



Addressing the impacts of climate change on women's, children's and adolescents' health (WCAH) and well-being through key policy solutions

1. Objectives

This Board paper summarizes current evidence on the impacts of climate change on women's, children's, and adolescents' health (WCAH) and well-being, and the evidence-based solutions needed to address these. The standardized methods used to analyse the literature on the impacts of climate change on WCAH can be found in the [Annex](#). Reflecting on this evidence, the PMNCH Board will identify solutions to prioritize climate change mitigation, climate adaptation for WCA, and climate resilience across health systems and sexual, reproductive, maternal, newborn, child and adolescent health (SRMNCAH) services. The policy solutions and Board decisions will be translated into an action-oriented advocacy agenda for PMNCH Constituencies, to support evidence-based decision-making and prioritization of WCA at the upcoming COP28 (November-December 2023), and other relevant advocacy moments throughout 2023 and 2024.

2. Introduction

Climate change is now the [biggest global health threat](#) and [intergenerational injustice](#) of the 21st century, affecting every country on every continent, disrupting individual livelihoods and national economies. Climate change is also referred to as a "[threat multiplier](#)", given that it escalates social, political and economic tensions, particularly in fragile and conflict-affected settings.

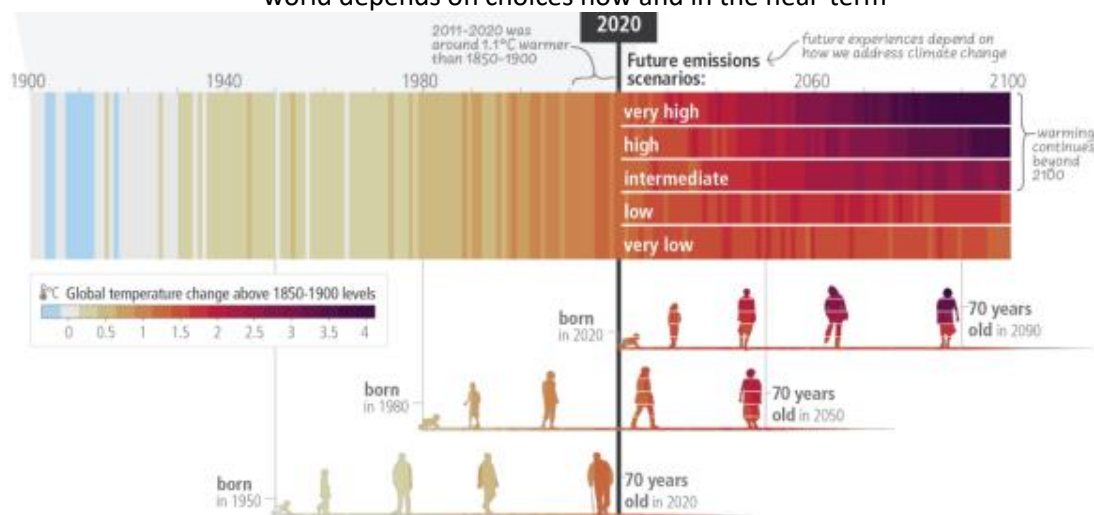
At its current state the future looks grim. The world today is already [1.2°C warmer](#) than during pre-industrial times and global temperatures are projected to [rise 2.0-2.6°C by mid-century](#), which will negatively impact GDP in all regions. According to the [World Meteorological Organization](#), there were more than 11 000 reported disasters attributed to these hazards globally from 1970 to 2019, with just over 2 million deaths and 3.64 trillion US dollars in losses.

Low-income countries are highly vulnerable to climate change because of poverty, poor sanitation, high prevalence of malnutrition, infections, non-communicable diseases, poor quality housing and non-resilient healthcare systems. Similarly, [women, children and adolescents](#) (WCA) are among the population groups who will bear the [greatest consequences of climate change](#). Those who are already facing inequities and marginalization due to gender, ethnicity and low income will be the [most affected](#).

Over their lifetime, despite having contributed the least to greenhouse gas emissions, adolescents, young people and future generations stand to [disproportionately shoulder](#) the burden of climate change ([Figure 1](#) below). [Evidence](#) shows that under current emission reduction pledge scenarios, a person born in 2020 is going to experience a two- to sevenfold increase in weather events during their lifetime compared to people born in the 1960s.



Figure 1. The extent to which current and future generations will experience a hotter and different world depends on choices now and in the near-term

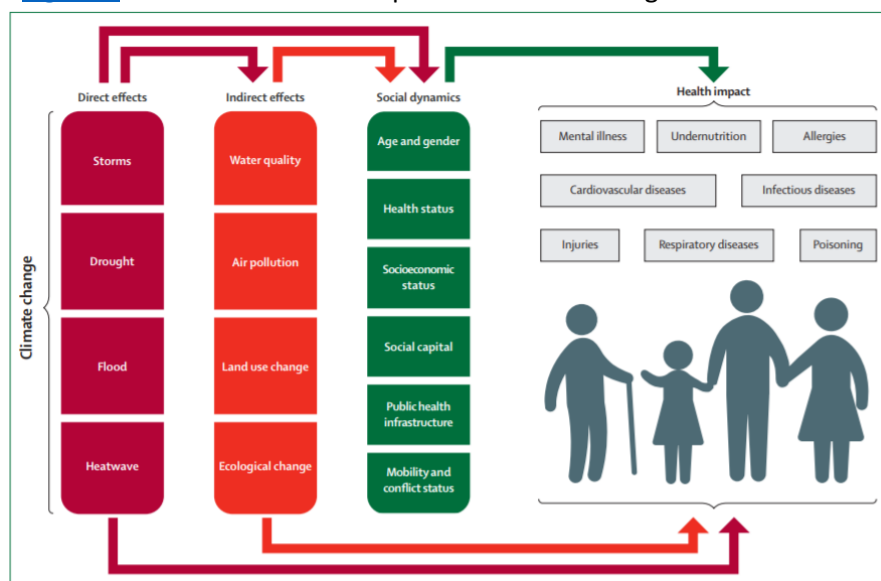


It is therefore critical that governments and other stakeholders prioritize the needs of WCA by committing to ambitious climate mitigation targets, prioritizing WCA in climate adaptation, and promoting climate-resilient health systems delivering essential SRMNCAH services.

3. Risk factors and drivers of the effects of climate change, especially rising temperatures, on WCAH

There are a multitude of pathways and direct and indirect impacts that result from climate change, especially from rising temperatures and extreme heat. Figure 2 outlines a framework explaining the impact of climate change on health through direct and indirect factors and modifiers such as social dynamics. The below paragraphs summarize the specific impacts related to WCAH.

Figure 2. Direct and indirect impacts of climate change on human health





Impacts on maternal, newborn and child health (MNCH)

In 2000, climate change was already responsible for more than [150 000 deaths](#) worldwide, and of this disease burden, [88%](#) fell upon children. According to the [WHO](#), between 2030 and 2050, climate change will cause approximately 250 000 additional deaths per year from diarrhoea, malnutrition, health stress and malaria. Although the global costs of the effects of climate change on health care are difficult to estimate and depend upon the health system, the estimated annual extra health care costs in the USA are estimated to exceed [820 billion US dollars](#). Air pollution—driven by fossil fuel consumption which is causing climate change and is also exacerbated by climate change—is [linked to poor maternal health outcomes](#) such as stillbirth, [preterm birth](#) and low birth weight.

Impacts on sexual and reproductive health and rights (SRHR)

Climate change disproportionately [impacts women and girls](#) by exacerbating existing gender inequalities, disrupting access to sexual and reproductive health (SRH) care, and reducing their already limited opportunities to equally contribute to society's progress, including through increased labour force participation. The increasing frequency and intensity of extreme weather events can disrupt health services and infrastructure, leading to [limited access](#) to sexual and reproductive health services, increased risk of gender-based violence, sexually transmitted infections, and unintended pregnancies. Adolescent girls and women also bear the main burden of collecting water and fuel, which becomes more challenging in drought-prone areas, [leading to decreased time for education and work, as well as increased exposure to sexual violence and forced marriage](#).

Impacts on adolescent well-being (AWB)

[Climate change threatens all five domains of adolescent well-being](#): good health and optimum nutrition; connectedness, positive values, and contributions to society; safety and supportive environments; learning, education, and employability; and agency and resilience. Almost every young person in the world is already [exposed](#) to at least one climate and environmental hazard, shock, or stress such as heatwaves, cyclones, air pollution, flooding, and water scarcity. Adolescent physical and mental health, and social development can be significantly impacted by extreme weather events, leading to [increase in injuries, post-traumatic stress disorder and eco-anxiety for their future](#). A high percentage of those who are [displaced](#) by these climate-related disasters are young people under 18. School closures as a result of extreme weather events force many adolescents out of education. For example, in some parts of [Bangladesh](#) schools remained closed for one year after the destruction of Cyclone Aila and in the [United States](#) extreme weather events are the most common cause of school closures. These effects can further exacerbate existing [health disparities](#) among adolescents. However, adolescents are not only victims of climate change; many have in fact responded to the climate crisis with agency, [taking action against governments and fossil fuel polluters to call for climate justice and advancing a human-rights approach](#).

Rising global temperatures are now threatening to reverse progress in WCAH. Additional impacts of heat on various dimensions of WCAH are summarized below.

Effects during pregnancy and birth outcomes

Anatomical, physiologic, and socio-cultural changes during pregnancy and childbirth increase vulnerability of women and newborns to high ambient temperatures, especially among the poor. Extreme heat can [overwhelm thermoregulatory mechanisms in pregnant women](#), especially during labour, cause dehydration and endocrine dysfunction, and compromise placental function. Higher temperature was also associated with increased [preterm birth](#), [reduced birth weight](#) and [increase in fetal stress](#). In a recent study in rural Pakistan, [Shankar et al](#) showed that extreme heat exposure in the first trimester was



associated with significantly lower length and head circumference at birth and that the effects of heat were somewhat ameliorated by early maternal nutritional supplementation.

Vector-borne diseases

Climate change, particularly high temperatures and precipitation rates, is [associated](#) with the increased spread of vector-borne diseases such as malaria, dengue, etc. Pregnant women are [disproportionately susceptible](#) to mosquito-borne diseases, including Zika virus, dengue, and malaria. Significant [evidence](#) shows that vector-borne diseases can increase the risk of spontaneous abortion, premature delivery, stillbirth, low-weight births, eclampsia, and caesarean delivery for pregnant women.

Respiratory illnesses

Increasing temperatures augment pollen, allergen and mold. Coupled with air pollution and extreme heat, these factors heighten the [risk of respiratory diseases](#), such as [asthma](#) (the most [common chronic disease amongst adolescents](#)) rhinosinusitis, chronic obstructive pulmonary disease and respiratory tract infections.

Undernutrition and malnutrition

Climate change also worsens global inequity in maternal nutrition and birth outcomes through alternative pathways. Climate change threatens food security impacting food availability, access, quality, and utilization. Crop production globally [is expected to decline](#), coupled with the rise in, and volatility of, staple food prices will create additional burdens, more so for the world's poorest, especially women. There are also consequences related to potential increase in double burden of malnutrition. Extreme heat conditions can also be potentially dangerous for children and adolescents to play outside or in schools ill-equipped for alternative exercise options. This is a critical issue because the number one health challenge facing our children today is [obesity](#). Additionally, children have [less effective](#) heat adaptation capacities than adults, making them even more susceptible to poorer health impacts.

4. Interventions and Potential Solutions

Climate mitigation

Rapidly reducing greenhouse gas emissions in line with the [Paris Agreement goals](#) is paramount to ensure we limit the damage of climate change. Climate mitigation strategies to reach zero-carbon emissions by 2050—and then to negative emissions in the latter part of the century—include phasing-out of fossil fuels and elimination of fossil fuel subsidies, and increased access to clean fuels and clean energy technologies. Apart from other measures, reducing health care system emissions is important as they account [for 4.4% of global greenhouse gas emissions](#) and the co-benefits of reducing indoor air pollution and health care-related emissions could hugely benefit WCA in energy-poor LMICs.

Climate adaptation

No matter how much countries reduce their emissions, and even if we reach the target of 1.5°C, the consequences of climate change on the health and well-being of the most vulnerable, especially women and the youngest generations will be profound. Adaptation policies must therefore be prioritized in LMIC populations to build their resilience.

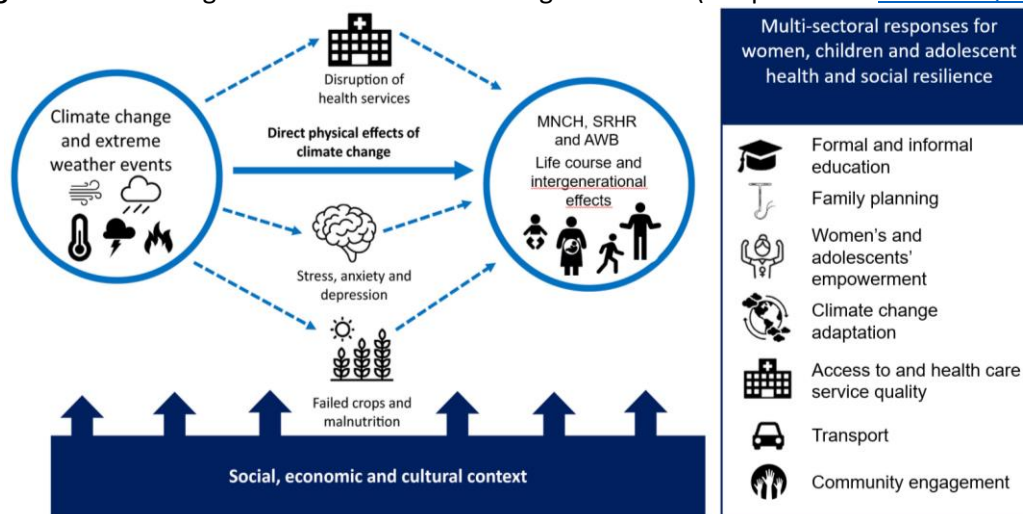
Country examples of progress

Rwanda has led the field in Africa with a comprehensive [National Environment and Climate Change Policy \(2019\)](#). As part of this policy, Rwanda has implemented a national climate change and health strategy focusing on improving access to clean water and sanitation, promoting disease prevention and control, and strengthening health systems to cope with climate-related emergencies which impact WCAH and well being. Rwanda has also invested heavily in renewable energy to reduce its reliance on fossil fuels, and has some remarkable examples of climate-friendly health facilities.

At a **state level in India**, Rajasthan has had a [Climate Action Plan](#) since 2017 and investments by [Climate Action Fund](#) on developing clean energy sources have included important gender perspectives and targets, including support for women-led enterprises and pilot implementation of clean and fluoride free drinking water for households in nearby communities. At a local level in Rajasthan, a network of health clinics and hospitals have implemented heat action plans to address the health impacts of extreme heat such as cool roofs and walls, providing access to safe drinking water, and training health workers to recognize and treat heat-related illnesses. Rajasthan has also seen some remarkable award-winning programmes for [climate friendly girls' schools](#).

Addressing climate change requires integrated efforts that recognize the intersectionality of SRHR, gender equality, and climate change. A framework for addressing the effects of climate change on WCAH through multi-sectoral action is given in Figure 3 below.

Figure 3. Addressing the effects of climate change on WCAH (Adapted from [Roos et al, 2021](#))



There is correspondingly little information from LMICs on adaptation and resilience-building measures. Some of the strategies recommended by the [Lancet Climate Countdown group \(2022\)](#) and [others](#) to minimize effects through adaptation and resilience building, include the following.

Table: Policies and services needed to support climate adaptation and resilience for WCAs

General strategies to support health in the wake of climate change	Policies & action specifically supporting climate adaptation and resilience for WCAs
National health adaptation plans for climate change, including vulnerability assessment, outlining priority actions, resource requirements, clear timelines and implementation plans for adaptation.	Strategies to reduce gender and age specific impacts of climate change and heat, especially in pregnant and lactating women and newborns, through development of bundled packages of guidance for health and outreach services. The recently established Loss & Damage Fund at COP27 could offer an opportunity for LMIC countries and small island states to fund reconstruction and adaptation plans within health systems.
(City-level) climate change risk assessments and remedial measures, especially for large urban informal settlements (these can include structural modifications, reflective paints and climate-friendly building materials).	The overall package of interventions for vulnerable WCA must be developed based on impact, equity, and cost-effectiveness. Interventions should be cross-sectoral to address the interconnected impacts of climate change, such as teenage pregnancy caused by increased climate-induced gender-based violence and child marriage, through education packages that support young pregnant girls to continue their education and social protection programmes. These must be co-delivered and integrated within existing MNCH, SRHR and AWB platforms and supported by communities.



Development of detection (early warning systems, weather forecasting), preparedness and response measures and mechanisms for climate-related health emergencies.	Development of integrated packages of care and preparedness for emergency management of heat exposure/heat stroke for WCAs in emergency and primary care settings.
Epidemiological surveillance to provide early detection of (localized) changes in incidence, mortality, and health outcomes.	Facilitated access to climate-friendly health services, including through appropriate sustainable transportation, group antenatal care and mental health support for WCA suffering from extreme weather events post-traumatic stress disorder and anxiety.
Development of climate-resilient health systems, including development of appropriate sustainable infrastructure, carbon neutral facilities and reducing heat risk and exposure for the health workforce.	Every measure needs to be undertaken to support SRH needs for adolescents and young women. Given that schools are often closed during heat emergencies alternative platforms for addressing SRH, including increased teenage pregnancy, and mental health needs of adolescents must be developed and supported.
Resilience and adaptation promoting measures in primary care and community settings, including stabilization and rehydration/first aid stations.	Disaster preparedness in community settings (addressing complexity of contexts such as conflict, population displacement and socio-cultural factors).

5. Emerging opportunities for PMNCH constituencies

Recognizing the dramatic impacts of climate change on WCAH affecting the realization of the [PMNCH 2021-2025 Strategy](#) and the achievement of the 2030 Sustainable Development Goals (SDGs), the PMNCH Board has agreed to include a [“greater focus on the impact of climate change on adolescents, as well as on women and children”](#) in PMNCH’s strategic advocacy priorities. Given the current global priority being accorded to climate change and its impacts, there is a clear role for PMNCH constituencies in developing a comprehensive medium-term intersectoral advocacy strategy. At the 30th PMNCH Board meeting, it was [agreed for PMNCH to develop an Agenda for Action](#) on the intersection of climate change and WCAH tailored to PMNCH constituencies including evidence-informed strategies for mitigation, adaptation and promotion of resilience among WCA against climate change (especially heat-related effects). This Agenda for Action should also specifically focus on addressing the challenge of heat stress among women, including pregnant and lactating women; the mental health impacts of climate change on adolescents; and gender-related disparities and SRH issues impacted by climate change.

Below are some examples of advocacy priorities for PMNCH’s constituency mobilization across PMNCH’s functional areas that the Board might consider in shaping the advocacy agenda on climate change for 2023 and beyond.

Knowledge synthesis

Many areas of work in climate change and heat-related research require much greater focused research, financing and efforts to advance evidence-based interventions on climate change and WCAH. PMNCH constituencies, especially its Academic, Research and Training Institutes (ART) constituency jointly with the Donors and Foundations (DF) and Global Financing Mechanisms (GFM) constituencies play an important role in joining existing research prioritization exercises to fill key knowledge gaps in climate



impact on WCAH and action of relevance to LMICs, to inform advocacy and influence evidence-based policymaking. PMNCH constituencies should also ensure that evidence-based advocacy is aligned with impact, especially on vulnerable populations, to address the inequitable impact of climate change on marginalised WCA. PMNCH is also poised to support policy action addressing the full spectrum of impacts across the continuum of WCAH and bringing a life course perspective to this agenda. This area could include the development of advocacy resources to disseminate packages of interventions alongside normative agencies such as WHO, UNFPA and UNICEF and their integration within existing packages of care. PMNCH could also consider developing a digital compendium of resources on the impacts of climate change and heat on WCAH and interventions to support constituencies' informed advocacy in this field.

Partner engagement

In implementing PMNCH's [revised approach to commitment accountability and mobilization for WCAH](#), a stronger country focus—embedding climate change and WCAH in country advocacy action plans and accountability—is paramount to ensure climate change is streamlined across WCAH country strategies, especially as PMNCH is accelerating action to help countries advance commitment and financial resources across the full continuum of WCAH care. This could include ensuring the WCAH commitment compendium developed by the Knowledge and Evidence Working Group and Accountability Working Group has a section on climate change. Strengthening the capacity of PMNCH constituencies to address the intersection of climate change and WCAH is paramount for effective intersectoral advocacy. Such capacity building should ensure that PMNCH members are empowered to not only engage in the health space to advance the integration of climate change, but also occupy a position in all relevant climate action platforms to highlight WCAH perspectives within climate negotiations and national ministries. Specifically, the Health-Care Professional Associations (HCPA) constituency should develop a resource book for operationalizing climate change actions within WCAH.

Campaigns and Outreach

PMNCH is best positioned to use its campaigns and outreach, including G7/G20 advocacy and the Global Leaders Network, to join the call for action on intergenerational climate justice. In light of the upcoming Global Forum for Adolescents in October 2023, the Adolescents and Youth constituency, is best positioned to hold governments and other stakeholders, especially the fossil fuel industry, accountable for their actions. For instance, this could include joining advocacy, together with HCPAs and NGOs, for a [Fossil Fuel Non-Proliferation Treaty](#). With regards to prioritizing WCAH in climate adaptation and resilience, it is paramount to address some of the funding gaps for action and scaling up approaches. Given the considerable ambiguity on allocation of resources for climate action and research that targets WCAH and addresses the wide array of impacts on these populations, including higher focus on vulnerabilities and multisectoral action, the DF constituency, as well as the GFM and PS constituencies, should take the lead in advocating for co-financing mechanisms on climate and health specifically targeting WCAH.

6. Some points for consideration/discussion by the Board

- What is PMNCH's specific added value in this space across our functions of knowledge synthesis, campaigns and outreach, and partner engagement and across PMNCH's constituencies?
- How can PMNCH bring a greater climate change lens to its work on generating new country commitments for adolescent well-being and following up on existing commitments for WCAH?
- Which partners from the climate change community are most important for PMNCH to partner with?
- How should PMNCH develop a climate-related advocacy strategy that also aligns with other challenges related to inequities, fragility and humanitarian considerations (conflict, food insecurity and displaced populations)?