

Vision 2030

Future adaptation strategies to minimise the impact of climate change on women's sexual, reproductive, maternal and menopausal health

A focus on low- and middle-income countries



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About this report



Vision 2030: Future adaptation strategies to minimise the impact of climate change on women's sexual, reproductive, maternal and menopausal health is an Economist Impact report, supported by Bayer. The full editorial control of the research and outputs are the responsibility of Economist Impact. The report explores future adaptation strategies to minimise the impact of climate change on women's sexual, reproductive, maternal and menopausal health in low- and middle-income countries (LMICs). It explores the future by mapping pathways via a backcasting framework to reach a preferred Vision 2030. Grounded in a literature review, an expert advisory panel, and an interview programme conducted between November 2024 and May 2025, this report outlines the key components, milestones and stakeholders to ensure successful implementation of the Vision by 2030.

Our thanks are due to the following experts, in alphabetical order, for sharing their time and insights in a workshop that took place in February 2025:

- **Michele R. Decker**, ScD professor and founding director of the Johns Hopkins Center for Global Women's Health and Gender Equity, Johns Hopkins Bloomberg School of Public Health, US
- **Cheryl Holder**, co-founder and executive director, Florida Clinicians for Climate Action (FCCA), US
- **Yasna Palmeiro-Silva**, nurse, MPH, PhD in Global Health, and associate researcher at UC Chile University, Chile, and Universidad Peruana Cayetano Heredia (UPCH), Peru
- **Zonibel Woods**, Senior Social Development Specialist (Gender and Development), Gender Equality Division, Climate Change and Sustainable Development Department, Asian Development Bank, Philippines

Our thanks are due to the following experts, in alphabetical order, who provided insights through interviews and the provision of information:

- **Kristie Ebi**, Professor of Global Health, University of Washington, US
- **Vijay Limaye**, climate and health senior scientist, Natural Resources Defense Council (NRDC), US
- **Erlidia F. Llamas Clark**, Professor and attending consultant, Department of Obstetrics and Gynaecology, University of the Philippines (UP) Manila; and affiliate research faculty, Institute of Child Health and Human Development, UP-National Institutes of Health, Philippines
- **Ghulam Shabbir Awan**, health systems specialist/country director (ex), Ipas Pakistan

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Executive summary

Climate change is exacerbating gender-related health inequities by causing a disproportionately greater impact on the health of women compared with men. The impacts on women's health are wide-ranging, including challenges in sexual, reproductive, maternal and menopausal health, as well as increased risks of gender-based violence, mental health issues and unemployment.

Women's unique physiological characteristics and life stages—such as menstruation, pregnancy, breastfeeding and menopause—make them particularly vulnerable to climate-related events. For example, women are more susceptible to heat stress owing to factors like a higher basal metabolic rate, lower sweating efficiency and less effective body cooling mechanisms. Pregnant women face greater risks, including heat exhaustion and hypertension. Beyond biology, socioeconomic barriers further limit women's ability to adapt to these health challenges. This vulnerability is especially high in low- and middle-income countries (LMICs), where women experience greater exposure to climate hazards, have fewer resources for adaptation and face greater obstacles to healthcare access. Addressing the health impacts of climate change on women in LMICs is urgent—not only to protect individual well-being but also because women's health directly influences

broader social and economic stability, given their vital caregiving roles.

Healthcare systems in LMICs can develop adaptive strategies to safeguard women's health and improve women-centric health outcomes in relation to climate change.

Adaptation in this context would allow health systems to anticipate, prepare for and minimise the impacts of climate change on women's health while also allowing for speedier recovery from these effects. However, there are several barriers to effective adaptation in LMICs, including lack of climate policy, lack of funding and resources, poor policy implementation, lack of expertise, low risk perception, infrastructure constraints and poor healthcare delivery. There is an urgent need for policymakers and other stakeholders in LMICs to recognise and respond to the health impacts of climate change on women through targeted, collaborative and multisectoral approaches to adaptation that overcome barriers.

In this report, we present a framework for an adaptation strategy consisting of four main components (each with milestones), alongside three cross-cutting components with actionable responses (see Figure 1 for a summary of the framework). Each component is important on its own, but together they create a mutually supportive structure for progress.



In summary, the main components are:

Adapting action plans and guidance.

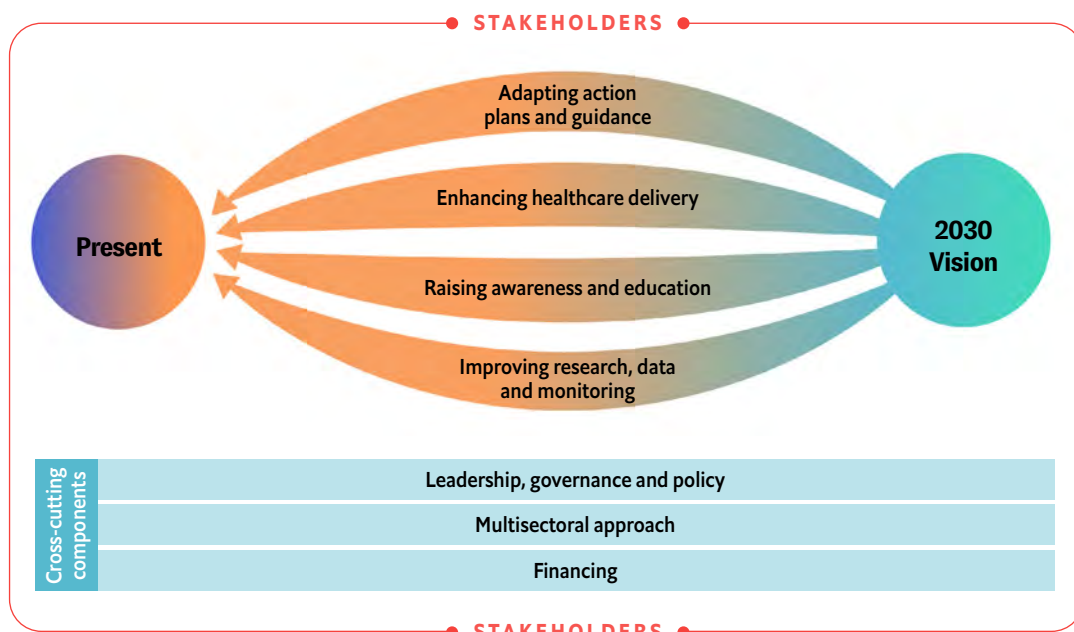
Global multinational agreements in response to climate-change-related health impacts fail to emphasise women-specific needs and adaptations adequately. Recognising this critical gap, the World Health Organisation (WHO) has emphasised the importance of incorporating targeted strategies for women within Health National Adaptation Plans (HNAPs) and vulnerability and adaptation (V&A) assessments related to climate change. Despite these efforts, many countries are yet to fully implement such gender-sensitive measures. To bridge this gap, the framework highlights the need for enhanced training for policymakers across various sectors to increase awareness of the gender-specific health effects of climate change. This would promote the integration of women-focused adaptation strategies into HNAPs and enable multisectoral, cross-cutting approaches to prevention and adaptation. In addition, the framework emphasises the need for policies and programmes that prioritise improving women's financial and vocational security. Doing so will enable women to maintain food security and access healthcare during climate-related events, ultimately building more resilient and healthy communities. Notable examples of microfinancing and digital payment schemes in LMICs that support climate-resilient livelihoods for women are highlighted in this report. These serve as valuable models for context-specific adaptation and implementation.

Enhancing healthcare delivery. For the successful implementation of women-specific health adaptations to climate change, a resilient and responsive healthcare system is necessary. The framework addresses this need

Through implementing this framework, we aim to achieve a Vision 2030, so that “by 2030, we envision a world where there are effective adaptation strategies to enhance women's sexual, reproductive, maternal and menopausal health in response to the impacts of climate change”.

We have chosen a five-year pathway-to-impact framework to account for the urgency of addressing climate-change-related health impacts for women. This timeframe aligns with the Sustainable Development Goals, accommodates short-term budgeting and political cycles, and leverages the growing momentum from healthcare organisations and multilateral bodies prioritising women's climate-related health issues.

Figure 1: Overview of the women’s health and climate change adaptation framework



by highlighting strategies that can improve the climate resilience of health infrastructure and workforces. Building healthcare facilities that can withstand climate impacts is important but they must also include features that support women’s health, such as keeping antenatal wards cool during heatwaves and ensuring privacy and safety for women during climate emergencies. Supply chains should be reliable and prepared to meet women’s unique medication needs resulting from climate-related health issues. Mechanisms should be in place to maintain medicines at the optimal temperature through transportation and in women’s homes, even during heat waves. Smart logistics should support delivery of medicines and supplies to women during climate disasters. These climate-resilient infrastructure and supply chains should be complemented by a climate-smart health workforce at all levels—one that is knowledgeable on the management of women-specific health impacts using an integrated

approach and leveraging new models of care like telehealth and digital solutions.

Raising awareness and education.

The framework describes various actions that can raise awareness of how to adapt to climate-related health impacts among women in LMICs. Raising awareness should follow a life-course approach, starting with girls in primary school and continuing throughout women’s lives. Education shouldn’t stop with women: it’s important to include men and the wider community to break down taboos and myths surrounding women’s health. Involving religious and community leaders can add a culturally sensitive perspective, making these messages more effective and widely accepted. Education should be accompanied by empowerment of women through establishing climate-resilient livelihoods and financial independence to improve their healthcare-seeking ability. Beyond fostering self-care, women from diverse

backgrounds should be encouraged to adopt leadership roles to advocate for other women. Women's voices at the grassroots level should be actively included in co-creating policies on health adaptations. These efforts will ensure that responses truly reflect women's needs and make a meaningful difference in their lives.

Improving research, data and monitoring.

The health impacts of climate change on women are an under-researched area in LMICs, especially in relation to sexual and reproductive health and rights, as well as menopausal health. The lack of research and limited data on the cost-benefits of prevention have resulted in poor visibility of this problem among policymakers. The framework offers various possibilities to address this gap, highlighting the role of technology while emphasising the need to account for the gender-based digital divide. LMICs should invest in technology and data systems that enable the collection of gender-disaggregated data on women's health impacts to bolster research. This could include using wearable devices to collect data directly from women. Technology can also enhance early-warning systems for climate disasters, helping to reduce healthcare

disruptions and improve preparedness. However, many women in LMICs still lack access to technology. This must be taken into consideration in the design of gender-responsive early-warning systems to ensure all women receive timely and effective alerts.

For every component described in the adaptation framework, simultaneous attention to these cross-cutting components will be essential for success.

• **Leadership, governance and policy.**

Adaptations addressing the health impacts of climate change on women must move beyond simply being gender responsive to becoming truly gender transformative. Central to this shift is the active participation and leadership of women in shaping climate and health agendas—ensuring that solutions are genuinely women-centric. The framework emphasises the need to remove social and cultural barriers to facilitate the rise of women into leadership positions. Achieving this requires a multipronged approach, including strategies like training, mentorship, networking, developing collective voice, advocacy and male allyship. Women from the community should be supported in assuming leadership roles and their voice should be critical to policy formulation.

• **Multisectoral approach.** Addressing women's health in the context of climate change demands a holistic, multisectoral approach, as women's health is influenced by a range of interconnected issues, such as access to clean water, safe housing, nutritious food and reliable healthcare services. The framework highlights the importance of forging strategic collaborations across key sectors—such as urban planning, water and sanitation, technology, and agriculture—to enhance adaptations that minimise the health impacts on women of climate change. These engagements will ensure



that solutions address the full range of social, economic and environmental factors affecting women's well-being.

- **Financing.** Only about 3% of global developmental assistance for climate change is linked to gender-specific initiatives. Multilateral organisations have recognised this gap and are taking steps to increase gender-focused funding. However, these efforts are still in their early stages and have yet to be meaningfully extended to health-related initiatives, where the intersection of gender and climate is particularly pronounced. The framework provides actionable guidance on how to enhance funding mechanisms for women's health within the context of climate adaptation. This includes diversifying funding streams, integrating gender analysis into funding decisions and setting clear targets for gender-specific allocations. Furthermore, examples of successful innovative funding strategies like microfinancing, that can improve the financial security of women and enable them to meet their own financial needs, are highlighted.

Think globally, act locally: Although the framework offers an overarching set of strategic responses for effective adaptations that minimise the effects of climate change on women's health, individual countries should apply the framework in relation to the local context. As an initial step, the framework can be effective as a tool in raising cross-sectoral awareness of climate-change-related women's health impacts among policymakers to facilitate a multisectoral approach. Subsequent steps can be taken to implement aspects of the framework that are particularly applicable to the local setting, with special emphasis on raising awareness among women and their communities, financially empowering women and strengthening the response of the healthcare system to women's health needs. Critical to the success of these efforts is ongoing support for research into gender-specific impacts of climate change on health and the cost of inaction. This evidence will motivate policymakers to continue to take decisive and informed steps to enhance women's health adaptations to climate change.

Why a Vision 2030 for women's health in LMICs?

VISION STATEMENT

We envision a world where, by 2030, there are effective adaptation strategies to enhance women's sexual, reproductive, maternal and menopausal health in response to the impacts of climate change.

Why women's sexual, reproductive, maternal and menopausal health in LMICs?

The ties between the climate crisis and human health are undeniable. The global community is under pressure to develop strategies and plans to mitigate the impacts of climate change on health.¹ Women are particularly at high risk from adverse health outcomes due to climate change.² Women have distinct vulnerabilities across their life course, particularly in relation to their sexual, reproductive, maternal and menopausal health (see Figure 2). Additionally, they face other impacts related to climate change, including

increased risk of gender-based and sexual violence, mental health challenges and financial vulnerability.^{3,4} Maternal and neonatal diseases, nutritional deficiencies, HIV/AIDS and sexually transmitted infections (STIs), infectious diseases, and self harm or violence are already among the leading causes of disability-adjusted life years (DALYs) for women in low- middle- socio-demographic index countries (see Figure 3), but these outcomes will only worsen in the face of climate change.⁵ Climate change also exacerbates gender-related health inequities, meaning that its impacts on women's morbidity and mortality are disproportionately higher compared with men.⁶



Women are particularly at high risk from adverse health outcomes due to climate change. Women have distinct vulnerabilities across their life course, particularly in relation to their sexual, reproductive, maternal and menopausal health.

Low- and middle- income countries (LMICs) are bearing the brunt of health and climate-related challenges, as their health systems are often less prepared to handle the impacts of climate change.⁷ The data is stark. According to *The Lancet* Countdown report of 2024, of 131 countries identified to have high-to-very-high levels of implementation of health emergency management in response to climate change, only 11% were countries with a low human development index (HDI) and 18% were countries with a medium HDI.⁸ Women living in LMICs are more exposed to harmful elements, such as heat, polluted water and indoor air pollutants.⁹ For instance, women living in LMICs are more vulnerable to heat waves, because of lack of air conditioning and fresh water and increased exposure to indoor air pollution through cooking gases, which will cause greater incidence of

adverse health outcomes.¹⁰ Zonibel Woods, a senior social development specialist in the climate change and sustainable development department of the Asian Development Bank says: "One of the things you need to be able to do when you're experiencing heat stress is to breathe at a faster rate but [women's] lungs may be compromised by indoor air pollution. So, we have these very specific examples that show impacts that women are experiencing from climate change that perhaps men are not experiencing in the same way, due to things like women's caregiving roles." These challenges can have an impact on women across their entire life course, but have particular impacts on women of reproductive age, pregnant or breastfeeding women, sexually active women, and women going through menopause, as well as women participating in domestic or paid labour (see Figure 2).



Additionally, socioeconomic barriers such as direct out-of-pocket costs for healthcare and indirect costs, such as those associated with transport needs, can have an impact on women's ability to access essential services during climate events. For instance, during storms and flooding in Bangladesh, boats may be the only way to travel to hospitals, which can be dangerous, time-consuming and costly.¹¹ Women are more likely to be unemployed and reliant on men for financial support, which can also impede access to health care.¹² Dr Vijay Limaye, a climate and health senior scientist at the Natural Resources Defense Council, an environmental advocacy group in the US, underscores these socioeconomic challenges: "In LMICs, women lack the social capital to prioritise their health needs, and the economic resources to act upon directions received from medical professionals. When women delay or completely forego necessary medical care, they become even more vulnerable to serious health harms (illness, injury or even death), because climate hazards are especially dangerous for people contending with pre-existing health conditions." Furthermore, the health impacts of climate change on women have broader consequences for society. Dr

Limaye highlights: "As caregivers, women in LMICs are already heavily stressed by demands on their time, causing physical and mental stress. Climate hazards, especially intense disaster episodes, threaten to undermine the capacity of women to function as caregivers."

The devastating health-related consequences of climate change on women living in LMICs, who are among the most vulnerable in the world, are given far too little attention on the global stage. Ms Woods has observed major deficiencies: "The biggest eye-opening experience for me when meeting with health departments in different countries is that they are only beginning to understand the disproportionate impact that climate change is having on women's health, even when it comes to maternal and child health."

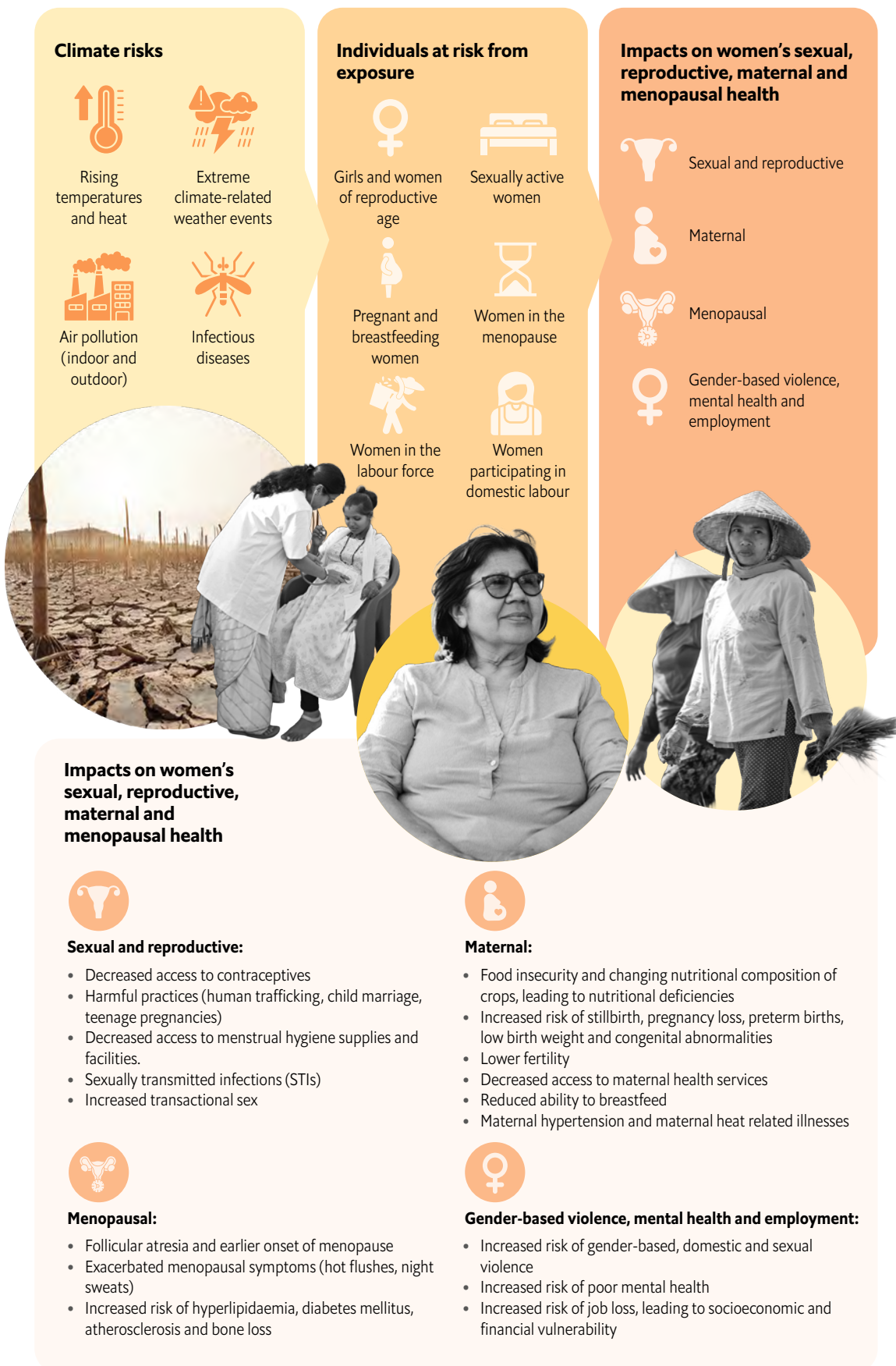
As women's health outcomes worsen in the face of climate change, adaptation strategies targeted specifically towards women's sexual, reproductive, maternal and menopausal health needs are imperative. Healthcare systems must adopt strategies to anticipate, prepare for and minimise the impacts of climate change to protect and enhance women's health care in LMICs and improve women's health outcomes.



“The biggest eye-opening experience for me when meeting with health departments in different countries is that they are only beginning to understand the disproportionate impact that climate change is having on women's health, even when it comes to maternal and child health.”

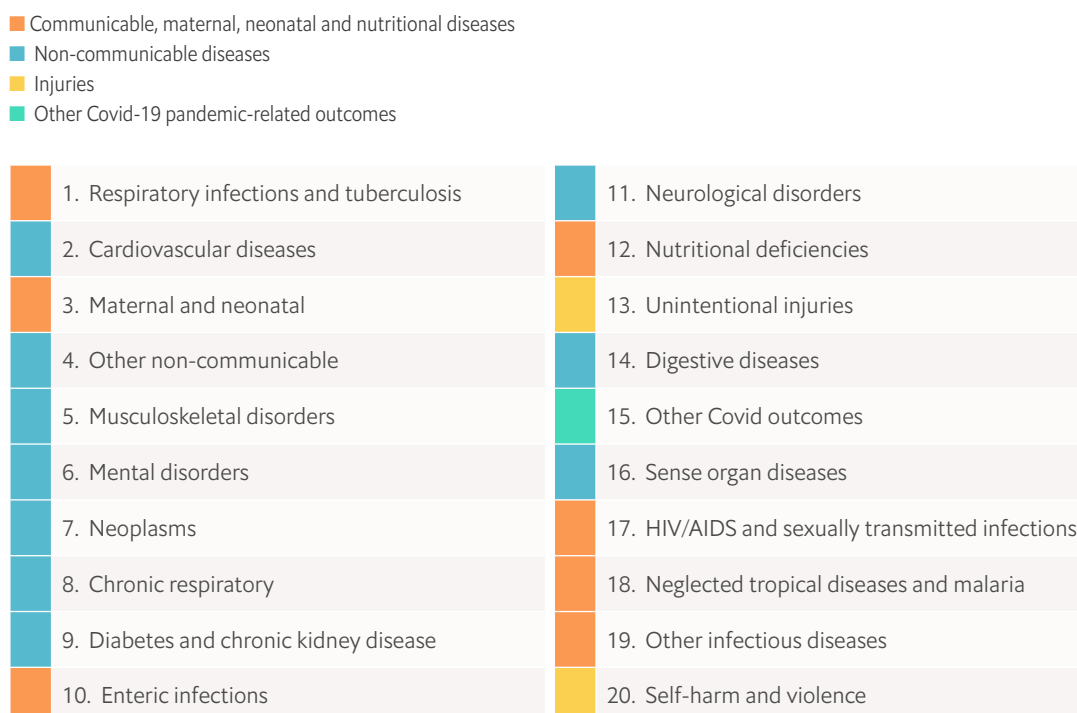
Zonibel Woods, Senior Social Development Specialist (Gender and Development), Gender Equality Division, Climate Change and Sustainable Development Department, Asian Development Bank, Philippines

Figure 2: Climate-change impacts on women’s sexual, reproductive, maternal and menapausal health



Source: Economist Impact analysis, based on references 13-33

Figure 3: Leading causes of DALYs (per 100,000) for females of all ages in Low-Middle Socio-Demographic Index (SDI) countries in 2021



Source: Institute for Health Metrics and Evaluation. GBD Compare: Low-middle SDI, Females, All ages, DALYs per 100,000, 2021 rank. Available at <https://vizhub.healthdata.org/gbd-compare/>

Why the year 2030 for our Vision?

Although a backcasting framework developed to 2040 or 2050 may be seen as more flexible, we decided on a five-year pathway-to-impact framework for the following reasons:

- **The gravity of climate-change impacts on women’s health is being understood and prioritised.** This has been seen with the growing focus on health at top-level climate and health fora. The launch of the Alliance for Transformative Action on Climate and Health (ATACH) followed the UN climate summit COP26 (in Glasgow in 2021),³⁴ and the first Health Day occurred at COP28 in Dubai in 2023.³⁵ The UAE Declaration on Climate and Health outlined a need for greater focus on gender-sensitive health

risks and vulnerabilities related to climate change and emphasised strengthening the development and implementation of adaptation and mitigation policies, which was signed by 151 countries.³⁶ And the World Health Organisation (WHO) has emphasised the impacts and opportunities for mitigation and adaptation in relation to the consequences of climate change on women’s health.³⁷

- **Short-term budgetary and political cycles matter.** Considering the short-term nature of political cycles and their associated funding rounds, we believe that the five-year Vision to 2030 will have more resonance with policymakers, healthcare actors and stakeholders whose actions have an impact on women’s health.

- **Complementing the Sustainable Development Goals (SDGs) is important.** The SDGs were set for the year 2030 and many of the goals have health, wellbeing, gender equality and climate elements,³⁸ and so aligning our framework paths for women's health to 2030 made sense. UN Women also highlights the need to address climate change's impact on women to meet the SDGs.³⁹
- **Healthcare bodies have been targeting the year 2030 to improve outcomes for women.** The Global Strategy for Women's, Children's and Adolescents' Health, launched by the WHO, outlines an action plan for newborn health, birth defects, universal coverage of maternal, newborn and child health interventions, and women's and child's health development before 2030.⁴⁰ Additionally, the International Federation of Gynaecology and Obstetrics (FIGO) has devised a global vision for 2030, aiming to achieve the highest standards of physical, mental, reproductive and sexual health and wellbeing throughout a woman's life.⁴¹

How to use the adaptation framework

This framework serves as a guide to health systems, which comprise healthcare and health-determining organisations, institutions, actors

and people, in the development of climate resilience and adaptation planning for women's health for better outcomes. We envision a world where we strengthen prevention, education, leadership, multi-stakeholder awareness and progress in relation to the impacts of climate change on women's sexual, reproductive, maternal and menopausal health for equitable and inclusive care.

Our Vision is aspirational, yet actionable.

It spans the next five years and recognises the diverse structures, governance and development stages of health and climate systems globally, and the inherent uncertainties from now until 2030.

We encourage countries to apply the framework flexibly, taking into account their needs. The framework consists of four **primary components**, each containing actionable paths (subcomponents) designed to support health and health-adjacent systems from initial steps to the creation of more comprehensive approaches.

Although our components are conceptually distinct, overlaps exist. The last three components—**leadership, governance and policy, multisectoral approach, and financing**—are the clearest examples. Therefore we have called them cross-cutting components,

WHAT DO THE EXPERTS SAY ON A VISION 2030?

"A short-term time horizon is essential, as climate change is intensifying (not getting worse in a linear way). So, it is urgent that we figure out how to effectively implement health-protective adaptation strategies sooner rather than later, because we will only need to strengthen these approaches in terms of investment, precision and reach in the years to come as warming continues."

Dr Vijay Limaye, climate and health senior scientist, Natural Resources Defense Council (NRDC), US

"One of the most revolutionary things we can do is present our Vision in a way that is readily understood and valued by grassroots communities."

Michele R. Decker, founding director of the Centre for Global Women's Health and Gender Equity, Johns Hopkins Bloomberg School of Public Health, US

as they have a direct impact on the ability to make progress in all areas. They are therefore discussed separately and collectively at the end. Within the other four components, certain themes reappear frequently, such as the importance of raising awareness among communities, building the capacity of the healthcare workforce and facilitating financial empowerment of women. We also acknowledge that adaptation strategies cannot take place without mitigation efforts: so the two sit side by side.

Finally, the adaptation framework is a detailed piece of work. The following overview of its

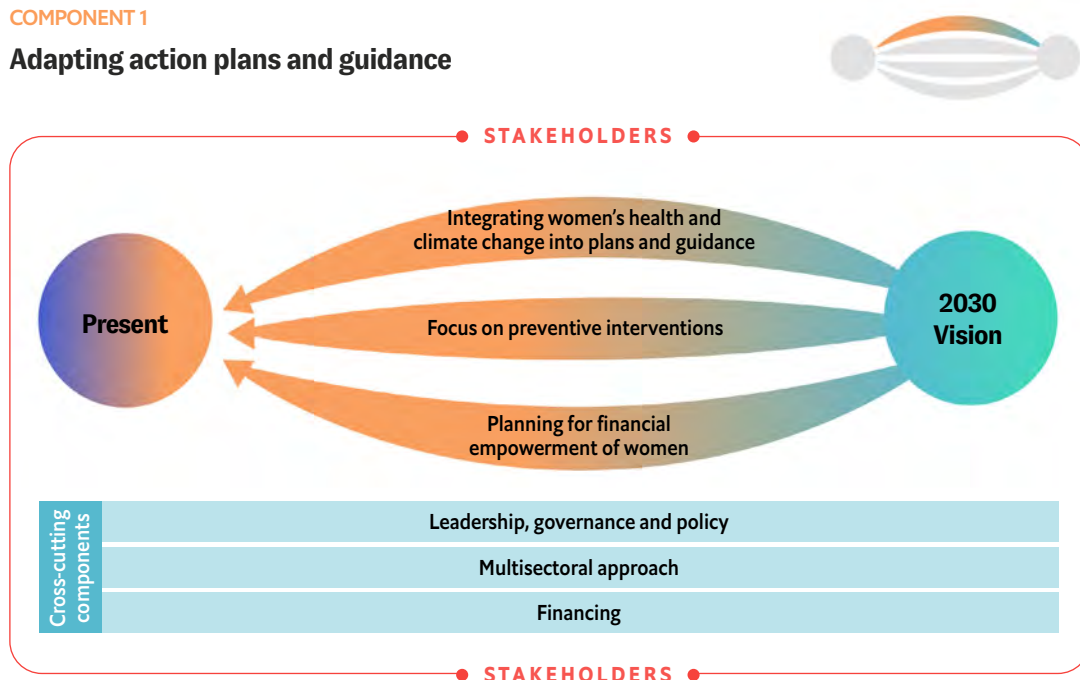
parts is too small to go into detail. Each of the first four components, for example, contains subcomponents with initial (Milestone 1) and subsequent recommendations up to the year 2030 (Milestone 2), as well as suggested stakeholders, along with footnoted explanations for this advice. To give readers an idea of this complexity, the figure included with the discussion of the first component will go into far more detail than the others. Stakeholders interested in improving the health of women affected by climate change will benefit from the valuable insights revealed by a close reading of the framework in the **appendix**.

Component 1: Adapting action plans and guidance

Figure 4

COMPONENT 1

Adapting action plans and guidance



i. Improving action plans and vulnerability and adaptation assessments

The women’s health adaptation framework’s first component focuses on the need to adapt action plans and guidance—taking into consideration their approach to sexual,

reproductive, maternal and menopausal health—for good reason (see Figure 4).

High-level policy responses to climate change and health are yet to adopt a gender-sensitive lens consistently. For instance, member countries of the Paris Agreement of 2016 are required to submit Nationally Determined Contributions (NDCs),

which lay out the country's plans to reduce emissions and adapt to climate change, every five years.⁴² However, only 32% of NDCs included gender-sensitive topics, such as information on sexual health and reproductive health rights, and gender-based violence and harmful practices like child marriage, according to an evaluation of 119 NDCs. Menopausal health effects are routinely overlooked, with only one NDC from Côte d'Ivoire noting the risk of extreme heat and its effect on women experiencing menopause.⁴³ Similarly, COP26 included guidance on initiatives for climate-resilient health system development including:

1. to conduct climate change and health vulnerability and adaptation (V&A) assessments;
2. to develop Health National Adaptation Plans (HNAPs), which are plans led by national Ministries of Health to address the health impacts of climate change; and
3. to facilitate access to climate-change funding for health.⁴⁴

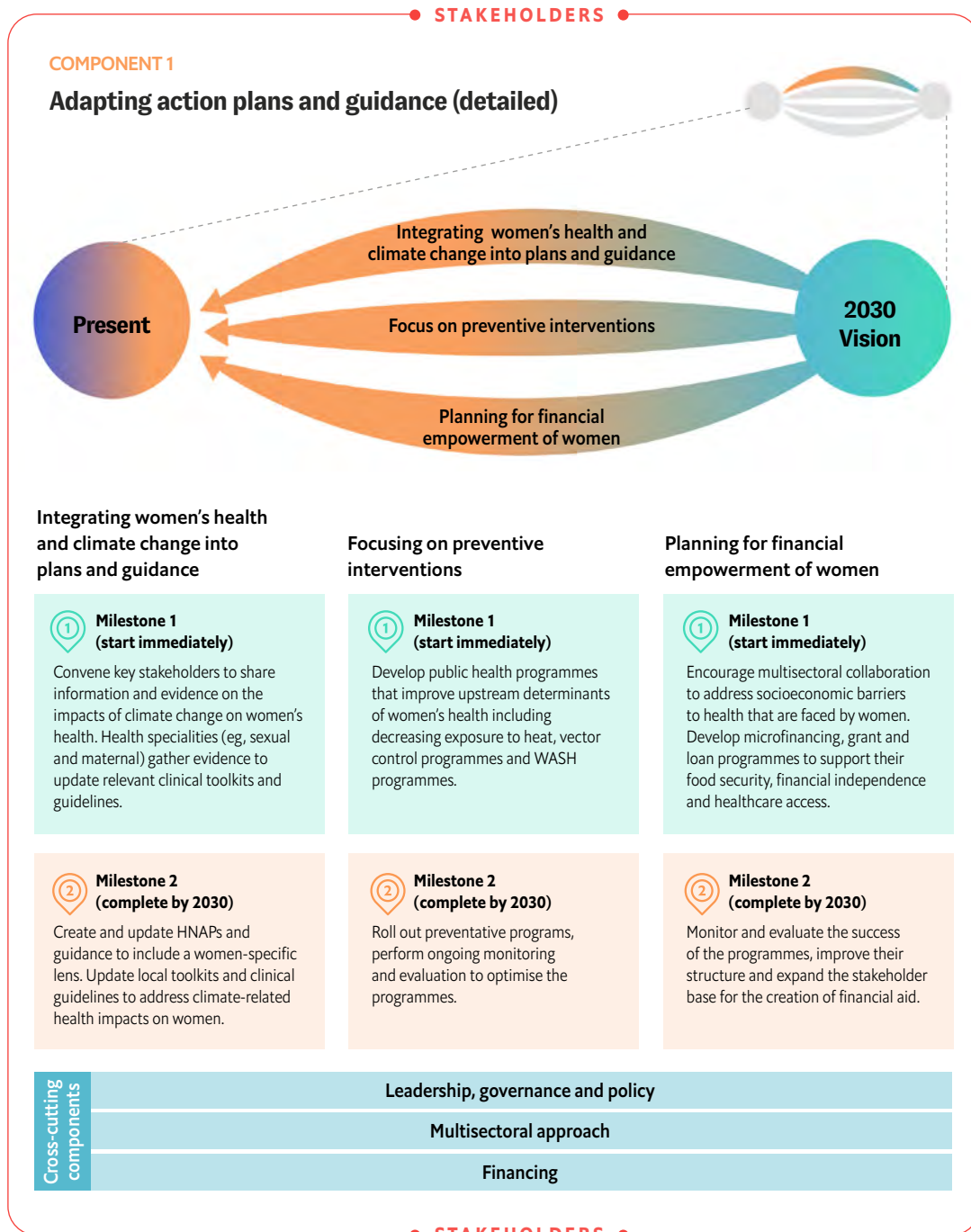
While this COP26 guidance pushes the needle forward for climate and health, focus on gender sensitive adaptation is missing as gender specific assessments, plans or funding are not required to commit to the programme in which 58 LMICs are member countries.⁴⁵

Multilateral agencies have begun to highlight this gap and the need for gender-specific assessments and action plans. For instance, the WHO has set quality criteria for the HNAPs to include targeted adaptations for vulnerable populations, including women.⁴⁶ Similarly, in climate change and health V&A assessments, the WHO recommends the identification of subpopulations that are most vulnerable to

climate change and design specific adaptation methods to respond to their needs.⁴⁷ However, few countries have implemented this guidance. A 2021 WHO survey of national climate change and health V&A assessments found that only 12 (out of 43 assessments) mentioned gender differences in climate-sensitive health risks. No specific mentions were made of risks related to sexual and reproductive health and rights, and maternal health.⁴⁸ More explicit inclusion of a gender-specific angle in the quality criteria for HNAPs and V&A assessments can further boost gender-specific health responses. These efforts require better awareness and collaboration between multilateral agencies, governments, climate groups, healthcare professionals, women and communities to identify climate-related health risks to women and key issues to be addressed in action plans. "The most important actions are to conduct V&A assessments, followed by HNAPs," says Kristie Ebi, Professor of Global Health at the University of Washington. "What is implemented in a particular country depends on their situation and capacities. It's quite useful to have a central database for countries to explore best practices from other countries."

One example of successful exchange of country technical expertise is the Alliance for Transformative Action on Climate and Health (ATACH), which was launched by the WHO and the UK in 2022 to support the COP26 health programme.⁴⁹ The framework developed by Economist Impact can also be used for exchange of experiences between different countries and comparisons of milestones achieved. See **Figure 5** for detailed milestones from component 1 of the framework that LMICs could embed as part of their Vision.

Figure 5: Component 1: Adapting action plans and guidance (detailed)



Source: Economist Impact. See appendix for full details.

ii. Enhancing preventive measures

Component 1 of the framework also highlights the need for the inclusion of preventive measures in HNAPs to improve women's health, such as preventing exposure to the effects of heat (especially for pregnant women) and improved vector-borne-disease control during flooding and water, sanitation and hygiene (WASH) programmes. (As this area requires cross-sectoral involvement, it is also covered in the section on cross-cutting components.)⁵⁰

These climate-change impacts will require different approaches for prevention. As Professor Michele Decker, the founding director of the Johns Hopkins Center for Global Women's Health and Gender Equity and professor at the Johns Hopkins Bloomberg School of Public Health, says: "The mechanisms by which flooding and heat impact women's health are different. So, the prevention pathways and the management of these needs are also distinct." Preventive actions related to heatwaves can be integrated into urban planning and architecture, which can benefit communities and women (see box).

iii. Financial-empowerment planning

Financial-empowerment planning is the third subcomponent of component 1 in the women's health adaptation framework. The recommendations state that government, private and non-governmental organisation (NGO) actors set up microfinancing/grant/loan programmes that encourage women entrepreneurs to become financially empowered to access funds for health care easily, buy food, break the poverty cycle and gain skills for business transformation. Areas for consideration include the role of cash transfers or initiatives that fund enterprises that are run by women or employ women. This can improve women's food security and nutrition and provide financial means to access sexual, reproductive, maternal and menopaual health.

This is an important part of the framework, as some 750m women in the most climate-vulnerable regions lack access to basic financial services, such as an active bank account or e-wallet to withstand climate-related weather challenges.⁵⁵

SOUTH ASIA'S FIRST HEAT ACTION PLAN BENEFITTED WOMEN

Governments can create policy and regulation standards for buildings so they ensure heat reduction as well as improved warning systems.⁵¹ An example from Ahmedabad, India, in 2013 shows how this can benefit women. The city implemented South Asia's first Heat Action Plan, an adaptation strategy to reduce the city's vulnerability to heat hazards through improving training of medical professionals, increasing awareness among the public, developing a city-level heatwave early-warning system, and using cool roofs to reduce the urban heat island effect.⁵²

An evaluation in 2018 showed that the city's plan helped to avoid an estimated 1,190 deaths each year since implementation.⁵³ "Preliminary evidence suggests that women and other vulnerable groups have benefitted from the heat action plan, but more work is needed to identify the gender-specific benefits," Dr Limaye says. Additional regulations that mandate culturally-sensitive indoor exercise spaces, such as separate exercise areas for women, can also improve preventive health around climate-related events such as heatwaves. Tree and landscape ordinances can be enacted to increase vegetation in urban areas and grants can be provided to community organisations to maintain these urban forests.⁵⁴ Female entrepreneurs and women-led community organisations should be engaged in leading and implementing these cross-cutting solutions.



INITIATIVES IN LOW- AND MIDDLE-INCOME COUNTRIES IMPROVING FEMALE FINANCIAL EMPOWERMENT

Microfinancing

- The **Women's Microfinance Initiative**, which operates in Uganda, Kenya and Tanzania, provides loans without collateral or interest to women in business, as well as training and support, to financially empower them and create social change. Loans such as this can remove financial barriers to accessing health care for women, reduce rates of domestic violence and alleviate poverty and hunger.⁵⁸
- Financial empowerment that is linked to climate initiatives can offer dual benefits. In Uganda, an NGO called RUCODE runs a community initiative called the **Women's Empowerment for Resilience and Adaptation Against Climate Change**, made up of more than 1,600 women-led organisations. By pooling their individual savings to create a fund of nearly US\$2.8m, these women can borrow from the pool to invest in income-generating activities that address climate change, such as water-irrigation technology for dry-season agriculture and harnessing solar energy for lighting, fruit and fish drying. The programme has led to around 200,000 women having access to clean water, better nutrition and value-chain agricultural production. Central to the success of this initiative is collaboration, as RUCODE joined forces with women's groups in the community and international partners like UNDP-GEF, Care International, Plan International and CORDAID Netherlands.⁵⁹
- Another example is the **Mkani Project in South Africa**, developed by a female social entrepreneur, Thenjiwe Mkani. The project supports capacity building among women for agroecological practices, which facilitate food security and help to generate an income. It has shown benefits in helping women overcome challenges from crop damage due to floods.⁶⁰
- Existing programmes in Asia could also be adjusted. In Pakistan, Dr Shabbir Awan, health systems specialist and ex-country director of Ipas Pakistan, a women's reproductive health NGO, notes that, "There have been patchy efforts by NGOs to train women in agriculture and animal rearing to improve their financial capacity to respond to climate challenges." He proposes that integrating the government's unconditional cash transfer initiative, known as the **Benazir Income Support Programme**, with efforts to enhance women's vocational skills can significantly promote their financial empowerment.

Digital payments

- Improving access to digital payments for women during climate-related emergencies is an important consideration, as 880m women face challenges in accessing digital emergency relief payments offered by governments during climate-related weather events.⁶¹ Multilateral agencies, governments and NGOs in LMICs are taking action to improve access to these payments.
- The **UN Capital Development Fund (UNCDF)** has developed a **Pacific Insurance and Climate Adaptation Programme (PICAP)** to offer parametric microinsurance products that provide coverage against cyclones and excessive rainfall. Money is disbursed directly to participants via digital wallets in the case of a weather event. Nearly half of the beneficiaries of this programme have been women and the funds have supported rapid recovery from impacts to their agricultural livelihoods, resulting in better financial security which can improve healthcare access.⁶²
- The **Better than Cash Alliance**, an initiative involving the governments of the Philippines, Bangladesh, Colombia, Ethiopia, Guatemala, Mexico and Rwanda, is working to enhance climate resilience through supporting inclusive digital payments, with a specific focus on vulnerable populations including women.⁶³ The **Central Bank of Philippines (Bangko Sentral ng Pilipinas)** has been a forerunner in this space, standardising payments during climate disasters via QR codes.⁶⁴ Successful efforts in the Philippines include the use of digital payments during Typhoon Yolanda, which empowered households to maintain climate resilience.⁶⁵ Such payments can support women's healthcare access and preventive efforts.
- **Women's World Banking**, an NGO, has partnered with Program Keluarga Harapan, Indonesia's largest cash transfer programme, offering payments to the poor during climate-change-related disasters and has supported women to receive digital payments.^{66,67} Sustained efforts towards financial empowerment of women through digital payments can ensure food security and healthcare access for women during climate-related weather events.

Multilateral organisations are working to fill this gap. UN Women and UN Environment have jointly implemented the “EmPower: Women for climate-resilient societies programme”, which several LMICs participate in (Indonesia, Vietnam, Cambodia, Philippines and Bangladesh).⁵⁶ The programme offers low-interest loans to renewable energy enterprises that are led by women. For instance, using funds provided by the programme, a tea co-operative led by women in the Bắc Kạn province of Vietnam was able to buy a solar-powered drying house to dry tea and bamboo shoots in unpredictable weather.⁵⁷ These approaches improve food security for women in inclement weather. They also offer a path to financial empowerment that can help women adapt to and mitigate the health effects of climate change. There are a number of examples of programmes in LMICs that could be replicated elsewhere to improve women's financial security (**see box**).

Although action plans and guidance are essential for strategic adaptations of women's health to climate change, effective implementation is necessary to reap the benefits—but LMICs lag in this area.⁶⁸

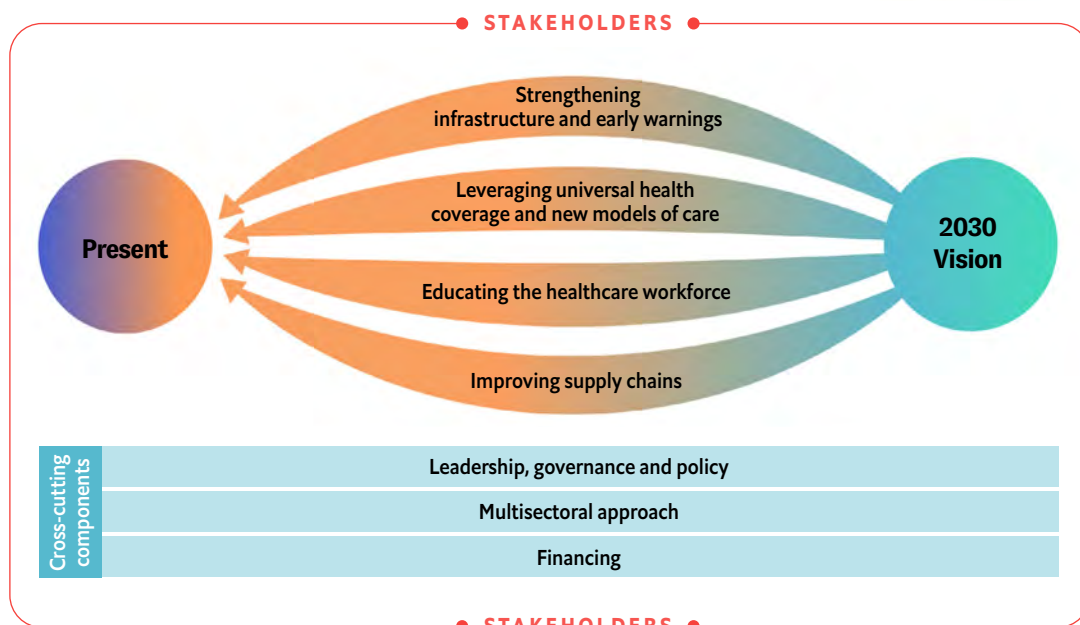
“I think Pakistan has been very good in developing papers and policies in terms of frameworks. Unfortunately, the issue has been how these frameworks have been translated into action or what is reaching the beneficiaries they are meant for,” notes Dr Awan. Gender-specific implementation plans like the Gender Action Plan of the UN Framework Convention on Climate Change (UNFCCC) offer guidance, but more specific national implementation plans for climate and women's health are necessary.^{69,70} The backbone of effective implementation of health adaptations is a strong healthcare infrastructure and a skilled workforce, as described in the next section.

Component 2: Enhancing healthcare delivery

Figure 6

COMPONENT 2

Enhancing healthcare delivery



For women to receive uninterrupted and high-quality health care during climate events, resilient healthcare infrastructure and supply chains are critical. These should be supplemented by a climate-smart health workforce capable of offering integrated care and leveraging climate-resilient models of care

delivery, as component 2 of the framework advocates (see Figure 6). “We can and must anticipate the onward impact of climate change on health based on the science that we have at this moment. System strengthening will make us more robust to face it,” says Professor Decker.

i. Strengthening healthcare facilities

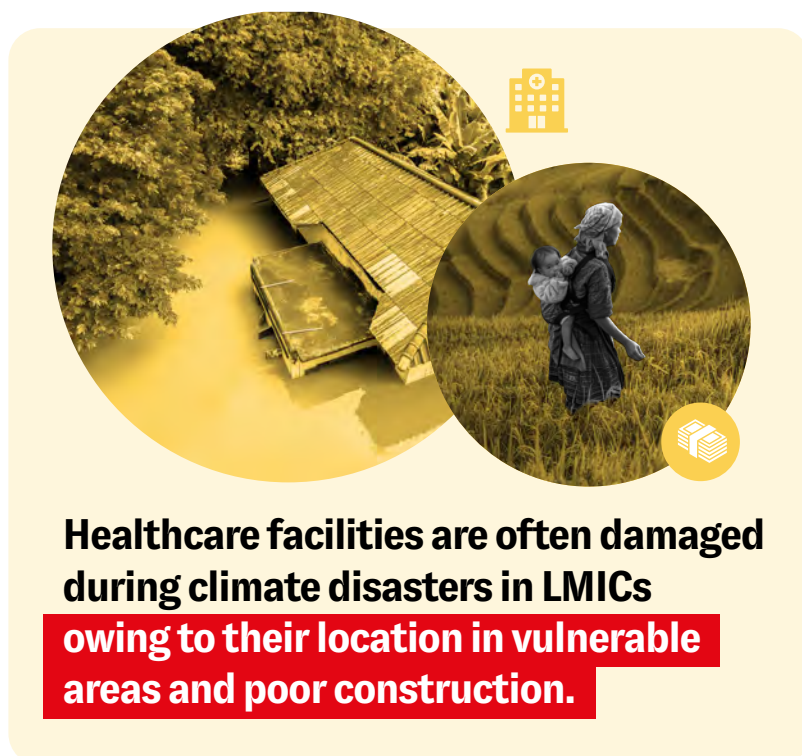
Healthcare facilities are often damaged during climate disasters in LMICs owing to their location in vulnerable areas and poor construction.⁷¹ Hence the framework advises the construction of new climate-resilient infrastructure and retrofitting of existing infrastructure in facilities providing health care, employment and shelter for women. It also says to ensure any new buildings are built outside areas that are prone to floods, wildfires and natural disasters. The structural design of healthcare centres in LMICs can be enhanced to withstand climate events by following WHO guidance for climate-resilient and environmentally sustainable healthcare facilities to optimise their location, structural design and information systems.⁷² Women-centric elements should also be integrated into climate-resilient healthcare centres. For instance, incorporating heat-reducing structures, such

as reflective roofing and thermal insulation in antenatal wards, can improve maternal and foetal health during heatwaves by reducing the risk of miscarriage and premature births.⁷³

UN Environment notes that around 80% of people displaced due to climate change are women and girls, who face increased risks of sexual violence or unintended pregnancies as a result of migration.⁷⁴ Designing emergency shelters within healthcare facilities with provisions for women to wash, bathe and sleep will therefore improve both healthcare access and physical safety for women during climate events.⁷⁵ Dr Awan says, "Improving access has been mostly focused on infrastructure or tangible things, but we must focus more on offering women privacy and better access to sexual and reproductive health, including contraception, during weather events."

ii. Improving supply chains

The framework advises the creation of plans to strengthen the monitoring of essential stocks of healthcare products for women to pre-empt need and ensure adequate supply during times of climate crisis. As Professor Decker notes, "Making sure that the supply chain is in place and is robust to disruption is critical. What we've learned from humanitarian and other crisis situations is that we need this to be part of the preparation, thinking through potential threats in order to mitigate them." Adequate supplies of contraceptives, nutritional supplements needed during pregnancy, and treatments for vector-borne illnesses should be maintained in healthcare centres to support women's health during climate events.⁷⁶ Menopausal health is also likely to deteriorate with climate change, and this can be addressed through stocking relevant treatments, such as hormone replacement therapies, topical oestrogens and other drugs for vasomotor symptoms.^{77,78}



Healthcare facilities are often damaged during climate disasters in LMICs owing to their location in vulnerable areas and poor construction.



“Making sure that the supply chain is in place and is robust to disruption is critical. What we’ve learned from humanitarian and other crisis situations is that we need this to be part of the preparation, thinking through potential threats in order to mitigate them.”

Michele R. Decker, ScD professor and founding director of the Johns Hopkins Center for Global Women's Health and Gender Equity, Johns Hopkins Bloomberg School of Public Health, US

A multisectoral approach is necessary to ensure the integrity of supply chains. For instance, the use of digital technologies, such as big data analytics, predictive health data analysis and remote monitoring of stocks, through collaboration with the technology industry, can help to forecast the needs for these supplies.⁷⁹ Collaborations with the transport sector can improve supply-chain logistics for contraceptives and medicines to facilitate more climate-resilient sexual and reproductive health rights for women.⁸⁰ Having contingency plans in place for the use of alternative transportation systems through routes such as air and water will be beneficial if land transport is affected by floods. While these efforts can ensure sustained access, maintaining the stability of medicines during climate change is also a challenge that needs to be addressed. Supply-chain strengthening should also pay attention to temperature regulation throughout transportation and even during storage in patients' homes. Ms Woods says that, “Few people have access to cooling for their medication at home and pharmacists seldom advise people on how to properly store their medication. This is going to be an increasing problem with climate change.” Effective enhancements to supply chains reaching last-mile communities will need strong co-operation

among governments, pharmaceutical firms, multilateral organisations, logistics providers, healthcare workers and patients.

iii. Building a climate-smart health workforce

While robust infrastructure and supply chains are necessary, a skilled healthcare workforce focused on climate-smart practices remains the backbone of the effective delivery of women-centric health services, as is advocated by the framework.^{81,82}

Healthcare personnel are insufficiently trained in managing diseases stemming from climate disasters in LMICs.^{83,84,85} “We need a skilled and prepared workforce at every level,” says Professor Decker. “Generating a skilled workforce across physician level, nurses and especially community health workers and health volunteers, who are very often that first point of contact with women, ensures we’re ready to adapt to climate change,” she adds. A multidisciplinary skilled workforce comprising social workers, rehabilitation specialists, community health workers, midwives, pharmacists, nurses and doctors can facilitate the development of integrated service models that address mental health support, gender-based violence, food insecurity and vector-borne diseases related to climate change.^{86,87,88,89,90}

It is crucial to include community health workers and community pharmacists in education programmes to ensure that the lives of women in remote and rural communities affected by climate disasters are improved.^{91,92} The importance of training community health workers is underscored by a successful example of outreach care in Pakistan. Dr Awan notes that, “In our disaster relief camps we noticed that several women suffered from miscarriages, probably due to the trauma of the disaster, high mental stress and anxiety. So, we trained our midwives on the use of a manual vacuum aspirator, a safe procedure to manage incomplete abortions. They were able to reach the camps and respond to the women’s needs while respecting their privacy.”

While training healthcare workers is crucial, so is offering safety to frontline female providers during climate events. Data from the Bolivian Amazon describes the safety challenges faced by female community health workers while providing health care in areas affected by flooding.⁹³ Ms Woods says, “In LMICs, it’s usually women who are frontline health workers and reaching remote areas to provide healthcare services with few resources and at great risks to themselves. We should protect this healthcare workforce within the context of climate change.” Dr Awan reiterates that the safety of community health workers is also necessary for the resilience of the healthcare system. He says, “Lady health workers based in the community are equally affected by disasters, impairing their ability to help other women in their community.”

THE ROLE OF HEALTHCARE BODIES IN DEVELOPING A CLIMATE-SMART HEALTH WORKFORCE

There are several examples of health professional bodies supporting the development of a climate-smart workforce with a focus on gender-specific issues. The **International Federation of Gynaecology and Obstetrics (FIGO)** has set up a committee to address the impact of climate change on women’s health across their entire lifespan and is working to incorporate aspects of women’s health and climate change into medical school OBGYN curricula, as well as providing continuing medical education activities for doctors.⁹⁴ Professor Lee Llamas Clark, attending consultant in the Department of Obstetrics and Gynaecology of the University of the Philippines Manila, was the inaugural head of the Women’s Health and Environment Committee in 2016, as part of the Philippine Obstetrical and Gynecological Society’s President Project. This body preceded the institutionalised standing committee on the Environment and Women’s Health (up to 2022), which implemented workshops and modules to teach healthcare professionals about climate change and women’s health. “This knowledge helps our obstetricians and gynaecologists to be advocates for women in their own clinics,” she says. Separately, India is integrating gender perspectives into the medical curriculum—which is a welcome move,⁹⁵ but aligning this topic with climate-related women’s health impacts would be beneficial. Notably, around 70% of medical schools in India do not have climate change and health as a part of their curriculum.⁹⁶

Since efforts in LMICs are often in the nascent stage, examples from other countries can be used to aid development in this area while taking into consideration local challenges. For instance, a collaboration of 25 medical schools in Europe are integrating lessons on climate-change-related health challenges into their curricula. The network is also attempting to influence national bodies, such as the General Medical Council, the doctor’s regulator in the UK, to include this module as a mandatory part of doctor’s education.⁹⁷ The WHO has also launched a toolkit to support healthcare professionals to engage with their patients on the health effects of climate change, which should be used by LMICs.⁹⁸



“Educating our clinicians and having them integrate this information into their care will benefit women already experiencing the ill effects of climate change. It is with that education and empowerment that we can advocate for equitable solutions.”

Cheryl Holder, co-founder and executive director, Florida Clinicians for Climate Action (FCCA), US

iv. Engaging new and alternative models of care

Healthcare professionals should also be trained in leveraging new and alternative models of care to adapt to climate events, as highlighted in the framework. This will be essential to achieve the SDG goal of universal health care with gender equality.⁹⁹ For instance, developing technical skills to leverage digital solutions and telehealth modalities will support continued access to care for women during climate events. “We have tested telehealth during floods, when physical access is a barrier, and it has proven quite useful in providing information to the women on self-care, and training female health workers living in the camps. Unfortunately, during climate disasters, there have been disruptions in telephone and internet connections, which have

limited the effectiveness,” highlights Dr Awan. Telemedicine systems should be made climate-responsive using weather-resistant infrastructure and cost-effective, scalable solutions such as solar power and satellite communication to maintain connectivity.¹⁰⁰

Healthcare providers can also offer mobile outreach health services to women affected by climate events through partnerships with NGOs, which is an example of a multisectoral approach. For instance, MSI Reproductive Choices is an NGO that operates in 36 countries to provide access to contraceptives to vulnerable women, even during climate events. The organisation engages women to be part of the solution to improve access to contraceptive needs, and empowers them to design their own solutions.¹⁰¹ In 2022, when Pakistan was ravaged by floods, MSS (a partner organisation of MSI) provided 15 mobile outreach clinics that travelled to 1,600 emergency flood relief camps, providing 185,000 women with reproductive healthcare, such as contraception.¹⁰²

A key benefit of capacity building in the healthcare workforce is its impact on improving community awareness. “The clinician’s voice is still the most trusted in delivering any sort of information around climate and health. [Our] voice is absolutely essential to the messaging and behaviour change. Educating our clinicians and having them integrate this information into their care will benefit women already experiencing the ill effects of climate change. It is with that education and empowerment that we can advocate for equitable solutions,” says Dr Cheryl Holder, co-founder and executive director of Florida Clinicians for Climate Action, US, which educates on the health effects of climate change.

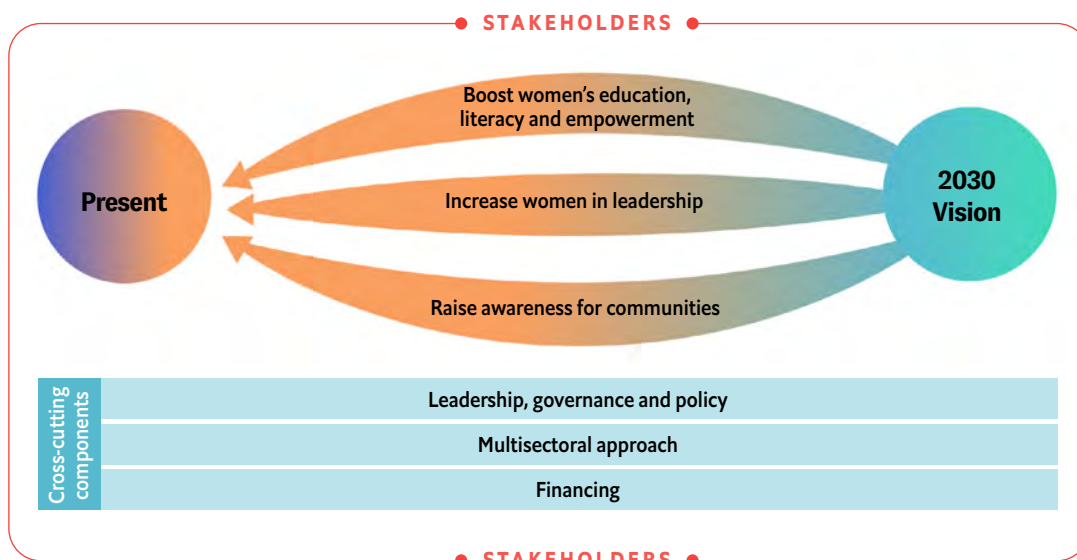
In the next section we will explore the opportunities for improving climate-related health awareness among women and communities.

Component 3: Raising awareness and education

Figure 7

COMPONENT 3

Raising awareness and education



i. Boosting women’s literacy, community awareness and empowerment

An important part of climate-change adaptation is awareness, and the framework advocates action in three areas: boosting women’s education, literacy and empowerment, increasing their participation in leadership

positions and improving community awareness (see Figure 7).

Dr Holder highlights, “We need a system that incorporates not just health education but education where the woman will develop both the basic literacy and health literacy to be able to take the health information, analyse the risks and benefits, and then have the resources

to support her achieving her goals." Taking a life-course approach to educating women and raising awareness is essential for effective adaptation. The framework suggests early action by designing education curriculums (in primary and secondary schools) that equip girls and women with planetary health literacy and green skills to empower them as change agents on the impacts of climate change on their health and their communities.

Greater gender equality in education is strongly correlated with better climate adaptation among women.¹⁰³ Achieving sufficient levels of basic literacy and health literacy among women requires co-ordinated efforts from government, academia, healthcare professionals and community members. Experts that participated in the workshop and interviews suggest that national education ministries should develop school curriculums that equip girls with planetary health literacy and skills for future change. They advise engaging community leaders, religious leaders, women's groups and community health workers in raising awareness among women. Dr Holder notes that, "Religion is huge. It's part of the social norms, but the leader of religious groups also drives community behaviour." Grassroots women's organisations and social enterprises can also lead women's education on sustainable health practices in the face of climate change. For example, Eco Femme in Tamil Nadu, India, provides affordable and sustainable menstrual

products to women in communities, while also conducting educational workshops on sustainable menstrual-health practices.¹⁰⁴ Experts recommend that healthcare professionals should meet the woman seeking care at her level, understand her ability to comprehend health information and support her to make informed choices regarding climate-change-related health impacts. Dr Awan says that, "In Pakistan, during weather events we supply women's hygiene kits to camps, along with printed brochures to raise awareness of the importance of continuing self-care and hygiene practices during those times." Experts also highlight that efforts should be capable of countering misinformation and disinformation.

Efforts to raise awareness should go beyond women themselves and expand to the entire community, including men.¹⁰⁶ As Dr Holder notes, "Women's health adaptations to climate change should include not just the women but also the community in which she lives, since a woman doesn't exist without the men and the other people in her life." Raising community awareness is particularly important, as gender inequalities in social determinants of health and harmful social and cultural norms limit women's ability to access essential sexual, reproductive, maternal and menopausal services during climate events.¹⁰⁷ For example, in some communities it is common for men to have control of decisions regarding the household, including those relating to women's reproductive health.¹⁰⁸

ADOPTING AN INTEGRATED APPROACH TO WOMEN'S EDUCATION

An integrated approach to educating women on health, food security and sustaining livelihoods in response to climate change can offer holistic benefits. For instance, the integrated population, health and environment (PHE) approach includes elements of women's health education, family planning and adapting to climate-change challenges. Blue Ventures in Madagascar is a PHE project in which awareness programmes for sustainable coastal livelihood and resource management for women have been successfully combined with sexual and reproductive health strategies.¹⁰⁵

“Women’s health adaptations to climate change should include not just the women but also the community in which she lives, since a woman doesn’t exist without the men and the other people in her life.”

Cheryl Holder, co-founder and executive director, Florida Clinicians for Climate Action (FCCA), US

Additionally, women may not have financial autonomy, which can act as a barrier to healthcare utilisation.¹⁰⁹ It is therefore essential that spouses and family members understand the importance of continued access to women’s healthcare services during climate events.

Social taboos among communities can also have an impact on the healthcare seeking behaviour of women in response to climate change. “In some communities, reproductive or menopausal health services are a myth or a taboo that are not discussed in society, but are a very basic element to achieving better health for women. We need to debunk these myths and help people understand this as a normal process for every woman,” says Professor Yasna Palmeiro-Silva, associate researcher at UC Chile University and Universidad Peruana Cayetano Heredia (UPCH) in Peru. Various programmes are working on dispelling the myths and taboos associated with women’s physiology. For instance, a social media

campaign called #LetsTalkPERIOD has shown impact in raising awareness and destigmatising menstruation in Nepal and Zambia.¹¹⁰

Women should also be empowered to advocate for their own health and maintain food and financial security in response to climate-related weather events. In some LMICs, it may be more common for women to be more reliant on men for decision-making,¹¹¹ as noted by one expert. Professor Llamas Clark says, “Here in the Philippines, women are quite independent and are able to say what they want for themselves. Still, there’s often that feeling to preserve family harmony and good relationships that women would say—oh, maybe I can ask the husband.” Yet women are often at the forefront of decision-making regarding daily consumption of resources in the household and can be crucial changemakers both at the individual and community level regarding adaptation to climate change.¹¹²

“Highlighting the fundamental role of women to family and community health can bolster the argument that empowering women is a climate solution,” says Dr Limaye. Empowerment efforts should encompass individual women, community-based women’s groups and advocating for leadership roles for women in climate organisations. Empowerment involves not only encouraging women to seek their own care but also listening to their voices to co-create solutions that address their needs.

ROLE OF MEDIA IN FEMALE EMPOWERMENT

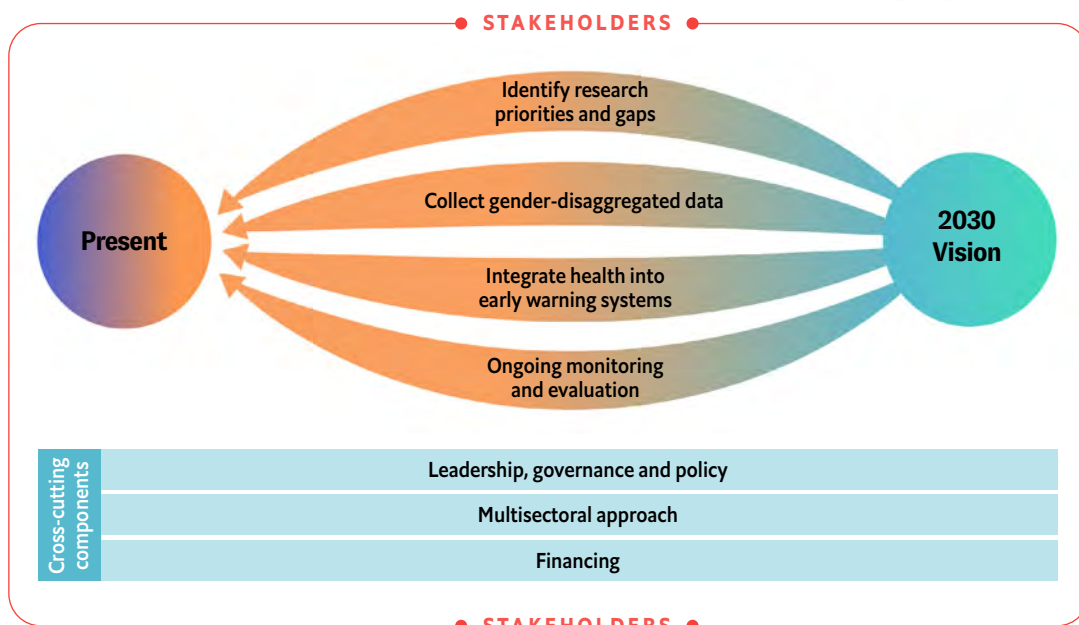
Media can be leveraged in empowering women to adapt to the health effects of climate change at both the individual and community level. An example is the Food and Nutrition on Air (FANTA Radio) community radio programme in Nigeria. It disseminates technical knowledge regarding agricultural adaptations to severe climate change to reduce food insecurity among women farmers in remote communities. Some radio broadcasters also go door to door sharing innovative solutions with women. Approximately 200,000 women have been reached by this programme since inception and 40% of women reported trying at least one climate-change-related adaptive practice suggested in the programme.¹¹³

Component 4: Improving research, data and monitoring

Figure 8

COMPONENT 4

Improving research, data and monitoring



i. Strengthening research and data collection

The framework advocates action in research by identifying priority areas on the impacts of climate change on women’s health, such as under-researched topics, which could include

contraceptive use and menopausal health (see Figure 8). It also advises the routine collection of gender-disaggregated data on the impact of climate change on women’s health outcomes, emphasising the collection of data directly from women. As Dr Holder notes, “We must continuously collect women’s perspectives on

how climate change is impacting them and address their needs, because that's what will make them continue to support our efforts to improve their health."

There are several gaps in our understanding of health risks to women due to climate change that merit further investigation. A scoping review identified research gaps on sexual and reproductive health and rights related to climate change regarding contraceptive use, induced abortions and reproductive tract cancers.¹¹⁴

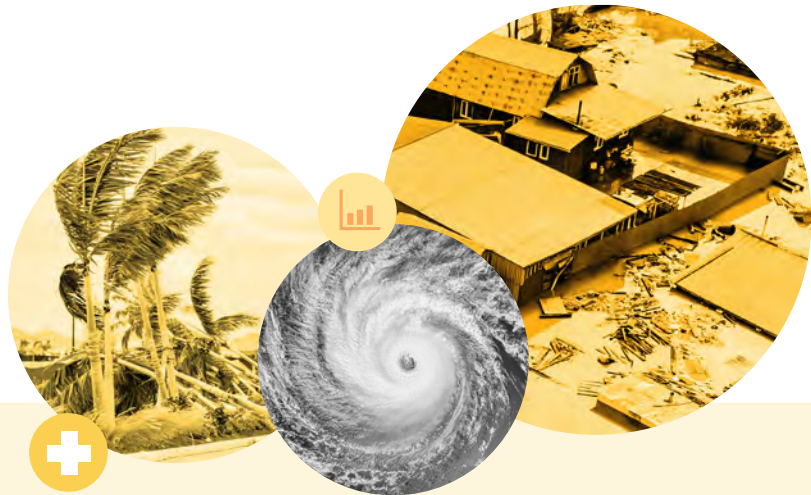
Component 4 of the framework advises that we not only identify research priority areas related to the impacts of climate change on women's health but also commit to the development of local research talent. More research into under-studied areas of the women's health impacts of climate change in LMICs will need collaborative efforts between multilateral agencies, governments and academia. "Because this field hasn't had much

research funding, a pipeline of new researchers is just starting," says Professor Ebi. "There are few senior and mid-career researchers in climate change and health because, without funding, climate change and health has not been a career choice," she adds.

Small encouraging steps are being made. For instance, the UN Population Fund is supporting female researchers studying the impact of climate change on women's health, with a focus on sexual and reproductive health, gender equity and inclusion of women in the development of climate solutions. In 2024 six teams each received US\$15,000 in funding and a mentorship programme. Some of the research will look at the effects of temperature on maternal stress during pregnancy in Sudan and Egypt, and the impact of climate change on the reproductive health of women living with Type 1 diabetes in Uzbekistan.^{115,116}

MENOPAUSAL IMPACTS OF CLIMATE CHANGE: AN UNDER-RESEARCHED PROBLEM

Climate change can affect menopause in several ways but there has been limited research into these challenges and suitable adaptations. Data suggest that air pollutants can act as endocrine disruptors, causing earlier onset of menopause. Increasing heat can aggravate vasomotor symptoms of menopause, such as hot flushes and night sweats, which have an impact on general wellbeing, productivity and mental health.^{117,118} Women are at increased risk for hyperlipidaemia, endothelial dysfunction and atherosclerotic cardiac events during the transition to menopause. These cardiometabolic risks can be further amplified by climate change, since increased long-term exposure to fine particulate matter has shown to increase risk of hyperlipidaemia, diabetes mellitus and atherosclerosis. Some associations have also been found between air pollution and bone loss. Although there is reason to hypothesise that genito-urinary symptoms, mental-health changes and cognitive decline that occur with menopause are likely to be exacerbated by climate change, there has been limited research to show these associations.¹¹⁹ There is a need to prioritise research on health challenges facing women during menopause and identify suitable adaptive strategies to address these problems. The James Lind Priority Setting Partnership, which surveys doctors and patients to establish priority research questions, did not identify climate-change-related impacts as among the top ten areas for research in menopause in 2024.¹²⁰



“While estimates of the financial harms of climate change to property, crops, housing and infrastructure are commonly tallied, the health-related financial costs of illnesses, injuries and deaths linked to a warming climate are very hard to estimate currently, owing to a number of factors, including lack of data in many LMICs. As a result, policymakers are severely underestimating the costs of climate inaction, because the health-related costs are assumed to be zero.”

Vijay Limaye, climate and health senior scientist, Natural Resources Defense Council (NRDC), US

A dearth of research data specifically from LMICs on women's health impacts from climate change could lead to a lack of visibility of the problem among policymakers and a poorer understanding of the effects. As Ms Woods highlights, “We don't have enough data from our region, Asia and the Pacific, that is generated by researchers from our countries, particularly showing the differential impact of climate change on women.” Crucially, without clear-cut data, the health-related costs of inaction will not gain the needed attention. As Dr Limaye points out, “While estimates of the financial harms of climate change to property, crops, housing and infrastructure are commonly tallied, the health-related financial costs of illnesses, injuries and deaths linked to a warming climate are very hard to estimate currently, owing to a number of factors, including lack of data in many LMICs. As a result, policymakers are severely underestimating the costs of climate inaction, because the health-related costs are assumed to be zero.”

The collection of gender-disaggregated data on the health impacts of climate change is also essential to furthering research, and is advocated by the framework. In the WHO's health and climate change global survey, which was conducted in 2021 and covered 95 countries, none of the V&A assessments included gender-disaggregated data, showing a significant gap.¹²¹ In June 2024, the WHO's World Health Assembly called on member states to commit to integrating climate data into existing monitoring, early warning, surveillance and data-collection systems, including data disaggregated by sex, age, disability and other relevant vulnerabilities. This data, in addition to predicting potential climate-related health risks for women, can also aid in directing research on the health effects of climate change on women.¹²² A pragmatic approach to gender-disaggregated climate data is necessary. “It's probably not so useful to generate a whole new set of gender-disaggregated data points on climate,” suggests Professor Decker.

“What we can do today with the available data is help people connect the dots on climate and women's health by using a gendered lens. Gender analysis of existing climate-related indicators can unpack gender disparate differences, and identify gender-specific impact on health outcomes,” she adds. Health data can also be collected directly from women by leveraging technology. An ongoing study in Burkina Faso, which includes women and men, is evaluating the benefit of using consumer-grade wearable devices to track changes in body functions based on climate variations. Such work can be expanded to include pregnant, breastfeeding or menopausal women to understand the health impacts of climate change.¹²³

There will also be a need for cross-sectoral research into the gender-sensitive health impacts of climate change. For instance, higher atmospheric carbon dioxide levels due to burning of fossil fuels can affect the micronutrient composition of some edible plants, resulting in higher levels of vitamin C but lower levels of essential nutrients like protein, iron and zinc. By 2050, it is estimated that an additional 138m people could develop zinc deficiency, which would be particularly harmful to pregnant women and lactating mothers.¹²⁴ Professor Ebi highlights this challenge of nutritional insecurity among pregnant women, saying that “Under-nutrition is important now and will be increasingly important as rising temperature and carbon dioxide affect the availability and the quality of the food we eat, which will affect women in particular.”

“We should ensure that early warning systems reach women through communication channels that they use. We have a gender digital divide, where less women than men have access to the internet or to mobile phones. Early warning systems using only apps don't always work for women; they need to reach women where they are, in community centres, through social networks and through radio.”

Zonibel Woods, Senior Social Development Specialist (Gender and Development), Gender Equality Division, Climate Change and Sustainable Development Department, Asian Development Bank, Philippines



ii. Improving early warnings

The framework advises that nations better integrate women's health outcome data with climate data to aid prevention and early warning.

Health warning and surveillance systems for climate disasters are poorly developed in LMICs, resulting in widespread damage to individual health and health systems in the face of climate-related weather events, which has an impact on healthcare access.¹²⁵ In some instances, despite warnings being issued, the information may not reach healthcare facilities through formal channels and facility managers may not have adequate training or resources to respond. Furthermore, the information may not reach women in a timely fashion. For instance, during the floods in April 2022 in south-eastern South Africa, healthcare facilities in the eThekweni area in KwaZulu-Natal were paralysed, as facility managers were not well trained in the preparation and management for extreme weather events.¹²⁶

Not only do LMICs need better warning and surveillance systems, they also need these systems to be gender-responsive. Women and men receive and process information differently. Lower education levels, poorer access to technology, lower socioeconomic status, discriminatory social norms and different preferences for sources of information have an impact on women's access to

information.¹²⁷ For instance, a study from Nepal shows that, while 71% of men received early warnings through a formal source, 51% of women received it through informal sources and social networks. Radio, women's groups and networks at community level have proven effective in disseminating early warning messages in African countries.¹²⁸ "We should ensure that early warning systems reach women through communication channels that they use. We have a gender digital divide, where less women than men have access to the internet or to mobile phones. Early warning systems using only apps don't always work for women; they need to reach women where they are, in community centres, through social networks and through radio," says Ms Woods. UN Women has released a toolkit with a checklist for the development of gender-aware and gender-transformative early warning systems, which can be used as a guide by LMICs.¹²⁹

The WHO's Global Action Plan on Climate Change and Health, which was adopted by the World Health Assembly in May 2025, also calls on member states to support integrating climate and health data and surveillance systems through collaboration between national meteorological and hydrological services and ministries of health, which can enhance the effectiveness of early warning systems.¹³⁰

Cross-cutting components: Leadership, governance, multisectoral approach and financing

For the effective adaptation of women's health, the framework gives prominent attention to cross-cutting components such as effective leadership, governance and policy, adequate funding, and a multisectoral, collaborative approach, which are all necessary to achieve Vision 2030.

i. Leadership, governance and policy

The framework has created baseline priorities for leadership, governance and policy so that stronger action is taken on the effects of climate change on women's health. As the framework advises, leadership needs to occur at global, national and grassroots levels, and there is a need to nurture future women leaders. Additionally, inter-ministerial collaboration and co-operation is critical for translating evidence into policy action (see box). Strong commitments are already being made at a global level to address the impacts of climate change on health. This was evident at the World Health Assembly, in May 2025, where member states agreed to the Global Action Plan on Climate Change and Health—in which leadership is a key action area—as well as the guiding principle on gender, namely: “Gender equality/gender inequalities and differences in needs and opportunities”.¹³¹ Strong leadership at the global level can set a precedent and direct priorities for policy at national and sub-national level globally.

Women can bring valuable perspectives on understanding and tackling climate-change-related health impacts, especially for women's health, but they are still significantly under-represented in leadership positions. For instance, since its inception in 1995, only six women have been COP presidents.¹³² Various factors that affect female representation in leadership stem from structural inequities resulting in lack of support within institutional frameworks, lack of training, lack of experience and competing responsibilities on the domestic front.¹³³

Several strategies can be employed in advancing women's participation and leadership in climate change and in health agenda setting, which are highlighted in the framework. The media can play a key part. A report by *The Guardian*, which noted the absence of female organising committee members for the COP29 climate summit, resulted in female members being invited to the committee.¹³⁴ Mentorship, networking, developing the collective voice, advocacy and male allyship are other potential methods to use to improve female representation in leadership roles.¹³⁵ To understand and respond to the special challenges faced by women from LMICs, leadership representation should include women from diverse socioeconomic strata in LMICs.¹³⁶

LEADERSHIP, GOVERNANCE AND POLICY

Leadership and policy needed on all levels

- 1. Establish strong, effective leadership at international, national and grassroots levels**, ensuring accountability, transparency and wide stakeholder participation in the creation and implementation of adaptation strategies in relation to the impact of climate change on women's sexual, reproductive, maternal and menopaual health. Policies are guided by research and data to address priority areas and gaps in women's health outcomes as a result of climate change, and focus on addressing social determinants, equity, access to care, delivery of care, awareness, data and research.
- 2. Nurture women to become climate leaders and change agents**, ensuring women's perspectives are sought in health and climate policymaking. Consideration should be given to the need to remove social and cultural barriers that prevent women from rising as leaders.
- 3. Facilitate inter-ministerial co-operation between health, finance, labour and environment sectors** to tackle climate-related health issues comprehensively and translate research, data, evidence into policy action for women's health.

Source: Economist Impact Adaptation Framework (see appendix for full details).

To fully address the unique impact of climate change on women's health, climate action should adopt a gender-transformative approach, in part by ensuring meaningful inclusion of women's voices in policy and leadership roles (see also **section on component 3**).¹³⁷ Professor Decker affirms the value of women's representation in leadership and governance, saying:

"The community health workers are leaders in the community in understanding, anticipating and responding to women's health, including sexual and reproductive health needs. They've got to be at the table. Women's representation matters in leadership forums for anticipating and responding to climate change." Initiatives supporting women leaders can act as examples for scale-up (**see box**).

CAPACITY-BUILDING AND LEADERSHIP-TRAINING PROGRAMMES FOR WOMEN

Several organisations are developing training programmes to empower women for leadership roles in climate change. For instance, the **UN Institute for Training and Research (UNITAR)** in collaboration with C40 Cities—a global network of mayors of the world's leading cities seeking to tackle the climate crisis—has launched an e-course called "Developing Skills for Women Leadership in Climate Action."¹³⁸ An organisation called **Women Leaders for Planetary Health** was launched at the UN Climate Summit of 2019 and works to develop female leadership. Besides providing courses, the organisation offers mentorship for women from the Global South aiming to address climate change.¹³⁹ Namibia recently held a training programme for women's leadership in disasters and climate change with the support of the **World Meteorological Organisation and UN Women**. Practical sessions were offered on community engagement and mobilisation for disaster preparedness.¹⁴⁰ Foreign aid is also supporting capacity-building programmes in LMICs. For instance, CLARE, a UK- and Canada-supported research programme for climate adaptation and resilience, has brought in the **Accelerating Women's Leadership in Climate Action (AWARD)** fellowship that will support 100 African women to become effective leaders and change agents in the climate field.¹⁴¹

Including a health focus in these training programmes will augment female leadership in efforts to improve adaptations for women's health.

ii. Financing

The framework calls for more action on women's health financing in relation to climate change, so that funding is mobilised from diverse revenue sources, from different levels and is shared equitably (see box).

This is because gender-specific health responses to climate change are inadequately funded. In 2022 only 3% of all developmental assistance for climate

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had objectives linked to gender equality.

change had objectives linked to gender equality.¹⁴² Various multilateral organisations are working to improve gender mainstreaming for climate funding. A UNFCCC Standing Committee on Finance (SCF) 2023 report on the doubling of adaptation financing for climate change highlighted the key role of financing gender-specific initiatives.¹⁴³ In 2024 the SCF forum discussed gender-responsive climate financing and highlighted the need for a concerted stakeholder response on this issue. It noted the importance of securing gender-responsive financing in the new round of national climate plans, namely Nationally Determined Contributions and National Adaptation Plans.¹⁴⁴ The Green Climate Fund, which is the world's single-largest climate-funding body, has recently integrated gender considerations into its climate-financing mechanisms.¹⁴⁵

**BASELINE PRIORITIES:
CROSS-CUTTING COMPONENT**

FINANCING

Mobilise and scale up gender-responsive funding

1. Mobilise financial resources from multi-level funding bodies (international, national, sub-national) for integrating gender-sensitive climate adaptation strategies for women's health in Health National Adaptation Plans (HNAPs), focusing on prevention, leveraging new technology, strengthening supply chains, infrastructure and workforce, education and awareness, data collection and research.

2. Ensure financing of women's health interventions in response to climate-change adaptation comes from a diverse revenue base. Depending on the health-system structure, financing for interventions and programmes could come from government funds (i.e. general taxation, income tax, voluntary health insurance, hypothecated taxes, social health insurance, user charges), climate-change funds (such as the Green Climate Fund and the Adaptation Fund), multilateral and bilateral organisations (such as the World Bank and the European Commission) and philanthropic foundations (such as the Wellcome Trust and the Gates Foundation). Expand the work of multilateral and bilateral organisations, climate-change funds and philanthropic foundations that already have women health initiatives, such as Pivotal Ventures, founded by Melinda Gates, which in 2024 launched a new fund for organisations working to improve women's health.

3. Ensure finance is responsive to women's needs so they can access personal revenue and cash sources in a fair and equitable manner to enhance their sexual, reproductive, maternal and menopausal health, as often they face the unequal consequences of climate change.

Source: Economist Impact Adaptation Framework (see appendix for full details).

Gender initiatives in climate funding should also be expanded to health. "At the Health Day in the COP in Dubai, there were pledges of about a billion dollars on climate change and health. Those were pledges that need to be turned into dollars, euros or pounds. It's a very positive start," notes Professor Ebi. At present only 6% of global adaptation funding is dedicated to health, with only about 0.5% of multilateral climate funding allocated to health initiatives.^{146,147} There is a lack of data on what percentage of this is dedicated to women's health.^{148,149} Targeted funding for gender-sensitive health responses to climate change in LMICs is necessary for better adaptive

responses among women. Furthermore, these funds should be made more easily accessible to women's organisations applying for grants.¹⁵⁰

iii. Multisectoral approach

The framework describes strategies that can be used to develop and improve a multisectoral approach to addressing women's health challenges due to climate change, including engaging varied stakeholders beyond health care, and developing public, private and philanthropic partnerships (see box).

This compliments the ideas in the COP28 UAE declaration on climate and health. The UAE declaration recognises the contributions of a range of sectors, such as food and agriculture, water and sanitation, housing, urban planning, transport and energy, to climate-sensitive health outcomes, and emphasises the need for a One Health approach, which recognises the connection between the health of people, animals and the environment, to addressing the environmental determinants of health.¹⁵¹ "National Adaptation Plans and the Nationally Determined Contributions are multisectoral," notes Professor Ebi. "It's a recognition that climate change is affecting other sectors and actions and that projected risks at the national level are useful for informing how best to integrate across current challenges," she adds. Greater stakeholder engagement, intersectoral co-ordination and a gender-sensitive lens are necessary to bridge the gaps in implementing a One Health approach to managing the risks of climate change in LMICs effectively.^{152,153}

For instance, collaboration between the health, agriculture and food sectors to address climate-related changes in the composition of micronutrients in crops, as well as the offer of appropriate supplementation, will ensure adequate nutrition for pregnant and lactating women.¹⁵⁴



"We have to develop a local approach to collaboration across the sectors and make sure each sector, industry, policy, private sector is involved in the response."

Cheryl Holder, co-founder and executive director, Florida Clinicians for Climate Action (FCCA), US

Working with the transport sector to improve supply-chain logistics for contraceptives and medicines will facilitate more climate-resilient sexual and reproductive health rights for women.¹⁵⁵ Integrated approaches to water and sanitation, including management of human and animal excreta, efficient waste removal methods and promoting hygiene

can improve control of waterborne diseases during floods, thereby reducing the impact of diarrhoeal diseases and malnutrition among pregnant women.¹⁵⁶ “We have to develop a local approach to collaboration across the sectors and make sure each sector, industry, policy, private sector is involved in the response,” says Dr Holder.

BASELINE PRIORITIES:
CROSS-CUTTING COMPONENT

MULTISECTORAL APPROACH

Develop an inclusive, multisectoral approach to women's health

1. Ensure stakeholders from multiple sectors collaborate to inform and implement HNAP strategies to enhance women's health in relation to climate change.

The urban planning, sanitation and social welfare sectors can work to decrease women's exposure to heat, air pollution, poor water quality, and ensure that hospitals and other health clinics are built to be weather resistant and in accessible areas. The agricultural sector can play a role in improving women's nutrition and food security, as well as support women as an agricultural workforce. The environmental, meteorological, health and disaster, and academic sectors can collaborate to create early warning systems that inform women of threats to health in the face of climate change.

2. Encourage the establishment of public, private and philanthropic partnerships to leverage combined resources and expertise to address the impacts of climate change on women's health outcomes. This can support new strategies and strengthen the implementation of programmes at national, state and community level.

Source: Economist Impact Adaptation Framework (see appendix for full details).

Conclusion: Where do we go from here?

The escalating impacts of climate change on women in LMICs demand urgent attention. Women face heightened vulnerabilities owing to a combination of physiological factors, such as those associated with menstruation, pregnancy and menopause, as well as entrenched socioeconomic inequalities. Climate-related events frequently disrupt healthcare services in LMICs, with women facing additional challenges in accessing prenatal, postpartum and reproductive care, as well as menstrual hygiene products and safe facilities. To address these challenges, we present a comprehensive adaptation framework that advocates integrating gender perspectives into climate policies, strengthening health systems to address women's specific needs, and empowering women as active participants in climate-resilience planning and decision-making.

For the successful application of this adaptation framework, multisectoral collaboration among governments, multilateral organisations, healthcare providers, NGOs, communities and women is key.

The following is a stepwise approach to successful implementation of this framework.

First, use the framework as a catalyst to raise awareness and strengthen collaboration across different sectors of national and sub-national governments.

Effective adaptation of women's health to climate change requires attention to a range of sectors beyond health, including urban planning, sanitation, agriculture, finance, transportation, and information and technology. For instance, information and technology is a key sector that can be leveraged to improve women's health through various mechanisms, like offering digital payments during climate disasters, providing alternative modalities of care like telehealth, and improving gender-disaggregated data collection, research and gender-responsive early-warning systems for climate-related weather events. This framework can be leveraged as a tool to highlight the importance of such a multisectoral approach and identify priority areas within the national and sub-national contexts for co-ordinated action.



Second, utilise locally relevant recommendations from the framework to improve engagement of women and communities in health adaptation efforts.

The framework describes various strategies to improve overall literacy, health literacy, leadership potential and engagement of women in advocating for their own health. Strategies relevant to the local context can be identified and implemented to raise awareness and empower women to advocate for their health needs and financial independence. A woman exists as part of her family and community, where often social stigmas and taboos have an impact on healthcare-seeking behaviour, especially for sexual and reproductive health and menopausal health. Therefore attempts at raising awareness and education regarding adaptations to climate change should include not only women but also men and the entire community. The framework highlights the need to engage religious and community leaders in offering culturally relevant messaging to raise awareness and therefore can be used to harness the support of these stakeholders.

Third, use the framework to develop innovative financing mechanisms to support women's health adaptations.

Financing is becoming an increasingly complex challenge owing to constrained national budgets and competing priorities for governments. Multilateral agencies, despite committing substantial funds, face pressures from shifting development priorities, geopolitical tensions and fragmentation of resources, which threaten the sustainability of their funding streams. Consequently, there is a critical need to use diverse funding sources, including governments, multilateral organisations and charitable groups, but also think beyond to embrace innovative strategies. As highlighted in the framework, microfinancing is a powerful strategy to directly

empower women financially and provide insurance protection against climate-related disasters, thereby enhancing their capacity to adapt to health and livelihood challenges posed by climate change. Moreover, linking microfinance initiatives with vocational training and support for developing climate-resilient livelihoods offers dual benefits: it not only strengthens women's economic independence but also fosters sustainable, adaptive practices that improve community resilience. Successful case studies described in this report can be used to develop locally relevant microfinancing programmes.

Fourth, identify strategies from the framework to increase capacity among healthcare workers to address women's health challenges.

A strong healthcare system capable of delivering integrated care to women in response to climate change requires a climate-smart, multidisciplinary workforce. The framework identifies opportunities for incorporating education and training on climate-change-related women's health impacts into undergraduate and postgraduate curricula across all disciplines of medicine and allied health. Training should reach frontline staff, including community health workers and midwives, who are often the first point of contact for vulnerable women seeking medical care during climate-change-related weather events. It also describes the importance of building capability in harnessing newer models of care like telehealth, since physical access to women can be a challenge during climate disasters.

The success of these efforts and sustained stakeholder engagement in advancing women's health adaptations will depend on continuous research that utilises gender-disaggregated data and analyses the health and economic costs of inaction.

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Appendix: Economist Impact women's health and climate change adaptation framework

Vision 2030

By 2030, we envision a world where there are effective adaptation strategies to enhance women's sexual, reproductive, maternal and menopausal health in response to the impacts of climate change.

Purpose of the framework:

This framework serves as a guide to health systems, which comprise healthcare and health-determining organisations, institutions, actors and people, to develop adaptation strategies with a gender-sensitive lens for better outcomes in women's sexual, reproductive, maternal and menopausal health.

Strategies will include inclusive and multisectoral leadership, better awareness, equitable access to care and prevention, improved financing, research and monitoring, to empower women, their communities and health providers. Our vision is aspirational, yet actionable.

It spans the next 5 years and recognises the diverse structures, governance, and development stages of health and climate systems of low-and-middle-income countries (LMICs), and the inherent uncertainties from now until 2030.

We encourage countries to apply the framework in a flexible manner taking into account their needs. The framework consists of four primary components, each containing actionable pathways (subcomponents) designed to support health systems from initial steps to the creation of more comprehensive approaches, and three critical cross-cutting components.

Summary:

Components	Sub-components
1. Adapting action plans and guidance	1. Integrating women’s health and climate change into plans and guidance 2. Focus on preventive interventions 3. Planning for financial empowerment of women
2. Enhancing healthcare delivery	1. Strengthening infrastructure and early warnings 2. Leveraging Universal Health Coverage (UHC) and new models of care 3. Educating the healthcare workforce 4. Improving supply chains
3. Raising awareness and education	1. Boost women’s education, literacy and empowerment 2. Increase women in leadership 3. Raise awareness for communities
4. Improving research, data and monitoring	1. Identify research priorities and gaps 2. Collect gender-disaggregated data 3. Integrate health into early warning systems 4. Ongoing monitoring and evaluation
<p>Cross-cutting components</p> <p>These components are recognised as cross-cutting and must, therefore, be addressed both individually and as integral elements in each of the four components outlined above.</p> <p>We have considered the baseline priorities for these components:</p>	
Cross-cutting component: Leadership, governance and policy	<p>Leadership and policy needed on all levels</p> <p>1. Establish strong, effective leadership at international, national and grassroots levels, ensuring accountability, transparency and wide stakeholder participation in the creation and implementation of adaptation strategies in relation to the impact of climate change on women’s sexual, reproductive, maternal and menopausal health. Policies are guided by research and data to address priority areas and gaps in women’s health outcomes as a result of climate change, and focus on addressing social determinants, equity, access to care, delivery of care, awareness, data and research.</p> <p>2. Nurture women to become climate leaders and change agents, ensuring women’s perspectives are sought in health and climate policymaking. Consideration should be given to the need to remove social and cultural barriers that prevent women from rising as leaders.</p> <p>3. Facilitate inter-ministerial cooperation between health, finance, labour, and environment sectors to tackle climate-related health issues comprehensively and translate research, data, evidence into policy action for women’s health.</p>
Cross-cutting component: Multisectoral approach	<p>Develop an inclusive, multisectoral approach to women’s health</p> <p>1. Ensure stakeholders from multiple sectors collaborate to inform and implement Health National Adaptation Plans (HNAP) strategies to enhance women’s health in light of climate change. The urban planning, sanitation and social welfare sector can work to decrease women’s exposure to heat, air pollution, poor water quality, and ensure hospitals and other health clinics are built to be weather resistant and in accessible areas. The agricultural sector can play a role in improving women’s nutrition and food security, as well as support women as an agricultural workforce. The environmental, meteorological, health and disaster, and academic sectors can collaborate to create early warning systems that inform women of threats to health in the face of climate change.</p>

<p>Cross-cutting component: Multisectoral approach (cont.)</p>	<p>2. Encourage the establishment of public, private and philanthropic partnerships to leverage combined resources and expertise to address the impacts of climate change on women's health outcomes. This can support new strategies and strengthen the implementation of programmes at national, state and community level.</p>
<p>Cross-cutting component: Financing</p>	<p>Mobilise and scale up gender-responsive funding</p> <p>1. Mobilize financial resources from multi-level funding bodies (international, national, sub-national) for integrating gender-sensitive climate adaptation strategies for women's health in Health National Adaptation Plans (HNAPs), focusing on prevention, leveraging new technology, strengthening supply chains, infrastructure and workforce, education and awareness, data collection and research.</p> <p>2. Ensure financing of women's health interventions in response to climate change adaptation comes from a diverse revenue base. Depending on the health system structure, financing for interventions and programmes could come from government funds (i.e. general taxation, income tax, voluntary health insurance, hypothecated taxes, social health insurance, user charges), climate change funds (such as the Green Climate Fund and the Adaptation Fund), multilateral and bilateral organisations (such as the World Bank and the European Commission) and philanthropic foundations (such as the Wellcome Trust and the Gates Foundation). Expand the work of multilateral and bilateral organisations, climate change funds and philanthropic foundations that already have women's health initiatives, such as Pivotal Ventures, founded by Melinda Gates, which in 2024 launched a new fund for organisations working to improve women's health.</p> <p>3. Ensure finance is responsive to women's needs so they can access personal revenue and cash sources in a fair and equitable manner to enhance their sexual, reproductive, maternal and menopausal health as often they face the unequal consequences of climate change.</p>

Methodology

The design of this framework has been shaped by **WHO guides** addressing health and climate resilience, findings from a **rapid literature review** on climate adaptation strategies for women's reproductive, sexual, maternal and menopausal health, and valuable insights from an **expert panel**. (See the methodology page for more details.)

Key WHO documents:

(1) World Health Organisation, Operational framework for building climate resilient and low carbon health systems. 2023; Available from: <https://www.who.int/publications/i/item/9789240081888> [This contains 10 climate-resilience related components, based on the WHO's health system building blocks]

(2) World Health Organisation, Operational framework for building climate resilient health systems. 2015; Available from: <https://www.who.int/publications/i/item/operational-framework-for-building-climate-resilient-health-systems>.

Component 1: Adapting action plans and guidance

Sub-component	Milestone 1	Milestone 2 (by 2030)	Justification
<p>1. Integrating women's health and climate change into plans and guidance</p>	<p>Convene national governments, multilateral bodies and multisectoral actors that are adjacent to health to share information and evidence on the impacts of climate change on women's health, particularly their sexual, reproductive, maternal and menopausal health. Ensure wide stakeholder engagement at the community level, including women, community health workers, and grassroots leaders.</p> <p>Health specialities (i.e. sexual, reproductive, obstetric and maternal) convene to gather evidence for updating local toolkits and clinical guidelines on any impacts of climate change (i.e. heat, air pollution and floods) on fertility, pregnancy loss, low birth weight, infections (i.e. dengue, malaria, West Nile, Zika), maternal nutrition, breastfeeding quality, sexual violence, sexually transmitted diseases (STIs), and menopausal outcomes.</p> <p>Stakeholders: National governments, multilateral organisations, climate and multisectoral groups, women's groups, healthcare professionals groups (obstetrics, gynaecology, midwifery, and community health workers)</p>	<p>Create and update national and regional health action plans that incorporate policy solutions and implementation strategies that address the impact of climate change on women's sexual, reproductive, maternal and menopausal health. Use WHO quality criteria for Health National Adaptation Plans (HNAPs) to ensure a gender-specific lens that focuses on more vulnerable populations. Particularly, action points should focus on preventive interventions, education of women, communities and health workers, strengthening supply chains and infrastructure, and strengthening/leveraging data and research to inform national and sub-national priority areas for intervention.</p> <p>Health specialities update local toolkits and clinical guidelines based on evidence on the impact of climate change on women's sexual, reproductive, maternal and menopausal health outcomes. Develop awareness plans on any updated toolkits and guidelines so they can be adopted into clinical practice.</p>	<p>Currently, focus on women's health in national climate policies is inadequate. The WHO has recognised the need for a gender-specific response and quality criteria for HNAPs. The development of national policies that focus on implementation of solutions for women's sexual, reproductive, maternal and menopausal health is key for improving women's resilience to climate change. However, only 32% of NDCs included information on sexual health and reproductive health rights, gender-based violence and harmful practices such as child marriage.(1) Some NGOs working in the sustainability space suggest that National Adaptation Plan (NAP) processes present an opportunity to address the impacts of climate change on sexual and reproductive health and rights.(2)</p> <p>Additionally, healthcare provider groups are essential for providing on the ground experience to inform and update practice guidelines. There are emerging statements and peer reviewed articles by women's health specialists on the impacts of climate change on obstetric and reproductive health at national, regional and international level. Updated guidance is expected to be emphasised in future.(3-4).</p>
<p>References</p>	<p>(1) United Nations Population Fund and Queen Mary University of London. Taking stock: sexual and reproductive and health and rights in climate commitments – a global review. New York: United Nations Population Fund; 2023.</p> <p>(2) NAP Global Network. Climate Change and Sexual & Reproductive Health & Rights (SRHR). NAP Global Network; 2021. Available from: https://napgloablennetwork.org/srhr/</p> <p>(3) International Federation of Gynaecology and Obstetrics. Climate change, women's health, and the role of obstetricians and gynaecologists in leadership. International Federation of Gynaecology and Obstetrics; 2021. Available from https://www.ifo.org/news/climate-change-womens-health-role-obgyn-leadership</p> <p>(4) Royal College of Obstetricians & Gynaecologists. Policy position: climate change and women's health. Available at https://www.rcog.org.uk/media/ejpiv2dg/climate-change-and-womens-health-rcog-policy-position.pdf</p>		
<p>2. Focus on preventive interventions</p>	<p>Preventive interventions that are specific to women's health are prioritised and integrated into HNAPs.</p> <p>Develop public health plans that improve upstream determinants of women's sexual, reproductive, maternal and menopausal health. These can include introducing educational schemes for employers and community members to prevent women's exposure to high temperatures in the workplace (including the informal sector) or mitigating heat stress on pregnant women or those living with menopause.</p> <p>Plan vector-control programmes focusing on healthcare capacity, infrastructure, insecticide/non-insecticide interventions, environmental management, to limit the exposure of pregnant women to vector-borne diseases (such as malaria and Zika).</p>	<p>Prevention programmes targeted at the impact of climate change on women's health outcomes start to be rolled out.</p> <p>Monitor (through data collection and evaluation) any newly introduced preventive interventions regarding their impact on women's sexual, reproductive, maternal and menopausal health outcomes.</p> <p>Leverage media, digital technologies and trusted community members to inform women, communities and healthcare workers of prevention interventions.</p>	<p>Exposure to heat, food insecurity, poor air and water quality, poor sanitation, and other upstream factors are known to impact women's sexual, reproductive, maternal and menopausal health outcomes. (1) For example, malnutrition caused by food insecurity can cause miscarriages in pregnant women (2) and may stop periods. Exposure to heat and air pollution is linked to issues with fertility and stillbirth, and can exacerbate symptoms of menopause. (3, 4, 5, 6) Flooding can increase the spread of vector-borne disease and impact access to women's health services. (7, 8)</p> <p>Some HNAPs are beginning to show some aspects of maternal impacts of climate change, such as the HNAP for Ethiopia. (9) Research is showing the important connections between gender and WASH, and how transformed gender dynamics are fundamental to inclusive and sustained WASH improvements. (10)</p>

Component 1: Adapting action plans and guidance (cont.)

Sub-component	Milestone 1	Milestone 2 (by 2030)	Justification
2. Focus on preventive interventions (cont.)	<p>Engage with government departments (i.e. health, water and sanitation) and NGOs to create Water, Sanitation and Hygiene (WASH) programmes that improve women's hygiene that will support sexual, reproductive, maternal and menopaual outcomes.</p> <p>Stakeholders: Governments (health, infrastructure), multilateral organisations, women's groups, healthcare professional groups (obstetrics, gynaecology, midwifery, and community health workers), community members, WASH sector, NGOs</p>		
References	<p>(1) Economist Impact expert panel; 2025</p> <p>(2) Desai Z, Zhang Y. Climate Change and Women's Health: A Scoping Review. <i>Geohealth</i>; 2021. 5(9):e2021GH000386.</p> <p>(3) UNFPA. Sexual and reproductive health and rights in national climate policy. A review of 50 nationally determined contribution documents. UNFPA; 2021 Available from: https://wrd.unwomen.org/sites/default/files/2021-11/SRHR_N~1.PDF</p> <p>(4) Segal TR, Giudice LC. Systematic review of climate change effects on reproductive health. <i>Fertil Steril</i>. 2022;118(2):215-223. doi:10.1016/j.fertnstert.2022.06.005</p> <p>(5) Giudice LC, Llamas-Clark EF, DeNicola N, Pandipati S, Zlatnik MG, Decena DCD, Woodruff TJ, Conry JA; FIGO Committee on Climate Change and Toxic Environmental Exposures. Climate change, women's health, and the role of obstetricians and gynecologists in leadership. <i>Int J Gynaecol Obstet</i>. 2021;155(3):345-356. doi: 10.1002/ijgo.13958. Epub 2021 Oct.</p> <p>(6) Cucinella L, Tiranini L, Nappi RE. Impact of climate and environmental change on the menopause. <i>Maturitas</i>. 2023;178:107825. doi: 10.1016/j.maturitas.2023.107825. Epub 2023.</p> <p>(7) Blakstad MM, Smith ER. Climate change worsens global inequity in maternal nutrition. <i>Lancet Planet Health</i>. 2020;4(12):e547-e548. doi: 10.1016/S2542-5196(20)30246-1. PMID: 33278369.</p> <p>(8) Pappas A, Kovats S, Ranganathan M. Extreme weather events and maternal health in low-income and middle-income countries: a scoping review. <i>BMJ Open</i>. 2024 Jun 3;14(6):e079361. doi: 10.1136/bmjopen-2023-079361.</p> <p>(9) Ministry of Health, Ethiopia. HEALTH NATIONAL ADAPTATION PLAN-II,(2024-2028). Ministry of Health, Ethiopia, 2024. Available from: https://www.atachcommunity.com/fileadmin/uploads/atach/Documents/Country_documents/Ethiopia_HNAP_II.pdf</p> <p>(10) Water for Women. WASH-GEM. UTS UTS Institute for Sustainable Futures. Available from: https://waterforwomen.uts.edu.au/wash-gem/</p>		
3. Financial empowerment planning	<p>Encourage multisectoral collaboration to develop plans for the alleviation of socioeconomic barriers that can affect women's financial ability to fund their wellbeing and care.</p> <p>Government, private, and NGO actors set up microfinancing/grant/loan programmes that encourage women entrepreneurs to become financially empowered, so that they are easily able to access funds for healthcare, able to buy food and break the poverty cycle, and gain skills for business transformation. Areas for consideration include the role of cash transfers or initiatives that fund enterprises that are run by women or employ women to improve women's food security and nutrition, and financial means to access sexual, reproductive, maternal and menopaual care.</p> <p>Stakeholders: government (health, agriculture, and labour), NGOs, civil society, private sector, philanthropic sector, development banks, women's groups, loan providers</p>	<p>Monitor the success of any initiatives that financially empower women to combat poverty and enhance their ability to respond to climate change. Expand stakeholders (public and private sector) in the creation of financial aid for such schemes.</p> <p>Loans and grants are rewarded to enterprising women (alongside modules on skills building) to offer a path towards financial empowerment and stability.</p>	<p>Socioeconomic factors and limitations faced by women can also further exacerbate the impacts of climate change on women's health outcomes. Climate events such as floods, hurricanes and droughts impact agriculture, which is a key employer of women in LMICs.(1) In Sub-Saharan Africa, about 66% of women are employed in the agricultural industry, and in South Asia the proportion increases to 71%.(2) Climate events can therefore cause financial instability, increase dependence on family members, increase domestic violence and act as a barrier to seeking care that requires out-of-pocket expenditure.(1, 3)</p> <p>There have been a number of initiatives developing women's economic empowerment.(4-6) The Women's Microfinancing Initiative operates in Uganda, Kenya and Tanzania, providing loans without collateral or interest, as well as training and support for women in business, designed to financially empower women and create social change. Loans such as this can remove financial barriers to accessing healthcare for women, decrease rates of domestic violence and alleviate poverty and hunger.(4) Microfinancing can also facilitate innovation for climate adaptation, by helping women to access otherwise unaffordable climate-smart technologies.(7)</p>

Component 1: Adapting action plans and guidance (cont.)

Sub-component	Milestone 1	Milestone 2 (by 2030)	Justification
References	<p>(1) Desai Z, Zhang Y. Climate Change and Women’s Health: A Scoping Review. <i>Geohealth</i>. 2021;5(9):e2021GH000386. Published 2021 Sep 1. doi:10.1029/2021GH000386</p> <p>(2) FAO. The status of women in agrifood systems. FAO UN; 2023. Available from: https://doi.org/10.4060/cc5343en</p> <p>(3) UN Women. Asia and the Pacific. Gender and climate change. EmPower: Women for climate-resilient societies. UN Women. Available from: https://asiapacific.unwomen.org/en/focus-areas/humanitarian-action-and-disaster-risk-reduction/gender-and-climate-change</p> <p>(4) Women’s Microfinance Initiative. Home. Women’s Microfinance Initiative. Available from: https://wmionline.org/</p> <p>(5) Women Entrepreneurs Finance Initiative. Mission. Available at https://we-fi.org/mission/</p> <p>(6) Women’s Finance Exchange. Making connections delivering results. Women’s Microfinance Exchange. Available from: https://www.wfx.adb.org/</p> <p>(7) CIF. Small loans, big impact: Microfinances and climate resilience. CIF; 2025. Available from: https://www.cif.org/news/small-loans-big-impact-microfinance-and-climate-resilience</p>		
<p>Cross-cutting components:</p> <p>Leadership, governance, policy</p> <p>Multisectoral approach</p> <p>Financing</p>	<p>These three components are critical and cut across the subcomponents list above.</p>		

Component 2: Enhancing Healthcare Delivery

Sub-component	Milestone 1	Milestone 2 (by 2030)	Justification
1. Strengthening infrastructure and early warnings	<p>Convene multistakeholders to write plans to develop climate-resilient and low-carbon systems in healthcare, the workplace and residential infrastructure, including the provision of sexual, reproductive, maternal and menopausal health services.</p> <p>Drafts plans so that emergency shelters used by women (to wash, sleep or bath, in light of extreme weather events) are designed to protect them against risk of sexual violence.</p> <p>Develop national plans for early warning systems so countries can warn communities, including women, of impending climate-related weather events (such as heatwaves, floods), so they can protect themselves.</p> <p>Stakeholders: Governments, NGOs, women's groups, healthcare sector, emergency services, urban planning and construction sector, private land and property owners, telecoms sector</p>	<p>Monitor the construction of new climate-resilient infrastructure and retrofitting of existing infrastructure for facilities providing healthcare, employment and shelter for women. Ensure any new buildings are built outside areas prone to floods, wildfires and natural disasters. Plans should be derived to minimise heat containment and exposure in these buildings.</p> <p>By 2030, plans have been finalised for the design of emergency shelters to protect women from sexual violence, and associated awareness and communication plans.</p> <p>By 2030, at least 80% of people living in LMICs have received an early warning of an impending climate-related event in order to protect communities, including women's planning and access to sexual, reproductive, maternal and menopausal care.</p>	<p>Improving health infrastructure in LMICs is essential for strengthening the delivery of care. It is critical that health infrastructure can also withstand the impacts of climate change so that uninterrupted services can be provided to women during times of climate crises. The WHO offers guidance on developing climate resilient and sustainable healthcare facilities, which includes information about location, structural design and information systems resilience to climate change. (1) Similarly, other buildings where women reside and work must be strengthened and improved to limit women's exposure to the impacts of climate change.</p> <p>There is a greater risk of gender-based violence for women living in LMICs during climate events that cause displacement. (2) Women are at increased risk of sexual violence when sleeping, washing or bathing in emergency shelters that house both men and women. (3) Creation of emergency shelters for the protect women against sexual violence during periods of displacement is essential.</p> <p>Early warning systems help countries (especially LMICs) and women prepare for any impending climate-related events, however, only half of all countries have them. The UN has launched a drive to cover everyone by 2027 at the latest and is more feasible than ever since 75% of people have a mobile phone and 95% can access the Internet. (4)</p>
	<p>References</p> <p>(1) WHO. WHO guidance for climate-resilient and environmentally sustainable healthcare facilities. WHO; 2020 Available from: https://www.who.int/publications/i/item/9789240012226</p> <p>(2) UN Women. UN Women calls for increased gender-focused climate finance at COP 29. UN women; 2024. Available from: https://www.unwomen.org/en/news-stories/press-release/2024/11/un-women-calls-for-increased-gender-focused-climate-finance-at-cop29</p> <p>(3) UN Women. Climate change and violence against women and girls. UN Women; 2022. Available from: https://www.unwomen.org/sites/default/files/2022-03/Infographic-Tackling-violence-against-women-and-girls-in-the-context-of-climate-change-en.pdf</p> <p>(4) United Nations. Climate Action. Finance & Justice. Available from: https://www.un.org/en/climatechange/raising-ambition/climate-finance</p>		
2. Leveraging UHC and new models of care	<p>Convene health experts and women's advocate groups to review existing universal health coverage plans to ensure they contain a gender-sensitive lens so that barriers to equitable access of sexual, reproductive, maternal and menopausal health services are addressed, prioritizing the most marginalized women and girls.</p> <p>Plans have been created that integrate new models of care, including telemedicine, digital technologies and remote monitoring, into standard practice to improve the delivery of women-centric healthcare services particularly during times of climate-related events. Ensure access to care is prioritised to women who are vulnerable and live in remote communities, especially those seeking antenatal and postnatal care.</p>	<p>Universal health coverage plans have been updated, ensuring gender-sensitivity to address gender-related barriers to women and girls' equitable access to sexual, reproductive, maternal and menopausal health services, prioritizing the most marginalized women and girls.</p> <p>Elements of telemedicine, digital technology and remote monitoring have been adopted and used in standard practice in the most vulnerable communities during times of climate crisis to deliver sexual, reproductive, maternal and menopausal care to women.</p>	<p>Universal Health Coverage (UHC) ensures equitable access to healthcare services without financial and geographic barriers. UHC services span prevention, treatment, rehabilitation and palliation. Gender inequalities and harmful social and cultural norms, such as income, education and food security inequalities, socially constructed gender roles and discriminatory laws, limit women's ability to access essential sexual, reproductive, maternal and menopausal services, impacting their outcomes during climate events. (1) Addressing these barriers is essential to achieving UHC and strengthening provision and access of care to women.</p>

Component 2: Enhancing Healthcare Delivery (cont.)

Sub-component	Milestone 1	Milestone 2 (by 2030)	Justification
<p>2. Leveraging UHC and new models of care (cont.)</p>	<p>Stakeholders: Governments (health), women's groups, NGOs, hospital providers and administrators, healthcare professionals, community health workers, community leaders, technology industry</p>		<p>Telemedicine can improve access to care in times of climate crisis and reduce exposure to the elements (heat, floods, air pollution), particularly for vulnerable women or women in remote communities who would have previously needed to travel to seek women-centric health services. Climate responsive telemedicine systems can be weather resistant in construction, cost-effective and scalable. Many rely on solar power or satellite communication to supply uninterrupted care during climate events. (2)</p>
<p>References</p>	<p>(1) Women in Global Health. Universal Health Coverage. Women in Global Health. Available from: https://womensingh.org/initiatives/universal-health-coverage-2/</p> <p>(2) Fawad M, Ullah S, Xu X. Climate-responsive telemedicine: Innovative strategy for enhancing healthcare in the face of climate change. Journal of Global Health; 2024. Available from: https://jogh.org/2024/jogh-14-03043</p>		
<p>3. Educating the healthcare workforce</p>	<p>Development of tertiary education, continuing professional development and training for healthcare providers/professionals (HCPs) on the impacts of climate change on women's health and the delivery of services, with modules on sexual, reproductive, maternal, and menopaual health. Education and training strategies should be developed to integrate the informal and community health workers into climate responsive healthcare delivery strategies.</p> <p>Ensure healthcare providers have organisational health literacy so that they can better serve women seeking sexual, reproductive, maternal and menopaual care services.</p> <p>Stakeholders: Government (health, education), academia (medical/nursing/pharmacy schools), healthcare professional bodies, healthcare professionals, community health workers, women's groups</p>	<p>Climate-related health risks to women have been integrated into HCP curriculum and training modules to improve knowledge and practice in the delivery of women-centric services. Implementation of programmes focused on enhancing HCP knowledge and training is underway. Informal community health workers and community midwives have been included into these programmes and are receiving adequate education on prevention and management of climate-related health effects for women.</p> <p>Gather data through (women) patient-reported outcomes and experience measures (PROMs and PREMs) to understand if healthcare services have adapted to climate change adequately to enhance care for women seeking sexual, reproductive, maternal and menopaual care services.</p>	<p>Strengthening and educating the healthcare workforce is a key component in enhancing the delivery of women-centric healthcare in the face of climate change. It is crucial that HCPs are adequately educated on how women's sexual, reproductive, maternal and menopaual health is impacted during climate events and how they can better adapt to women's needs. The WHO is already developing comprehensive online training modules on climate change and health for HCPs and other stakeholders, but a gender-sensitive lens is needed. (1) Health systems must also ensure that they have enough regional capacity and resources to tackle the threat of climate change to women's health. Recognition, inclusion and education of informal healthcare workers such as community health workers (CHWs) and community midwives is important for ensuring the delivery of quality care to women during times of climate crises. (2, 3)</p> <p>Use of PROMs and PREMs is an additional method for extracting information on women's outcomes and experiences related to their sexual, reproductive, maternal and menopaual care during times of climate crisis. These metrics are essential for collecting real-time data to inform health strategies and interventions. However, their implementation is scarce, due to lack of HCP technical knowledge and scarcity of human resources. (4)</p>
<p>References</p>	<p>(1) ATACH. Online training course: Climate change and health. Alliance for Transformative Action on Climate and Health-WHO Academy. Available from: https://www.atachcommunity.com/resources/resource-repository/online-training-course-climate-change-and-health/</p> <p>(2) COP29 special report on climate change and health: Health is the argument for climate action. World Health Organization; 2024.</p> <p>(3) Nove A, Friberg IK, de Bernis L, McConville F, Moran AC, Najjemba M, Ten Hoope-Bender P, Tracy S, Homer CSE. Potential impact of midwives in preventing and reducing maternal and neonatal mortality and stillbirths: a Lives Saved Tool modelling study. Lancet Glob Health. 2021;9(1):e24-e32.</p> <p>(4) Lowry V, Tremblay-Vaillancourt V, Beaupré P, et al. How patient-reported outcomes and experience measures (PROMs and PREMs) are implemented in healthcare professional and patient organizations? An environmental scan. Journal of Patient-Reported Outcomes; 2024.</p>		

Component 2: Enhancing Healthcare Delivery (cont.)

Sub-component	Milestone 1	Milestone 2 (by 2030)	Justification
<p>4. Improving supply chains</p>	<p>Create plans to strengthen the monitoring of essential stocks of healthcare products for women, such as contraceptives, condoms, menstrual hygiene supplies, treatments for vector-borne diseases and nutritional supplements for pregnant women, to pre-empt need and ensure adequate supply during times of climate crisis.</p> <p>Factor the needs of supply chains so they have adequate cooling and storage facilities for medications to ensure products are stored and transported effectively during climate events.</p> <p>Stakeholders: national governments, multilateral organisations, NGOs, academia, healthcare providers, women, pharmaceutical companies, logistics firms</p>	<p>Remote monitoring is being used to ensure essential healthcare products for women are adequately stocked to address needs in times of climate crisis. Adequate storage solutions/facilities for medications are in place in the event of a climate crisis.</p>	<p>Supply chains for essential medicines for women, such as contraceptives, treatments for vector-borne diseases and nutritional supplements during pregnancy, are often disrupted during climate events.(1,2) Remote monitoring of stock is critical for forecasting needs and ensuring stocks are adequate during times of climate crisis.(3)</p>
<p>References</p>	<p>(1) Economist Impact expert panel; 2025</p> <p>(2) Anton B, Cuevas S, Hanson M, Bhutta ZA, Langlois EV, Iaia DG, Gasparri G, Borghi J. Opportunities and challenges for financing women’s, children’s and adolescents’ health in the context of climate change. <i>BMJ Glob Health.</i> 2024;9(4):e014596. doi: 10.1136/bmjgh-2023-014596. PMID: 38677778; PMCID: PMC11057322.</p> <p>(3) Furstenau LB, Zani C, Xavier Terra S, Kremer Sott M, Raymond Choo KK, Abreu Saurin T. Resilience capabilities of healthcare supply chain and supportive digital technologies. <i>Technology in Society.</i> Elsevier;2022. DOI: 10.1016/j.techsoc.2022.102095</p>		
<p>Cross-cutting components:</p> <p>Leadership, governance, policy</p> <p>Multisectoral approach</p> <p>Financing</p>	<p>These three components are critical and cut across the subcomponents list above.</p>		

Component 3: Raising awareness and education

Sub-component	Milestone 1	Milestone 2 (by 2030)	Justification
1. Boost women's education, literacy and empowerment	<p>Start designing education curriculums (in primary and secondary schools) that equip girls and women with planetary health literacy and green skills to empower them as change agents regarding the impacts of climate change on their health and their communities.</p> <p>Provide resources and funding for the development of women's advocacy groups to ensure women's voices are being considered at all levels of health and climate discussion (community, national, regional, international), especially in relation to their sexual, reproductive, maternal and menopausal health.</p> <p>Stakeholders: National governments, NGOs, healthcare providers and professionals, professional organisations, academia, media, religious leaders, community leaders, funders, banks and corporates</p>	<p>Monitor how schools in LMICs have transformed education relating to climate change, as empowered girls can better participate in decision-making, green innovation, and increased climate resilience.</p> <p>Monitor the extent to which women's advocacy groups have been invited to join health and climate discussions.</p>	<p>The Global Gender Gap Index (GGGI) and the Gender Inequality Index (GII) found that education was a strong indicator for gender equality in relation to climate change.(1,2) Using the PHE (population, health and environment) approach, linking voluntary family planning, women's health and climate change, in education programmes has been successful in countries such as Rwanda, which has an integrated population, health and environment strategy that provides education on family planning, women's health, the environment and climate change.(3)</p> <p>Education can facilitate women's ability to advocate for themselves. Integration of local women's advocacy groups into the health and climate discussion is therefore important to gain on the ground and lived experience perspectives in health and climate policymaking.</p>
References	<p>(1) Economist Impact expert panel; 2025</p> <p>(2) Pinho-Gomes AC, Woodward M. The association between gender equality and climate adaptation across the globe. BMC Public Health. 2024; 24, 1394. Available from: https://doi.org/10.1186/s12889-024-18880-5</p> <p>(3) Women Deliver. Deliver for good campaign. Invest in girls and women to tackle climate change and conserve the environment. Women Deliver; 2019. Available from: https://womendeliver.org/wp-content/uploads/2017/09/2019-10-D4G_Brief_ClimateChange.pdf</p>		
2. Increase women in leadership	<p>Provide mentoring schemes, funding and resources to programmes that encourage women to be part of climate leadership bodies. Design programmes that train and educate women on climate and health, which can facilitate their rise to leadership positions. These programmes can be delivered in collaboration with universities, schools, business groups and community groups.</p> <p>Encouraging fair representation of women in media, specifically women in leadership positions, and dispelling fake news can aid in addressing harmful gender norms and stereotypes about female leadership.</p> <p>Stakeholders: Governments (health, environment), multilateral organisations, NGOs, academia and community, climate leaders, media, business schools</p>	<p>Monitor the representation of women in climate leadership positions and media and report results in the public domain. Monitor societal attitudes to women in leadership through national surveys to gauge how best to respond to perspectives. Showcase how female participation in policy positions can drive better climate, environmental and sustainability targets, and community-based solutions.</p> <p>Expand education, mentorship and programmes that support women in participating in climate leadership discussions. Ensure programmes are being funded adequately, implemented equitably and evaluated.</p>	<p>Valuable perspectives and understanding can be gained by leveraging the role of women in policy and leadership positions. Bolstering female representation in leadership, which is currently inadequate, can shine a spotlight on women's health and facilitate gender-sensitive climate adaptation strategies.(1) Studies show that women in leadership positions are more likely to prioritise climate-related action than men. However, gender stereotypes associated with women, such as lack of assertiveness, authority and strength, can hinder women's ascension into leadership positions.(2) Dispelling gender norms and harmful stereotypes is essential for addressing this.</p> <p>Engaging women in communities in policymaking and leadership can equip them with the knowledge, capacity and skills to empower and support other women, community members and vulnerable people.(3)</p>
References	<p>(1) Hansen J, Michele Barry on elevating women leaders in climate and health. StanfordReport; 2024. Available from: https://news.stanford.edu/stories/2024/10/why-women-s-leadership-is-crucial-for-global-health-and-environmental-progress</p> <p>(2) Lesli S. Gender and climate action. European Investment Bank; 2023. Available from: https://www.eib.org/en/stories/female-leaders-climate</p> <p>(3) United Nations. Why women are key to climate action? UN Climate Action. Available from: https://www.un.org/en/climatechange/science/climate-issues/women#:~:text=As%20farmers%2C%20women%20have%20learned,based%20reforestation%20and%20restoration%20efforts.</p>		

Component 3: Raising awareness and education (cont.)

Sub-component	Milestone 1	Milestone 2 (by 2030)	Justification
<p>3. Raise awareness for communities</p>	<p>Ensure multisectoral collaboration (governments, public health, media, community leaders, religious leaders, CHWs and women’s groups) on the dissemination of national public awareness campaigns, and educating women and their communities on the health risks associated with climate change. For example, awareness should be raised around the potential impacts of heat exposure on pregnancy and menopause, the impacts of malnutrition on breastfeeding, and the stigma associated with sexual violence. Campaigns should be culturally-sensitive and wide-reaching to include the most vulnerable and remote women in society.</p> <p>Design information about the impacts of climate change on women’s health to be culturally-sensitive, gender-sensitive and to reach local communities, including their leaders and employers. This may be done through the creation of information campaigns that leverage digital technology, social media, radio and recruit key community leaders (religious leaders, CHWs, women’s groups). Establishing reputable channels of communication can help to fight misinformation and tackle harmful social and cultural views. Information should be presented in a consistent, clear manner, and use simple language for understandability at community level to reach a wider audience. Ensure multisectoral collaboration in this planning.</p> <p>Governments and employers allocate funding to raise awareness on how the workplace (indoor and outdoor) may exacerbate the impacts of climate change on women’s health outcomes. Adaptation strategies should be offered to ensure employers and workers have a clear understanding of interventions to reduce women’s exposure to heat, pollution, poor sanitary conditions and low-quality water.</p> <p>Stakeholders: Governments, employers, workers, unions, NGOs, professional organisations, academia, funding bodies, community leaders, religious leaders, media</p>	<p>Monitor and evaluate community awareness and education programmes through the collection of data outlining their impact on women’s health outcomes. Use qualitative research (i.e. focus groups and surveys) to gather data.</p> <p>Information dissemination strategies have been implemented in local communities and are driving behavioural change and action from community members to address harmful social and cultural norms.</p> <p>Workplace educational strategies for employers and workers on the impacts of climate change on women’s health have been introduced widely and there are plans to improve working conditions.</p>	<p>Educating the wider community on the implications of climate change on women’s health is essential to ensure accountability and action.(1) Information and education can equip communities with knowledge around prevention, living healthier lives through awareness of healthy practices and behaviours.(2) Media and radio can be a useful tool for spreading information relating to climate risks and encouraging health-seeking behaviour from women.(3) As such, these can be used as a tool, alongside recruitment of community health and non-health leaders, for the dissemination of information and awareness campaigns.</p> <p>This can also address social and cultural norms that may exacerbate the health impacts of climate change on women or prevent them from seeking care. For example, education can be a powerful tool for safeguarding women’s health, disrupting harmful practices and norms, such as gender-based violence or the stigmas associated with STI treatment.(2)</p> <p>Additionally, educating employers on the potential risks of climate change to women’s health can encourage action towards better safety practices in places of employment.(1)</p>
<p>References</p>	<p>(1) Economist Impact expert panel; 2025 (2) Relief International. How Education Can Transform Health and Wellbeing in Crisis-Affected Communities. Relief International; 2024. Available from: https://www.ri.org/how-education-can-transform-health-and-wellbeing-in-crisis-affected-communities/ (3) UN Women. Asia and the Pacific. Fueling change: How women are leading Vietnam’s just energy transition. UN Women; 2024. Available from: https://asiapacific.unwomen.org/en/stories/feature-story/2024/10/fueling-change-how-women-are-leading-viet-nams-just-energy-transition</p>		
<p>Cross-cutting components: Leadership, governance, policy Multisectoral approach Financing</p>	<p>These three components are critical and cut across the subcomponents list above.</p>		

Component 4: Improving research, data and monitoring

Sub-component	Milestone 1	Milestone 2 (by 2030)	Justification
1. Identify research priorities	<p>Identify research priority areas on the impacts of climate change on women’s health, specifically targeting under-researched areas, which could include contraceptive use, induced abortions and menopausal health. Academic, government, multilateral organisations and industry stakeholders collaborate to provide academic and research institutions with adequate funding, resources and infrastructure to carry out research.</p> <p>Governments and academic institutions commit to the development of local research talent through subsidised education in schools and universities, encouraging uptake of education in health and climate related areas, to enable sustained research.</p> <p>Stakeholders: National governments and multilateral organisations, academia/universities and NGOs, healthcare providers, women and patient groups.</p>	<p>Funds and resources have been granted and allocated to research focusing on understudied areas of women’s health (contraceptive use, induced abortions and menopausal health) in relation to climate change, or other identified areas.</p> <p>Initiatives fostering local research talent have been rolled out, encouraging sustained research in areas relating to women’s health and climate change.</p>	<p>Further research is needed to understand gaps in current knowledge around the intersection and impacts of climate change on women’s sexual, reproductive, maternal and menopausal health. The main research gaps in relation to women and climate change are related to contraceptive use, induced abortions, reproductive tract cancers and menopausal health.(1,2)</p>
References	<p>(1) Arunda MO, Sorcher R, Finatto Canabarro AP, et al. Climate change and sexual and reproductive health and rights research in low-income and middle-income countries: a scoping review: <i>BMJ Public Health</i>. 2024;2:e001090.</p> <p>(2) Cucinella L, Tiranini L, Nappi RE. Impact of climate and environmental change on the menopause. <i>Maturitas</i>. 2023;178:107825. doi: 10.1016/j.maturitas.2023.107825. Epub 2023 Aug 25. PMID: 37634295.</p>		
2. Collect gender-disaggregated data	<p>Develop an agenda to strengthen health information systems through collection of gender-disaggregated data for women’s health, particularly relating to sexual, reproductive, maternal and menopausal health outcomes that have been influenced by climate factors such as air pollution and heat. Gender-disaggregated data should be linked with climate data to enable monitoring of the health impacts of climate change that are specific to women.</p> <p>Develop plans to strengthen real-time health data collection practices directly from women. For example, this can be aided by wearable devices that track body function or by HCPs directly asking patients what their priorities are when it comes to their care. Ensure data sharing agreements are in place so that data can be optimally used for research, innovation, monitoring and surveillance purposes.</p> <p>Stakeholders: National governments (health, environment, labour, agriculture), multilateral organisations, NGOs, researchers, payers</p>	<p>Start the routine collection of gender-disaggregated data on the impact of climate change on women’s health outcomes through research, surveys, administrative and medical records, insurance records, surveillance, and disease registries.</p> <p>Link gender-disaggregated data to climate health data to boost understanding of women’s health impacted by climate change, letting this inform policy decisions at national level. Linked data could support the prediction of health events and women’s needs. Disaggregated data can help to identify new research and evidence needs on the impact of climate change on women’s health, prioritising the inclusion of vulnerable women.</p> <p>Upscaling of real-time data collection and sharing, including the integration of wearable devices, has enabled better understanding of women’s bodily functions during climate events and women’s priorities for care, consequently informing treatment and support.</p>	<p>There is inadequate data that captures the direct impacts of climate change on women’s health and in vulnerable groups of women.(1) None of the assessments in a global survey conducted by the WHO in 2021 included sex-disaggregated data and only 12 assessments mentioned gender differences in climate-sensitive health risks.(2) Strengthening of data collection systems and gender-disaggregated data collection is needed to understand the issue at hand and where the priority areas for action lie.</p>
References	<p>(1) Economist Impact expert panel; 2025</p> <p>(2) WHO. 2021 WHO health and climate change global survey report. World Health Organization; 2021.</p>		

Component 4: Improving research, data and monitoring (cont.)

Sub-component	Milestone 1	Milestone 2 (by 2030)	Justification
3. Integrate health into early warning systems	<p>Ensure nations can better integrate women's health outcome data with climate data (such as meteorological, crop production, air and water quality) to better aid prevention and early warning. Multisector collaboration is needed between health and climate/ environmental agencies and bodies to improve, share and integrate data for the development of early warning systems.</p> <p>Undertake research to identify where the gaps are in women's access to information channels around early warnings. This research can be used to inform targeted outreach and upscaling of programmes that address digital inclusion and literacy.</p> <p>Engage the technology sector to understand how machine learning technologies can be integrated into early warning systems to aid prediction of catastrophic health events for women as a result of climate factors, enabling resources and action to be focused where most needed.</p> <p>Stakeholders: National governments supported by multilateral organisations, researchers, payers</p>	<p>Data on the impact of climate events on women's health outcomes is integrated to create early warning systems that inform women, community members, HCPs, and governing bodies of potential catastrophic climate events that may impact the health of women.</p> <p>Ensure women are able to access information from early warning systems through a range of channels such as apps, radio, media, community groups and leaders. Adjust measures based on response to ensure warnings are used by women (and their communities) to inform their action.</p> <p>Technology firms collaborate with the national government in the development of early prototypes on the use of machine learning in early warning system development.</p>	<p>Information on meteorological events, crop production, air quality/water quality and other climate-impacted factors is useful for predicting outcomes in women's health.(1) However, predictive data and surveillance of climate events is rarely linked to health risks. Indicators of climate-sensitive health risks to women should be integrated into health information systems to predict and track outcomes for women. This information can be disseminated to communities, HCPs and local governments and used to prepare for health events and/or prevent serious health consequences associated with climate events. Machine learning models are increasingly being used to enhance early warning systems for climate change. For example, past weather can be used to predict and forecast future weather events. The World Food Programme (WFP), in collaboration with the University of Oxford, IGAD Climate Prediction and Applications Centre (ICPAC), Kenya Meteorological Department (KMD), European Centre for Medium-Range Weather Forecasts (ECMWF) and the Ethiopia Meteorological Institute (EMI) are utilising artificial intelligence for weather prediction and early warning systems to protect lives in Eastern Africa.(2) Integrating women's health data into these early warning systems has the potential to further protect women from the impacts of climate change.</p>
References	<p>(1) Lokotola CL, Mash R, Naidoo K, et al. Climate change and primary health care in Africa: A scoping review, The Journal of Climate Change and Health, 2023.</p> <p>(2) WFP. Machine Learning for Early Warning Systems. World Food Programme; 2023. Available from: https://docs.wfp.org/api/documents/WFP-0000154485/download/?_ga=2.71551251.1845864373.1743182523-812796371.1743182523</p>		
4. Ongoing monitoring and evaluation	<p>Capture accurate baseline data on the state of existing healthcare services delivering sexual, reproductive, maternal and menopaual care.</p> <p>Draft plans to strengthen monitoring of the impacts of climate change on women's health over time through the collection of data from research, surveys, administrative and medical records, insurance records, surveillance and disease registries.</p> <p>Stakeholders: National governments supported by multilateral organisations and academia.</p>	<p>Ensure that baseline data is used for multisectoral interventions to target gaps in preparedness, awareness and action.</p> <p>Ongoing monitoring and evaluation of the impacts of climate change on women's health outcomes through continuous data collection, which informs priorities for policy, intervention, resource allocation, and prioritising vulnerable regions and populations where outcomes are worse.</p>	<p>Ongoing monitoring of the impacts of climate change on women's sexual, reproductive, maternal and menopaual health is essential to inform and adapt climate adaptation policy. Evaluation of policy and action should be ongoing and facilitated by identifying new gaps and trends in the data.(1)</p>
References	<p>(1) Economist Impact expert panel; 2025</p>		
Cross-cutting components: Leadership, governance, policy Multisectoral approach Financing	<p>These three components are critical and cut across the subcomponents list above.</p>		

A note on methodology

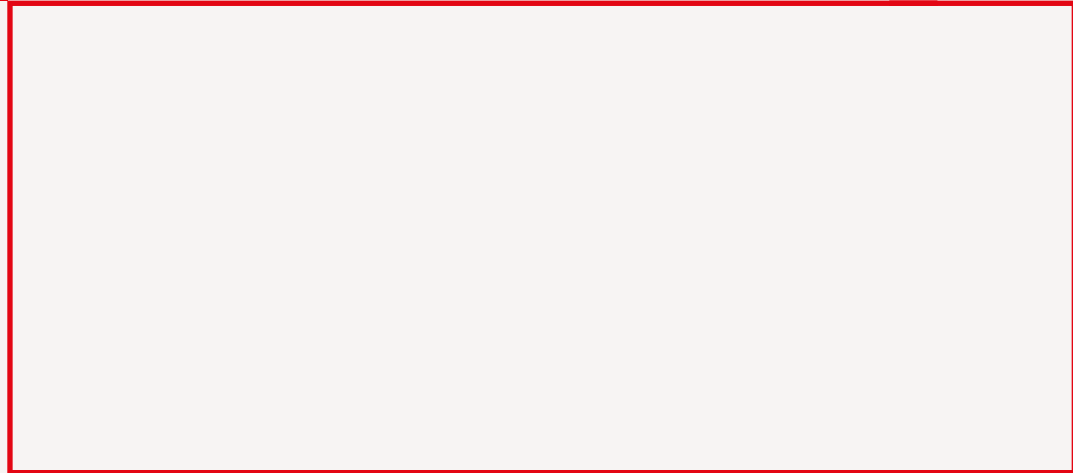
Many methods used in the field of futures studies¹ address a number of goals, such as appraising the probable, imagining the possible, and deciding on the preferable.

Economist Impact decided to focus on the “preferable” in creating our Vision 2030 for women's health in LMICs. While we acknowledge that there are many challenges facing healthcare systems over the next five years, we believe a pathway-to-impact map for adaptation of women's health serves as a reminder of the gravity of the climate crisis and suggests opportunities for action. Furthermore, considering the short-term nature of political cycles and their associated funding rounds, Economist Impact believes a short five year vision to 2030 will have more resonance with policymakers, healthcare actors and stakeholders whose actions have an impact on health, as well as complement the 2030 SDGs goals.

We started with a literature review to understand the impact of climate change on women's health in LMICs where we developed a draft optimised Vision and the drafted components for consideration in a backcasting framework that mostly addressed adaptation strategies. Backcasting helps in the development of a clear future vision. Working backwards from that future vision (2030), a backcasting process can help identify key steps (and stakeholders) going forward to convert this idea into a reality. The Vision 2030 was stress-tested with experts in a workshop held in February 2025, and refined by Economist Impact researchers. The components of the backcasting framework were also discussed by the workshop experts and further refined. Economist Impact acknowledges that there are many possible “paths” to an optimal 2030 vision, looking at different components, stakeholders and solutions and we understand that many context-specific issues are not fixed in time, but dynamic by nature. We hope that this Vision will stimulate thinking and inspire action before 2030.

¹ Bibri, S.E. Backcasting in futures studies: a synthesized scholarly and planning approach to strategic smart sustainable city development. Eur J Futures Res.2018;6,13 . Available from: <https://doi.org/10.1186/s40309-018-0142-z>

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