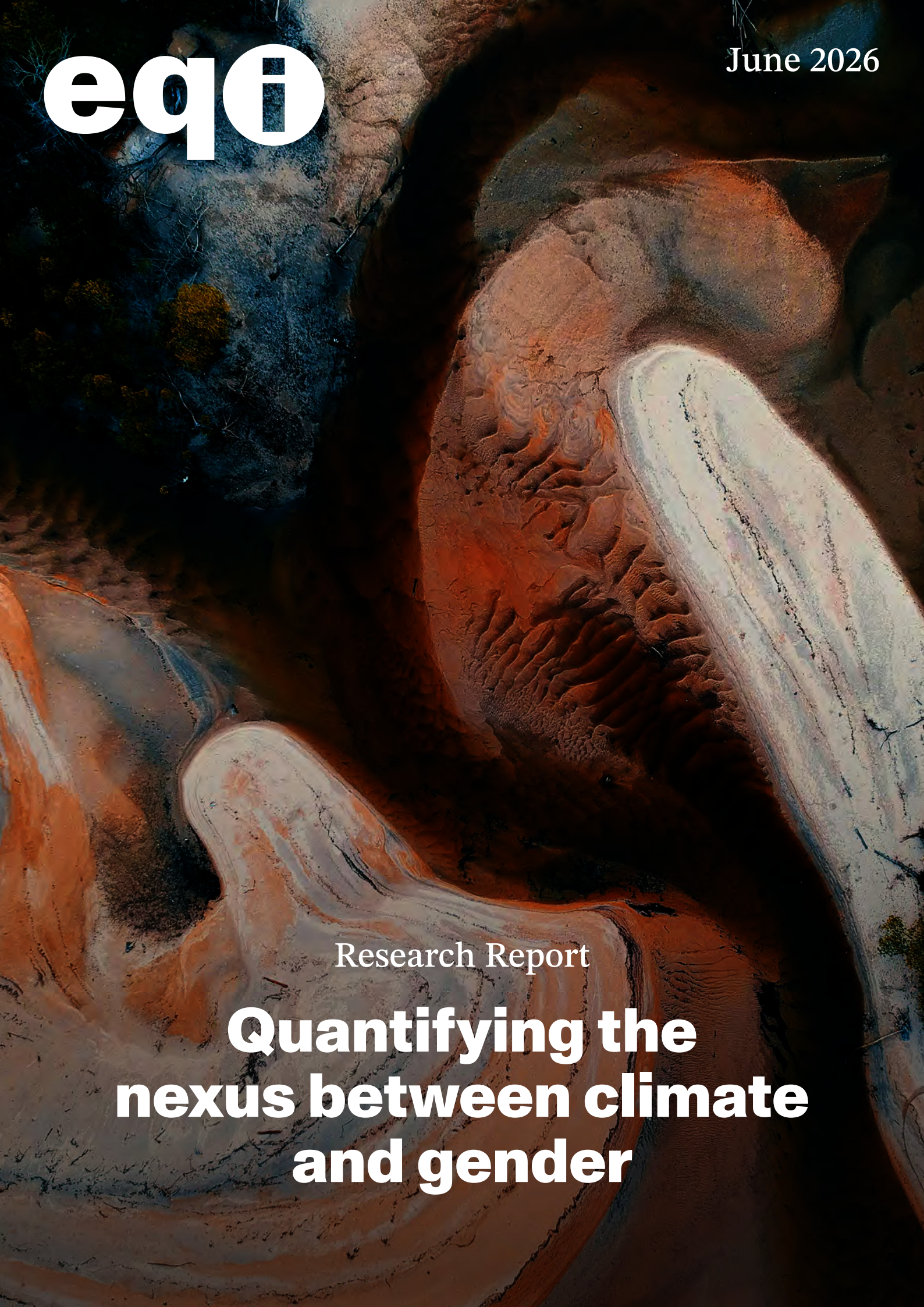

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June 2026

Research Report

Quantifying the nexus between climate and gender

Acknowledgments

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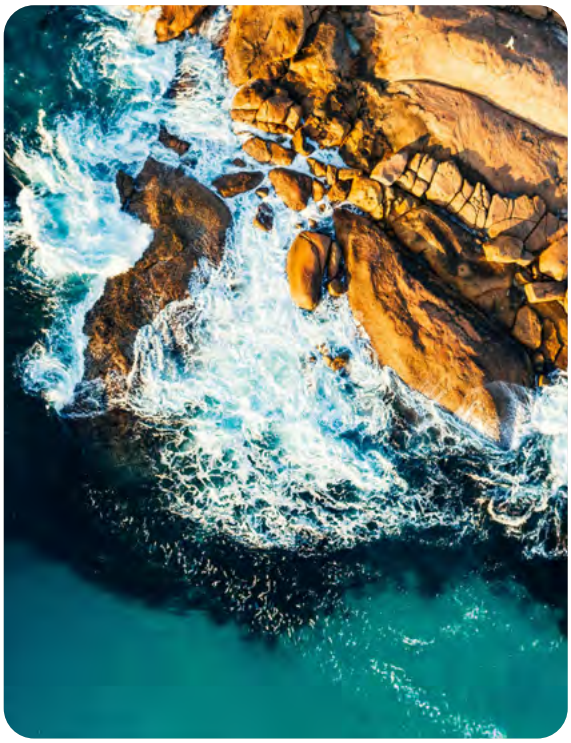

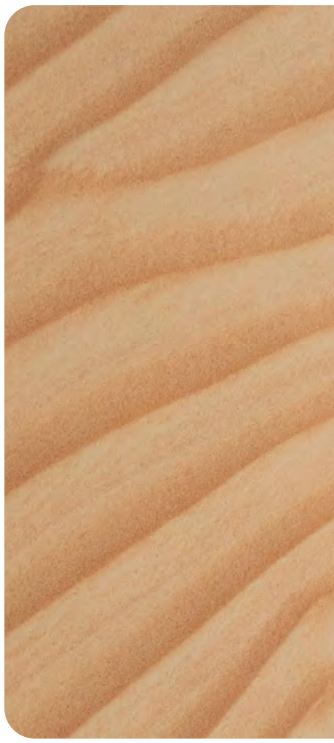

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A note on language

Throughout this report, when we refer to 'gender' we use an inclusive approach that accounts for diverse gender identities and expressions. When this report refers to 'woman/women' or 'man/men', it refers to female- or male-identifying people.

Abbreviations

COP	Conference of the Parties
DHS	Demographic and Health Surveys
DRR	Disaster Risk Reduction
DTM	Displacement Tracking Mechanism
GBV	Gender-based violence
GAGGA	The Global Alliance for Green and Gender Action
GEMS	Gender-Equitable Men Scale
GLAAS	Global Analysis and Assessment of Sanitation and Drinking-Water
HWISE	Household Water Insecurity Experiences Scale (HWISE)
IASC	Inter-Agency Standing Committee
INGO	International Non-Governmental Organisation
IOM	International Organisation for Migration
IWISE	Individual Water Insecurity Experiences
JMP	Joint Monitoring Programme for Water Supply, Sanitation and Hygiene
PMA	Performance Monitoring for Action
RIMA II	Resilience Index Measurement and Analysis – II
SDGS	Sustainable Development Goals
SIGI	Social Institutions and Gender Index
UNFCCC	United Nations Framework Convention on Climate Change
WASH	Water, Sanitation, and Hygiene
WDSI	The Women with Disabilities Stigma Inventory
WEAI	Women's Empowerment in Agriculture Index
WEMNS	Women's Empowerment Metric for National Statistical Systems
WHO	World Health Organisation

Executive Summary

Decades of feminist research by scholars, grassroots and international organisations shows clear connections between climate change and its disproportionate impact on women and girls, particularly in low-income and marginalised communities.[1] This includes increasing the likelihood and severity of the spectrum of gender-based violence.

Understanding this relationship is critical for developing effective solutions to the climate emergency and achieving the Sustainable Development Goals (SDGs). While research on the links between climate change and gender has grown rapidly in recent years, especially through qualitative and participatory studies, progress in developing quantitative methodologies has not kept pace. This is because applying quantitative tools to complex gendered, social, and environmental questions can be both practically and ethically challenging.

Drawing on key informant interviews, country scoping visits, and a review of existing evidence, this report maps the landscape of quantitative approaches used to measure the relationship between climate change and gender.

The relationship between gender and climate change

Our work builds on the following premises established by feminist scholarship and emphasised by key informants:

- The drivers of climate change, environmental degradation and gender and social inequality are interconnected.
- The relationship between climate change and gender impacts across sectors.
- Climate stress exposes and deepens existing gender inequalities.
- Women are at the forefront of climate resistance and solutions.
- GBV and climate change are interconnected crises that reinforce one another.

Review of existing quantitative metrics

Key highlights from our analysis of existing quantitative metrics include:

Emerging metrics show promise, including the UN Women Model Questionnaire on gender–environment linkages, the Gender and Environment Survey (Tonga), adaptation indicators under the Global Goal on Adaptation (in revision), and climate-resilient WASH metrics (JMP/GLAAS).

Context-specific small-scale surveys on climate and gender provide insights into the experiences of people living at the intersections of identities that are often missing from metrics, including studies on pastoralists, school children, precarious workers, minoritised people and widows.

Economically focused, household-level metrics like Livelihood vulnerability index (LVI) and FAO and UN developed RIMA II index are practical and remain widely used across disciplines.

Empowerment metrics, starting from the pioneering Women's Empowerment in Agriculture Index (WEAI), provide approaches for analysing gendered power relations in households and communities.

Some **WASH focused metrics** (JMP/GLAAS, IWISE) are comprehensive and gender sensitive.

Gender norms, though crucial for tracking social change, remain minimally incorporated into gender–climate metrics.

The first global survey on **disability in disasters** - The Women with Disabilities Stigma Inventory (WDSI) metric - has been completed although it was not climate orientated.

The **nexus between climate-gender-conflict** is increasingly being explored and existing tools like the Women, Peace and Security Index could be expanded to include more climate dimensions.

Mixed-method tools, like the GBV Analytical Framework and IOM's Displacement Tracking Mechanism (DTM), address GBV risks in **humanitarian contexts,** including disaster settings.

There is a trend towards **eclectic and innovative approaches.** They often represent holistic systems that integrate existing and new data (for example, the Weathering Risk Index).

Gender-based violence has been persistently limited within various large-scale climate metrics despite significant evidence of its relationships with climate change.

Cross-cutting challenges and gaps across climate / gender metrics

Despite recent progress in measurement, several challenges and gaps persist across existing instruments, which hamper impact in policy spaces, including:

Metrics are commonly siloed – Leading gender inequality metrics offer rich insights into gender dynamics but rarely incorporate climate considerations. Conversely, studies and metrics focused on climate adaptation lack the depth and breadth of gender inclusion.[2]

Resilience and adaptation metrics often **focus more on vulnerability of individual *women*, but adaptation/ resilience of *households*** – typically through (male) household heads – rendering women invisible. Conversely, gender-focused climate metrics tend to centre individuals, obscuring shared resources, collective care, and group-based privilege or exclusion.

Most metrics target a generic *poor rural* household, omitting variations of households and wealth. Studies indicate that urban environments pose unique challenges, and applying the same questions as in rural areas may fail to capture inequalities accurately.

Gaps in longitudinal data – Impacts from climate change are usually cumulative and unfolding over longer periods of time. However, metrics that focus on gender and climate change impacts often prioritise the immediate effects of climate hazards.

The challenges of measuring contribution. Measuring how climate change interacts with socio-economic and political change, and amplifies existing structural gender injustices, is essential – yet it remains a key challenge.

Reliance on qualitative methods. This limits opportunities for large-scale comparison, modelling, and integration into broader studies and policy frameworks.

Intersectionality is rarely considered in metrics

The relationship between climate change and gender identity and expression, racial and ethnic identity, disability, age, Indigeneity and other experiences of marginalisation are under-explored. Approaches which do consider demographic parameters typically fail to recognise the interdependent nature of identities, and how experiences of marginalisation and oppression overlap and interact. The intersections with other systems of oppression such as land rights and extractivism are also typically overlooked.

The politics of data, including what is funded and published; as well as the undervaluation of Indigenous and feminist knowledge, also impacts the visibility and sharing of metrics and data on climate change and gender.

The way forward: priorities for future work

Investing in understanding the relationship between gender and climate change makes sense. To meet the specific challenge of data to inform gender just climate action, we recommend four priority focus areas:

- **Focus 1** Visibility, compilation, and analysis of existing methodological approaches.
- **Focus 2** Development of new metrics on gender and climate change nexus.
- **Focus 3** Collaboration, mixed methods, and local sensitivity.
- **Focus 4** Methodologies connected to socio-political and economic realities.

This report also sets out key actions which can be taken by stakeholders including governments, funders, researchers and gender and climate practitioners.

Next steps: building a measure at the nexus of climate and gender

The Equality Institute, in partnership with the Gates Foundation and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, are working to develop a rigorous quantitative measure that will lead to the production of quality, comparable data on the climate change and gender nexus.

Contents

Part 1: Introduction

The impacts of climate change on gender are complex and multi-dimensional. Decades of feminist research by scholars, grassroots and international organisations show clear connections between climate impacts, responses to them and disproportionate negative consequences for women and girls.

This is particularly the case in low-income and marginalised communities across the world. This includes the increasing likelihood and severity of the spectrum of gender-based violence. For example, it is estimated that by the end of the century, 1 in 10 cases of intimate partner violence will be linked to climate change.[3] Understanding this relationship is critical for developing effective solutions to the climate emergency. But this requires multi-disciplinary approaches which capture the nuances and intersectionality inherent in the gender-climate nexus.

While research on the links between climate change and gender has grown rapidly in recent years, especially through qualitative and participatory studies, progress in developing quantitative methodologies has not kept pace. Only a few large-scale metrics have been created, limiting the potential of data-informed policy advancements. The current challenges in metrics include:

1. A limited number of scalable and adaptable methodologies
2. The siloing of disciplines, with studies focusing either on gender relations without the environmental context, or on specific environmental issues and contexts without considering gender relations

This report maps the landscape of existing quantitative practices that measure the connection between climate change and gender. It also aims to serve as a springboard for the development of a rigorous quantitative metric that will lead to the production of quality, comparable, quantitative data on the gendered impacts of climate change across areas related to health, safety and well-being.

To support this, this report has two aims:

To analyse practices, challenges, and innovations in measuring the intersections between climate change and gender.

To identify gaps and assess the demand for new or improved measurement tools that enable more consistent, gender-sensitive data to inform evidence-based policy and decision-making.

Figure 1: Activities that informed the report

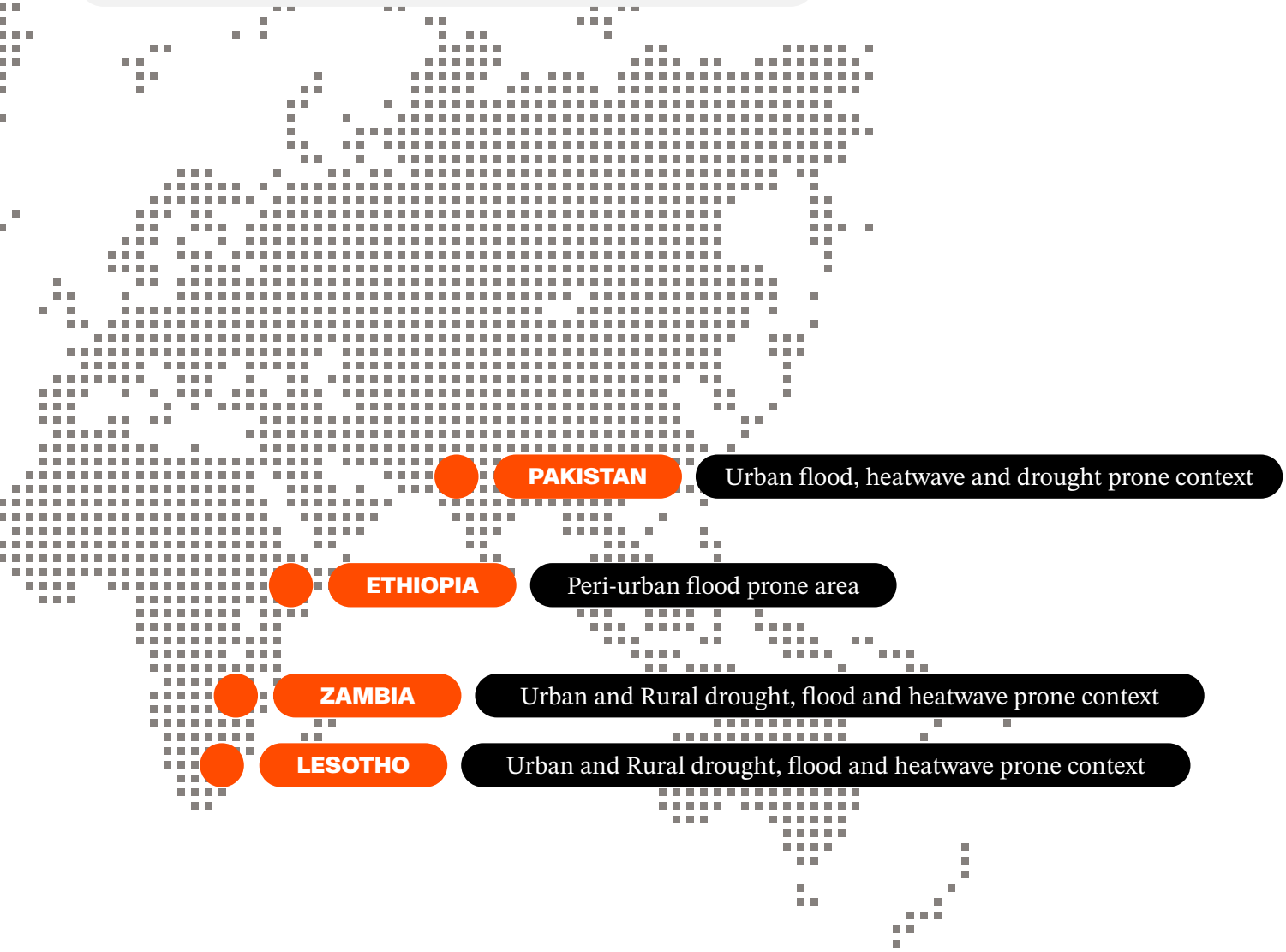
Review of quantitative metrics relating to gender and/or climate. 39 metrics were reviewed including 20 large scale metrics and 18 smaller scale studies.

Key informant interviews across 15 countries in Latin America, Africa, Asia, Europe and the US to identify potential entry points for quantitative metrics.

Review of evidence and methods on climate change and gender linkages.

Scoping visits to Ethiopia, Lesotho, Pakistan and Zambia to identify country-level approaches and assess gendered impacts in the communities.

Figure 2: Country Scoping Visits



This report is based on a review of studies and methodologies on the relationships between climate change and gendered health and well-being.

We focus on geographies categorised as 'majority', or 'Global South', though we acknowledge and draw learnings from the substantial work that has focussed on women and girls in the 'Global North' too.[4]

Climate impacts are gendered across the world and climate vulnerabilities are more pronounced amongst marginalised communities – not least Indigenous Peoples and groups experiencing racism, misogyny, classism, ableism and other forms of oppression.

Four activities were conducted as part of this scoping review (see Figure 1), including a series of short scoping visits conducted in Ethiopia, Lesotho, Pakistan and Zimbabwe in the summer of 2025 (Figure 2).

A detailed summary of the methodology and all related documents are available here.

Part 2: The climate change and gender nexus

2.1 The existing evidence base – key themes

Across the studies, several themes and interlinkages are most prominent, especially the gendered impacts of climate-related events – such as droughts, heatwaves, floods, tsunamis, rising temperatures and increasingly erratic seasonal patterns. These changes put pressure on social, environmental and economic systems, which already discriminate against women and girls due to patriarchal structures. When the shocks and stresses of climate impacts further strain those systems – it is women and girls who feel the brunt, since they tend to have less power, resources and agency to respond and cope compared with men and boys.[5] This is captured in an increasingly rich evidence base of research reviews conducted between 2014-2025.[6]

These reviews also underscore that intersectionality is important: not all women, men, girls, boys and gender-diverse people experience the nexus the same. For example, sexual and gender minorities in Fiji faced particular difficulties in recovering from tropical cyclone Winston.[7] Their recovery was hindered by pre-existing discrimination against LGBTQI+ communities, affecting their access to education, formal employment, housing and public services, as well as exposing them to high levels of violence.

Intersectionality recognises that gender inequality exists in relation to multiple and intersecting structural forms of discrimination, such as racism; ableism; homo-, bi-, and transphobia; ageism; and class discrimination.

Our work builds on four premises established by feminist scholarship and emphasised by KIIs:

a) The drivers of climate change, environmental degradation and inequality are interconnected

Inequalities are formed through the intertwinement of systemic and structural exclusions and discriminations. Colonial expansion set the legacy for the commodification of nature, and resource extraction, particularly from regions inhabited by the Global Majority[10] that have been treated as 'sacrifice zones.'[11] It also laid the groundwork for the excessive consumption of nations and elites across the Global North that underpin global inequalities today.

Fossil fuel extraction, (which accounts for 86 per cent of the carbon driving climate change) and extractive economies (including those mining for the minerals required for the energy transition) have been documented as particularly damaging for gender justice. Extraction can lead to the displacement and dispossession of women, the militarisation of projects, and the establishment of male-dominated work camps, where harassment, sexual violence, and trafficking are commonly reported. The violence targeting environmental defenders who resist extractive projects can also be highly gendered and is disproportionately directed at women. Indigenous and women of the Global Majority have been calling for action to address the root causes of the growing crises and to include traditional knowledge in guiding solutions.

"Under [global economic system] the drivers of climate change, environmental degradation and gender and social inequality are interconnected. Each depends on the extraction of natural resources and the exploitation of cheap labour from poor women and colonized and racialized groups."[9]

b) Climate stress exposes and deepens existing gender inequalities

Climate-related stress exposes and *amplifies* existing inequalities. For example, Tamil widows in Sri Lanka experienced a cycle of loss after the civil war and tsunami, both immediate (such as the death of spouses, displacement, destruction of homes) and cumulative in the aftermath, including loss of physical and financial support, stigma, and insecurity.[16] Widows often face discrimination (due to being seen as bringing 'bad luck') and have limited access to resources; thus they experience multi-layered challenges in the wake of climate-related disasters.

The impacts of climate stress on gender inequalities has significant implications for the effective measurement of the nexus between climate change and gender. Measures which focus on climate impacts in isolation from gendered structural inequalities fail to capture fundamental causes of climate vulnerability.

A key challenge, however, is to clearly measure the contributory role of climate change on gendered impacts – that is, how much of the outcome is due to climate impacts interacting with gender norms, roles, and experiences, as opposed to other factors.

● Insights from key informants

"I like to use as a starting point…the recognition of climate change not as a creator of crisis, but as a revealer of existing gaps in the sense that you know when a catastrophe happens, the concentration of carbon dioxide is not in the air looking for a woman… saying that climate change is making women vulnerable is inaccurate… Women are vulnerable, and climate change is revealing that truth."

—Amena Sharaf, MENAFEM

"Women usually lack social protection and safety nets, such as income, savings and assets, and the lack of those make them very vulnerable to climate shocks."

—Sian Morgan, We Effect

c) The relationship between climate change and gender impacts across sectors

Existing research studies demonstrate that relationships between gender inequality and climate change impacts are prominent in various sectors and contexts (see Figure 3). This has implications for progress across the Sustainable Development Goals (SDGs) as increased gendered vulnerability puts a significant strain on overall social, environmental and economic systems. For example, women and girls, especially rural, minoritized and Indigenous women, face increased risk of poverty due to climate impacts. It is estimated that under the worst-case scenario, climate change could push an additional 158 million, 310 million, and 422 million women and girls into poverty at the $2.15, $3.65, and $6.85 per-day thresholds, respectively.[17]

Despite significant efforts under the SDGs to improve girls' access to education – they are more likely to drop out of school than boys due to livelihood insecurities and families prioritising boys' education, especially in Sub-Saharan Africa, South Asia, and parts of the Middle East.[18] A well-documented example is the household decision – or 'coping strategy' – to marry off child daughters in response to household food insecurity.[19]

Climate stress is also shown to intensify the gendered barriers to economic participation and rights. For example, heightening the (disproportionate) unpaid care burdens of women and girls, reduces their time to access education, income, social and health activities. The evidence shows that climate impacts affect a range of employment sectors accessible to women, not least agriculture, tourism, and informal work, further reducing women's income security.[20] Alongside this, women are significantly under-represented in STEM education, which limits their access to a range of jobs and funding opportunities, including in the climate and renewable energy sector.[21]

For a summary of research studies which demonstrate gender inequality and climate change impacts across sectors, see here.

● Insights from key informants

In unplanned urban settlements, climate has cascading impacts on women by exacerbating water insecurity caused by infrastructural deficits and public services exclusions. In Karachi, where over 60% of the population live in unplanned settlements ('katchi abadis'), women bear the brunt of water insecurities due to their household roles and the prioritisation of men's and boys' needs for consumption and hygiene.

—Professor Nausheen Anwar, Karachi Urban Lab/ International Institute for Environment

After the earthquake in Morocco, the debt rates and its interest reached its unprecedent peak, reverberating into cutting on public spending. That has resulted into limited access for women in the workforce because of cut subsidies to critical services like energy. Moreover, girls were pushed out of schooling so that they support families in re-building their houses.

—Shereen Talat, MENAFEM

In rural and peri urban settings of Yemen, climate change, "affects water, food security and how women are impacted, because of social norms, and because of the rules of men and women in Yemen. Women are responsible for getting water from the wells and you can see with all the families in rural areas [...] But now, they have to bring water from farther away, so when they do it puts stress into their bodies; small girls dropped out from school to do those tasks. [...]

And then it is related to sexual and reproductive health.... It's the pressure of holding water for long distances. It affects the woman's body, and sometimes it causes miscarriage and early birth, when they have to go far away to bring water. They sometimes face some kinds of harassment. [...] They prioritize this water for food and cooking, and they don't give the priority for themselves, they don't give the priority for their hygiene. [...] They get some infections because of not being clean enough."

—MUNA Al Hammadi, Women and Gender Constituency, UNFCCC

To sustainably address the wide and pervasive impacts of the climate / gender nexus, policy and practitioner responses should be evidence-based wherever possible. However, the current gaps in scalable methodologies and intersectional research limit the potential for an evidence-based approach.

d) Women are at the forefront of climate resistance and solutions

Despite women and girls having fewer opportunities and formal mechanisms to cope with the climate crisis, they make substantial contributions to resilience, climate solutions, and adaptation strategies.[24] While analysing the climate change-gender nexus, it is imperative to acknowledge that women are not only vulnerable to climate change, but also shape just climate solutions in their households, communities and regions. This is often missing across methodologies and studies.

Everyday forms of resistance to climate change are deeply gendered, with women and men often adopting different adaptation strategies and modes of influence, whether within households or in broader community spaces.[25] For instance, in Ethiopia, Indigenous People's relationships with nature, particularly forests and trees, are shaped by gendered territories and cultural-spiritual meanings, making attention to gendered dimensions of Indigenous ecological stewardship essential.[26]

Women have been at the forefront of mobilizing collective action for climate justice in vulnerable communities.[27] Young women, in particular, advocate for just feminist climate solutions in regional and international arenas and develop diverse strategies to confront extractivism at multiple levels.[28]

Figure 3: The gender and climate change nexus across sectors[23]

investment

Gender–responsive climate finance remains limited. Women–led and Indigenous organisations driving resilience are underfunded.

conflict & displacement

Climate–linked conflicts increase violence and insecurity. Refugee and stateless women face compounded discrimination and insecurity. Natural resource driven conflicts make young men vulnerable for recruitment to armed extremist groups.

land

Women's unequal land rights weaken resilience and adaptative capacity. Development related land acquisitions are more likely to displace and dispossess marginalised women.

oceans

Lack of recognition of women's roles, such as in small scale fisheries, limits adaptative capacity. Indigenous and coastal women face exclusion from marine governance.

sustainable cities

Gender-blind urban/climate policies perpetuate inequalities. Women's groups, community organisations, and women leaders often play a central role in urban disaster risk reduction, particularly in informal settlements.

economy

Climate stress intensifies unpaid care burdens. Climate shocks impact on agriculture, tourism, and informal work reducing women's income security.

POVERTY

Women, especially rural and Indigenous, face increased poverty risk due to droughts, floods, and resource loss that threaten climate–sensitive livelihoods.

health

Heat, floods and disease outbreaks impact maternal and newborn health. Climate stress and displacement heighten GBV risks.

education

Families prioritise boys' return to school after climate-related disruptions. Women's under–representation in STEM education limits access to green jobs and innovation.

gender-based violence

Climate crises increase risks of GBV. Violence undermines women's and girls' resilience to climate hazards and participation in climate solutions.

governance

Women, especially from Global Majority and Indigenous groups, remain underrepresented in climate decision–making, limiting inclusive solutions.

wash

Water scarcity and poor sanitation increase women's workloads and safety risks. Time spent collecting water reduces education and income opportunities. Droughts increase injury risk for men collecting water.

clean energy

Women face disproportionate health impacts from polluting fuels within the household. Women face increased barriers accessing and contributing to clean energy transitions. Gender-inclusive conservation is more effective.

2.2 The global political landscape

Growing policy recognition

Policymakers increasingly acknowledge that climate change and gender inequality are inextricable challenges – and that gender just climate action is essential to addressing the climate emergency.

This has been exemplified in a series of global goals, agreements and policy discourses:

Sustainable Development Goals (SDGs) – policymakers, practitioners and advocates have begun to call attention to recognising the connection between SDG 5 on gender equality and SDG 13 on climate action. Evidence suggests that unless we end gender-based violence globally, at least 14 of the 17 SDGs will not be achieved.[29]

UN Special Rapporteur Report on Women and Environment (2023) – addresses disproportionate impacts of the environmental crisis on women and girls, biased cultural norms and gendered practices, health impacts and systemic failures.[30]

The Intergovernmental Panel on Climate Change in 2023 concluded with high confidence that vulnerability to climate change is exacerbated by inequity and marginalisation linked to gender, ethnicity, low-income status or combinations thereof, especially for many Indigenous Peoples and local communities.[31]

UN Pact for the Future – agreed by nations in 2024, emphasised concerns about the slow pace of climate action – and the need for deep, rapid, efforts going forward. It commits nations and international institutions to bold action including '*significantly increasing investments to close the gender gap'* and *'targeted accelerated action to address gender-based violence*.'

UN Framework Convention on Climate Change – has codified the commitment to addressing the nexus of climate and gender through the Lima Work Programme on Gender launched in 2014. At COP 29 (2024), Parties adopted a decision to extend the enhanced Lima Work Programme for ten years. At COP30 (2025), a broad coalition endorsed the Global Statement on Gender Equality and Climate Action, and states agreed to adopt the Belém Gender Action Plan (GAP). This nine-year framework (2026–2034) aims to integrate gender equality into climate action by improving data and evidence, elevating participation and leadership of women and marginalised groups, aligning finance and implementation with gender priorities, and strengthening monitoring and accountability. However, measurable action may be limited by weak human rights language, lack of finance and enforcement mechanisms, and limited focus on intersectionality.

"Ensuring that climate action leaves no one behind means placing gender equality, human rights, and social inclusion at the centre of climate policies, implementation and means of implementation... we recognize that gender-responsive approaches can unlock greater opportunities to enable ambitious adaptation and mitigation actions. We also recognize that women and girls play a fundamental role as leaders and agents of change..."

Global Statement on Gender Equality and Climate Action, COP30, November 2025

Barriers to global action

Despite the progress in recognising the nexus of gender equality and climate change, the current moment is characterised by poor progress – and backlash – exemplified by:

Chronic under-funding of gender-responsive climate action, with even the limited funding increasingly under threat. Only a small fraction of global climate and development funding is dedicated to this intersection (see Box 4).

Backlash against feminist organisations escalated by the rise in patriarchal and right-wing leadership[32] undermines progress on gender equality and climate adaptation and resilience.

'Petro-masculinity' – the intertwinement of patriarchal masculine identity with fossil fuels. This connection contributes to upholding white patriarchal and authoritarian power. The use of fossil fuels can also act as a harmful response to crises related to gender inequality and climate change.[33]

Limited metrics and large-scale data on gender and climate (see section 3.2.1), because these fields often remain siloed. However, instruments are being developed by a range of stakeholders, and these are discussed in Part 3. They reflect the need to close the gaps on metrics and collaborate on large scale data.

Feminist organisations and scholars have been investigating the climate and gender nexus over the last two decades.

These efforts reflect a deep understanding of the issue's complexity and the need to centre lived experience through qualitative methods. However, these studies are often difficult to scale, and many methodologies remain invisible or under-recognised (see Section 3.3).

Box 4: Chronic under-funding at the climate / gender nexus

Feminist organisations have been chronically excluded from Overseas Development Aid (ODA); receiving **less than 1%** of global disbursements year on year between 2012-2022.[34]

Just 2.3% of international climate finance has gone to projects with gender as a principal objective; and **less than 1%** of bilateral ODA has gone to projects with climate adaptation and gender as principal objectives.[35]

Less than 1% of global Philanthropic funding goes explicitly to women and the environment.[36]

In 2025, **90%** of 400 women's rights organisations across 44 crisis contexts faced funding cuts.[37]

51% were forced to suspend programmes, including those that support survivors of GBV and those that provide access to health systems, social protection, and livelihoods.[38]

Part 3: Quantitative approaches: achievements, limitations, and emerging directions

Over the past decade, significant methodological advancements have been made to scale and systematise evidence on the relationship between climate and gender.

In this section, we present key highlights from the metrics we have analysed supported by insights gathered through scoping visits and key informant interviews. For a comprehensive overview, including detailed results and a compilation of modules and indicators, please refer here and here. A full list of metrics reviewed is included at Annexure A.

In brief:

- **Recently developed metrics show promise**, including the UN Women Model Questionnaire on gender–environment linkages, the Gender and Environment Survey (Tonga), adaptation indicators under the Global Goal on Adaptation (in revision), and climate-resilient WASH metrics (JMP/GLAAS, in progress).
- **Context-specific and small-scale surveys** on climate and gender provide insights into the experiences of people living at the intersections of identities, including studies on pastoralists, school children, precarious workers, minoritised people and widows.
- **Economically focused, household-level metrics** like Livelihood vulnerability index (LVI) and FAO and UN developed RIMA II index are practical and remain widely used across disciplines.
- **Empowerment metrics**, starting with the pioneering Women's Empowerment in Agriculture Index (WEAI), provide various sector focused approaches for analysing gendered power relations in households and communities.
- Some **WASH focused metrics** (JMP/GLAAS, IWISE) are comprehensive and gender sensitive.
- **Gender norms**, though crucial for tracking social change, remain minimally incorporated into gender–climate metrics.
- The first global survey on **disability in disasters** - The Women with Disabilities Stigma Inventory (WDSI) metric - has been completed although it was not climate orientated.
- The **nexus between climate-gender-conflict** is increasingly being explored and existing tools like the Women, Peace and Security Index could be expanded to include more climate dimensions.
- **GBV remains largely limited** in various large-scale climate metrics and the intersection between climate and GBV is primarily explored through qualitative methods (see Part 4.4).
- Mixed-method tools, like the GBV Analytical Framework and IOM's Displacement Tracking Mechanism (DTM), address GBV risks in **humanitarian contexts,** including disaster settings.
- There is a trend towards **eclectic and innovative approaches**. They often represent holistic systems of utilising existing and new data (for example the Weathering Risk Index).

3.1 Overview of metrics

3.1.1 Measurements of climate impacts on gender

Traditionally, gender and environment metrics have been explored separately and those which consider the intersections of climate/environmental shocks and stressors and gender are relatively new.

For example, although the SDGs include a dedicated gender goal (SDG 5), intended to be read in conjunction with other goals, those focussed on the climate and environment are not sufficiently gender responsive. Similarly, the Minimum Set of Gender Indicators fail to address environmental aspects. To address this gap, a Framework to measure the nexus between gender and the environment suggests SDG aligned indicators in relation to climate change, applicable at the national level using secondary data.[39]

Promising recent metrics

The most prominent and comprehensive metrics that examine the full scope and gender-segregated intrahousehold impacts of climate change events and hazards are the Model Questionnaire Measuring the nexus between gender and environment[40] and the Gender and Environment Survey (GES) Report: Kingdom of Tonga,[41] that largely adopted the Model Questionnaire.

These offer a detailed analysis of climate hazards, slow-onset events, and adaptation strategies, as well as livelihood dependencies, household decision-making and gendered asset ownership. They also provide insights into potential hazards and explore employment links within the 'green' economy. These instruments are exceptional in creating an exhaustive list of hazards, events and a variety of impacts. Both explore an array of gender relevant topics, are sex-segregated, and suggest surveying a dyad within the household (men and women), which at least allows for an exploration of household dynamics.

Both metrics do however face the challenges associated with capturing a very broad range of issues, becoming very descriptive and taking time to deliver. At the same time, a number of key gender issues are omitted, for example, GBV, household or community conflicts, agency, gender norms and attitudes, marriage practices, reproductive choices, as well as choices, capacities and social dynamics that surround climate-related events.

Small scale contextual surveys

Small-scale contextual surveys have been conducted at the nexus of climate and gender and provide insights into the experiences of people living at the intersections of identities and oppressions that are omitted from more general metrics. For example, a focus on high school boys and girls in Pakistan[42]; pastoral men and women in Kenya[43]; widowhood in Zimbabwe[44]; middle-class women in urban Pakistan[45]; and outdoor workers (men and women) in Ghana.[46]

3.1.2 Adaptation and Resilience

Adaptation and resilience are leading topics in the climate change political agenda. At COP30, the UNFCCC negotiations in Belem, indicators for the 'Global Goal on Adaptation' were agreed to by states.[47] There are 59 indicators that the decision text says, 'may be disaggregated, as appropriate, by social categories which may include... gender.' These cut across health, livelihoods, early warning systems, participation in environment and ecosystem policymaking and management. There is also one gender specific indicator on the presence of gender-responsive approaches in national policies and plans.[48] There is currently no indicator related to harmful coping mechanisms (maladaptation) or spillover effects such as forced marriage and domestic violence.

Existing quantitative metrics

An abundance of metrics exist on adaptation and resilience; but a gender perspective is usually limited. Metrics often use a capital or assets-based framework, especially those based on the livelihoods approach.[49] This provides convenient and widely applicable categories across different areas of life, including social capital. Livelihood vulnerability index (LVI)[50] and RIMA II index[51], developed by FAO and UN, are widely used for these reasons. RIMA II index is prominent with its focus on multiplicity and compounding shocks, related to climate and other causes. However, these approaches are limited by their use of the household as a unit of analysis that overlooks intrahousehold dynamics (see more in Section 3.2.2).

Holistic approaches to measure lived experience

Key informants stressed that climate impacts cannot be separated from the structural inequalities that increase women's and girls' vulnerabilities, including macroeconomic injustice and post-colonial legacies (see Section 2.1). To capture these complexities, some organisations, such as We Effect, have combined Environmental and Social Impact Assessments (ESIAs) with qualitative studies of social and gender dynamics around climate change.[52] This approach explores barriers to adaptation, decision-making power, land rights and economic empowerment - situating them within the socio-political and conflict contexts.

Promising practice

Project HOPE in Ethiopia is launching a national comprehensive quantitative survey on women's and girls' compound vulnerabilities. It is based on 6 modules that were created by combining different indicators from various studies; and later tested qualitatively and adopted to the national context. Climate, water and sanitation, as well as gender norms and violence are integrated as one of the modules.

Measuring resilience

In the climate change context, resilience is the 'ability… to prepare for, absorb, and recover from climate-related shocks, risks, and disasters'.[53] Some scholars[54] emphasise that climate adaptation is an ongoing, dynamic process and thus 1) it is important to analyse how resilience actions shape future resilience, and 2) identify 'critical thresholds'—key moments when individuals or households must take concrete action.

Resilience can be also addressed from a broader socio-political perspective of various shocks, climate-related or not. The State resilience index assesses how countries respond to shocks by examining political context, trust in institutions, civil liberties, and institutional capacity. It also considers inclusion of youth and marginalised groups in political, economic, and social life. Applied to 154 countries, the index highlights differences in states' sensitivity to crises.[55] Gender is reportedly included across indicators, though the underlying data are not publicly available.

3.1.3 Power and empowerment metrics

Empowerment metrics have been one of the most influential streams of feminist academic and practitioner work. The Women's Empowerment in Agriculture Index (WEAI), pioneered by the FAO[56], set the scene for the development of multitude metrics (see examples in Figure 4). WEAI is composed of three dimensions of empowerment: resources, agency and achievements.[57]

The indices measure how empowered a person is in a specific area and to what extent, thus making it easier to identify patterns and relationships with other factors. For example, they can show that more empowered women are also more likely to behave in certain ways. However, these indices can sometimes assign overly simplified labels, which may hinder a deeper and more nuanced understanding of women's experiences. Using different empowerment metrics has also been shown to lead to different results for the same respondents.[58]

Figure 4: Various empowerment metrics*

WEAI - Women's Empowerment in Agriculture Index

(FAO)

Empowerment in WASH

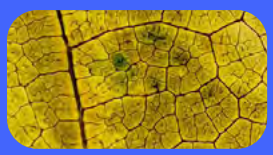
(Dickin, Bisung, Nansi, & Charles, 2021)

WASH GEM

(Carrard, MacArthur, Leahy, Soeters, & Willetts, 2022)

L-API: Local Agricultural Potential Index (L-API)

(Witinok-Huber & Radil, 2021)

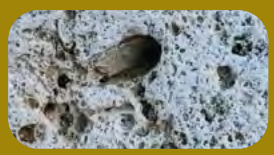


ARISE Sanitation Empowerment

(Sinharoy, McManus, Conrad, Patrick, & Caruso, 2023)

WENI – Empowerment in Nutrition

WEMNS - Women's Empowerment Metric for National Statistical Systems



Adaptive capacity and empowerment

(Khadka & Schuett, 2024)

*The list is not exhaustive.

Three of these metrics are particularly of note:

WASH GEM

WASH GEM[59] is unique as it includes non-Western and non-pragmatic principles, such as:

- Critical consciousness[60]: Awareness of one's own interests in relation to others and of social oppression. It helps to identify the sources of agency.
- Wellbeing: Drawn from capabilities theory, highlights the link between WASH (or environmental factors) and psychosocial health.
- Structures: Includes gender / social norms, and mobility.

Unlike other empowerment metrics, WASH GEM is not limited to formal community institutions. It also values informal collective processes, unstructured groups, and broader community care.

WEMNS (Women's Empowerment Metric for National Statistical Systems)[61]

Overall, this is one of the most comprehensive tools for assessing agency, systemic structures, and gender norms. It highlights three types of agencies:

- Intrinsic ('power within') – awareness of rights and self-efficacy
- Instrumental ('power to') – the ability to act on and achieve personal goals
- Collective ('power with') – the capacity to work together toward shared interests

It focuses on 'agency enabling resources', such as access to information and communications technology, financial services and property rights.

Adaptive capacity and empowerment metric

This methodology aims to explore women's empowerment and adaptive capacity and suggests measuring some additional dimensions including[62]: innovation and flexibility, forward-looking decision-making, awareness of gender-related legal rights and enforcement mechanisms, and fresh insights into family and gender dynamics, such as access to divorce and self-efficacy.

3.1.4 Water, Sanitation, and Hygiene (WASH)

In response to increasing recognition that gender inequality impacts access to and development of WASH systems, multiple metrics have been developed.

Priority gender indicators for WASH monitoring

In 2024, JMP/WHO concluded a 4-year-long conceptualisation and selection of 15 priority gender indicators for WASH under SDG targets 6.1 and 6.2.[63] In addition to the usual water access-related questions, it incorporates more nuanced gender aspects, such as menstruation-related needs and the risks of violence linked with accessing WASH. It further combines both objective and subjective indicators, including types of water sources and concerns about water.

New project: Monitoring 'climate resilient water, sanitation and hygiene' at the global level

A two-year project has been launched by JMP and UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS) to identify indicators for monitoring 'climate resilient WASH' at the global level. A new report[64] commits to 'equity-focused disaggregation', including factors such as gender, socio-economic status, displacement and disability. It also incorporates specific gender nuanced components in relation to GBV and WASH, as well as gender roles and time spent on water collection following climate events.

HWISE and IWISE

Large scale surveys were created to analyse Household Water Insecurity Experiences (HWISE)[65] and Individual Water Insecurity Experiences (IWISE).[66] These not only comprehensively explore water access and affordability but also include modules on mental health, which can be affected by water insecurity stresses. However, these metrics do not include seasonality or hazards.

3.1.5 Gender norms and social institutions

Many metrics that examine the links between environmental resources, climate, and gender do not account for gender norms, or customary and legal rights and practices. It is therefore useful to look at metrics that focus specifically on gender. Several global-scale tools capture issues such as discrimination and violence against women, including the Gender Data Portal, Minimum Set of Gender Indicators and The Demographic and Health Survey (DHS), the latter being the most used national GBV assessment tool. The Social Institutions and Gender Index (SIGI) focuses on discrimination in social institutions, including rights and informal rules around assets, inheritance, widowhood, divorce and more. The Gender-Equitable Men Scale (GEMS) focuses on men's attitudes and gender norms.[67]

These metrics are closely linked to climate. For example, social norms can explain risk factors for violence (see Section 4.1) and they may also shift in response to socio-economic and environmental changes.[68] However, none of these metrics specifically capture the effects of climate-related pressures.

3.1.6 Intersectionality

Metrics are rarely designed to capture intersectionality (see section 3.2.7). At the gender and climate nexus, several small-scale contextual surveys provide perspectives on intersecting identities (see Section 3.1.1). UN Women's Model Questionnaire includes disability indicators through the inclusion of functionality,[69] however, this approach does not capture marginalisation.

The Global Survey on Persons with Disabilities and Disasters[70] takes a more comprehensive approach and examines the collective marginalisation and challenges faced by disabled people during hazards. It considers aspects such as the ability of disabled individuals to evacuate independently and their representation in local institutions. Similarly, the Women with Disabilities Stigma Inventory (WDSI), while not climate-focused, highlights experiences of exclusion, targeted marginalisation, abuse, discrimination, and violence faced by women with disabilities.

3.1.7 Broad spectrum of violence and risks

Recent work has sought to explore how climate change might be a threat multiplier for existing conflict dynamics and risks. The Women, Peace, and Security Index is comprised of three dimensions - inclusion, justice, and security.[71] It includes different indicators that can signal the presence of violence in an area, such as being in the physical proximity to conflicts, knowing women who are a target for political violence and having access to justice without risk to personal safety. This index measures 'peace and security' by looking at a range of types of conflict and violence, from household disputes to political violence. However, it does not connect these issues to climate.

Other metrics include The Weathering Risk Index, a dashboard of instruments, that incorporate violence, such as an Armed Conflict Location & Event Data (ACLED) Dashboard. Climate resilience indices, such as the Notre Dame Global Adaptation Initiative Index and the Environmental Performance Index, are also useful approaches which can be drawn upon.[72]

Key informants also described their efforts over the years to utilise a variety of methods to explore the connections between gender, climate and conflict. For example, teams at UNEP developed a multi-dimensional framework that integrates environmental, peace and conflict indicators, linking on the ground relationships and state trust and legitimacy with measures of gender, power dynamics and women's societal positioning.[73]

3.1.8 GBV and humanitarian emergencies / displacement metrics

Two metrics are most aligned with exploring GBV within climate-triggered disaster contexts:

The GBV in Emergencies Analytic Framework

Created by the Gender-Based Violence Area of Responsibility (GBV AoR), the framework integrates types of GBV, risk factors, threats, the socio-cultural environment, negative coping mechanisms, and profiles of potential perpetrators, across a wide range of emergencies, including climate-related disasters. It is a multi-dimensional approach that prioritises secondary data and, if needed, suggests various methods to collect primary data to fill gaps, relying mainly on key informant interviews to ensure safety of potential victims. It is very comprehensive, analytically strong and adaptable for various contexts.

IOM Displacement Tracking Matrix

This matrix monitors displacement and population mobility, including risk factors for GBV. It emphasises collaborative data collection with partners in countries. A GBV module was designed after consultation with GBV AoR. The matrix is grounded in the premise that humanitarian actors should assume GBV is taking place, rather than seek evidence of it.[74] The IOM DTM, therefore, focuses on GBV proxy questions, such as the number of separate latrines for men or women, presence of female healthcare workers and the ability to lock shelters. These are designed to inform immediate strategic decisions, for example identifying locations which present higher GBV risks.

3.2 Cross-cutting challenges and gaps across metrics

Despite recent progress in measurement, several challenges and gaps persist across existing instruments (see Figure 5). In this section, we examine these challenges across the metrics reviewed, discuss emerging methodological initiatives, and draw on insights from our key informant interviews.

3.2.1 Metrics are commonly siloed

Across the thematic areas considered in this report (see here), the majority do not explore the intersection between gender and climate change. For example, the Demographic and Health Survey (DHS) modules aimed to assess GBV are not climate sensitive. Conversely, climate adaptation studies and metrics often lack robust gender analysis, and overlook subjective, psychosocial, power-related, and intrinsic dimensions.

Metrics related to water, sanitation, and agriculture, particularly those focused on empowerment, frequently overlook climate-related disruptions. However, emerging efforts show promise with initiatives such as the JMP/GLAAS work on climate-resilient WASH indicators and gender-sensitive components indicators developed for the Global Goal on Adaptation.

3.2.2 Unit of analysis

Household

A focus on the household as the unit of analysis often results in a focus on the household head—typically a man—which makes women's experiences largely invisible and assumes heterogeneity, equality, and harmony of the household. For example, measures of adaptive capacity frequently rely on education data captured only for the household head (as in the LVI), the highest level of education attained by anyone in the household (Khadka & Schuett), or the average years of education per adult (RIMA II).

These metrics not only make women invisible and overlook gender differences but also fail to account for how families transform to adapt – through household splitting, new forms of family arrangements (such as 'water wives'),[75] or circular migration. Where gender analysis is included, it is typically limited to comparing female and male-headed households, offering only a partial picture of gender inequalities. Finally, across the various metrics (with the exception of empowerment approaches), there is a tendency to focus more on vulnerability of women at the individual level, and adaptation/ resilience of households.

- Insights from key informants

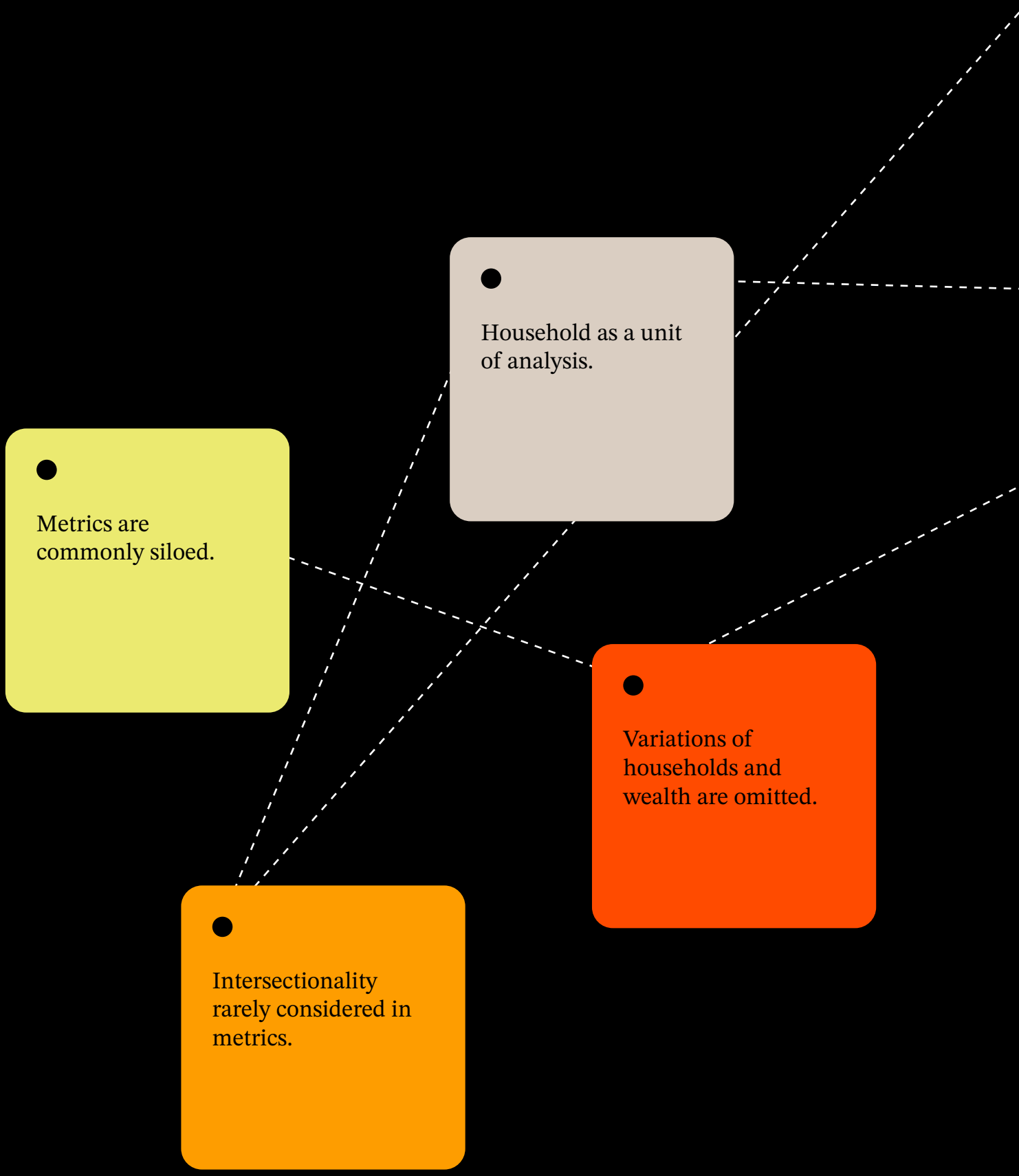
"Women's vulnerability to climate qualitatively is a very popular topic. Quantitatively, no. But if you talk about mitigation, adaptation strategies in any areas, then it's about households... Household is usually man. So, we don't really know much about women in relation to strategic coping mechanisms."

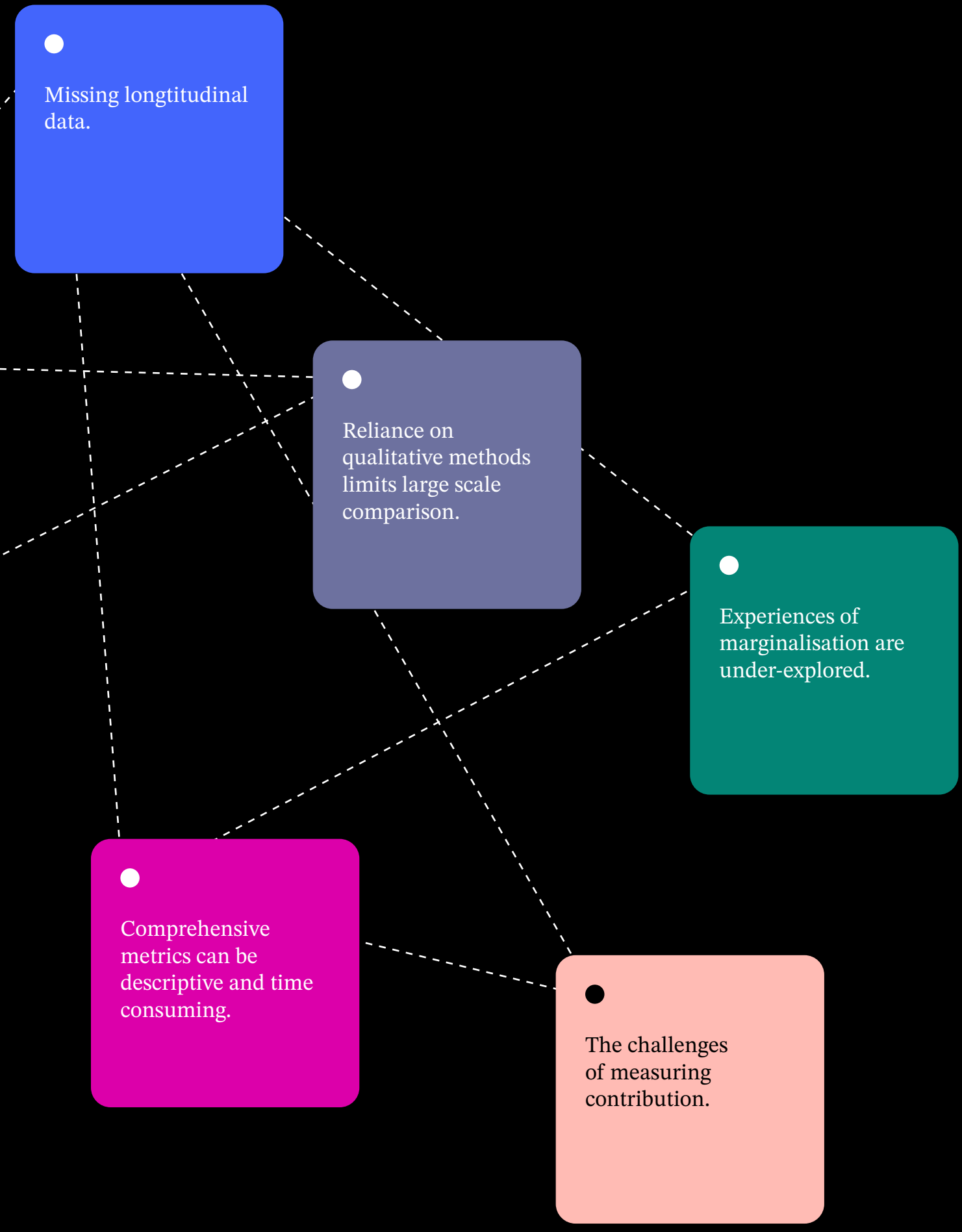
—UN Women, Ethiopia

"There's no household education. There's no household literacy. There's no household health outcomes. There's certainly no household food insecurity. You have to look beneath that, "lift off the roof" and see how power and resources are divided and experienced."

—Professor Joni Seager, Academic

Figure 5: Cross-cutting challenges and gaps




Missing longtitudinal data.
Reliance on qualitative methods limits large scale comparison.
Experiences of marginalisation are under-explored.
Comprehensive metrics can be descriptive and time consuming.
The challenges of measuring contribution.

Insights from scoping visits: Addis Ababa, Ethiopia

Observations during the field visit to Woreda 3 in sub-urban Akaki-Kality Sub-City revealed environmental degradation, increasing security risks, but also collective strength.

At the community's edge, the remains of homes destroyed by flooding sit amid stagnant water, mud, and uncollected waste - conditions worsened by ongoing conflicts. The streets and local market are dominated by groups of young men affected by drug and alcohol use, and pickpocketing is common. The market continues to be a large national centre for brothels and sex trafficking, including of young girls.

Local women and men express deep concern about these conditions. Single mothers and women married to men struggling with alcoholism are particularly vulnerable. They bear the primary responsibility for preparing for and recovering from floods, caring for children, enduring months in shelters, and managing escalating domestic tensions.

Yet, despite these challenges, there is clear evidence of community strength expressed through shared histories, collective identity, and cultural traditions such as song. Although relocation plans exist for individual households, many residents remain deeply connected to the place where they were born and raised—symbolically tied to where their placentas were buried. This deep sense of origin and belonging anchors them to the community, where shared hardships, memories, and resilience continue to shape their lives.

Individual

In contrast, gender-focused metrics on climate impacts or gender inequality tend to centre on the individual, which obscures the importance of resource sharing, community care, collective action, and the ways certain groups experience privilege or exclusion. Qualitative research demonstrates these community level experiences are central to how women build solidarity, resourcefulness, and resilience.[76]

Some small-scale studies, such as those on flood vulnerability in Nigeria[77] or climate risk perceptions in schools in Pakistan, touch on collective experiences of suffering and care.[78] The WASH GEM and WEMNS metrics also include important dimensions related to institutions, communities, and collective agency.

3.2.3 Metrics omit variations of settings and wealth

Most metrics reviewed in this study focus on poor rural households, overlooking urbanicity or challenges faced by middle classes. Yet research shows that urban contexts face distinct challenges, and rural-focused questions can fail to capture inequalities accurately.[79] For instance, urban residents are more affected by intermittent water access than by long distances to water sources.[80] Other climate-related urban challenges include navigating property rights, insecure rental housing, and disruptions to environmental value chains (such as delays in receiving raw products for food processing).

Despite these differences, only two of the analysed metrics explicitly examine urban environments. Odonkor and Adams[81] assess how heat stress affects women and men street workers in cities, while Ajibade et al. highlight the different coping mechanisms used by middle-class urban women during floods.[82]

3.2.4 Gaps in longitudinal data

Impacts from climate change are usually cumulative and unfolding over longer periods of time. Longitudinal data is essential for tracking changes over time and building a strong understanding of the drivers and combined causes of increasing hardship.[83] However, metrics that focus on gender and climate change impacts often prioritise the immediate effects of climate hazards, with less emphasis on exploring slow unfolding risks.

- Insights from key informants

"I think we have enough evidence, now, to say that in times of hardship and in the wake of disasters there is an uptick in domestic violence […]. But if we really want to link it to climate change, there's so much more nuance and it's a complicated thing to do, and you need evidence over a long time."

—Prof. Joni Seager, Bentley University

3.2.5 Measuring contribution

A core difficulty in measuring the gendered impacts of climate change is that climate acts largely as a contributing factor. Many surveys ask respondents to identify cause-and-effect relationships, thus ruling out other factors that may have influenced an outcome. One exception is the CIRA metric, which considers the compounding and cumulative effects of major personal or household shocks.[84]

The emphasis on isolating causation is problematic: where do the boundaries of climate change, its impacts, and adaptation begin and end? For many Indigenous Peoples, including mobile pastoralists, environmental instability is not new.[85] For Indigenous Peoples, the climate crisis is not separate but a continuation of the effects of settler-colonial dispossession of land and water.[86] The 'ecological crisis' occurs alongside ongoing governance failures, economic marginalisation, and exclusion. This makes the idea of 'recovery' unclear - recovery to what?[87] Often, going back to 'normal' is not desirable because 'normal' already includes deep structural inequalities. Many proposed solutions, such as building dams, can also cause further harm.[88]

Demonstrating a direct link between climate change and socio-economic or political change is challenging. Some quantitative relationships are also easier to demonstrate than others. For instance, it is more straightforward to show how heatwaves and infrastructure affect men and women differently than it is to establish a link between heatwaves and GBV.[89]

In most of the metrics reviewed, links to socio-political processes are weak or absent. Yet these processes not only present their own challenges, including inflation, food shortages, and the deterioration of water infrastructure, they also interact with environmental shocks. In contrast, the RIMA II metric captures a range of shocks, including those not directly related to climate change.

"That whole attribution-contribution piece is very difficult to address. And attribution is very attractive […], contribution necessarily might not be and this is important to pull out when we are using very jazzy words, like 'system change' – to say that this is very important to look at climate change in a multifaceted way and not just suggest direct correlations mean causation."

—Anamika Dutt, The Global Alliance for Green and Gender Action (GAGGA)

3.2.6 The conflict-climate-gender nexus

Despite the high prevalence of violence in the world, exploring the conflict-climate-gender nexus remains a gap in existing quantitative metrics. However, emerging qualitative literature is increasingly examining this topic.[90] While it is challenging to capture violence in broad metrics, indirect questions can provide some insight. For example, surveys can ask about support for violence,[91] physical proximity to violent events,[92] or concerns related to violence.

3.2.7 Intersectionality

In the reviewed metrics, intersectionality (see 2.1 for definition) is rarely fully explored. The usual approach to intersectionality is inclusion of various demographic parameters and using regression analysis to assess how these factors affect the outcome; however, it is insufficient.[93] This approach fails to recognise the interdependent nature of identities, and how experiences of marginalisation and oppression overlap and interact.

(a) Gender identity

Gender identity is significantly underexplored within metrics in the context of climate change. Qualitative research demonstrates that the LGBTQI+ community faces disproportionate impacts from climate triggered disasters[94], including post-disaster challenges such as finding housing (Nepal)[95], facing further poverty (India), lacking institutional support due to their identity (Indonesia) and lack of privacy (Philippines).[96]

(b) Harmful masculinities

Gender-focused metrics typically explore how gender norms harm women, with insufficient analysis on how different forms of masculinities and gender norms impact men. Only the study on outdoor workers and heat stress considers vulnerability of men.[97] Qualitative reviews have also shown that men can experience higher rates of bodily harm during WASH disruptions.[98]

(c) Disability

As discussed in Section 3.1.6, there are several disability-focused metrics which can provide insights. However, there is an urgent need for comprehensive metrics which apply an intersectional approach and integrate climate, gender, and disability considerations. This should include how disability shapes experiences of climate change and adaptation in relation to accessibility, care (providing and receiving), self-esteem, and ability to shape adaptive mechanisms in the household and community, and how these experiences may differ by gender.[99]

(d) Children

Children are included partially or incompletely in the metrics which were reviewed. This is often framed in terms of children's needs that adults must address, such as who pays children's living expenses or provides care (L-API and LVI). The GES Tonga and UN Women Model Questionnaire explore time spent on caring for children whilst SIGI explores norms in relation to child care. The Gender Portal captures data in relation to education. An individual study in relation to gender, climate and drought resilience highlights different coping mechanisms in relation to children, such as sending children to eat at neighbours' houses during times of drought hardship.[100]

Existing approaches fail to capture the full extent of children's roles and experiences. They shape household dynamics, are agents of change, and have unique experiences and vulnerabilities in relation to hazards.[101] That is partially unpacked in the study of high school in Pakistan, which explores climate risk perceptions by secondary school students.[102]

(e) Indigenous connection to the environment

Indigenous connection to changing and degrading nature is also under-explored in metrics. Water and land are not just resources to own. They are also sources of deep meaning and connection, shaping how people live their lives and relate to others.[103]

(f) Criminalised populations

Criminalised populations are groups and communities who are targeted by states for their identity or way of life. In some contexts, these are illegal migrants, sex workers, LGBTQI+ communities and certain religious minorities. These groups are highly vulnerable to climate impacts due to their wider social and economic marginalisation. Systematic reviews[104] have argued that work and economic hardship are key drivers for violence against sex workers; qualitative case studies also highlight that climate stress increases GBV for this group.[105]

- Insights from key informants

"You also have a community that is criminalized [the sex worker community]. A community that is often quite diverse. So, then, within the community there are people who are further criminalized because of their sexual orientation. […] There's a link between climate change and gender justice and then criminalization […] Criminalization of HIV has led to hindrance to accessing HIV resources. Similarly with climate change - any form of criminalization of a particular community or population has an impact or prevents them from being able to adapt or mitigate…"

—Sian Morgan, We Effect

3.2.8 Intersections with other forms of power

Patriarchy, capitalism, racism and other systems of oppression affect gendered experiences and limit people's resilience across sectors and spaces. However, most quantitative tools do not capture these broader systems of oppression, such as land rights and extractivism.

(a) Land rights

Land rights are shaped by structural inequalities, making women and other marginalised groups particularly vulnerable to displacement and dispossession. This vulnerability is heightened both by climate impacts (for example, being denied access to public services, adaptation support, or social protection) and by climate responses, such as when land is repurposed for adaptation or mitigation projects.[106]

There are tools that quantify women's land rights. For example, the FAO's Legal Assessment Tool which evaluates a country's legal framework against 30 gender-equitable land tenure indicators, assessing the extent to which laws on inheritance, marriage, and property rights support or hinder women's land rights.[107] However the majority of quantitative tools do not explore the gendered intersections between land rights and climate change. The Women's Empowerment in Agriculture Index (WEAI) addresses land rights to some extent.

Promising practice

New efforts are emerging to use quantitative or semi-quantitative approaches to document the links between land tenure, climate, and gender justice for advocacy and protection. For example, the 'Women RISE for Nature (WR4N)' project in Kenya helps organisations integrate gender-based violence data into a decentralized land rights reporting and monitoring tool called Haki Ardhi ('land justice' in Swahili).[108] This tool enables community-based organisations to identify hotspots and provide legal and psychosocial support where physical or verbal violence is used to undermine women's tenure rights, particularly in the context of carbon credit programs.[109]

(b) Extractivism

Extractivism drives both climate and gender (in)justice outcomes (see Section 2.1). Feminist researchers have developed case studies and frameworks that explore how extractivism operates across scales—from the body and environment to transnational networks—using a decolonial, multi-sited approach.[110] While several quantitative indexes and initiatives track extractive projects, there is currently no published tool that fully connects climate-driven extractivism with gender justice.[111]

3.2.9 Disaster risk management

Disaster risk reduction (DRR) initiatives, particularly in the areas where disasters are frequent, can transform societies in multifaceted ways, including by deepening gender inequalities.[110] Similarly, adaptation programmes can lead to maladaptation, inadvertently increasing vulnerability or creating new problems. In the metrics reviewed, references to these DRR impacts are largely limited to reliance on food relief, while issues such as power struggles with elites, corruption, violence and misuse of relief are generally overlooked. Only Khadka and Schuett's adaptive capacity metric includes equity and entitlements in its modules, enabling a deeper analysis of group marginalisation during distribution.[111]

- Insights from key informants

In East Africa early warning systems are designed for male-dominated spaces, so women do not get involved in strategies of adaptation. Similarly, integration of solar energy into households specifically targets men and their skills. At the same time, in refugee settings in the region, women have been at the forefront of climate smart agriculture as they have traditionally been the managers of water in the household, and so were the first to highlight the need to adapt to reduced water access.

—Mercy Lwambi, International Rescue Committee (IRC)

3.2.10 Health

Key informant interviews stressed the underlying inequalities that impact women's health. For example, women are less likely to seek help when their health is impacted by the climate, particularly if they work in informal precarious employment; occasionally women also compromise their own care for the sake of their children and husband's health and nutrition needs. Despite these impacts, our review has revealed that gendered health and its relationship with the environment/climate are underexplored in quantitative research.

- Insights from key informants

"My colleagues and I at Karachi Urban Lab were doing a study117 a few years ago on the notion of risk and its relationship with climate change and flooding and extreme heat. We were looking at one community, which had been displaced by the 2010 floods and then the 2022 […].

Women in that informal settlement […] sell flowers, beads and bangles during the day, and they're working out there all day long, and in that makeshift informal settlement, they don't have access to proper bathrooms. So when we asked them 'how do you cope with the extreme heat?'[…], they said, 'well, we cope. […] We deliberately don't drink enough water'.

So you could see that this is a certain kind of a coping skill, but it has its repercussions in terms of women's health, because dehydration can lead to all kinds of physiological, epidemiological and psychological impacts […]

This relationship between livelihood systems, extreme heat, access to WASH and coping in everyday adaptation, becomes a very complex and a very fraught one. […]

You have to pose the question: Well, yes, people are coping. But is that adaptation? Uh, well, it's not adaptation."

—Prof. Nausheen Anwar, KUL/IIED

Several health topics dominate in quantitative metrics, including declining health, new illnesses and access to medical services. However, other topics of significance for gender equality are frequently omitted, such as sexual and reproductive health, family planning, access to abortions, prevalence of HIV and ability to have decision making power over one's own health (or children). An exception is the JMP/WHO survey that asks sanitation and menstruation-related questions.

Promising practice: Performance Monitoring for Action

Learning can be drawn from the PMA Data (Performance Monitoring for Action) initiative. Within the project, frequent surveys are launched to monitor key health indicators across Asia and Africa. Data and metrics are available open source for various stakeholders. Women and children's health is central to the initiative, with technical areas covering Menstrual Health Management, WASH, Maternal and Newborn Health, Family planning and Gender (including educational opportunities, work, gender norms, mobility and gender-based violence). According to central researchers of PMA (Dr. Assefa Seme Deresse and Dr. Solomon Shiferaw) climate is not yet considered sufficiently.

3.2.11 Gender norms

As discussed in Section 3.1.5, many of the metrics that explore the relationship between environmental resources, climate and gender, omit consideration of gender norms. Measuring gender norms is crucial, as these norms are "one of the significant factors shaping progress, stasis and backsliding on gender equality."[118] Gender norms change in both directions: shifts in norms can lead to changes in the society, and changes in society can lead to shifts in gender norms.[119]

Measurement of gender norms is difficult. The majority of gender focused world-wide metrics address norms in a 'spotty, inconsistent and not easily comparable' way.[120] Moreover, including norms in metrics often relies on assumptions—such as which norms are considered 'problematic'—as well as on motivations and definitions that may not reflect local contexts, diverse perspectives and existing power dynamics.[121]

Several qualitative studies[122] have demonstrated how gender norms and gender inequalities may play a role in driving climate-security conflict dynamics. For example, SIPRI identified four indirect pathways linking climate change and conflict—each with gendered dimensions that can be examined: (a) livelihood deterioration, (b) migration and changing mobility, (c) tactical considerations, and (d) exploitation by the elite.[123]

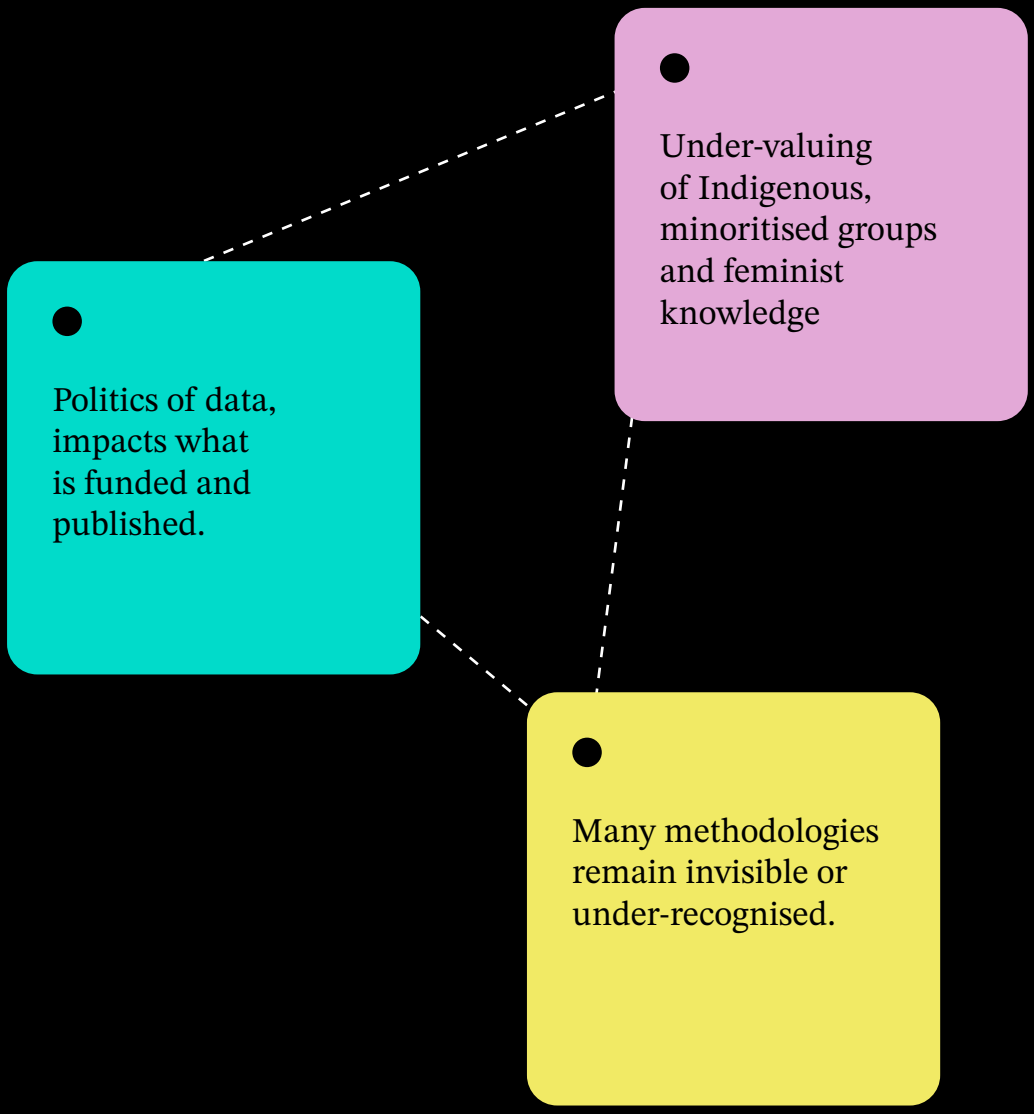
Case study: Climate change and gender in Karachi's katchi abadis

Over 60% of Karachi's population live in unplanned settlements, known as 'katchi abadis.' The research team, together with Karachi Urban Lab, visited Karachi and Islamabad in August 2025, as monsoon flooding engulfed the city. This severely affected many of the city's katchi abadis, including Ghareebabad and Quaid-e-Azam Colony (focus group locations), two adjacent communities in Liaquatabad Town, District Central.

Following the monsoon flooding, the communities were still struggling with stagnant water and limited access to state services, a situation they largely attributed to displacement seven years earlier for the Karachi Circular Railway project. Living without adequate public services, residents faced some of the harshest impacts of climate shocks, including floods and extreme heat, which affected health, wellbeing, livelihoods, and social relationships. Anxiety about the future was high. People worried about accessing support as a displaced community, sustaining livelihoods, ensuring children's education, and meeting societal expectations such as marriages. The high costs for private access to potable water added further stress, particularly during temperatures which frequently exceeded 40 degrees Celsius.

These pressures were deeply gendered. Women and girls bore a heightened unpaid care burden and faced mobility restrictions, which amplified the health impacts of extreme heat. Both women and men noted that young women and girls were expected to stay indoors, even in conditions of extreme heat and without electricity, due to gendered norms prioritising family 'honour' over women's and girls' physical and mental health.

3.3 Politics and inequalities of data production



In addition to challenges within the metrics, we have identified multiple challenges in relation to visibility, transparency and publishing of data. In this section, we discuss the politics and inequalities in data production.

3.3.1 Many methodologies remain invisible or under-recognised

During this scoping work, we have discovered that survey guides and modules of projects and studies are rarely published. We did not find any detailed reviews, academic analyses, or comparisons of methodologies or survey modules. Existing systematic reviews that are focused on gender/climate pay limited attention to methodology.

Typically, methodological assessments appear indirectly through quality-selection criteria. In other cases, broader patterns are drawn from how frequently different methods are used on this topic.[124] The most detailed analysis among the materials we reviewed is by Choudhary et al. (2024), who summarise the conceptual frameworks that guide existing studies.[125] However, even in their work, specific modules or themes are not further examined.

Topics such as gender and GBV are sensitive, personal and difficult to explore. Some articles exist that summarise the studied factors related to GBV (however, not in relation to climate).[126] Detailed methodological explanations and lessons learned in each study would significantly accelerate progress in the field.

Frontline feminist organisations and researchers have been actively investigating the intersections of climate and gender within their project scopes. However, approaches and methods used by smaller scale NGOs and civil society often remain invisible or under-recognised. A review study of 260 peer-reviewed studies on gender and climate in Africa until 2019 revealed that 25.1% of studies utilised a survey, it being the most used method in the field.[127] However, during our study, we discovered that survey guides and modules are rarely published. This makes it challenging for surveys to be replicated or improved. This invisibility hampers methodological innovation and learning across sectors. We excluded several studies from our analysis because we could not identify their specific indicators or even their modules. For others, such as GES Tonga, we were able to extract indicators from the detailed study analysis. Qualitative studies are even less transparent about how they are produced.[128] Interview guides are almost never included; at best, only brief lists of interview topics are provided. On the contrary, well-developed and communicated metrics, such as WEAI, are highly cited[129] and used.

3.3.2 Research is under-funded

Feminist organisations are typically funded to deliver frontline projects and receive very small proportions of overall climate change and research funds. They are less often supported to publish and popularise their approaches outside of certain national or feminist spaces.[130] Larger NGOs, for example ActionAid, have published feminist research guidelines, and building research is a key part of their strategy. Even then, this area of work is harder to fundraise for than traditional development or humanitarian programming.[131]

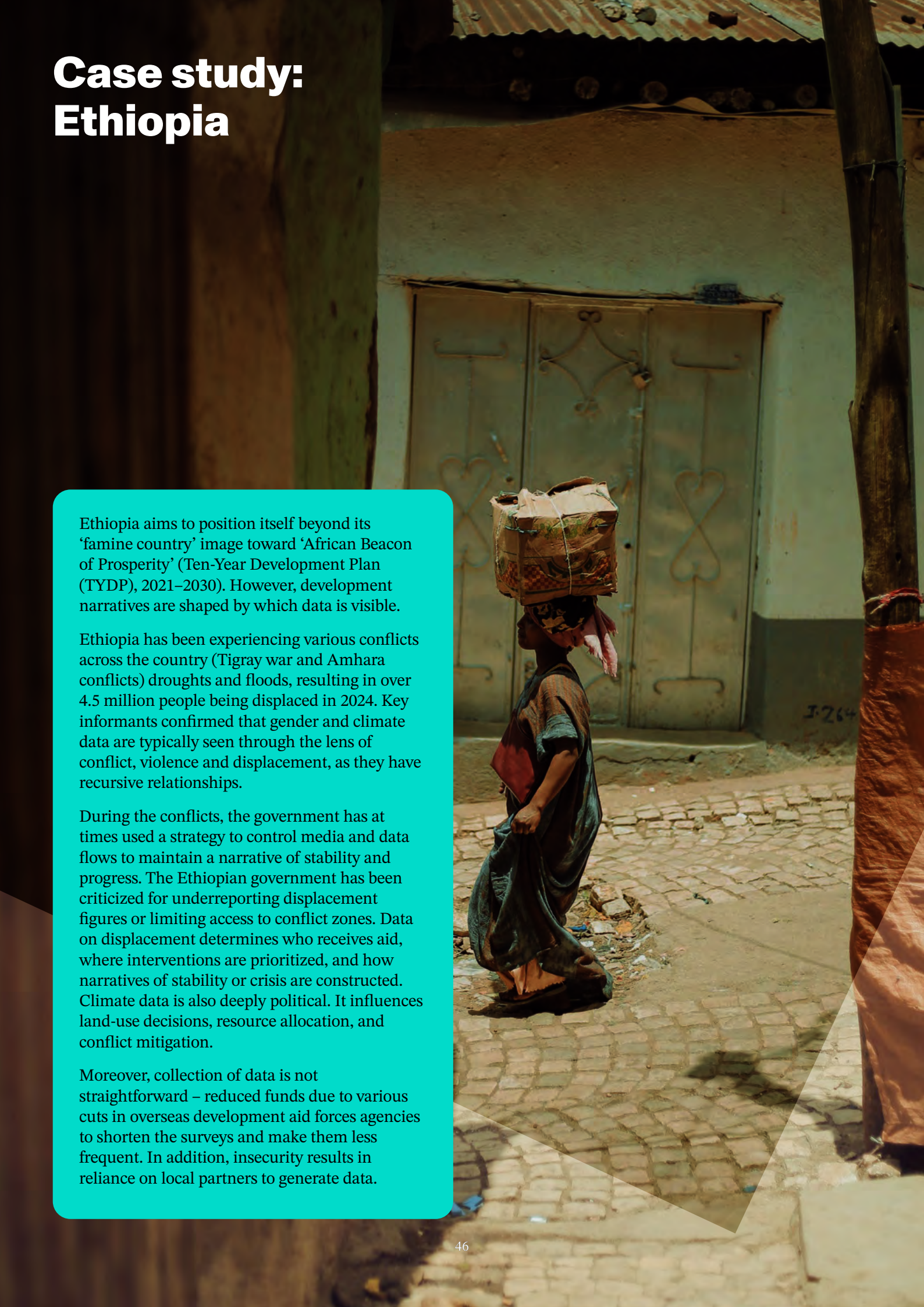
3.3.3 The politics of data

The politics of data, including what is funded and published and the under-valuing of Indigenous and feminist knowledge, impacts on the visibility and sharing of metrics and data on climate change and gender.

Data sharing is often limited due to elitist publishing business models. High subscription costs limit access to research, excluding under-resourced institutions in the Global Majority and low-income researchers. This restricts collaboration and hinders cross-sector learning.[132] These barriers further marginalise women, especially women in the Global Majority, and feminist research, which is already less likely to receive funding. In our review, 20 per cent of the quantitative studies required paid access, including the widely cited Livelihood Vulnerability Index. In addition, the incentive to publish is lower in many African contexts, where researchers focus on using existing knowledge to improve their communities rather than producing more publications.[133]

Development of metrics and collecting large-scale data is political. Often it is driven and shaped by priorities of funders, political agendas or contextual needs. A failure to consider politics in data weakens relevance and usability of gender data. For example, many policy makers require data standardisation and verification by specific institutions in their country context. These institutions are often aligned with or accredited by the government.

Case study: Ethiopia



Ethiopia aims to position itself beyond its 'famine country' image toward 'African Beacon of Prosperity' (Ten-Year Development Plan (TYDP), 2021–2030). However, development narratives are shaped by which data is visible.

Ethiopia has been experiencing various conflicts across the country (Tigray war and Amhara conflicts) droughts and floods, resulting in over 4.5 million people being displaced in 2024. Key informants confirmed that gender and climate data are typically seen through the lens of conflict, violence and displacement, as they have recursive relationships.

During the conflicts, the government has at times used a strategy to control media and data flows to maintain a narrative of stability and progress. The Ethiopian government has been criticized for underreporting displacement figures or limiting access to conflict zones. Data on displacement determines who receives aid, where interventions are prioritized, and how narratives of stability or crisis are constructed. Climate data is also deeply political. It influences land-use decisions, resource allocation, and conflict mitigation.

Moreover, collection of data is not straightforward – reduced funds due to various cuts in overseas development aid forces agencies to shorten the surveys and make them less frequent. In addition, insecurity results in reliance on local partners to generate data.

There is frequently an undervaluation of feminist and indigenous knowledge systems. For example, First Nations women carry and protect local and traditional knowledge and advance environmental research and protection in their contexts. However, this is frequently not recognised by mainstream institutions, undermining these knowledge systems and excluding these perspectives from data collection.[134] Similarly, the methods of Indigenous, feminist and historically marginalised researchers are often sidelined by Western dominant research methods.

Collaboration in data collection and sharing is frequently limited by tense relationships between actors, lack of resources for convening spaces, and the absence of efficient systems for timely data exchange. As a result, data are frequently shared months after being requested.[135] Additionally, large INGOs sometimes develop advanced approaches in isolation from local policymakers and civil society, which can lead to resistance from local actors.[136]

3.4 Innovative methodological solutions: thinking outside of the box

Increasingly, researchers, non-government organisations, and multilateral agencies have been developing innovative approaches to document and understand how climate, gender and conflict intersect in people's daily lives.

This includes:

- Designing interdisciplinary data systems
- Analysing compounding crises
- Scaling up qualitative data
- Utilising digital and AI-enabled tools

3.4.1 Emerging eclectic data systems that combine interdisciplinary data

The complexity and cross-cutting nature of climate change mean that no single methodology can adequately address all relevant dimensions. While it is common practice to combine multiple secondary data sources—linking climate and hazard data with social and demographic parameters (see Section 4 for examples)— a few approaches recommend drawing on a wide range of existing global and regional data sources, as well as using already established methodologies.

One of them is the GBV Analytical approach (See section 4). Another remarkable example is The Weathering Risk project. It is a multilateral initiative, led by the think tank Adelphi. It was developed over two years of field testing to identify and analyse climate risks, enhance capacity for action, and strengthen responses that support both climate resilience and peace. The approach encourages analysts to work across overlapping sectors rather than in silos. It reflects a shift toward understanding how weather and climate impacts operate across multiple scales and how they interact with contextual factors that shape climate-security dynamics, pressures, and risks. Gender and inclusion are recognised as essential to both peacebuilding and climate security and are integrated across the tool.

3.4.2 Analysing compounding crises

The impact of climate change acts together with other crises that weaken people's resilience and adaptation capacity. Therefore, it is important to centre a 'human first' approach, rather than isolated experiences that can be contributed only to climate change. The UN Environment Programme has collaborated on the development of an index for risk patterns. The indicators include environment and climate change, peace and conflict, relationships, trust of the state, as well as gender, power dynamics and women's positioning in society.

- Insights from key informants

"Many [indicators] are only quantitative in the sense that they are articulated quantitatively, but what is needed is more of an in-depth approach to understanding conflict risks and gender injustices linked to climate impacts in a given context... A few of us have been working over the years to develop tools that allow for a more complex and nuanced understanding of specific situations, looking at how these different dimensions are interlinked and influencing each other..."

—Silja Halle, UNEP

3.4.3 Scaling up qualitative data

Some key informants described how they have been quantifying large amounts of qualitative data to glean key insights to support advocacy. For instance, funding organisations have drawn key trends from looking at data from their projects collectively to draw out common trends and insights.[138]

- Insights from key informants

"We are trying to look at our larger stories [...] and how that can be then pushed as an advocacy tool to look at bilateral funding or advocate for financing of feminist organisations [...].

I think there's also a need to shift how we look at data and what kind of data is data…Every time we talk about data we get asked: "So, what is the number?" "No, there's no number […] and that is why, I always say, let's look at the qualitative data and how we can present it in a more palatable way because it can be like 100 data points or sets from qualitative – it can be scaled. I think that shift is really needed."

Anamika Dutt, GAGGA

3.4.4 Participatory and digital tools

Participatory and digital tools, such as mobile phone apps, are increasingly used in the development and humanitarian sectors to explore the intersection of climate and gender justice. Feminist researchers describe the use of 'app-tivism' as a way for marginalised women to access information, highlight issues, and advocate collectively for their rights. However, its application in quantitative research remains limited.

Key informants noted that there is significant potential to scale up existing tools and pilot new participatory digital approaches including:

- Applications which support women and LGBTQI+ communities to report unsafe places around a city.[139] These could incorporate questions on additional environmental data.
- Crowdsourced data-visualisation as a tool for marginalised groups to raise awareness and advocate for their rights. For example, in the movement for Missing and Murdered Indigenous Women, activists have created digital crowdsourced maps to reveal patterns of gender-based violence and to question the accuracy and completeness of government data.[140]
- SenseMaker is a tool that "allows for large-scale capture of the 'subject' into a quantitative framework, where the 'subject' becomes their own ethnographer." For example, it has been used to document experiences and map climate vulnerabilities and resilience in Bihar, India, enabling rapid collection and collaborative analysis of large volumes of data.[141]
- The use of artificial intelligence (AI) for policy action. For example, one key informant described how AI tools can be used to monitor social media to analyse trends in online violence and hate speech targeted at women, environment and human rights defenders and climate advocates.[142]

Part 4: Thematic focus: Gender-based violence and climate change

Gender-based violence and climate change are interconnected crises that reinforce one another. Climate change fuels conditions that increase gender-based violence.

Gender-based violence

Gender-based violence (GBV) is "an umbrella term for any harmful act that is perpetrated against a person's will and is based on socially ascribed (i.e. gender) differences between males and females. It includes acts that inflict physical, sexual or mental harm or suffering, threats of such actions, coercion and other deprivations of liberty."[143]

GBV affect all genders, but women, girls and transgender people are disproportionately affected.

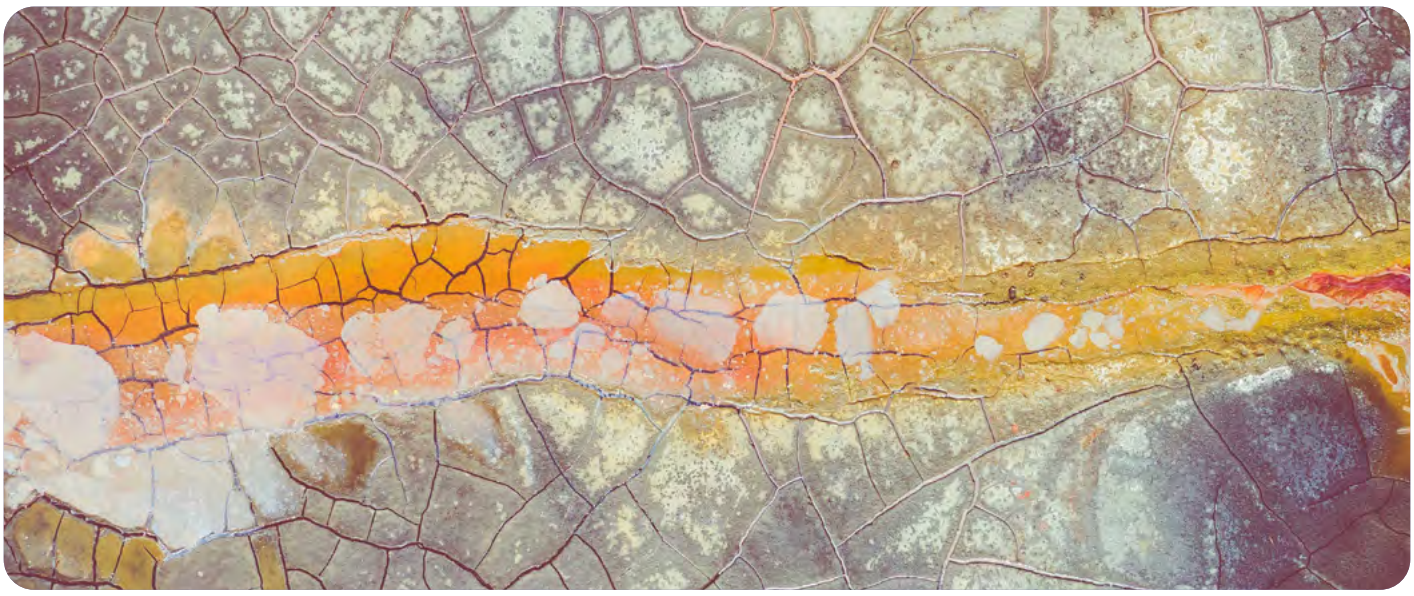
Globally, almost one in three women have experienced physical and/or sexual violence at least once in their life. This violence is often perpetrated by current or former intimate partners.[144]

The global costs of GBV have been estimated to be US$1.5 trillion or approximately 2% of global GDP. [145] This includes healthcare, legal services, and lost productivity, as well as the immediate and long-term physical, sexual, and mental consequences for women and girls.

GBV also impacts sustainable progress and peace. Unless we end violence against women and girls globally, at least 14 of the 17 Sustainable Development Goals (SDGs) will not be achieved.[146]

At the same time, gender-based violence limits women's and girl's ability to recover, adapt, and lead climate action. Integrating gender-based violence prevention and gender equality into climate policies and programmes ensures more effective, inclusive and sustainable outcomes.

Yet gender-based violence has been persistently omitted or minimized from various large-scale metrics despite significant evidence of its significant relationships with climate change. The intersection between climate change and gender-based violence is primarily explored through qualitative methods, which limits opportunities for large-scale comparison, modelling, and integration into broader studies and policy frameworks.



4.1 The relationship between climate change and gender-based violence

Qualitative studies demonstrate the direct and indirect linkages between climate impacts and gender-based violence – including heightened intimate partner violence, forced marriage, trafficking and sexual harassment.[147] A summary of key studies can be found here.

This happens through three pathways (see Figure 6):

1. **Climate change fuels the stressors that trigger gender-based violence.** Stressors may include poor mental health and barriers to performing expected gender roles for individuals; economic losses, food insecurity and unemployment within households; and lack of resources, services and infrastructure in the community.[150] This can lead to 'male backlash,' where men respond to economic or other losses by using intimate partner violence to regain a sense of control, or by using aggression as a way to cope with stress.[151] This backlash can also occur when men feel that their traditional role as the 'provider' is being threatened.[152]
2. **Post-disaster environments and extractive practices can increase the enabling environment for GBV.** For example, displacement into shelters which do not have gender responsive approaches, expose women and girls to gender-based violence risks. Women and girls living next to male-dominated extractive sites – whether for fossil fuels which drive climate change, or critical minerals used in climate solutions, are exposed to heightened risk of GBV from male workers and, at times, state actors sent to secure the sites.[153] In times of crisis, resources are diverted from GBV prevention and response, affecting access to GBV services and support. Resources are also diverted from public services in general – such as health, transport, infrastructure, education – which also impact on access to justice, protection systems and GBV prevention efforts.
3. **Climate pressures amplify the underlying structural causes of gender-based violence.** 40 per cent of countries have at least one constraint for women's asset rights and ownership.[154] Even when women have legal land rights, unequal power dynamics and customary practices often prevent them from exercising those rights. This leaves women vulnerable to climate-induced land grabbing, which is frequently accompanied by GBV.[155] Limited access to healthcare, education and services, intensified by climate stress, further compounds these risks. Increased bargaining power for women in the household has been shown to reduce the risk of intimate partner violence.[156] However, the pressures of climate change can weaken this bargaining power. Displacement and rising vulnerabilities also increase the use of negative coping strategies, such as transactional sex, child or early marriage, and trafficking.[157] Climate change therefore leads to a so-called double burden of vulnerability, where gendered impacts of climate change overlap with existing social roles and other forms of inequality.[158] At the same time, the lack of resourcing directed to women-led and feminist organisations limits the possibilities for gender just responses.

These pathways increase the risk of gender-based violence, including intimate partner violence, non-partner sexual violence, child marriage, teen pregnancy, trafficking and sexual exploitation, sexual harassment in public spaces, and gendered violence again st environmental activists.

GBV is not only driven by climate change—through both sudden-onset hazards and slow-onset events—but also by the very forces fuelling the climate crisis itself: the intertwined systems of extractivism, neocolonialism, patriarchy, and corporate power.

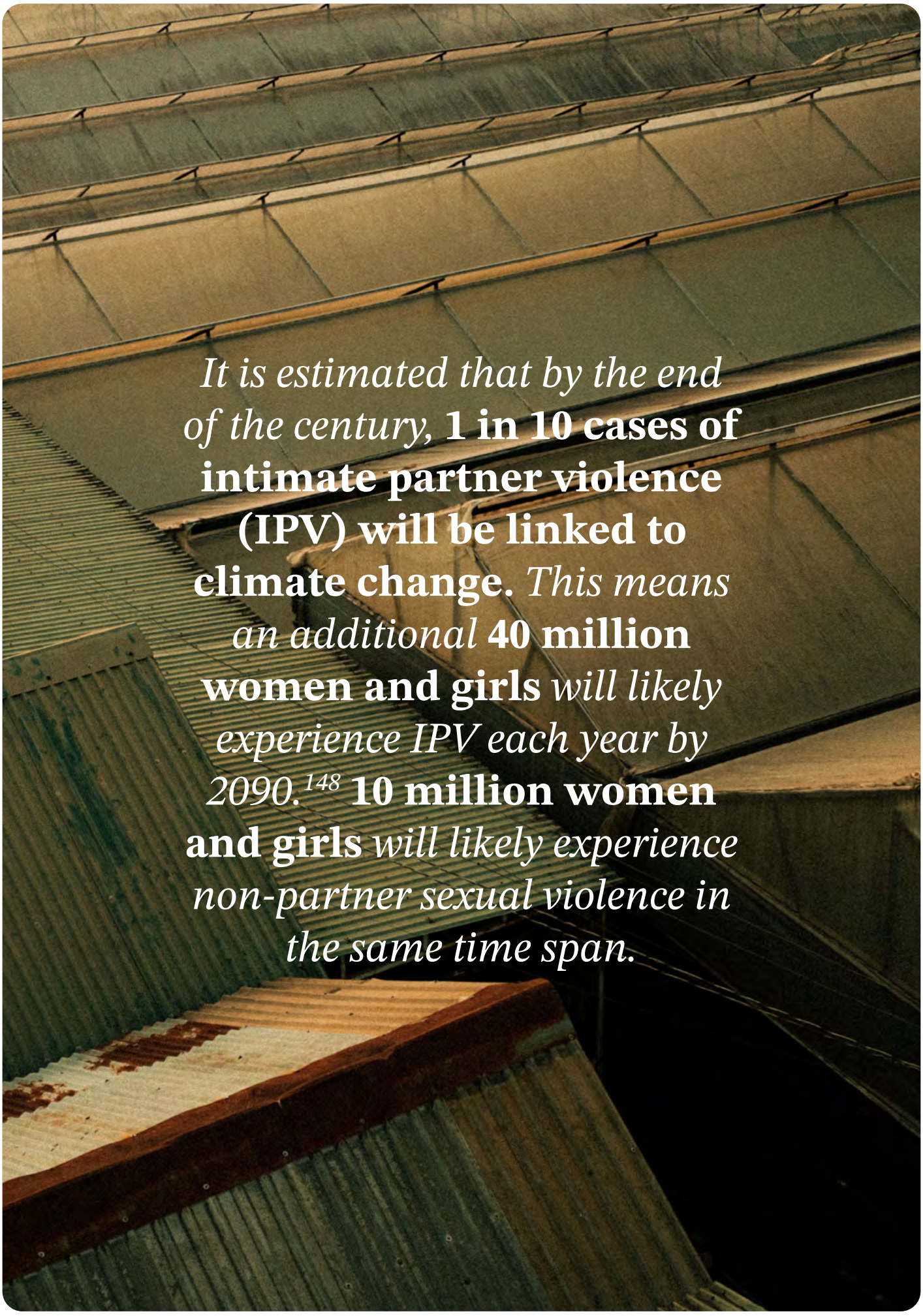
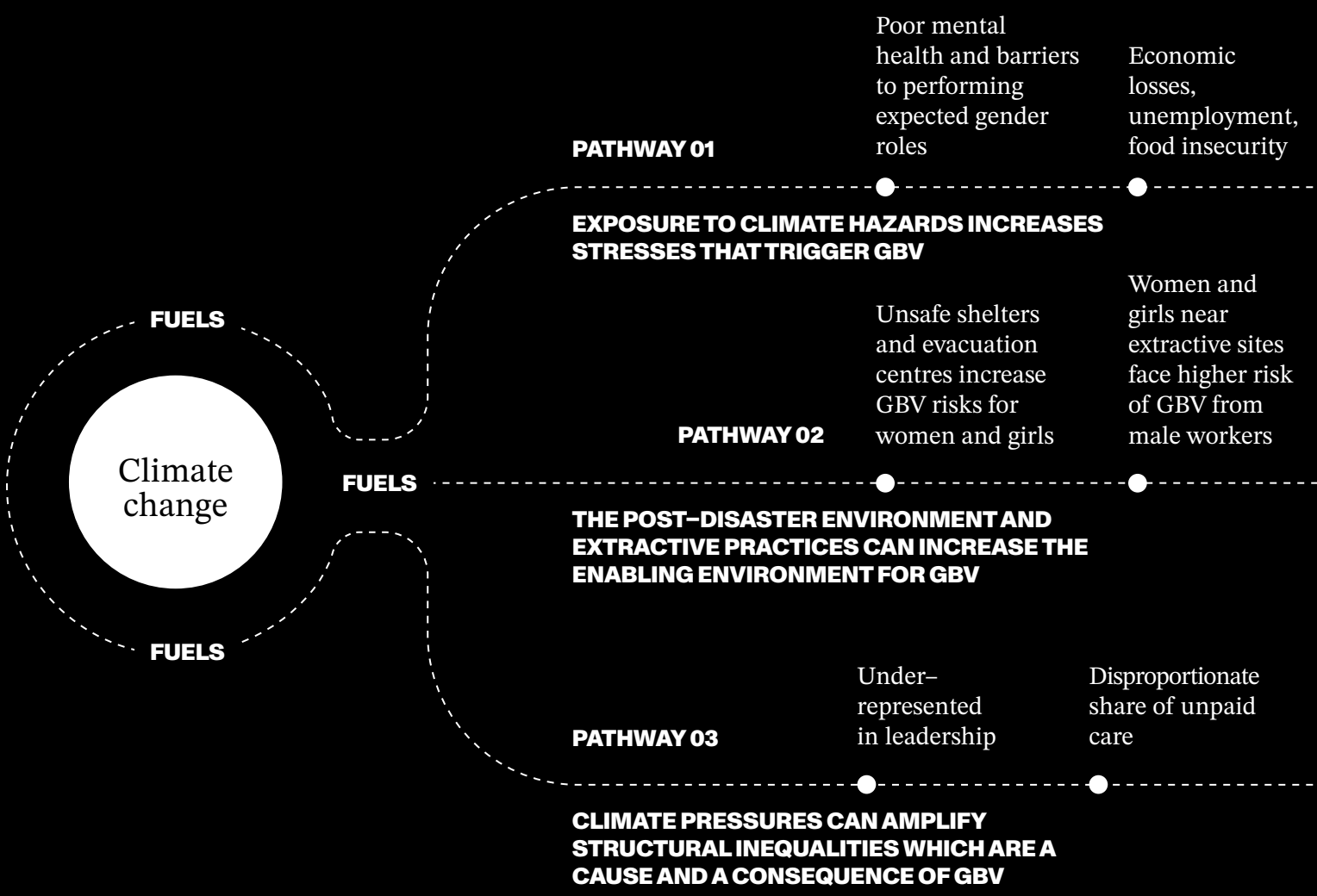
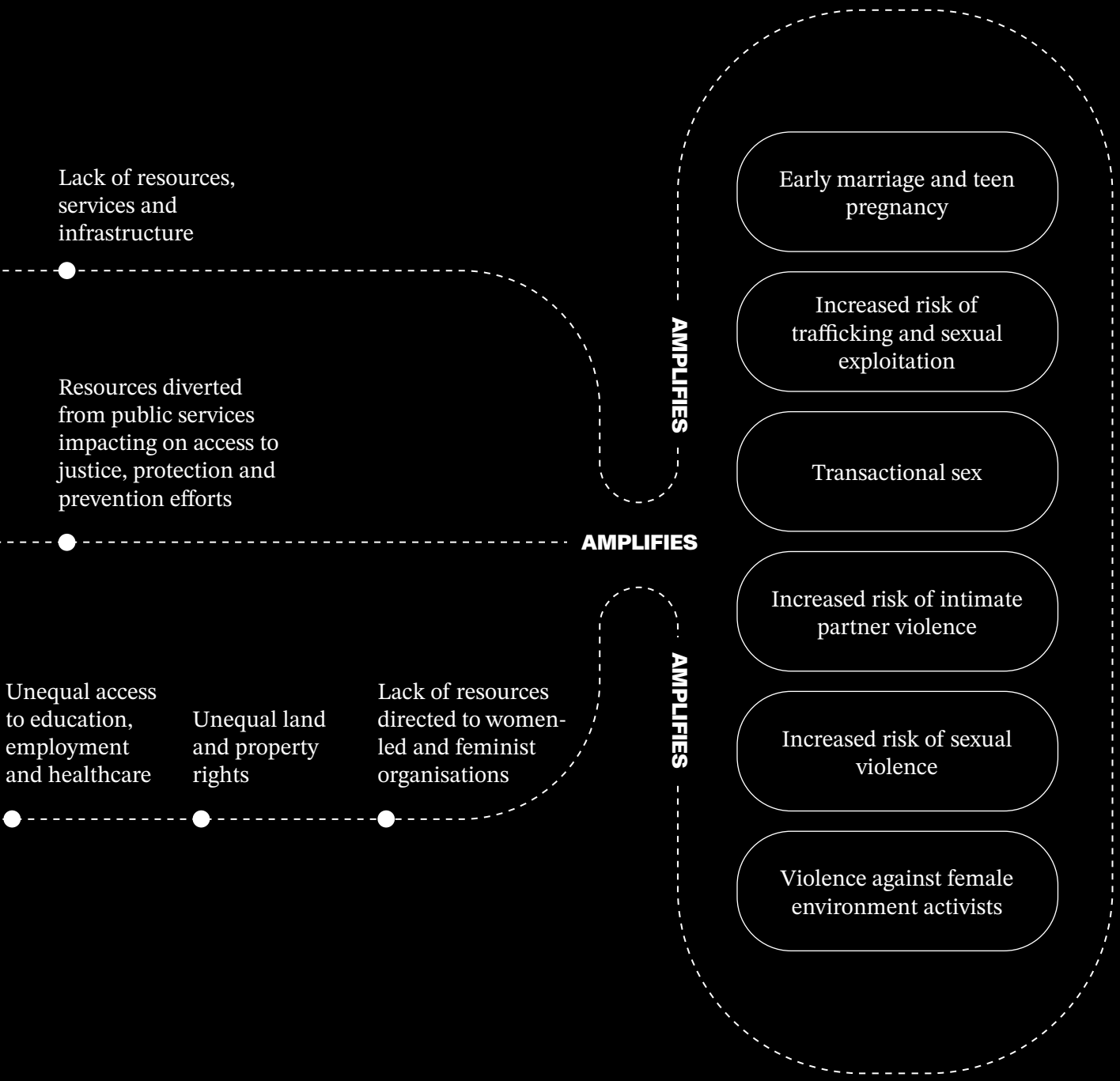

It is estimated that by the end of the century, **1 in 10 cases of intimate partner violence (IPV) will be linked to climate change.** *This means an additional* **40 million women and girls** *will likely experience IPV each year by 2090.*[148] **10 million women and girls** *will likely experience non-partner sexual violence in the same time span.*

Figure 6: How does climate change increase gender-based violence?




Lack of resources, services and infrastructure
Resources diverted from public services impacting on access to justice, protection and prevention efforts
AMPLIFIES
Unequal access to education, employment and healthcare
Unequal land and property rights
Lack of resources directed to women-led and feminist organisations
AMPLIFIES
AMPLIFIES
Early marriage and teen pregnancy
Increased risk of trafficking and sexual exploitation
Transactional sex
Increased risk of intimate partner violence
Increased risk of sexual violence
Violence against female environment activists

Scoping visit insights: The intersecting climate and energy crisis in Zambia

Zambia has been severely impacted by a concurrent drought and flood stretching through 2024 into early 2025. This has directly hampered the nation's largest source of energy – hydropower – leading to both the worst energy crisis and the worst debt crisis the country has ever experienced. In turn, this has heightened the risks of GBV for marginalised women and girls.

In Lusaka, the capital city, we conducted an FGD with 14 female sex workers who lived in three neighbourhoods. Living without access to energy, for up to 20 hours a day, has been a great source of stress for them. It has directly impacted access to water because many communities depend on pump-based communal tubewells for water.

Given electricity is only running after 10pm, women go and collect water when it is dark. Women spoke of feeling unsafe and described male 'junkies' being around. Female sex workers also explained how they and their children were sometimes forced away from busy water points, during water shortages, because of the stigma associated with their livelihood.

The lack of water security was also linked to increased risk of GBV. Women were unable to wash adequately, and male clients would become upset—sometimes even angry or aggressive—because of it. This exacerbated existing forms of verbal and physical violence towards them, and sometimes the refusal to pay the agreed fee. Men's excessive consumption of alcohol (due to the heat and/or livelihood insecurity worsened by the energy crisis) was also seen as exacerbating violence against women.

4.2 Gender-based violence weakens the effectiveness of climate solutions

When women's knowledge, skills, and needs are fully integrated into climate policies and programs, solutions become more inclusive, equitable, and effective.[159] Yet, gender-based violence undermines women's participation in climate solutions by limiting women's mobility, leadership, agency and economic independence. This is compounded for women and gender diverse people who face intersecting forms of discrimination and oppression.

Despite their widespread exclusions from formal decision-making spaces, women continue to resist climate and security harms. Yet they do so in the face of increasing violence, criminalisation, and underfunding.[160] For example, Indigenous women are targeted due to their critical role in environmental stewardship.[161] SAGE Fund conducted 100 interviews with women activists exploring different strategies for resistance, that build women's power, confront specific extractive projects and address the root causes of gendered structural violence.[162] Various other studies also show gendered struggles and resistance across the world in the form of protests but also through every day transformative work, such as rebuilding livelihoods.[163]

Gender-based violence also undermines women's ability to adapt to and recover from climate shocks.[164] This, in turn, reduces the overall adaptive capacity of communities. For example, in humanitarian and climate-stressed contexts, gender-based violence can reduce women's workforce participation, slowing economic recovery after disasters. Resources invested in advancing gender equality and preventing gender-based violence increase the community's overall resilience to climate impacts.

While direct correlation between GBV and climate change, particularly extreme events is well established, it is not universal. A systematic review of studies across the world reveals that there are studies that show no significant difference or no increase in GBV in relation to extreme climate events . However, the lack of cross-comparable quantitative data, and the tendency of qualitative studies to focus on the worst examples, mean that it is unclear when disasters lead to GBV and when they do not.

Scoping visit insights: Climate-driven food insecurity in Lesotho

In July 2025 we conducted a scoping visit to Maseru, Lesotho. The country has experienced a marked shift in seasons – from four to two - due to climate change. This is affecting everyone's lives and livelihoods in different ways including creating greater risk of GBV for rural women in Lesotho.

In our FGD with rural women farmers, facilitated by the Rural Women's Assembly, they told us that there are now only two extreme weather seasons – a drought season and a flood season. This has made their traditional farming practices unsustainable. Women farmers are especially impacted because of gendered norms that tend to exclude them from support services, extension schemes and credit. Food insecurity, which has severely worsened, was also raised as a major challenge and source of anxiety for women.

These challenges exacerbate existing gender inequalities. For example, unpaid care burdens are intensified for women and girls, with firewood gathering and water collection requiring women to travel long distances. As women take on roles and mobility patterns outside traditional norms, to cope with climate stress, they face increased risks of harassment, rape, and trafficking. For example, there has been a spike in human trafficking syndicates on Facebook which lure victims in with the promise of stable income, or food and water, in South Africa.

4.3 Risks of gender-based violence through the lens of intersectionality

Existing qualitative research and scoping visits demonstrate that the probability of experiencing GBV is higher for some groups of people. This is because of how the social, political, and economic processes of gender inequality interact with other forms of systemic and structural inequality, such as racism; ableism; homo-, bi-, and transphobia; ageism; and class discrimination.

For example, poor households experience a stronger income shock due to climate change and women in these households are more likely to experience intimate partner violence compared to those from wealthier households.[166] Analysis of disaster risk management in post-earthquake Haiti also demonstrates that recovery and relief efforts did not address the needs of people with HIV/AIDS and individuals from the LGBTQI+ community, delaying necessary treatments and putting them at higher risk of GBV in camps.[167]

Indigenous women experience compounded vulnerabilities and abuses. Indigenous people face lack of legal recognition for their land rights and women are targeted due to their critical role in environmental stewardship.[168] Competition over resources is heightened by climate change and Indigenous women are also more exposed to GBV during logging or social unrest inflicted by land conflicts.[169] The Inter-Agency Standing Committee (IASC) has developed a list of groups at higher risk of violence in emergency situations, which is equally applicable in other settings.[170] Additionally, this scoping study has identified risks faced by environmental activists and nature defenders,[171] and people living with the threat of environmental violence: conflicts, land grabbing, mining, dams, environmental disasters and others.

4.4 Methodologies and metrics for scale on gender-based violence and climate

There is no shortage of qualitative evidence demonstrating the relationship between GBV and climate change. However, existing research is largely confined to small-scale, context-specific qualitative studies, as well as systematic reviews that analyse findings from multiple qualitative studies conducted using varied methodologies, scales and objectives (see previous section). Whilst this approach has highlighted themes and root causes, it has not provided a meaningful analysis of triggers and susceptibility to GBV in relation to climate change. Moreover, the existing approaches disproportionately highlight some aspects of GBV while others remain poorly documented.

- Insights from key informants

"...and those mining communities. All of those are heavily policed by state institutions. Usually, it falls in the purview of the ministries of the environment, right? But there's also quite a lot of state presence and intervention in those particular communities...like securitization to make sure the projects are secure (interviewer: man camps? And she replied)... Yeah, and, and especially so far as understanding the impact on women and young girls and young boys, you know... extracting that information and its accuracy might be a challenge because of some of those very states... it's like a strict state presence, and largely because most State actors are the ones that perpetuate that kind of (GBV) behaviour...that's the thing that you can't rely on when it comes to data...In many contexts, people aren't going to call the police, right?"

—Dr. Chantelle Moyo, KAF – Think Tank

GBV has been persistently omitted or minimised within various large-scale climate metrics despite significant evidence of its relationships with climate change. One of the crucial reasons for a lack of scalable quantitative data, is the difficulty in conducting research. Multiple challenges have been identified, including[172]:

Shame, stigma, and fear of disclosing GBV.

Prioritisation of major disasters rather than small recent disasters.

Difficulty recollecting experiences from events that occurred a few years ago.

The challenge of connecting cases of GBV with the specific disaster, especially when GBV is high at other times as well.

Promising practice

Survey across 156 countries using secondary data

A survey by Mannell et al. (2024) explored linkages between environmental shocks and intimate partner violence (IPV) in 156 countries by using secondary data. The survey distinguished different types of extreme events, arguing that correlation of IPV and extreme temperature, wildfires and droughts was not prominent, unlike a statistically significant correlation with storms, landslides and floods. Authors argued that some events may produce long-term cumulative impact thus being harder to analyse through secondary data. Though the survey demonstrates significant association between higher GDP and lower IPV confirming that climate extremes do not create but rather amplify intra-household stress, multiple nuances in relation to gender, livelihood, power dynamics and contextual complexity is unavoidably omitted.[179]

Climate Stress Scale

Dr. Gulnaz Anjum led the development of a climate stress scale in Karachi Urban Lab in Pakistan. Drawing from the analysis of interviews on violence, they created a bottom-up five-point scale to understand people's stress due to climate related impacts. Currently it is used for data collection in 65 countries.

- Insights from key informants

"Integration is key to tackle complex, interlinked issues – nothing is going to be solved in siloes. We very much see this as the heart of what we do and how we try to support countries to advance their own national objectives – both on gender equality and on sustainable development and climate action [...] There has been some really interesting work on GBV integration in larger scale portfolios[...] For example, in wetlands restoration efforts[...] But there is a lot more to do."

—Cate Owren, UNDP

We have identified multiple limitations and challenges across quantitative metrics on the relationships between climate change and GBV:

- Population-based Demographic and Health Surveys (DHS) modules which assess gender-based violence are not climate sensitive.
- Gender-based violence modules within humanitarian systems, including the GBV Analytical Framework and International Organisation for Migration Displacement Tracking Mechanism (IOM DTM), primarily rely on secondary data and key informant interviews to ensure a 'do no harm' approach. The framework is comprehensive, though focused on practical strategical needs rather than prevention. To our knowledge, these tools have not been adopted across other contexts outside of humanitarian settings.
- Other small-scale quantitative metrics on the relationships between climate change and GBV are limited and usually rely on multiple sources of secondary data.[173] These multiple sources include DHS surveys, weather / climate data, police reports and hospital and emergency records, which are reliant on self-reporting and typically capture only a small fraction of gender-based violence cases. For example, according to a World Health Organisation (WHO) study, up to 95 per cent of survivors of intimate partner violence in developing countries never seek help from any source.[174] This use of multiple secondary sources also involves "hypothesized pathways from disaster exposure to increased violence against women and girls."[175]
- Other surveys employ various mixed method approaches to quantify relationships, such as surveys/mixed method research with civil society, academia and governments on their practices, challenges and barriers in addressing GBV and climate.[176]
- More research is needed to understand how intersecting forms of discrimination contribute to escalating gender-based violence in the context of climate change.[177] For example, people with disabilities and the LGBTQI+ community remain invisible in research or are siloed to small studies. Sexual and gender minorities are among the least explored topic within the field.[178]

Part 5: The way forward

Existing metrics are not providing the full picture on the relationship between gender and climate change. This presents an opportunity to develop groundbreaking and innovative policy-oriented solutions, increasing scale and impact.

This section outlines the sector's needs and its potential for evolutions. **We need a shift in the overall approach toward an inclusive feminist lens.** We identify three priority areas for progress, offer targeted recommendation for different stakeholder groups, and highlight next steps for this project.

5.1 Priorities for future work

We have identified four main challenges:

1. Inadequate transparency, visibility, and analysis of existing approaches. We strongly feel that it is important to utilise and make accessible decades of work from grassroot organisations and scientists.
2. Limited methodologies and data that currently constrain understanding on the intersection between climate change, GBV and gender equality at scale. These data would enable climate policies and programmes to be more effective, inclusive and sustainable.
3. Weak transdisciplinary and cross-sectoral collaboration that continues the pattern of siloed work in climate change and gender sectors.
4. Methodologies which exclude socio-political impacts on climate change vulnerability and adaptation strategies.

To address these challenges, we recommend four priorities for future work:

Focus 1: Visibility, compilation, and analysis of existing methodological approaches.

Focus 2: Development of new metrics on gender and climate change nexus.

Focus 3: Collaboration, mixed methods, and local sensitivity.

Focus 4: Methodologies connected to socio-political and economic realities.

Focus 1: Visibility, compilation, and analysis of existing methodological approaches

Despite notable efforts by large think tanks, INGOs, and multilateral organisations, methodological advancement in the field of climate and gender remains under-prioritized. Many methodologies developed by scholars and practitioners are either not publicly available or are difficult to access, and this work is often underfunded. These barriers hinder progress and limit the ability of stakeholders across the climate space to effectively integrate gender considerations into their initiatives.

Suggested action: A regularly maintained and updated platform could address this gap by compiling diverse metrics and modules, making them easily accessible to all. Such a system would also elevate methodological contributions from the Global Majority, fostering inclusivity and innovation. Similar initiatives have been partially implemented, but lack sufficient scope, detail, and regular updates.

Focus 2: Development of new metrics on GBV and climate change

The relationship between climate change and GBV is one of the most urgent yet least developed areas of research. Currently, this intersection is primarily explored through qualitative methods, which limits opportunities for large-scale comparison, modelling, and integration into broader studies and policy frameworks. Existing metrics are not providing the full picture.

Suggested action: This is an opportunity to develop a groundbreaking and innovative solution so that policies and programmes incorporate the relationship between climate change and gender issues (see section 5.2).

Focus 3: Collaboration across actors, methodologies, and local knowledge systems

Various actors – including grassroot organisations, scientists, and multi-lateral organisations – frequently operate in silos, missing opportunities to advance the field and one another's work. Large-scale data and metrics often fail to reflect local realities, including political priorities, cultural contexts, and existing feminist work such as grassroots organising, participatory research and activism. On the other hand, locally grounded work alone is insufficient to inform strategic, scaled decision-making and timely response.

Suggested action: Strengthen collaboration across actors, methodologies and data systems. Quantitative data should be analysed alongside qualitative, locally grounded approaches, and developed in allyship with Indigenous and historically marginalised researchers and knowledge holders. Methodologies should be supported by innovative, context-responsive solutions that are rooted in lived experience—for example, feminist case study research, participatory methods, and community-level data validation approaches. This integrated approach can generate comprehensive and actionable insights that are relevant and useful across local, national, and regional levels.

Focus 4: Methodologies connected to socio-political and economic realities: feminist perspective

Most existing methodologies remain insufficiently grounded in socio-political dynamics, including conflict, oppression, and systems of power, as well as in collective dimensions such as solidarity and care. While there has been a slow but positive shift from the household to the individual as the unit of analysis, this reorientation often overlooks intra-community power relations, broader socio-political influences, and the compounding nature of intersecting risks.

Suggested action: Methodologies should be more firmly embedded within broader socio-political and economic contexts, including conflict settings, economic conditions, and disaster risk reduction frameworks, to better reflect the compounded and politically situated nature of climate risk.

There remains a clear need to place greater emphasis on intersectionality, including the experiences of LGBTQI+ people, children, persons with disabilities, and other marginalized groups. For climate approaches to be genuinely gender transformative, metrics must move beyond descriptive sex-disaggregation to examine how climate responses address the structural drivers of gender inequality and contribute to gender equality outcomes.

This requires metrics that capture how gender inequality—across dimensions of choice, agency, power, roles and responsibilities, marginalization, safety, and care work—shapes climate vulnerability and response for individuals of all genders, and across multiple levels from the individual to the community. Greater attention is also needed for collective dimensions of inequality, including collective marginalisation and the perspectives of social groups and communities, which remain largely invisible in current quantitative approaches.

Figure 7: Approaches to measuring the gender and climate nexus: applying a feminist perspective

GENDER BLIND

Household as unit of analysis

GENDER INCLUSIVE

Men or women-led households as a unit of analysis

GENDER INCLUSIVE

Individual (women and men) as a focus of analysis

TRANSFORMATIVE GENDER APPROACH

Analysing choice, agency, power, roles and responsibilities, marginalisation, safety and care of:

- Women, men, non-binary, boys and girls across intersectional identities
- Households
- Social groups
- Community and beyond

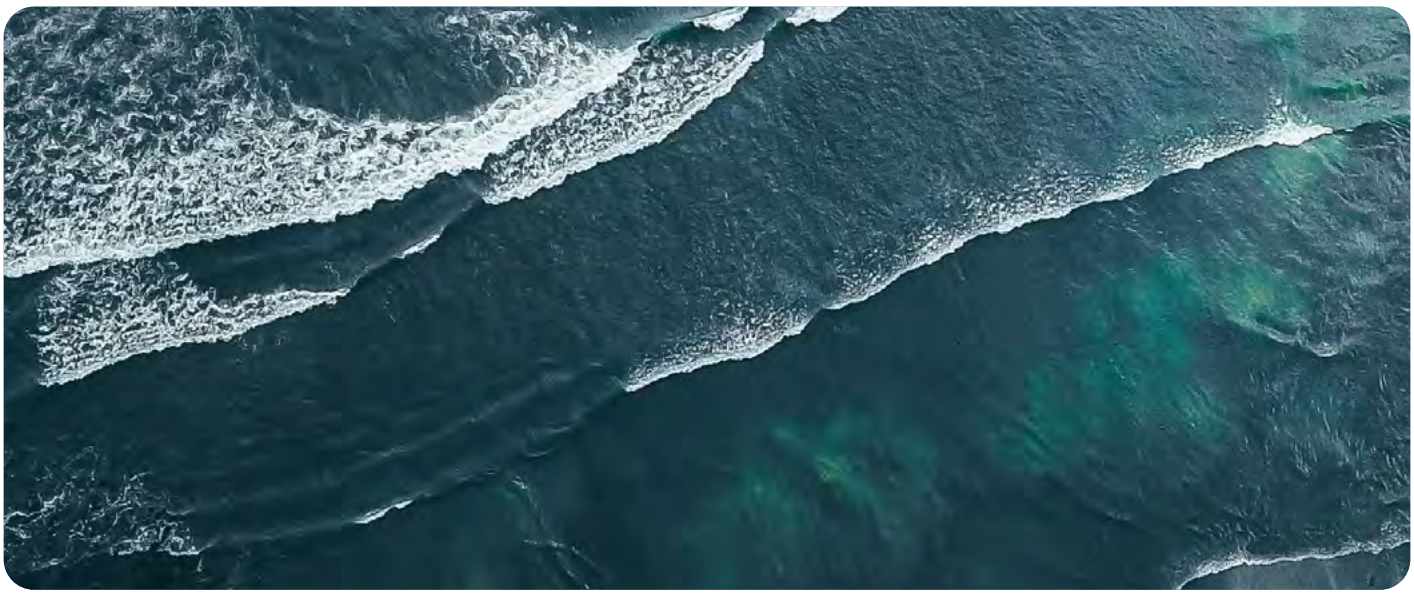
Within a context of socio-political conditions, legislation, economics, conflict and the environment.

5.2 Towards new metrics: Quantifying the nexus between climate and gender

The Equality Institute, in partnership with the Gates Foundation and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, are working to develop a rigorous quantitative measure that will lead to the production of quality, comparable data on the climate change and gender nexus.

The proposed measure:

- **Takes a gender transformative approach:** Will analyse choice, agency, power, roles & responsibilities, marginalisation, safety and care of women, men, non-binary, boys and girls across intersectional identities, within households and across communities.
- **Built for scale:** Designed to integrate into major data systems (e.g. DHS, MICS, national statistics), enabling widespread adoption across sectors—from health and agriculture to gender and disaster risk reduction.
- **Applicable across sectors:** Can be applied across sectors to provide insights relating to health, livelihoods, poverty alleviation, WASH and other areas.
- **Fills a major data gap:** As the scoping phase has shown, no existing tool captures the intersection of climate stress, gender inequality and gender-based violence risk. This scale will create a much-needed metric to inform programming, policy, and funding.
- **Rooted in local realities:** Informed by qualitative research with communities experiencing climate stress in two SADC countries (across 4 sites), with potential for expansion across the region.
- **Coalition building:** The project will foster collaboration across traditionally siloed sectors—climate resilience, GBV prevention, gender equality (including education, women's health, sexual and reproductive health, and economic empowerment), and development—helping align strategies and amplify outcomes.



The proposed next phase will involve:

- Indicator development drawing from the scoping visits
- Piloting and psychometric testing across SADC to ensure validity and reliability
- Cooperation wth stakeholders to enable integration of the tool into existing surveys
- Data collection
- Regional and global dissemination

Our goal is to position the new measure as a global public good—ready for use by governments, researchers, and multilateral agencies to drive more equitable and effective climate responses.

5.3 Recommendations

Government

With the adoption of the Belém Gender Action Plan for 2026–2034 at COP30, Governments have an opportunity to accelerate climate solutions by investing in action to promote gender equality connected to climate change

Recognise the interlinkages between climate change and gender inequality in climate policy

Integrate gender–based violence, and other gender inequalities, as climate–related risks into climate strategies and frameworks, and report on progress against the Belém Gender Action Plan.

Enhance data and evidence

Support data collection and research partnerships to document how climate stressors exacerbate gender inequality and gender–based violence, including the development of dedicated, scalable quantitative metrics that capture gender–climate dynamics. Partner with civil society practitioners for data validation and localised assessments.

Champion the importance of the gender and climate nexus

Advocate for the importance of integrated strategies on climate, gender inequality and preventing gender–based violence in international forums including the United Nations Framework Convention on Climate Change (UNFCCC), and for resourcing and state accountability under the Belém Gender Action Plan.

Strengthen women's leadership in climate governance

Support women's participation and leadership in international and regional decision–making platforms.

Expand gender–responsive climate finance

Direct climate finance to women's organisations, evidence–based gender–based violence prevention initiatives, and actions to address gender inequality.

Invest in protection systems that prevent gender–based violence

Include gender–based violence prevention and response mechanisms in climate and humanitarian programs, especially in areas affected by displacement and resource stress.

Funders

Recognise gender as a climate and development issue

Acknowledge that gender inequality, including GBV, is both a human rights violation and a barrier to effective climate adaptation, resilience, and recovery, and integrate action to address gender inequality into climate, humanitarian, and development financing frameworks.

Direct resources to women–led and community environmental organisations

Provide flexible, long–term funding to women's rights and environmental groups that operate at the community level, where climate and gender inequality, including GBV risks, intersect most acutely.

Support transparency in data production

Resource the development and maintenance of a regularly updated platform or hub for sharing data, metrics, and methodologies as well as collaborative dialogues.

Support knowledge sharing and innovative research

Fund pilot projects, research partnerships, and learning networks that generate evidence and scalable models linking gender, including gender–based violence prevention, with climate adaptation and response efforts.

Strengthen monitoring, evaluation, and accountability

Invest in robust monitoring systems that collect sex–disaggregated and intersectional data to assess how funded climate projects impact gender inequality, gender–based violence risks and community resilience.

Allocate dedicated funding for integrated gender–climate programming

Create or expand funding windows that explicitly address the nexus between gender equality and climate change and encourage joint proposals from climate and gender–focused organisations.

Invest in evidence and data

Invest in gender and climate nexus methodology development and data, including Phase 2 of this project.

Require gender and GBV risk assessments in climate finance proposals

Ensure all climate adaptation, mitigation, and resilience projects include gender analysis and gender–based risk screening, and measurable outcomes on women's safety, participation, and empowerment.

Researchers

Compile evidence

Conduct academic reviews and systematic analyses of methodologies to identify trends, gaps, and innovations.

Increase accessibility of data tools

Collaborate with practitioners and funders to compile and curate existing metrics and guidance (e.g., Weathering Risk) to support under–funded organisations.

Centre Indigenous and feminist knowledge and lived experience

Work in allyship with Indigenous, feminist and historically marginalised researchers and knowledge holders.

Climate Change and Gender Practitioners

Integrate gender risk analysis into climate and environmental programming

Conduct gender risk assessments during the design of climate adaptation, disaster risk reduction, and resilience projects to identify how environmental stressors may increase gender–based violence risks and other inequalities.

Empower women's leadership in climate action

Support women's participation and leadership in decision–making on resource management, early warning systems, and climate adaptation planning to address root causes of gender inequality.

Strengthen coordination between climate, gender, and protection actors

Establish cross–sectoral mechanisms linking gender equality / GBV specialists with climate, environment, and humanitarian teams to ensure coherent and survivor–centred responses.

Build the evidence base

Collect, use and share gender disaggregated and intersectional data as part of monitoring and evaluation activities to assess the relationship between gender inequality and climate response.

Partner with local women's organisations and community networks

that combine gender equality, climate adaptation, and protection activities. These groups are often first responders in both crises.

Investment in data

Advocate for investment in data metrics, such as Phase 2 of this project, that track how climate impacts intersect with gender inequality to inform evidence–based policy and programming.

Appendix: Overview of metrics analysed

THEMATIC AREA	METRICS DEVELOPED MY MULTI-LATERAL ORGANIZATIONS/ LARGE SCALE STUDIES
Gender and climate change	*Model Questionnaire Measuring the nexus between gender and environment (UNDP/UNEP/UN-Women) *GES Tonga *Framework to measure the nexus between gender and the environment
Gender and water/ WASH	* JMP WASH and Gender; Also see following publications: (Caruso et al., 2024; Caruso et al., 2021) *WHO, JMP/GLAAS: Indicators, Measures and Methods for Monitoring Climate resilient WASH - indicators are currently being revised
Empowerment in relation to environment/ natural resources	* Women empowerment in agriculture (WEAI) (Alkire et al., 2013)
Resilience, adaptation and adaptive capacity	*Indicators for the Global Goal on Adaptation *Resilience Index Measurement (RIMA II) *State resilience index
Gender inequality	* Women's Empowerment Metric for National Statistical Systems (WEMNS) (Seymour et al., 2024) *Gender Data Portal * Minimum Set of Gender Indicators *Women, Peace, and Security (Georgetown Institute for Women, 2023) *Social Institutions and Gender Index (SIGI) *GBV Analytical Framework 2024 (by GBV AoR) *DHS selected modules *Gender-Equitable Men Scale (GEMS) *The Women with Disabilities Stigma Inventory (WDSI)
Displacement	*IOM Displacement Tracking Matrix
Intersectionality	*Global Survey on persons with disabilities and disasters (UNDRR) (UNDRR, 2023)

THEMATIC AREA	INDIVIDUAL STUDIES
Gender and climate change	*Vulnerability to floods (Ajibade, McBean, & Bezner-Kerr, 2013), *Pastoralist adaptation (Huho & Asokan, 2024), *Climate risk perception at schools: (Khan, Rana, & Nawaz, 2020), *Drought resilience (Ncube, Mangwaya, & Ogundeji, 2018)
Gender and water/ WASH	*Household Water Insecurity Experiences (HWISE) (Sera L. Young et al., 2019) *Individual Water Insecurity Experiences (IWISE) (Sera L Young, Bethancourt, Ritter, & Frongillo, 2021)
Empowerment in relation to environment/ natural resources	Empowerment in: *WASH (Carrard, MacArthur, Leahy, Soeters, & Willetts, 2022; Dickin, Bisung, Nansi, & Charles, 2021); *Adaptive capacity (Khadka & Schuett, 2024), *Sanitation (Sinharoy, McManus, Conrad, Patrick, & Caruso, 2023), *Adaptive capacity in agriculture (Witinok-Huber & Radil, 2021)
Resilience, adaptation and adaptive capacity	*Livelihood vulnerability index (LVI) (Hahn, Riederer, & Foster, 2009), *Drought and violence (Uexkull, d'Errico, & Jackson, 2020), *Resilience with the focus on nutrition (Constas, d'Errico, & Pietrelli, 2022; d'Errico, Romano, & Pietrelli, 2018), *Subjective resilience (Jones & d'Errico, 2019), *Farmers adaptive capacity (Abdul-Razak & Kruse, 2017), *Migration (van Duijne, Ogara, Keeton, & Reckien, 2024), *Mitigation (Israel, Amikuzuno, & Danso-Abbeam, 2020)

End notes

[1] See UN Women. (2024). How gender inequality and climate change are interconnected. See also recent reviews and reports on this topic – See Note 6.

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[180] The conceptualisation of this graph is partially inspired by Gender Equality Marker (UN Women; UNCT of UN Women, 2024) that analyses and develops gender transformative and inclusive programmes and avoids gender exploitative approaches in financial allocations.