company, 2021](#)) and external pressure from consumers and shareholders to act on this agenda have emphasized this priority. Voluntary diversity and inclusion mechanisms have taken hold, while sustainability and social financing is guided by developments, such as the EU’s [Social Taxonomy](#) and IFC’s sustainability debt guidance, to advance gender equality. While these are positive steps, integration of [gender](#) and climate in private sector regulations, principles, and strategies remain limited, driven by the insufficient articulation of a strong business case for gender-smart climate action.

Key Thematic Areas

GREEN EMPLOYMENT AND ENTREPRENEURSHIP

Women’s access to green employment and entrepreneurship has emerged as a key priority. Access to green jobs and supporting girls in STEM are regarded as key priorities for gender equality and climate change, guided by just transition principles calling for decent work and livelihood security as the world transitions to low-carbon development pathways. Increasing women’s representation in STEM is regarded as a lever to unlock climate change innovations and solutions, ensure women’s equal participation in climate dialogues, and address predicted labor supply shortages in low-carbon transitions. Beyond initiatives to increase girls’ and women’s

participation in STEM education and employment in their own right,¹⁰ some programs have begun to link women’s labor force participation and climate change.

INTERVENTION EXAMPLES

In [Algeria](#), in collaboration with employers’ and workers’ organizations, the “Green jobs for young men and women in Algeria for a just transition to a sustainable work future” project is promoting the creation of better and greener jobs through sustainable entrepreneurship and the creation of microenterprises in the green economy, with a special focus on women. The project supports Algeria’s Paris Agreement commitments and the Climate Action for Jobs initiative to develop just transition measures ([ILO, 2022](#)).

In [Türkiye \(44190\)](#), IFC is using a sustainability-linked financing structure in a water and wastewater infrastructure project to increase women’s employment in technical positions, while also addressing climate-induced water shortages. As an incentive measure to increase women’s employment, the Izmir Water and Sewerage Administration (IZSU) will receive a reduced interest rate on the loan repayment if it achieves the target of hiring 300 women into positions where they are currently underrepresented ([IFC, 2021](#)).

In [South Africa](#), the Working for Water program, launched in 1995, sought to combat non-native species in waters to preserve biological diversity and ensure water security. Simultaneously, it emphasized job creation and training for women, youth, and persons with disabilities. The program improved land productivity, biodiversity, conservation, and resilience to fires, all while providing jobs to 30,000 people per year, 52 percent of whom were women ([UNDP, 2013](#)).

In [India](#), Shell Foundation invested in SMV Green Solutions, a social enterprise enabling the ownership of e-rickshaws. It supported “Vahini,” a program focused on women owners and drivers of e-rickshaws to achieve greater gender parity in India’s transport sector while reducing emissions ([SMV Green Solutions, 2020](#)).

¹⁰ For example, the Nurturing Excellence in Higher Education Project in Nepal is focused on increasing women’s enrollment in STEM subjects; the Higher Education Development project in Pakistan seeks to support women enrolled in STEM programs; and the Côte d’Ivoire Higher Education Development Support Project provides scholarships for women in higher education and extra tutoring support for women pursuing STEM subjects.

The World Bank's Rural Electrification Project in [Tajikistan \(P170132\)](#) aims to increase women's participation in rural electrification, which is central to climate change mitigation. It is working with energy companies to make human resources policies more gender inclusive, to provide career development workshops and trainings to women employees, and to raise awareness around unconscious gender biases. The project is also working to improve access to electricity and income generating opportunities for households led by women.

The World Bank's [Equal Aqua \(EA\)](#) is a collaborative platform that engages with private sector actors, academia, and local and international organizations to benchmark gender inclusion in water utilities. It aims to address the normative and institutional barriers that stand in the way of women's greater participation in the global water workforce by providing diagnostic tools and human resources best practices to enhance women's recruitment and retention. It also aims to support women working in the water sector through information, trainings, and tools to help advance their careers. To date, EA has supported or informed the design of more than 40 World Bank operations.

The Global Energy Alliance for People and Planet (GEAPP) and Shortlist launched the "Women for Green Jobs," a collaboration to create 750 green jobs for women across six countries in [Sub-Saharan Africa](#).¹¹ GEAPP is focused on accelerating investment to support an equitable green energy transition in developing and emerging economies, while Shortlist provides youth employment solutions in Sub-Saharan Africa and India ([Rockefeller Foundation, 2022](#)).

In [Malawi](#), Skills for Resilience is a four-year vocational training program to encourage climate-smart agriculture, targeting young smallholder farmers with a focus on women and people with disabilities. Coordinated by the Norwegian Association of the Disabled in partnership with the Technical, Entrepreneurial and Vocational Education and Training Authority in Malawi, the program focuses on rural areas where livelihoods are threatened by climate change ([ILO, 2022](#)).

ADAPTIVE SOCIAL SAFETY NETS AND LIVELIHOOD DIVERSIFICATION

Primarily led by the public sector, efforts advancing gender equality outcomes in climate action are starting to employ social safety net programs to reduce gender-based socio-economic vulnerability amid shocks to households from deteriorating climate conditions. Adaptive social protection (ASP) programs acknowledge that the duration and depth of poverty can be worsened by climate-induced events (both slow and rapid-onset events, such as drought or cyclones, respectively). ASP can increase resilience in the event of climate stresses, particularly when livelihoods diversification measures are integrated ([Kuriakose et al., 2013](#); [Bowen et al., 2020](#)).

The inclusion of a productive safety net approach that supports livelihood diversification and skills development can enhance adaptive capacity and reduce risks for households and area economies. ASP programs also help households avoid coping strategies that harm women and girls, such as withdrawing girls from school, early child marriage, selling women's personal assets, and reductions in women's food intake.

INTERVENTION EXAMPLES

In [Niger](#), the World Bank's Adaptive Safety Net Project ([P166602](#)) provides beneficiaries—primarily women—with cash transfers; establishes village savings and loans associations (VSLAs); hosts community workshops on aspirations and social norms, life skills, and micro entrepreneurship; and provides large lumpsum cash grants to promote investments in productive activities, with the aim of increasing women's capacity to cope with climate shocks. The project has improved women's food security, raised household consumption, improved business investments and outcomes, and increased women's empowerment and control over their income-generating activities and earnings.



¹¹ Nigeria, Uganda, Sierra Leone, Ethiopia, Kenya, and Malawi.

In **Ethiopia**, the World Bank's Urban Productive Safety Net Project (P151712) aims to increase the incomes of poor households and establish urban safety net mechanisms, with women as primary beneficiaries. The project supports the delivery of conditional and unconditional safety net transfers, provides livelihoods through public works with equal participation of women, and supports women to move into sustainable employment. According to the latest implementation report, 60 percent of project beneficiaries are women.

India's Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) is a rights-based safety net guaranteeing 100 days of wage employment per year to all men and women working and living in rural areas in India who opt in and qualify. The program also encourages the participation of women, with provisions for preventing gender and caste-based discrimination. This program has partially shifted power relations between laborers and local elites, empowering women within households, and has already made a major contribution to resilience (Godfrey-Wood & Flower, 2017).

In **Senegal**, the government's social safety net program allowed over 10,000 direct recipients—primarily women—to receive \$300 into their mobile money account to help them rebuild, provide for basic needs, and avoid negative coping strategies in response to severe floods in 2020. The success of this program was linked to its adaptive nature, which included a social registry system, digital payments, and predefined and timely response mechanisms (Rigolini, 2021).

RESILIENCE BUILDING AND DISASTER RISK REDUCTION

Closely linked to the development of climate-sensitive social protection systems, interventions at the gender-climate nexus have also examined women's role in local resilience building and disaster risk reduction. A large body of evidence demonstrates women's heightened vulnerability to climate-induced disasters. They are affected disproportionately in terms of life expectancy, employment, labor force re-entry, and asset loss, while also experiencing greater risk of GBV in emergency settings (Erman et al., 2021). At the same time, women play an essential role in developing effective disaster risk reduction,

response, and rebuilding mechanisms at the local level and beyond (e.g., GFDRR & World Bank, 2021). While best practices are still emerging, there is broad consensus that interventions must target disaster preparedness, including risk perception, preparedness action, and early warning systems, as well as coping capacity, including access to finance and information, livelihoods, migration, and social protection (ibid). It is considered best practice to systematically incorporate women's voices in the design and implementation stages and to use local networks and community groups, which are critical in the dissemination of information and in emergency mobilization.

INTERVENTION EXAMPLES

In **Vietnam**, UN Women sought to strengthen the role of women in disaster risk reduction and management by elevating women's participation in the Committees for Flood and Storm Control in the An Dung commune. Women were trained in disaster management and national lobbying to secure seats for the Women's Union in decision-making boards. Qualitative interviews reflect more effective evacuation mechanisms for community members stemming from this initiative (UN Women, 2014).

The Women's Resilience to Disasters program in the **Pacific** places women's and girls' advocacy central in disaster risk reduction and resilience responses, frameworks, and systems. By the end of the program, women and girls are expected to have the capacity to withstand hazards, recover from disasters, and increase their resilience through preparedness and early warning systems; assets, services, and products; capacity development for women's businesses; and climate-resilient livelihoods (UN Women, 2021).

In **Nepal**, the Pratibaddha project engages in capacity building efforts with local authorities and disaster management bodies using innovative hazard and risk-mapping tools to increase local preparedness and increase resilience to floods and landslides. The workshops and programs are gender balanced and provide equal opportunities for women, elderly persons, persons with disabilities, and other marginalized groups. Furthermore, local champions—the program's key advocacy and communication stakeholders—are primarily women (People in Need, 2022). →



GENDER-BASED VIOLENCE

Climate change heightens the risk of different forms of GBV, and programs have only recently begun to incorporate this into climate policies and local disaster response. A growing body of evidence suggests that climate change aggravates the safety risks faced by women and girls due to displacement, resource scarcity, food security, and the disruption of service provision ([UN Women, 2022](#)). At the same time, failure to eliminate GBV poses a threat to effective mitigation, adaptation, and resilience building, as it reduces women's agency and voice in climate action. While there is increased international attention on the linkages between climate change and GBV, comprehensive approaches to integrate GBV prevention into national and local climate change policies and programs are still rare. Today, forward thinking examples are emerging at the local level to protect women and girls from security threats, particularly in disaster preparedness measures.

In **Indonesia**, the World Bank's Reconstruction of Aceh Land Administration System (RALAS) project aimed to recover and protect land ownership rights of the people in Aceh following a tsunami by leveraging community consensus and land mapping. After four years, over 200,000 land title certifications had been issued to tsunami survivors or their families, 28 percent of which were distributed to women, either individually or in joint ownership ([World Bank, 2011](#)).

In **Bangladesh**, USAID's Promoting Resilience to Risks of Natural Hazards (PRERONA) project aims to help communities in Cox's Bazar prepare for cyclones and other climate-induced disasters through the construction of 96 multipurpose cyclone shelters. The project aims to provide refuge to over 80,000 people and has taken additional measures to ensure women's use by adding separate rooms for women, breastfeeding corners, and separate toilets to prevent GBV ([USAID, 2020](#)).

The EPIC Response provides a comprehensive framework to better manage hydro-climatic risks and takes a whole-of-society approach, leveraging sub-national governments, businesses, civil society, and households, with a focus on women and other disadvantaged groups. The framework recognizes the increased vulnerability of these groups in the face of hydro-climatic events, but also calls on emergency response agencies to systematically include marginalized individuals in management programs ([Browder et al., 2021](#)).

INTERVENTION EXAMPLES

In the **Solomon Islands**, the Women's Peace and Humanitarian Fund (WPHF) has supported the Protection and Gender in Emergency Response Project, which seeks to address GBV in the context of humanitarian and climate-related disasters through gender-responsive response and disaster risk reduction mechanisms. In **Fiji, Solomon Islands, Tonga and Vanuatu**, the WPHF has helped implement the Pacific women's weather watch project focused on capacity building among local rural women to make informed decisions, including on GBV, before, during and after disasters ([UN Women, 2022](#)).

The Plan International Lake Chad Programme Strategy 2018–2030 is a joint initiative in **Cameroon, Niger, Nigeria, and West and Central Africa** to scale up GBV responses given severe safety concerns arising from climate change and the scarcity of resources in the Lake Chad Basin. It aims to meet humanitarian needs, strengthen resilience, and address the underlying causes of GBV through the provision of quality services and safe spaces, community engagement on safety, and long-term social norm change ([GBV AoR Helpdesk, 2021](#)).





The Gender-Based Violence and Environment Linkages (GBV-ENV) Center, developed by IUCN,

is a platform for gathering resources, sharing best practices, and forging action on GBV in the context of environmental sustainability. To date, the center has collected 200 requests from governments, policymakers, organizations, media, and academics for tools, information, and support on the GBV-climate nexus. It has supported women's advocacy groups in integrating GBV into global environmental policy, and it has played a role in incorporating GBV considerations into response mechanisms of disaster risk strategies (UN Women, 2022).

In **Nepal**, IFC led a \$453 million debt and \$29.2 million equity financing package to develop a 216-megawatt hydropower plant by the Nepal Water and Energy Development Company (NWEDC). The project aims to reduce the country's reliance on fossil fuels and to strengthen renewable energy sources. Simultaneously, it aims to reduce the risk of GBV in NWEDC's operations, while assisting the company to promote respectful workplaces and create opportunities for women in non-traditional roles under the Powered by Women initiative. As part of the initiative, there has been an increase in the adoption of codes of conduct to prevent bullying and sexual harassment among participating companies.

Key Sectoral Priorities

Climate-smart development and decarbonization pathways require substantial rethinking of high-impact systems, particularly in sectors with heavy emissions.

These include the sectors of energy; agriculture, food, water, and land; cities; transport; and manufacturing. Together, these sectors account for 90 percent of global GHG emissions (CCAP, 2021) and represent a central focus of public and private sector-led efforts to advance green transitions.

Gender and climate interventions across these systems have focused on strengthening women's participation as community stakeholders and decision makers; integrating entrepreneurship, employment, and livelihood creation initiatives for women into climate projects; and ensuring equitable access to infrastructure resources that help alleviate the impacts of climate change. A central premise driving these efforts is that women are more affected by rising global temperatures in particular areas, such as agriculture or urban housing. The second premise is that women can play a critical role in responding to climate change in forestry, public transport, urban planning, water and energy utilities, manufacturing, and other areas. This role is exhibited through participation in the workforce, where more diversity allows companies to improve service delivery or reach new markets, and through leadership on corporate boards, utility boards, municipal planning committees, and local governments, as well as through diverse roles as consumers and community stakeholders.

ENERGY

Gender-transformative interventions in the energy sector have the highest potential for impact. The sector produces three-quarters of global GHG emissions, 800 million people live without electricity, and three billion people cook with biomass fuels, with significant implications on health and time poverty, especially for women and children (CCAP, 2021). The sector offers opportunities to increase women's employment and entrepreneurship in renewable energy, to drive the uptake of healthier and more environmentally friendly cooking solutions, and to ensure that large-scale energy transition programs do not inadvertently widen gender gaps.

Gender-transformative power sector planning, energy subsidy reforms, investing in energy access for women and other underserved groups, employing women in renewable energy companies (with a focus on non-traditional and technical roles), supporting women's entrepreneurship, and enhancing women's voice and agency (particularly in decision making and leadership) inform strategic approaches in this space.

INTERVENTION EXAMPLES

IFC's Energy2Equal initiative works with companies across **Sub-Saharan Africa** to increase women's participation in the renewable energy sector by expanding women's access to jobs, leadership positions, and entrepreneurial opportunities (IFC, 2019). IFC's Lighting India initiative, which targets clean and affordable energy in rural India and focuses on women distributors and customers, has improved distribution networks, increased customer trust, and enhanced public awareness for clean energy products (IFC, n.d.).

The World Bank's MENA Regional Network in Energy for Women (RENEW-MENA) seeks to increase women's economic participation across the energy sector value chain (more specifically, in clean energy transition jobs) in the **Middle East and North Africa (MENA) region**. It is encouraging better workplace conditions in the private and public sectors, combatting widespread gender stereotypes about women's role in STEM fields, and increasing the visibility of women in the energy sector (Beides & Maier, 2022).



IFC invested a \$3.5 million senior loan in BIX Capital (BIX) to unlock financing for new and fast-growing manufacturers and distributors of climate-smart household appliances (e.g., cookstoves) for low-income consumers in **Sub-Saharan Africa**. Through a results-based finance structure, BIX is helping SMEs grow and create jobs, improve quality of life within households at the base of the pyramid (especially for women and girls), and benefit the environment by reducing GHG emissions and deforestation. IFC is also advising BIX on an impact bond structure that can quantify and monetize the impacts on gender equality and better health, alongside carbon credits.

The Multipurpose Functional Platform Project (MFP) in **Mali** was launched to increase electricity access, promote solar energy, and reduce rural poverty. The project targeted women as primary beneficiaries, expanding energy access to half a million women. It also reduced women's time burden from energy-intensive tasks by up to six hours per day, freeing up their time and promoting their participation in the local economy. Finally, the program created income-generating opportunities for women through its eight-stage sequential development and installation of MFPs, developing women's entrepreneurial skills and equipping them with technical oversight (UNDP, 2004).

IFC is working with off-grid solar companies, the **Kenya** Off-Grid Solar Access Program (KOSAP) (P160009), and Practical Action to train and establish groups of women solar entrepreneurs in Kenya to sell solar products in their communities. This approach allows solar retailers to access new markets and overcome logistics challenges in reaching remote areas, while at the same time creating income-generating opportunities with flexible structures to accommodate household and childcare duties (IFC, 2021).

AGRICULTURE, FOOD, WATER, AND LAND

Addressing the impacts of climate change on agriculture, forestry, water, and land use will be essential to meet increasing global demand for food and water, adapt food systems to climate vulnerability, and strengthen the socioeconomic position of rural women. Increasing agricultural productivity in a sustainable manner is regarded as one of the most effective ways to reduce poverty and increase food security in low-income economies, while reducing gender gaps could significantly reduce economic losses in the agricultural sector.¹² Women represent on average 43 percent of the agricultural labor force in developing countries¹³ and produce a large share of the global food supply¹⁴, but women's access to irrigated land is legally or informally constrained, while climate-smart agricultural services, technologies, financing, and training do not reach them equitably. Climate-smart land and water use, farming, and forestry can help address resource scarcity, while also addressing the large carbon footprint of the agricultural sector—estimated at 20 percent of global GHG emissions (FAO, 2021)—while creating decent work for women and promoting community livelihood diversification.

INTERVENTION EXAMPLES

The World Bank's **South Sudan's** Resilient Agricultural Livelihood Project (P169120) aims to strengthen the capacity of farmers and improve agricultural production while introducing gender-responsive climate-smart agriculture. It targets equal participation of women in capacity building efforts on climate-smart farming technologies (e.g., drought-resistant seeds) and infrastructure and strengthens institutions to implement programming.

The World Bank's **Bangladesh** Sustainable Coastal and Marine Fisheries (P161568) project works with women who face limited livelihood opportunities situated in the lower end of the fisheries value chain. It aims to provide financing and capacity building to women in high-poverty communities to develop alternative livelihoods or start businesses in more sustainable value chains.



IFC has partnered with OLAM Agro India Limited and DCM Shriram Limited (42346), two large sugarcane off-takers in **India**, to implement gender-smart interventions focused on narrowing the gap in access to training for sustainable climate practices. To date, 201,000 farmers, of which 12,900 are women, have been trained in water sustainability and climate-resilient agricultural practices. Furthermore, all farmers received gender training, and a select group of 63 women received support to establish individual sugarcane seedling nurseries. A business case analysis discovered that farmers preferred seedlings from women entrepreneurs due to strong service and superior seedling quality, and the returns covered the investments of women farmers within a single growing cycle (IFC, 2019).

In **Ghana and Sierra Leone**, British International Investment supported Miro Forestry in sustainable forestry practices, which are essential for addressing climate change and meeting the growing demand for wood in Africa. Miro Forestry set ambitious women's employment targets through initiatives, including upskilling programs for women and unconscious bias training for senior management. Efforts resulted in a more targeted approach to gender inclusion and GBV, as well as positive shifts in company culture (BII, 2020).

The World Bank's **Malawi** Watershed Services Improvement Project (P167860) aims to increase the adoption of sustainable landscape management practices and improve watershed services in targeted areas. The project establishes a link between women's lower agricultural productivity and landscape degradation, and in turn, seeks to improve women's access to inputs, labor-saving technologies, knowledge, and financial services. It delivers targeted training on gender-responsive sustainable land management and climate-smart agriculture, helps women secure land tenure, and promotes women participation in government decision making.



¹² For example, the gender gaps in agriculture costs \$100 million in Malawi, \$105 million in Tanzania, and \$67 million in Uganda per year (UN Women, UNDP, UNEP, & WBG, 2015).

¹³ Women's representation in the agricultural labor force is estimated at around 40 percent, with significant regional differentiation (e.g., in South Asia, it is estimated that women make up more than two-thirds of the agricultural labor force, while in Eastern Africa, they represent roughly half) (Oxfam).

¹⁴ An oft-cited figure is that women produce between 60–80 percent of global food through small-scale farming.

In **Argentina**, the World Bank's Buenos Aires Water Supply and Sanitation with a Focus on Vulnerable Areas Program (P172689) aims to improve access to water supply and sanitation for 164,500 beneficiaries, targeting fragile areas in the city. In addition, the project aims to improve workforce gender diversity of the partner water utility, AySA, which has adopted a variety of progressive measures to promote women's career advancement and equal representation in decision-making positions. A \$3 million disbursement-linked indicator is contingent on increasing women's representation in decision-making positions within the utility (World Bank, 2021).

Agricultural insurance and technology company Pula, in partnership with Shell Foundation and the UK Government, conducted a study to examine gender differences in farmer agricultural insurance registrations in **Kenya, Malawi, and Zambia**. The baseline report identified several gender gaps that influence uptake of agricultural insurance products and reduce yields for women. It put forward several approaches to bridge the yield and registration gender gap in the market (Shell Foundation, 2021).

CITIES

Cities are expected to accommodate 2.5 billion additional people by 2050, and in turn, represent high impact arenas to advance gender equality, social inclusion, and climate change adaptation and mitigation. It is estimated that cities, including transport and buildings, produce 70 percent of global GHG emissions, and will be home to almost 70 percent of the global population by 2050 (UNEP, 2022). The urban poor will be hardest hit by the uneven impacts of climate change, with slum dwellers facing overcrowding, substandard living conditions, lack of housing rights, reduced access to services, and air pollution. Women are the majority of slum dwellers in 80 percent of 59 developing countries across Latin America and the Caribbean, Central and Southern Asia, and Sub-Saharan Africa (UN Habitat, 2020).

Global urbanization offers an opportunity to create gender-transformative adaptation and resilience solutions, in addition to mitigation measures, for example, through

new and decent job opportunities in peri-urban and urban agriculture; urban transport; renewable energy; green construction and infrastructure; and urban water supply, sanitation, and wastewater treatment. In addition, women's active participation in urban planning has the potential to drive more inclusive infrastructure that meets their needs, while also advancing environmentally friendly practices and reducing GHG emissions.

INTERVENTION EXAMPLES

The **Women4Climate initiative**, which is part of the C40 Cities network of nearly 100 mayors across the world, aims to empower women's equal participation and leadership in city-led climate action. It provides women leaders with mentorship and produces research on the intersection of gender, cities, and climate to highlight the critical role played by women. The group has taken part in city-led projects, such as the London Sustainable Development Commission's initiative to attract more women to cleantech industries (Women4Climate, n.d.; World Bank, 2020).

The Asian Development Bank (ADB) and the European Investment Bank (EIB) are supporting the development of climate-resilient and affordable eco-districts, which prioritize women-led households to receive new green housing in **Mongolia**. The program seeks to improve their access to climate-resilient water, sanitation, and heating systems, and sets targets for women's employment in the construction and operational management of housing units (2X Climate Finance Taskforce, 2021).

In **Monrovia**, a key pillar of the comprehensive Urban Development Strategy is increasing participation and empowerment of citizens in the implementation and ownership of city planning processes, with a focus on women. It will conduct a women's safety audit, institute a citizens advisory group, and launch an urban women's livelihood support project. The project will provide vocational training to women along with safe childcare, support for women's engagement on policies and laws, and seed grants to women small business owners following livelihood and business training (Cities Alliance, 2021).



The Cities Alliance Cities for Women Program provides support to urban planning on gender mainstreaming. The women-focused participatory process of its framework was applied in the Greater Banjul area of [The Gambia](#) and will inform the Banjul 2040 Digital Urban Plan. The cities of Beja and Médenine in [Tunisia](#) also launched efforts to improve the integration of gender mainstreaming and gender-sensitive budgeting in local public policies through council member trainings ([Cities Alliance, 2020](#)).

TRANSPORT

By contributing significantly to global GHG emissions and serving as an enabler of women's employment, transport sits at a critical intersection of climate change and women's economic participation.

Globally, transport produces a quarter of GHG emissions, and this figure is expected to grow by 60 percent between 2015 and 2050 as countries continue to urbanize ([CCAP, 2021](#)). Women and men have different mobility patterns ([Munoz-Raskin et al., 2022](#)). Based on the limited gender-disaggregated data available, women more commonly use low-emission forms of transportation, such as public transport, cycling, and walking, than men ([World Bank, 2022](#)).¹⁵ When transport infrastructure is designed in a gender-blind way, it can further reduce women's mobility and access to employment opportunities. Men also dominate the sector's leadership and workforce, signaling an opportunity to advance women into decent work through new sustainable transport projects.

Preserving and accelerating climate-positive mobility patterns through gender-inclusive transport investments is critical to ensuring the transition to a low-carbon future. At the same time, expanding environmentally friendly modes of transportation can reduce women's mobility constraints, removing barriers to their economic independence and full participation in public life. However, as women increase their incomes and independence, they are likely to switch to more carbon-intensive transportation options, unless safe and affordable public transportation is available and suits their needs ([Legovini et al., 2022](#)). It is also critical to address men's use of private transport, which can be associated with higher status and independence rather than the quality of public transportation. This entails public policies on road pricing and parking, behavior change interventions, and positive marketing.

INTERVENTION EXAMPLES

The European Bank for Reconstruction and Development (EBRD), with support from GCF, invested to modernize the Tbilisi metro system in [Georgia](#), while also addressing gender gaps in employment. The tailored equal opportunities gender action plan led to an increased number of women employees, while also improving employee retention. More recently, Tbilisi is working toward improving the safety of its metro systems and promoting more environmentally-friendly transport to reduce air pollution ([2X Climate Finance Taskforce, 2021](#)).

In [Colombia](#), TransMilenio, Bogotá's rapid transit system, has taken strides to create a more environmentally friendly city by reducing emissions by over 1.6 million tons over a seven-year period. While gender gaps were not initially addressed, women's perspectives were eventually incorporated to ensure safer, more comfortable journeys for women and other vulnerable riders ([World Bank, 2020](#)).

Driving towards [Argentina's](#) 2050 resilience, inclusivity, and carbon neutrality goals, Buenos Aires' Climate Action Plan seeks to increase sustainable mobility, such as pedestrian and cycling options. At the same time, the city's Gender and Mobility Plan acknowledges women's safety concerns in public transportation and makes efforts to address gender inequality in transport and mobility planning, employment inclusion, data, and awareness raising around GBV ([Sustainable Mobility, 2022](#)).

In [Serbia](#), the World Bank approved a rail modernization project (P170868) aimed at improving rail infrastructure and strengthening the institutions that oversee rail projects and address air quality issues. The project identified gendered mobility barriers of current and potential rail users and developed an action plan for the rail operator. It also committed to providing three PhD scholarships in the rail industry to women at Serbian universities to promote a new generation of highly qualified women professionals in a male-dominated sector ([Aragones & Vukanovic, 2021](#)).

¹⁵ In some countries, the opposite is true, with more men than women using public transportation. In Jordan, for example, the FLFP rate is extremely low due to restrictive social norms that renders many women almost immobile.

MANUFACTURING

Manufacturing, especially heavy industries, such as chemicals, steel, cement, and glass, contributes significantly to global GHG emissions, and features considerable gender gaps in employment and leadership.

It is estimated that women represent 30 percent of the industry's workforce and only 15 percent in senior roles ([World Manufacturing Association, n.d.](#)). Carbon-intensive base materials currently have no technical and economically viable substitutes, creating challenges in uprooting processes that support jobs, drive economic growth, and enable solutions for housing, waste treatment, food safety, health care, and consumer goods ([CCAP, 2021](#)). To date, entry points for reducing the carbon footprint of manufacturing processes, while simultaneously enhancing the participation of women in the sector, have not been extensively explored. However, a recent policy assessment report¹⁶ notes that women's untapped potential as leaders, entrepreneurs, and industrial employees can drive green industrialization forward, despite the fact that most green industry policies do not yet include gender integration ([UNIDO, 2020](#)).

Global building materials company CEMEX has set robust emission reduction targets, approved by the Science Based Targets initiative,¹⁷ that present the most ambitious pathway currently available in the cement industry ([CEMEX, 2021](#)). At the same time, CEMEX works toward greater gender inclusion, for example, through internal training to address unconscious biases and develop inclusive leadership behaviors ([CEMEX, 2020](#)). Initiatives like “Yo Construyo Autonomía”, empower women in DIY home construction projects, and “Patrimonio Hoy” offers financing schemes with women as 70 percent of its customer base.

Current Challenges in Collecting Evidence and Operationalizing the Gender-Climate Nexus

The evidence on successful and replicable gender-smart climate interventions is still emerging. There is significant room to explore such interventions, learn from operational experience, and formulate best practices to combat climate change in an inclusive and gender-transformative way. Mobilizing finance and investment toward climate

change with a gender lens is still largely unexplored, but several innovative financing mechanisms, including outcome-based funds and sustainability-linked financing, may help deliver more capital toward gender objectives. In the policy and regulatory realm, an integrated gender-climate narrative is growing in national roadmaps and climate commitments. Furthermore, voluntary activities and corporate standards are emerging on gender and climate, despite the objectives remaining largely parallel to date. Social protection, disaster management, and resilience building, as well as women's employment and entrepreneurship, are all high-potential areas for gender-inclusive adaptation and mitigation strategies.

Data gaps are significant. The lack of evidence on what works (and what doesn't) within the gender-climate nexus is driven by a dearth in baseline and programmatic data (see Box 3). Baseline statistics on women in environmental decision making, disaster-related mortality and morbidity, disaster risk management, land rights and access to natural resources, consumption and production, and health are considered key gaps ([Data 2X, 2020](#)). There is a need for better, more reliable qualitative and quantitative gender-disaggregated data at the programmatic level, as well as strengthened monitoring and evaluation processes to track climate and gender outcomes.

The gender-climate nexus also brings to the fore the importance of ensuring sufficient attention to both climate adaptation and the gender responsiveness of climate financing. To date, mitigation measures (including large-scale capital-intensive, hard infrastructural investments) have received the bulk of funding and policy attention. Adaptation efforts, including locally-led skills and institution-building efforts that can help secure the resilience of poor people, including women, have historically received less funding and support ([World Bank Group, 2019](#)). Further, it is recognized that the scale and scope of climate action needed globally will require significant private sector investment as public capital alone are insufficient to keep warming below the 1.5 °C threshold. Private financing primarily flows to mitigation measures that have demonstratable returns for investors. In contrast, the people-centered approaches highlighted in this brief are often not monetized for a market context.

¹⁶ Report includes analysis of Cambodia, Peru, Senegal, and South Africa.

¹⁷ The Science Based Targets initiative seeks to help businesses set ambitions that provide clearly defined pathways to reduce GHG emissions. Targets are considered 'science-based' if they are in line with the latest climate science limiting global warming to well-below 2°C above pre-industrial levels ([Science Based Targets](#)).

BOX 3. DATA GAPS ON THE GENDER-CLIMATE NEXUS

Gender-disaggregated data is at the core of evidence-informed policymaking and the achievement of gender-transformative climate goals. Without gender data, issues related to differentiated climate impacts remain in the shadows, interventions are inappropriately designed, decision makers are not convinced to act, and progress is impossible to track.

Data on pollution and other climate indicators are among the least accessible, and countries face huge governance and resource burdens in applying monitoring frameworks related to climate change (Lorenz & Getzendanner, 2022). At the same time, UN Women estimates that it will take 22 years to close the SDG gender data gaps (Encarnacion et al., 2022). When it comes to the nexus, gender-related environmental statistics are largely absent in national statistical systems. According to an ongoing survey, only seven OECD countries collect gender-disaggregated data related to the environment (OECD, 2020).

There is growing recognition about the importance of collecting data on the gender-climate nexus, making that data available, and using it to inform policies and interventions. There are several notable initiatives working toward these ends, including the following:

- The UN's [Women Count](#) initiative seeks to overcome institutional and financial constraints that limit the production of gender statistics by building technical capacity of national statistical systems and providing financial support to improve data collection. Women Count has also published a toolkit, the [Model Questionnaire on measuring the nexus between gender and environment](#), to build capacity on gender-disaggregated data collection in the environment and climate spheres.
- The [Gender + Environment Data Alliance \(GEDA\)](#) is a membership-based coalition that was launched in 2021 to help governments, financiers, and development practitioners respond to climate realities in a gender-responsive way. It provides technical support and advocacy around gender-environment data, with the goal of communicating data and knowledge on this nexus to better inform climate action.
- IUCN's Gender and Environment Resource Center aim to encourage learning and inform action by sharing news, resources, tools, initiatives, and partnerships through a designated platform. Its [Environment and Gender Information \(EGI\)](#) fills data gaps to support gender-responsive programming and policies in environmental and climate areas, with analyses revealing challenges and progress on the gender-climate nexus.
- WEDO's [Gender Climate Tracker App](#), launched in 2016, provides the latest on-the-go information and resources to understand and monitor progress on the integration of gender into national and international climate policies. Its primary aim is to create civil society awareness and hold countries accountable to facilitate dialogue and policy implementation.

While understanding the differentiated impacts of climate change is critical through the generation of gender-disaggregated data, there is also an important link between the disclosure of climate-related data and women's leadership. A study of 215 firms listed on the London Stock Exchange found a strong positive correlation between voluntary disclosures of GHG emissions and gender diversity in boardrooms (Tingbani et al. 2020). Similar findings in South Korea reveal the positive effect of women executives and employees on voluntary corporate carbon disclosures (Kim, 2022). Firms with more gender diverse boards perform significantly better when it comes to Task Force on Climate-Related Financial Disclosures, where greater transparency can improve company risk assessment, capital allocation, and climate-responsive strategic planning.

3. LOOKING AHEAD: KEY RECOMMENDATIONS TO ADVANCE WOMEN IN CLIMATE ACTION



Strategic Recommendations

- 1. Strengthen the understanding of the gender-climate nexus.** Enhance evidence-led, inclusive approaches that move beyond “women as victims” narratives to highlight women as key contributors to local, national and global policy and finance action on climate, and to community resilience building and disaster risk reduction.
- 2. Build the evidence base through pilot interventions and evaluative work.** Use quantitative and qualitative approaches, with beneficiary feedback and gender-collection, to identify gender-smart climate solutions. Adding an intersectional lens and collecting data on additional characteristics, such as disability disaggregated data, can deepen the evidence base.
- 3. Ensure the gender-climate nexus is fully integrated and tracked, including in World Bank Group programming.** This is important in terms of content and expenditure in World Bank Group strategy and programming, such as CCDRs (see Box 2) and future efforts in areas, such as loss and damage funding, for countries affected most by climate disasters.
- 4. Continue to address the root causes of gender inequality that place women at greater risk of climate vulnerability.** Strengthen gender-sensitive legal frameworks and focus on women’s human capital, job quality and livelihood diversification, access to and ownership of assets, and voice and agency in the context of climate action.

Financing and Investments

- 1. Significantly scale up financing for gender-smart climate action.** This includes devolved climate finance and dedicated funding amid mainstream public sectoral and macro budget categories. Ensure that capital flows to women’s organizations and women-led initiatives, including those representing other disadvantaged group identities, such as Indigenous Peoples and climate migrants.
- 2. Explore innovative private sector financing instruments.** Expand innovations such as ESG-related bonds on gender, sustainability, and blue and green bonds; carbon market mechanisms with gender and health co-benefits; and blended finance that explicitly includes gender and climate performance indicators.

- 3. Increase concessional and blended finance mechanisms.** This can be done leveraging established financing mechanisms that target gender or climate, such as We-Fi or CIF. Create dedicated blended finance funds with the aim of drawing private sector capital to gender-climate projects in areas perceived as high risk or low return, such as adaptation and resilience building.
- 4. Invest in women-founded or led green and climate businesses.** This will support climate-friendly products and services that benefit women end users, or solutions that improve women’s adaptive capacity. Investigate the potential for public-private partnerships in this space, linking public organizing and convening power with private capital and targeted value chain development.

Institutions, Policy, and Regulation

- 1. Apply a gender lens across all climate programs and policies.** Gender should be a fully integrated element to create climate response programs that are inclusive and drive toward mutually reinforcing objectives around gender equality, poverty reduction, and climate resilience. Doing so can advance attainment of Nationally Determined Contributions and Paris Alignment commitments in a gender-responsive and socially inclusive manner.
- 2. Support participatory practices in climate dialogues.** Create opportunities for the inclusion of women and marginalized groups to shape investment priorities as part of locally-led climate action.
- 3. Promote women’s leadership and decision-making capacity.** This should be done across the board, in climate policy, planning, and implementation; in governments, local community organizations, corporate boards and management; and in the broader climate science community.

Thematic and Sectoral Recommendations

- 1. Share best practices and replicate and scale effective solutions.** These include green employment/ entrepreneurship, adaptive social protection, disaster response, and local resilience building. Target high-impact, high-emission sectors, such as agriculture, water, forestry, and land use; energy; cities; transport; and manufacturing, where considerable growth or job creation is expected, so that women and girls may benefit positively from these transitions. Programs should consider a rights-based approach to programming to increase transformational potential, and work to expand the time-horizon of action and goals.
- 2. Promote green employment and entrepreneurship.** Encourage girls' education in green STEM and support the school-to-work transition to ensure equitable access to green jobs. Make sites of employment better for women, for instance by addressing gender-based discrimination and barriers to entry and retention through gender-responsive human resource policies that include childcare, GBV prevention, technical training, and mentorship opportunities.
- 3. Ensure gender-smart design in social protection and livelihoods diversification measures.** Create programming to diversify livelihoods to reduce women's overrepresentation in natural resource-based sectors, and secure their tenure rights, natural resource management capacity, and use of area-based approaches, particularly those led by women and Indigenous People.
- 4. Strengthen policy and legal frameworks protecting women from violence.** Use a GBV lens in the context of climate-induced migration, disaster response, and natural resources-based conflict to reduce GBV threats and enhance support measures in the context of displacement and mobility. Implement measures to reduce the risk of GBV in workplaces to encourage women's workforce participation as part of a just transition.
- 5. Integrate gender considerations into resilience building and disaster risk reduction.** Ensure that disaster preparedness and response mechanisms are designed to reach women and children, as well as elderly people, people with disabilities, and members of disadvantaged sexual orientation and gender identity (SOGI) groups. Support women's leadership in disaster risk reduction and response, access to early warning system information, and capacity-building.





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