Strengthening Family Planning and Reproductive Health Can Help Reduce Vulnerability to Dangerous Climate Change

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As the harms of climate change cumulate around the world, the case for addressing its fundamental drivers strengthens. A recent report from Population Institute, summarized here, makes the case.

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Magnitude, causes and consequences of the climate problem

In 2019 the UN Global Environment Outlook – GEO-6 concluded, "The cumulative scientific evidence is unequivocal: Climate change is a threat to human well-being and planetary health." [1]

According to Intergovernmental Panel on Climate Change (IPCC) reports, increasing greenhouse gas (GHG) emissions caused by human activities are a principal driver of climate change. The magnitude of GHG emissions is affected by population size, economic activity, lifestyle, energy use, land use patterns, transportation, food production, technology, and climate policy. [2] [3]

The IPCC AR6 Working Group III (Mitigation of Climate Change), concluded that the strongest identified drivers of the rise in fossil-fuel-combustion CO_2 emissions during 2010–2019 were growth in GDP per capita and population growth. Globally, these increased emissions by about 2.3% per year and 1.2% per year, respectively. [4]

Recent increases in GHG emissions, wildfires, floods, drying rivers, heat wave deaths, drought ravaged crops, melting glaciers and sea level rises reveal that global climate disruption is rapidly intensifying. Multiple specific forms of climate disruption are proceeding faster and causing more damage to ecosystems and human welfare than earlier assessments anticipated. [5] [6]

The rate of global change in nature and the climate during the past 50 years is unprecedented in human history. Over this time span, the human population has doubled from 4.14 billion to 8.3 billion, the global economy has increased in size nearly four-fold, and global trade has grown ten-fold. [7] GEO-6 cited population



pressure, along with economic development, as the primary drivers of environmental change, including changes to the global climate. [8]

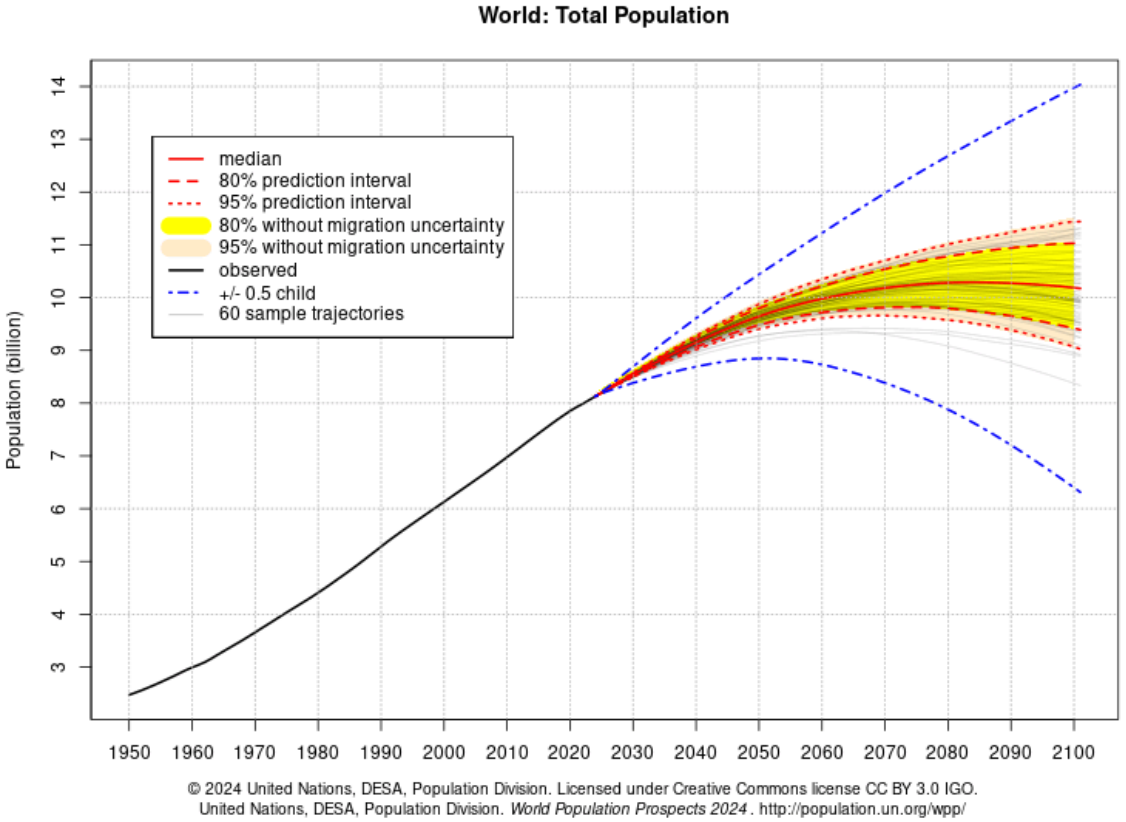
In 2007 John Holdren, Harvard energy expert and presidential advisor, said this about climate change: “We basically have three choices: mitigation, adaptation and suffering. We’re going to do some of each. The question is what the mix is going to be. The more mitigation we do, the less adaptation will be required and the less suffering there will be.” [9]

Population policy and climate mitigation

In spite of recognizing the important role of population growth and size in driving climate change, IPCC recommendations and national policies for action to mitigate and adapt to climate change have not addressed population. Yet future climate change will in part depend on if population decreases, stabilizes or continues to increase.

The most recent UN medium-variant estimates are that world population is increasing by about 70 million a year. The UN projects it to continue growing to a peak of around 10.3 billion in the mid-2080s and then gradually decrease to 10.2 billion by 2100. [10] The projected addition of 2 billion people by around 2085 will lead to additional climate disruption, whereas population stabilization or better yet a decrease in

population size would contribute to mitigation of climate change and help improve many other aspects of human welfare.



Future population growth could be reduced substantially and humanely by national and regional family planning programs, including reproductive health services that afford men and women the ability to choose the number of children they desire. This would prevent most of the 121 million unintended pregnancies that occur each year and bring the world closer to the UN's low-variant projection. [11] [12] It assumes that fertility rates remain consistently at an average of 0.5 births per woman below the medium-variant estimate throughout all future years. In this low-fertility scenario, world population tops out near 8.9 billion around 2052 and declines to about 6.3 billion by 2100. [13]

In 2020, some 11,000 scientists declared unequivocally that planet Earth is facing a climate emergency. One of their six urgently needed actions included: "Stabilize a global human population that is increasing by more than 190,000 people a day, using approaches that ensure social and economic justice." [14]

In 2022 leading climate scientists issued a call to action to pursue massive-scale climate mitigation and adaptation. A key recommendation was to stabilize the human

population and allow it to gradually decrease in size by strengthening education and reproductive rights for girls and women. [15]

A study by Keegan and his coauthors found that the past century of massive increases in human population and resource use has caused many undesirable environmental effects, including climate change. The study suggested that gradually reversing population size to about 4 billion by 2200 would moderate climate change, improve environmental sustainability and reduce global poverty. [16]

The UN's International Resources Panel projects that about 70 per cent of the anticipated global increase in the use of natural resources through 2050 will be attributable to an increase in consumption per capita, while about 30 per cent will be attributable to population growth. [17] As total consumption is determined by both, population size is a key factor for climate policy.

In 2010, O'Neil estimated that to avoid global warming of 2°C, reaching what was then the lowest UN fertility scenario could contribute 16 to 29 percent of the reduction in greenhouse gas emissions needed by 2050, and with a world population declining to about 6 billion, 37 to 41 percent of that needed by 2100. [18]

Wheeler and Hammer [19] analysed population policies for carbon emissions reduction and concluded that decreased population growth through investment in family planning and female education is a less costly approach to carbon emissions abatement than other options for low-carbon energy, such as solar and wind.

Family planning and climate adaption

A 2026 Population and Climate Change Vulnerability Report, published by the Population Institute, found that rapid population growth in low and middle-income countries (LMICs) interacts with climate change to increase the vulnerability of nations and communities. [19] Gender inequality in LMICs also increases climate vulnerability and disproportionately burdens girls and women.

Many of the countries suffering the greatest climate impacts are also experiencing rapid population growth, gender inequality, and limited access to sexual and reproductive health services. This increases exposure to climate hazards while reducing societies' ability to adapt and recover.

Rapid population growth intensifies climate vulnerability through three mechanisms: exposure, sensitivity, and adaptive capacity. Exposure refers to the number of people at risk from hazards such as floods, droughts, heat waves, sea-level rise, and water shortages. The report notes that while the global population is growing at

approximately 0.8% annually, the 80 countries identified as most vulnerable to climate change have an average population growth rate of 1.6%, with 17 countries growing more than three times faster than the global average.

Population growth also increases sensitivity to climate impacts by placing additional pressure on food systems, water supplies, housing, and natural resources. Many vulnerable countries rely heavily on rain-fed agriculture, making livelihoods dependent on stable weather patterns. Climate change disrupts rainfall, increases droughts, and reduces agricultural productivity, while growing populations increase demand for food and freshwater. About 17 percent of people across the 80 vulnerable countries already experience severe food insecurity. Rapid urbanization, particularly in informal settlements along coastlines, further heightens vulnerability to storms, flooding, and rising sea levels.



A man and two girls fetching water in India.

Adaptive capacity is the ability of governments and communities to respond to climate change, and such capacity needs to be strengthened. But rapid population growth can overwhelm already limited public services, including sanitation, electricity, healthcare, disaster preparedness, and already weak early warning systems.

Gender inequality is a major contributor to climate vulnerability because women and girls often bear a disproportionate responsibility for availability of food, water, and

fuel. Climate shocks also increase risks of gender-based violence, child marriage, trafficking, and reduced access to healthcare.

However, women can be powerful agents of resilience. Providing equal access to education, agricultural resources, finance, and decision-making opportunities would substantially improve food security and community adaptation.

Strengthening sexual and reproductive health and rights (SRHR) through voluntary family planning, reproductive autonomy, and education would improve both gender equality and climate resilience. Access to reproductive healthcare enables women and families to plan pregnancies, pursue education and employment, and better cope with climate-related shocks. However, in climate-vulnerable LMICs adolescent birth rates are high, maternal mortality remains elevated, and approximately 19% of women who wish to delay or avoid pregnancy have unmet needs for family planning —nearly twice the global average. Climate disasters themselves often disrupt healthcare facilities and supply chains, making reproductive healthcare even less accessible when it is needed most. Both climate mitigation and adaptation planning should integrate demographic trends, gender equity, and reproductive health into broader climate strategies.

Costs, and present and future policies

The International Renewable Energy Agency has called for outlays of $120 trillion between 2015 and 2050 to combat climate change. [20] The worldwide costs of climate adaptation are projected to be between $280 billion and $500 billion per year by 2050. [21]

In contrast, the extra $5 to $6 billion per year needed beyond current expenditures to meet unmet needs for contraception services in LMICs—and perhaps a comparable level of extra spending to improve access to contraception in wealthy countries—represents a catalytic use of a relatively modest slice of government budgets. [22]

In 2024 the Guttmacher Institute estimated that a package of sexual and reproductive health (SRH) care that would meet all needs for women in LMICs—unmet demand for contraception, all maternal and newborn care, abortion services and treatment for the four major curable sexually transmitted infections (STIs)—would cost $104 billion annually. [23] This includes $14.0 billion for all contraceptive care, $86.7 billion for pregnancy-related and newborn care, and $3.7 billion for STI care. This total represents a $54 billion annual increase, more than double the $50.4 billion cost of current SRH care in the 128 LMICs studied. Such expenditures would boost the effectiveness of all other efforts for climate-change mitigation and adaptation, poverty reduction, food security, and ecosystem protection.

Attaining a global population trajectory similar to the UN's low projection, resulting in about 6.3 billion people in 2100, is possible through extension of the benefits of reproductive justice to all communities in all countries. It is very unlikely without increased funding and commitment to family-planning programs, important in addressing cultural barriers to fertility regulation. [24] [25] [26] It is also less likely if low-fertility countries continue to promote higher birth rates to combat shrinking labor forces and other consequences of population ageing instead of embracing the benefits of population decline. [27] [28]

Climate mitigation and adaptation policies and programs will be more effective when they consider and act on the connections among population dynamics, gender equality, reproductive health, and climate resilience. Rather than treating these issues separately, governments should integrate investments in women's rights, education, voluntary family planning, healthcare, and community participation into climate mitigation and adaptation strategies. [29] These interventions not only improve human well-being and climate resilience, they also contribute to slower population growth, greater adaptive capacity, and more sustainable development over the long term.

It should be noted that the countries' most vulnerable to climate impacts are generally not responsible for causing the climate crisis, highlighting the need for wealthier nations to support climate mitigation, adaptation and resilience efforts with research, policy development, technical assistance, funds, leadership and action. [30] But success also depends on the leaders of LMICs supporting family planning and reproductive health for their citizens.

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