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Population and Climate Change Vulnerability

Understanding Current Trends to Enhance Rights and Resilience

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Key Messages

- **The world's population is growing and is projected to continue to grow through most of the 21st century.** While the overall pace of growth is slowing and some countries are experiencing stable or declining populations, populations in the 80 countries most vulnerable to human-caused climate change are growing at an average of 1.6 percent a year—twice the global average. Populations in 17 of these countries are increasing at more than three times the global average.

- **Rapid population growth exacerbates multiple dimensions of climate change vulnerability.** Foremost among these dimensions are the scale of human **exposure** to climate change impacts, the **sensitivity** to climate variations of such necessities of life as food and water, and the **capacity for societies to adapt** to rapid and ongoing environmental change.

- **Gender inequity leaves many women and girls disproportionately vulnerable to the impacts of climate change.** Climate shocks and stresses can reduce available household resources for healthcare and increase incidences of gender-based violence, including early marriage, sexual violence, and sex trafficking. Promoting gender equity—especially through incorporating gender-responsive strategies in adaptation efforts—helps build resilience and adaptive capacity.

- **Adaptation plans can be strengthened through the incorporation of interventions that empower people while addressing key drivers of rapid population growth.** The critical interventions—yielding multiple benefits in addition to climate-related resilience—include investing in rights and opportunities for women and girls, addressing people's sexual and reproductive health needs, and advancing reproductive autonomy.

- **Many initiatives across the world focus on the intersections of population, gender equity, and climate change resilience.** Examples from Bangladesh, Niger, the Philippines, Uganda, and the United States offer hope for greater stability, development, and prosperity in the face of the emerging impacts of climate change—and for a more just and sustainable future.

PART 1

Population and Climate Change Vulnerability Worldwide

PART 1

Population and Climate Change Vulnerability Worldwide

Photo credit: PATH Foundation Philippines Inc.

1.1 Overview

In 2022, the world's population surpassed 8 billion. Global population is projected to continue growing throughout the 21st century, though at a slowing rate. While the path of future population growth is dependent on many factors, by 2100 demographers expect the world's population to be between 9.0 and 11.4 billion.[1] Population trends differ significantly across countries: Some countries' populations are young, on average, and growing rapidly, while others are older and growing more slowly. Many countries' populations have peaked and are now slowly decreasing in size. These trends affect human vulnerability to the impacts of climate change in significant ways.

In any discussion of the challenges that come with a warming world, it is important to note that human-induced climate change has been driven by disproportionate consumption patterns in the Global North, and that the countries most vulnerable to the impacts of climate change bear little to no responsibility for creating the climate crisis. Addressing the climate crisis requires political commitment and significant investment from countries in the Global North to increase the sustainability of production and consumption patterns, robustly support a clean energy transition, and build resilience in countries that are most vulnerable.

Population and Climate Change Vulnerability calls attention to the reality that in many of the countries that are most vulnerable to the impacts of climate change, populations are growing significantly faster than in the world as a whole. This rapid growth tends to exacerbate vulnerability at the household, community, and national levels as increasing human needs face growing strains from ever-more-damaging extremes of weather and water in a warming world. At the same time, rapid population growth can undermine efforts to build resilience and adaptive capacity. Yet few climate change adaptation plans assess demographic factors in preparing for a near-certain future of climate change vulnerability. Nor do the plans incorporate interventions designed to address population-related challenges. Such interventions could include efforts to support people's reproductive autonomy and gender equity—shown to strengthen the resilience and

adaptive capacity of the current generation—while reducing fertility and thereby slowing population growth over the long term.

This report brings together population, gender, and reproductive health indicators for the 80 most vulnerable countries in the world, as ranked by the Notre Dame Global Adaptation Initiative. It describes global trends in population growth and climate change vulnerability. And it highlights five countries where the convergence of these trends creates significant challenges for resilience and adaptation over the long term. Community efforts in these countries demonstrate innovative policy and program approaches that advance gender equity, reproductive health and rights, and climate change adaptation in an integrated fashion. Scaling up such efforts offers significant untapped opportunity to strengthen both near-term and long-term prospects for adaptation and resilience in these countries and in others across the world.

1.2 Climate Change Vulnerability

Climate change vulnerability is defined as "the propensity or predisposition of human societies to be negatively impacted by climate hazards."[2] Measures of vulnerability take into account a wide range of factors, from the severity of climate change impacts in a particular geographic location—extreme heat, storms, droughts, melting glaciers, rising seas, and forest fires are the deadliest and most damaging—to the ways in which public infrastructure and livelihood strategies shape people's lives. Social factors—ways that societies organize themselves—can shape people's agency and access to resources in ways that powerfully influence vulnerability.

"Vulnerability to climate change for ecosystems will be strongly influenced by past, present, and future patterns of human development, including from unsustainable consumption and production, increasing demographic pressures, and persistent unsustainable use and management of land, ocean, and water."

– CLIMATE CHANGE 2023: SYNTHESIS REPORT FOR THE IPCC SIXTH ASSESSMENT REPORT

As noted by the Intergovernmental Panel on Climate Change (IPCC), past, present, and future patterns of human development are powerful forces in determining vulnerability. Persistent patterns of unsustainable consumption and production, unsustainable use of natural resources, and population growth all present challenges to our abilities to navigate the negative impacts of a changing climate.[3]

Our report relies on the Notre Dame Global Adaptation Initiative (ND-GAIN) vulnerability scores for comparing countries vulnerable to climate change impacts.[4] ND-GAIN creates indices of life-supporting sectors including food, water, health, ecosystem services, human habitat, and infrastructure, which are then combined to create an overall vulnerability score. Each of these sectors is measured using indicators that shed light on cross-cutting components of vulnerability, including exposure, sensitivity, and adaptive capacity (see box below).

CROSS-CUTTING COMPONENTS OF CLIMATE CHANGE VULNERABILITY, AS ASSESSED BY ND-GAIN

Exposure: The extent to which human society and its supporting sectors are stressed by the future changes in climate conditions. Exposure as measured by ND-GAIN captures the physical factors external to human systems that contribute to vulnerability.

Sensitivity: The degree to which people and the sectors they depend on are affected by climate-related perturbations. Sensitivity increases with societies' dependence on sectors and resources that tend to change significantly with climate change. Sensitivity increases when larger proportions of a society are vulnerable to climate hazards due to topography and demography among other factors.

Adaptive capacity: The ability of society and its supporting sectors to adjust to reduce potential damage and respond to the negative consequences of climate events. Under ND-GAIN, adaptive capacity indicators seek to capture a collection of means readily deployable to deal with sector-specific climate change impacts.

1.3 Population Growth and Climate Change Vulnerability

Population growth has important implications for the three cross-cutting components of climate change vulnerability: 1) exposure, 2) sensitivity, and 3) adaptive capacity.

Exposure

In measuring vulnerability related to exposure, ND-GAIN assesses projected changes in variables such as freshwater availability due to reduced annual runoff and groundwater recharge, longer and warmer periods of high heat, increases in flooding, and rising sea levels. A growing population means that the number of people exposed to these impacts will increase over time. In the most vulnerable countries, population is growing fast: **While the world's population is currently growing at 0.8 percent a year, population in the 80 most climate-vulnerable countries is growing on average at twice that pace, 1.6 percent a year.** Populations in 17 of the most vulnerable countries are growing at more than three times the global average.

Sensitivity

Population growth influences sensitivity to climate change impacts embedded in various measures of vulnerability. Factors influencing this sensitivity include people's dependency on natural capital (resources stemming from the living and non-living natural world), the proportion of the population living in informal housing, and the rate of freshwater withdrawal. Worldwide, agriculture uses an average of 70 percent of all freshwater withdrawals, and approximately 3.2 billion people live in agricultural areas experiencing high levels of water stress or high drought frequency.[5] In many of the most vulnerable countries, large majorities of the population work in agriculture, and many households' food security is linked to smallholder farming, much of which is rainfed. Already, food security is a significant challenge for vulnerable countries: **In the 80 countries assessed in this report, an average 17 percent of the population experiences severe food insecurity.** Population growth will further challenge efforts to effectively address hunger, particularly as countries—many of them already experiencing subdivision of farmland, soil mining and erosion, and freshwater demand approaching the limits of natural systems—grapple with rising temperatures and shifting rainfall patterns driven by climate change.

Where and how people live also have significant implications for sensitivity to climate change impacts. Currently, about 1 billion people live within 10 kilometers (6 miles) of a coastline, and evidence suggests that population in this zone is growing faster than the global average.[6] This zone is also increasingly urban, with nearly a quarter of the population in urban centers concentrated in informal housing, characterized by poor access to basic services such as potable water, sanitation, power, accessibility, stormwater control, and healthcare.[7]

Adaptive Capacity

In assessing vulnerability related to communities' capacity to adapt to the negative impacts of climate change, ND-GAIN incorporates multiple indicators, including access to improved sanitation, electricity access, and disaster preparedness. **Rapid population growth further strains the ability of many governments in the most vulnerable countries to deliver basic services that they already have difficulty providing.** Currently, people living in about one-half of least-developed countries and small island developing states are not covered by early warning systems that enable communities to anticipate storms, heatwaves, floods, and droughts.[8]

1.4 Gender Inequity and Climate Change Vulnerability

As noted by UN Women, the climate crisis is anything but gender neutral.[9] Numerous studies indicate that the impacts of climate change disproportionately affect women and girls.[10] In many regions, women and girls bear primary responsibility for securing food, water, and fuel for their households, the availability of which are sensitive to changes in climate. These changes have implications for how women and girls spend their time, the opportunities they forego, and the risks they encounter.* Such impacts amplify existing gender inequalities; they also interact with inequalities faced by Indigenous communities, older adults, LGBTQ+ people, people with disabilities, migrants, and those living in conflict and disaster-prone areas.

* In this report, we use the terms "women" and "girls" when describing research findings and trends that did not measure experiences and outcomes for gender-diverse people. Otherwise, the Population Institute is committed to using gender-inclusive language to represent all individuals.

At the same time, women and girls are powerful agents of change in their households, communities, and nations, and empowering them can add significant and lasting impact to climate change responses. For example, women across the world play important roles in agricultural production, yet they often do not have equal access to extension services and other resources and are excluded from consultation on agricultural processes. The Food and Agriculture Organization of the United Nations notes that if all smallholder women farmers had equal access to resources, farm yields would increase by 20 percent to 30 percent, and as many as 150 million people would be lifted from hunger.[11]

There are growing calls around the world for climate change adaptation action to move beyond sensitivity to gender differences and become *gender-responsive*—that is, actively promote gender equality through collective responses to climate change. This responsiveness includes, for example, recognizing gender differences in needs, opportunities, and capacities; supporting equitable participation and influence in climate change decision-making processes; and ensuring equitable access to finance and other benefits resulting from investments in climate action.[12]

The UN Framework Convention on Climate Change (UNFCCC) acknowledges that better integration of women and other marginalized groups into decision-making at all levels would improve climate change adaptation policies.[13] The UNFCCC Belém Gender Action Plan, adopted by countries at the 2025 international climate negotiations, aims to advance sustained, long-term, and gender-responsive climate policy and action, including a specific focus on the nexus of climate and care work, health, violence against women and girls, and ecosystem-based adaptation.[14]

The UN Development Programme's Gender Inequality Index (GII) reflects gender-based disadvantage in three dimensions—reproductive health, empowerment, and the labor market.[15] It ranges from 0, where women and men fare equally, to 1, where women fare as poorly as possible on all measured dimensions. In the United States, the GII value is 0.169, suggesting that there is still room for progress in advancing gender equality. By contrast, in many countries, women and girls are at significantly greater disadvantage: **In the 80 most climate-vulnerable countries, the average GII value is 0.504.**

1.5 Sexual and Reproductive Health and Rights in the Context of Climate Change

Sexual and reproductive health and rights (SRHR)—including access to voluntary family planning founded in human rights, reproductive autonomy, and educational advancement—are critical to advancing gender equity in responses to climate change challenges. Access to voluntary family planning and other sexual and reproductive health services fosters gender equity by improving women's health, empowering women, and freeing them to pursue education, employment, and other life opportunities.[16] A key component of this dynamic is the ability to achieve one's desired family size and avoid unintended pregnancy. Yet nearly half of all pregnancies worldwide are unintended—a trend that the United Nations Population Fund has called a "neglected crisis."[17] The ability to plan and space births better equips individuals and families to navigate and survive shocks and stressors in their lives, including the impacts of climate change. Over the long term, it will also slow population growth by making it possible for people to avoid unintended pregnancy and achieve their desired family size.

Stressors from climate change can negatively affect people's sexual and reproductive health and the exercise of their rights. For example, extreme weather events affect health facilities, infrastructure, and medical supply chains, disrupting access to sexual and reproductive health services. Climate shocks and stresses can reduce available household resources for healthcare and increase incidences of gender-based violence, including early marriage, sexual violence, and sex trafficking.[18]

Our analysis of SRHR indicators in the most vulnerable countries demonstrates significant deficits in meeting women's and girls' sexual and reproductive health needs. For example:

- **Adolescent birth rate**: Globally, 37 of every 1,000 girls ages 15 to 19 give birth each year. In the 80 most vulnerable countries, this number jumps to an average of 67.
- **Maternal mortality**: In the 80 most vulnerable countries, the maternal mortality ratio is 17 percent higher than in the world as a whole.
- **Unmet need for family planning**: In the 80 most vulnerable countries, the average unmet need for family planning among women who would like to delay pregnancy or end childbearing is about 19%, nearly double the global average.

These sexual and reproductive health deficits deepen people's vulnerability to the negative impacts of climate change and limit the ability of individuals, families, and communities to effectively respond to changing conditions around them. Climate change adaptation plans present an opportunity to address these challenges in order to strengthen adaptive responses.

Photo credit: Regenerate Africa

1.6 Population, Gender, and SRHR in National Adaptation Plans

National climate change adaptation plans seldom assess demographic factors in preparing for future

climate change vulnerability or incorporate interventions, such as strengthening access to voluntary family planning and sexual and reproductive health services, that would build people's resilience and adaptive capacity while mitigating population-related challenges.

A 2021 review of National Adaptation Plans (NAPs)—plans prepared by countries to address medium- to long-term adaptation needs—found they gave limited attention to issues of sexual and reproductive health: Only 10 of the 19 documents reviewed contained any specific references to the components of SRHR included in the researchers' analysis.[19]

A 2022 review of 164 Nationally Determined Contributions (NDCs)—documents prepared by countries for the UN Framework Convention on Climate Change that outline their plans to reduce emissions and adapt to climate change impacts—found that about one-third either link population growth to a negative effect or identify population growth as a challenge or trend affecting societal needs. The NDCs noted such common impacts of population growth as increased energy demand, natural resource degradation, and decreased food and water security. Only seven NDCs included strategies related to population growth, and none specified implementation measures.[20]

1.7 The Way Forward

Population growth trends, gender inequity, and people's lack of sexual and reproductive rights all have intimate connections to vulnerability and the capacity for people and communities to adapt to the negative impacts of climate change. While these factors are not typically assessed and addressed in climate change adaptation policies and plans, examples of holistic, multisectoral efforts from across the world—outlined in Part 3 of this report—demonstrate that such integration is possible and offer hope for more just and sustainable adaptation outcomes.

"Attention to the following has the potential to bring about change: . ... Increased access to reproductive health and family planning services, which contributes to climate change resilience and socioeconomic development through improved health and well-being of women and their children, including increased access to education, gender equity, and economic status."

– CLIMATE CHANGE 2022: IMPACTS, ADAPTATION AND VULNERABILITY, WGII CONTRIBUTION TO THE IPCC SIXTH ASSESSMENT REPORT

PART 2

Indicators for the 80 Most Vulnerable Countries

PART 2

Indicators for the 80 Most Vulnerable Countries

Country	ND-GAIN Vulnerability Rank	Population, millions	Population Growth Rate	Doubling Time, years	Gender Inequality Index	Adolescent Birth Rate per 1,000	Maternal Mortality Ratio per 100k live births (2023)	Total Fertility Rate	Unmet Need for FP, Married Women (15-49)	Severe Food Insecurity, % (2021-2023)
World		**8,300.7**	**0.8**	**83.5**		**37.0**	**197.0**	**2.23**	**10.9**	**10.6**
United States	**172**	**349.0**	**0.5**	**141.2**	**0.169**	**11.4**	**16.6**	**1.62**	**5.6**	**0.8**
Chad	1	21.6	2.6	26.6	0.670	124.7	747.5	5.84	24.8	25.2
Niger	2	28.8	3.1	22.1	0.591	133.1	350.3	5.64	20.1	7.5
Solomon Islands	3	0.9	2.3	30.2	0.478	47.3	122.6	3.42	17.9	
Micronesia	4	0.1	0.4	162.0		42.2	128.8	2.67		
Guinea-Bissau	5	2.3	2.1	33.1	0.632	77.2	505.4	3.62	18.8	9.0
Sudan	6	53.3	3.0	22.9	0.588	61.1	255.7	4.13	26.8	
Somalia	7	20.3	3.2	21.4	0.675	112.4	562.6	5.80	26.1	
Tonga	8	0.1	-0.4	N/A	0.444	24.7	66.8	3.04	24.5	2.6
Sierra Leone	9	9.0	2.0	35.3	0.566	86.8	353.6	3.53	22.8	32.3
Eritrea	10	3.7	2.1	33.5		63.2	291.4	3.55	28.0	
Marshall Islands	11	0.0	-3.3	N/A		69.6	154.8	2.77	13.2	
Afghanistan	12	45.0	2.7	25.6	0.661	56.1	520.5	4.56	22.7	30.6
Central African Rep.	13	5.7	3.3	21.1		150.6	691.7	5.69	25.3	56.3
Mauritania	14	5.5	2.7	25.8	0.603	84.9	381.1	4.48	29.9	11.6
Mali	15	25.9	2.8	24.3	0.612	130.9	367.3	5.33	23.3	2.7
Tuvalu	15	0.0	-1.2	N/A		25.0	169.7	3.10	27.2	
Benin	17	15.2	2.4	29.4	0.573	73.6	518.2	4.34	28.7	15.8
Bangladesh	18	177.8	1.2	58.1	0.487	66.0	115.1	2.09	9.8	
Rwanda	19	14.9	2.1	32.7	0.394	29.6	229.5	3.54	11.9	
Vanuatu	20	0.3	2.2	32.1	0.556	65.0	100.0	3.50	19.0	
Dem. Rep. of the Congo	21	116.5	3.1	22.1	0.604	101.4	427.0	5.80	24.5	41.7
Madagascar	22	33.5	2.3	29.6	0.584	126.5	445.4	3.78	13.8	14.9
Kiribati	23	0.1	1.4	49.1		44.3	79.8	3.06	22.3	6.9
Burundi	24	14.7	2.3	30.1	0.501	49.9	392.0	4.57	25.6	20.9
Papua New Guinea	25	10.9	1.7	41.2	0.584	51.9	188.6	2.99	23.7	
Maldives	25	0.5	0.3	200.3	0.309	4.6	31.8	1.53	28.3	2.2

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United States	**172**	**349.0**	**0.5**	**141.2**	**0.169**	**11.4**	**16.6**	**1.62**	**5.6**	**0.8**
Malawi	27	22.8	2.5	27.4	0.581	111.8	225.0	3.45	13.2	53.5
Sao Tome & Principe	28	0.2	1.9	35.8	0.492	82.7	75.4	3.47	23.5	14.1
Comoros	29	0.9	1.8	38.6	0.501	51.2	178.9	3.71	32.2	27.4
Liberia	30	5.9	2.2	31.8	0.646	122.3	627.7	3.71	29.8	37.3
Timor-Leste	30	1.4	1.3	52.8	0.394	25.6	192.4	2.50	21.7	
Uganda	32	52.8	2.6	26.5	0.524	100.8	170.3	3.97	19.6	17.7
Senegal	33	19.4	2.3	30.7	0.490	57.0	237.4	3.66	19.2	4.0
Yemen	34	43.0	2.8	25.1	0.838	71.3	118.4	4.33	20.7	
Guinea	35	15.4	2.2	31.4	0.609	113.0	494.1	3.96	22.6	
Gambia	36	2.9	2.1	32.3	0.578	52.0	354.4	3.70	23.8	25.5
Ethiopia	37	138.9	2.5	27.9	0.497	64.3	194.9	3.72	20.7	19.7
Congo	37	6.6	2.3	29.8	0.565	104.0	241.1	3.99	17.7	
Burkina Faso	39	24.6	2.1	32.3	0.555	81.6	241.8	3.91	15.7	7.2
Tanzania	40	72.6	2.8	24.8	0.504	110.5	275.8	4.41	19.7	25.4
Bhutan	41	0.8	0.7	99.4	0.278	7.4	46.6	1.43	11.8	
Pakistan	41	259.3	1.6	43.5	0.536	38.4	155.0	3.44	16.2	11.4
Myanmar	43	55.2	0.6	117.1	0.478	32.6	184.6	2.06	12.8	6.9
Palau	44	0.0	-0.3	N/A		30.2	89.4	1.84	19.8	6.9
Samoa	44	0.2	0.6	124.9	0.416	43.3	101.5	3.70	41.2	4.3
Nauru	46	0.0	0.6	109.0		76.0	273.4	3.20	20.2	9.2
Haiti	46	12.0	1.1	63.9	0.618	48.0	327.6	2.55	31.4	42.4
Angola	48	40.2	3.0	23.5	0.515	136.2	183.2	4.89	33.9	
Togo	49	9.9	2.1	32.5	0.564	75.9	348.9	4.01	28.4	10.9
Djibouti	50	1.2	1.3	52.8	0.481	18.7	161.9	2.54	24.3	16.5
Kenya	51	58.6	1.9	36.8	0.526	51.3	378.8	3.07	8.6	28.0
Zimbabwe	52	17.3	1.9	36.9	0.519	91.2	357.6	3.57	9.2	26.1
Mozambique	53	36.6	2.8	24.9	0.479	149.4	82.2	4.54	25.0	
Nepal	54	29.6	0.1	481.4	0.487	65.2	142.0	1.92	19.9	13.5
Côte d'Ivoire	55	33.5	2.3	29.6	0.589	87.9	359.0	4.10	20.7	8.9
Syrian Arab Republic	56	26.5	3.0	22.8	0.490	38.0	20.4	2.62	12.2	
Cameroon	56	30.6	2.5	27.8	0.558	102.2	258.2	4.12	21.0	25.4

Country	ND-GAIN Vulnerability Rank	Population, millions	Population Growth Rate	Doubling Time, years	Gender Inequality Index	Adolescent Birth Rate per 1,000	Maternal Mortality Ratio per 100k live births (2023)	Total Fertility Rate	Unmet Need for FP, Married Women (15-49)	Severe Food Insecurity, % (2021-2023)
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United States	**172**	**349.0**	**0.5**	**141.2**	**0.169**	**11.4**	**16.6**	**1.62**	**5.6**	**0.8**
Laos	56	8.0	1.3	55.4	0.475	81.6	112.2	2.33	12.9	6.2
India	59	1,476.6	0.9	80.9	0.403	11.2	80.5	1.93	8.9	
Zambia	59	22.5	2.7	25.5	0.524	114.4	85.5	3.91	16.6	19.0
Cambodia	61	18.1	1.1	62.7	0.506	47.7	137.4	2.49	10.8	4.3
Nigeria	61	242.4	2.0	34.1	0.677	79.7	992.8	4.20	19.3	22.6
Sri Lanka	63	23.3	0.5	139.5	0.367	14.1	18.3	1.93	7.3	1.2
Lesotho	64	2.4	1.1	63.3	0.534	68.4	478.0	2.61	13.1	25.3
Antigua and Barbuda	65	0.1	0.4	162.0	0.240	31.8	34.6	1.57	13.4	3.4
Viet Nam	65	102.2	0.5	126.3	0.299	34.2	47.6	1.86	5.4	2.1
Belize	67	0.4	1.3	52.3	0.428	54.9	66.8	1.99	16.7	
Ecuador	68	18.4	0.8	82.5	0.358	52.4	55.4	1.78	6.3	12.7
North Korea	69	26.6	0.2	319.4		0.5	66.9	1.75	8.2	
Bahamas	70	0.4	0.4	183.9	0.325	24.4	76.0	1.36	11.8	3.4
Namibia	71	3.2	1.9	36.8	0.448	63.6	138.9	3.13	14.1	31.8
Fiji	72	0.9	0.4	162.7	0.350	20.4	30.2	2.23	22.3	8.5
Bolivia	73	12.7	1.3	53.0	0.419	63.4	146.4	2.47	15.0	
Ghana	74	35.7	1.8	39.2	0.514	55.7	234.3	3.26	21.9	8.2
Eswatini	74	1.3	1.1	64.3	0.484	66.9	117.9	2.64	15.9	18.6
Nicaragua	76	7.1	1.3	55.2	0.408	91.4	60.3	2.16	5.7	
Honduras	77	11.2	1.6	43.5	0.437	79.4	46.7	2.42	10.0	15.3
Seychelles	78	0.1	1.5	45.3		51.6	41.9	2.06		
Philippines	78	117.7	0.8	87.4	0.351	30.6	83.8	1.86	12.1	2.5
Cuba	80	10.9	-0.4	N/A	0.296	47.4	34.8	1.45	13.1	
Average		**47.1**	**1.6**	**63.4**	**0.504**	**66.6**	**231.0**	**3.27**	**19.2**	**16.8**

Indicator Definitions

ND-GAIN vulnerability rank: Vulnerability measures a country's exposure, sensitivity, and ability to adapt to the negative impacts of climate change. ND-GAIN measures the overall vulnerability by considering vulnerability in six life-supporting sectors—food, water, health, ecosystem service, human habitat, and infrastructure. The ND-GAIN rank ranges from 1 (most vulnerable) to 187 (least vulnerable).

Population, millions: Projected size of national population in 2026.

Population growth rate: Average percent rate of growth of the population over one year as of 2026.

Doubling time: The population doubling time corresponds to the number of years required for the total population to double in size if the population growth rate remains constant.

Gender Inequality Index: GII is a composite metric of gender inequality using three dimensions—reproductive health, empowerment, and the labor market—measured on a scale of 0 to 1. A low GII value indicates low inequality between women and men, and vice versa.

Adolescent birth rate: Number of births per 1,000 girls ages 15 to 19 in 2026.

Maternal mortality ratio: Number of maternal deaths during a given year (2023) per 100,000 live births during the same year.

Total fertility rate: Number of children who would be born per woman if she lived to the end of her childbearing years and bore children at each age in accordance with prevailing age-specific fertility rates; data are for 2026.

Unmet need for family planning: Percentage of women ages 15 to 49 in 2026 who are married or in union who want to stop or delay childbearing but are not using a method of contraception.

Percent severe food insecurity: The prevalence (percent) of individuals in the population living in households where at least one adult was found to be severely food insecure, defined as the level at which people have likely run out of food, experienced hunger and, at the most extreme, gone for days without eating, putting their health and well-being at grave risk; data are for 2021-2023.

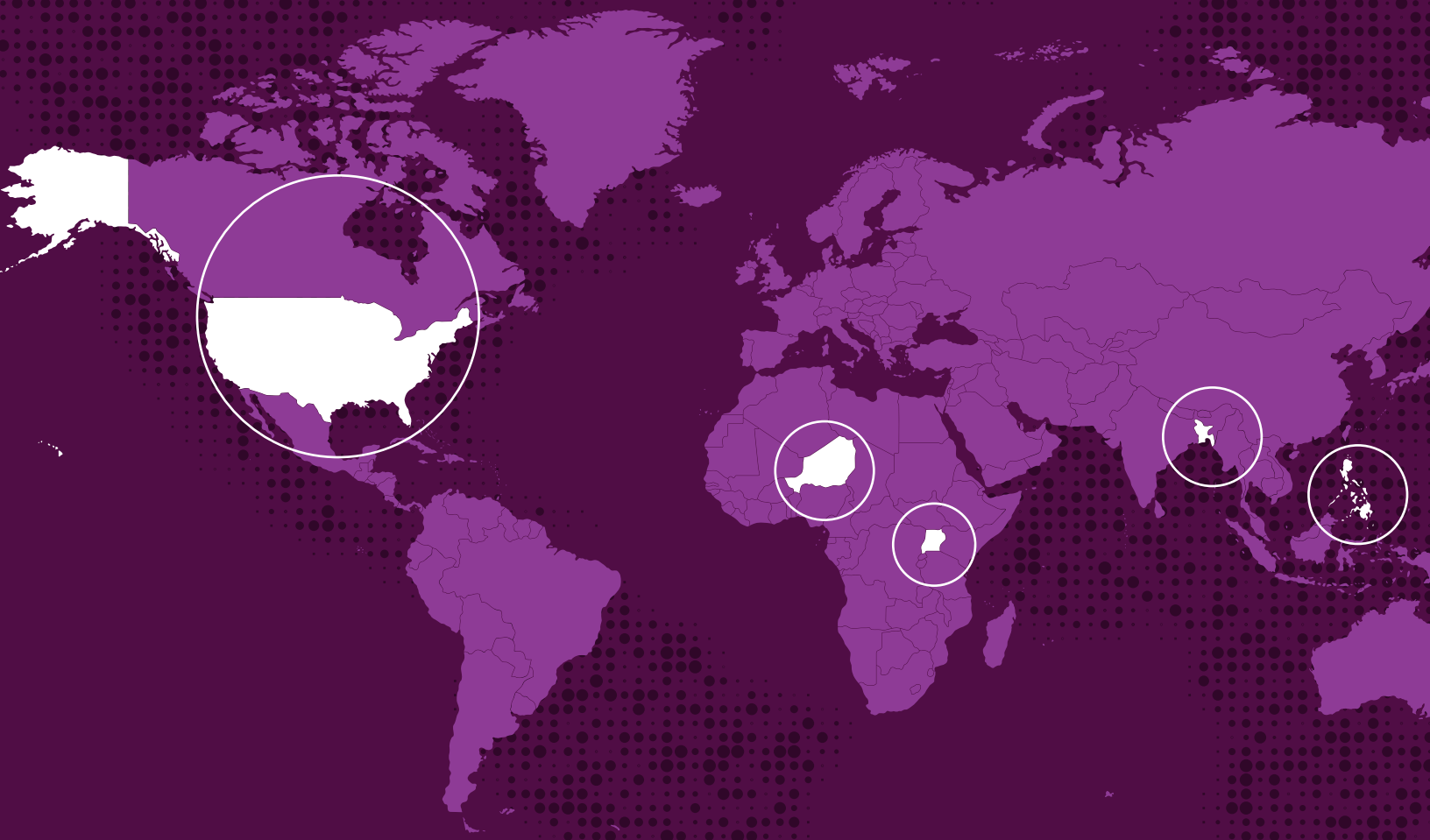
Data Sources

- **ND-GAIN vulnerability rank**: Notre Dame Global Adaptation Initiative Country Index ranking scores for 2023, downloaded in March 2026.
- **Population**: Medium projection scenario value for 2026 from *World Population Prospects: The 2024 Revision* by the United Nations Population Division, 2024.
- **Population growth rate**: Medium projection scenario value for 2026 from *World Population Prospects: The 2024 Revision* by the United Nations Population Division, 2024.
- **Population doubling time**: Calculated based on 2026 medium projection scenario from *World Population Prospects: The 2024 Revision* by the United Nations Population Division, 2024.
- **Gender Inequality Index**: United Nations Development Programme data center, downloaded in March 2026.
- **Adolescent birth rate**: Medium projection scenario value for 2026 from *World Population Prospects: The 2024 Revision* by the United Nations Population Division, 2024.
- **Maternal mortality ratio**: *Trends in Maternal Mortality 2000 to 2023: Estimates by WHO, UNICEF, UNFPA, World Bank Group and UNDESA/Population Division*, 2025.
- **Total fertility rate**: Medium projection scenario value for 2026 from *World Population Prospects: The 2024 Revision* by the United Nations Population Division, 2024.
- **Unmet need for family planning**: Median projection value for 2026 from *World Contraceptive Use 2024* by the United Nations Population Division, 2024.
- **Percent severe food insecurity**: Values calculated as a three-year rolling average from 2021-2023. Food and Agriculture Organization of the United Nations, *State of Food Security and Nutrition in the World 2024*.

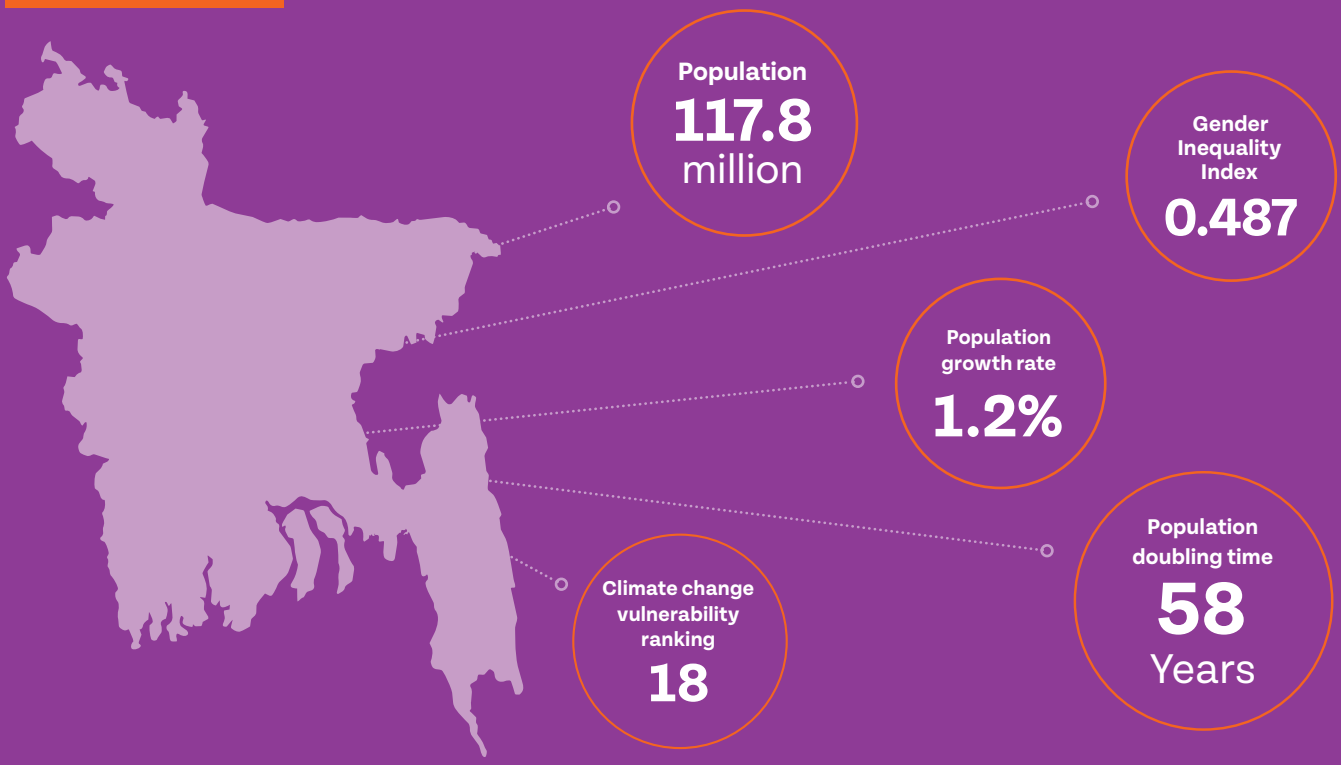
PART 3

Country Profiles

In many parts of the world, communities and organizations have been pioneering promising approaches that integrate population, reproductive health, and gender equity to foster resilience to climate change. These efforts offer models for action and advocacy. Their encouraging successes, while small in scale, suggest what could be accomplished if governments and societies develop and scale up initiatives based on similar integrative strategies. We profile some of these geographically diverse community-based projects in this section.



PART 3 Country Profile: **Bangladesh**



Bangladesh is one of the world's most climate-vulnerable countries as well as one of the most densely populated. With approximately 3,500 people per square mile, Bangladesh is about three times more densely populated than New Jersey, the most densely populated state in the United States.[21] The combination of high population density and a changing climate means that disasters, specifically cyclones, pose an especially grave risk: While Bangladesh is afflicted by only 1 percent of all cyclones worldwide, the country suffers from 53 percent of all cyclone-related deaths.[22] Cyclones, flooding, and riverbank erosion are powerful forces that displace communities, damage infrastructure, and put human lives and well-being at serious risk.

Adolescent girls receive menstrual hygiene management kits as part of JAGO NARI's climate-responsive health and resilience interventions in Barguna, Bangladesh. Photo credit: JAGO NARI

Sea-level rise and salinity intrusion pose additional threats to coastal regions by degrading freshwater sources and agricultural land. With a projected 19.6-inch rise in sea level by 2050, Bangladesh stands to lose 11% of its land and, with that, experience up to 18 million forced displacements.[23] All told, more than 7.1 million Bangladeshis were displaced by climate change in 2022.[24]

Climate-related displacement and economic stress are strongly associated with increased gender-based violence (GBV) and child and forced marriage. Evidence from

disaster-affected districts shows notable increases in reported violence during and after floods and cyclones. Adolescents are particularly at risk, as families facing livelihood loss may withdraw girls from school and arrange early marriages as a coping mechanism.

In addition, climate shocks significantly disrupt health services, including maternal care, family planning, and menstrual health support and management. Flooding and displacement delay access to quality care during pregnancy and childbirth, while water scarcity and poor sanitation are associated with increased reproductive tract infections and unsafe menstrual management practices. Salinity exposure has been linked to increased rates of hypertension, preeclampsia, prolonged menstrual cycles, unsafe menstrual regulation, and miscarriage among pregnant individuals.

In this context, approaches to assessing and addressing climate change vulnerability in Bangladesh can be strengthened through integration of the gendered dimensions of climate risk and reproductive health service delivery.

JAGO NARI: Empowering Women and Girls in the Context of Climate Risks

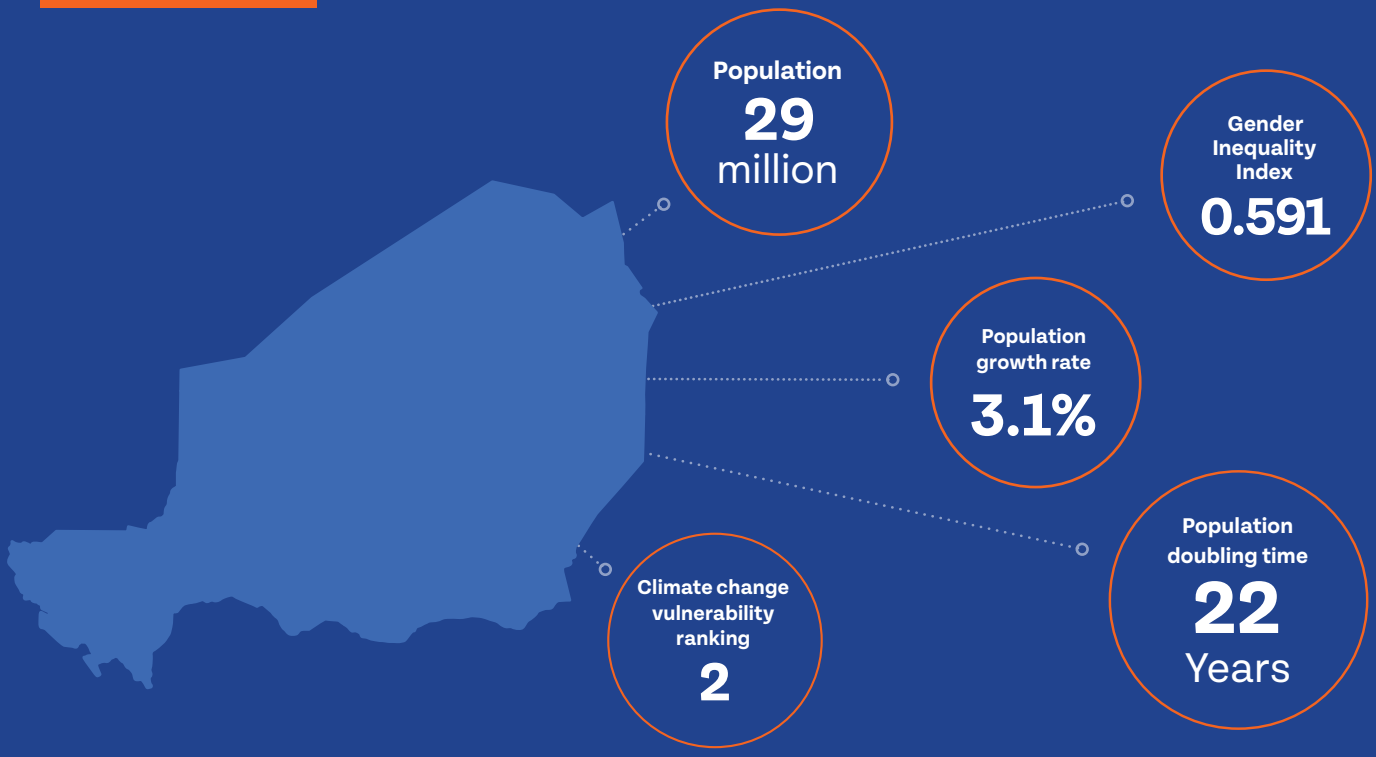
In response to the growing SRHR challenges faced by women and adolescent girls in the coastal areas of Bangladesh, JAGO NARI has undertaken a range of community-based, gender-responsive, and climate-adaptive initiatives to ensure that women's health, dignity, protection, and well-being remain at the center of disaster preparedness and response efforts. The organization has established menstrual hygiene management (MHM) corners in several schools and cyclone shelters, where adolescent girls and women can access sanitary pads, hygiene materials, and separate and safe spaces for managing menstruation with dignity. It has also introduced breastfeeding corners and distributed MHM kits, especially for adolescent girls, and mama kits for pregnant and lactating women during emergencies. Alongside service support, JAGO NARI conducts awareness-raising campaigns within schools and communities to reduce stigma surrounding menstruation and SRHR, promote health-seeking behavior, and ensure that women and girls are not excluded from essential information services and decision-making. Recognizing the protection risks and lack of privacy women face during a stay in a cyclone shelter, the organization actively advocates with local government institutions, donors, international nongovernmental organizations, and humanitarian actors to promote gender-responsive shelter infrastructure, including separate spaces and washrooms for women; proper lighting; disability-accessible facilities; water, sanitation, and hygiene materials; and GBV referral mechanisms within cyclone shelters.

At the same time, JAGO NARI works closely with community health service providers, nurses, doctors, local pharmacies, and local and national government health actors to strengthen referral systems from cyclone shelters and ensure continued access to antenatal care, postnatal care, family planning, and safe abortion-related information, as well as information for relevant services for GBV cases. The organization facilitates referrals to government-authorized service points and emergency SRHR services during and after disasters.

Through its gender-transformative approach, JAGO NARI also promotes adolescent leadership and participation, empowering girls and young women to raise their voices, advocate for their sexual and reproductive health and rights, and actively engage in community-level decision-making related to health, protection, and climate resilience. Through its women- and youth-centered and climate-responsive interventions, JAGO NARI aims to ensure the health, dignity, safety, and empowerment of women and adolescent girls in climate-vulnerable communities.

> **"When the cyclone comes, our first fear is survival, but for women, there is another fear: how to manage menstruation in crowded shelters without privacy, water, or proper toilets. I took birth control pills to stop my period during the disaster because I had no other option. I do not know whether it is safe or harmful, but during emergencies, it feels like the only way to protect our dignity."**
>
> —NEHAR BEGUM, FROM THE MANTA COMMUNITY, RANGABALI, PATUAKHALI, BANGLADESH

PART 3 Country Profile: **Niger**



Niger is the world's second-most climate-vulnerable country based on ND-GAIN's assessment of the extreme challenges it faces in all three of the characteristics the index measures. Temperatures in Niger are rising faster than in many other parts of the world, and by 2100 there could be a rise in temperature of 3˚C to 6˚C.[25] Such warming is expected to have severe implications for agricultural productivity; with more than 80 percent of the population dependent on agriculture, livelihoods and food security are in jeopardy. Already, 2.5 million people are acutely food insecure, and 47 percent—nearly half—of children under age 5 suffer from chronic malnutrition.[26]

With recurring challenges linked to environmental degradation, pervasive poverty, political instability, and climate change, Niger's rapid population growth rate compounds existing vulnerabilities. Water scarcity, longer dry seasons, and impacts from higher temperatures may trigger new conflict and forced migration—problems already rife throughout the region.[27]

Persistent gender inequality in Niger is highlighted by the country's high Gender Inequality Index score. Too many Nigerian women lack the ability to make their own basic life choices, such as whether to attend school, when and whom to marry, and whether to work outside the home or seek healthcare.[28] Niger has one of the highest rates of child marriage in the world, with 77 percent of girls—more than three out of four girls—marrying before age 18, and nearly one-third marrying before age 15.[29] Such early marriage constrains girls' opportunities and poses risks to their health and well-being. Since many girls become mothers within their first year of marriage and have many years left in their reproductive lives, high rates of child marriage are linked to Niger's high fertility. Averaging 5.6 births per woman, the country's fertility rate is among the highest in the world.[30]

In this context, increasing access to family planning and quality education are strategic, mutually reinforcing interventions that enhance self-determination for women and girls and can help reduce multiple dimensions of

climate change vulnerability. These interventions, centered in human rights to reproductive autonomy and educational advancement, can address people's health and well-being in the near term. Over time they will slow population growth and help generate a demographic dividend—a window of time where there is a more economically favorable ratio of children to working-age adults that results from declines in fertility in rapidly growing populations. Leveraging the demographic dividend can put Niger on the path toward greater resilience and sustainability.[31]

Jeunes Volontaires pour l'Environnement (JVE): Advocacy for Inclusive Climate Action That Reflects the Health-Gender-Climate Nexus

Niger is preparing to submit its third Nationally Determined Contribution (NDC 3.0) to the United Nations Framework Convention on Climate Change (UNFCCC) at COP 31, taking place in late 2026 in Antalya, Türkiye. The NDC 3.0 submission represents a pivotal moment for Niger, emphasizing the importance of social dimensions such as improving population well-being, reducing inequalities and inequities, and safeguarding vulnerable groups. This comprehensive perspective ensures that climate actions benefit all segments of society, particularly those most at risk.

Niger faces unique social challenges, as highlighted by the fact that nearly half of its population is under age 15. This youth bulge creates high dependency and strains sectors like education, health, and employment. To address these issues, the NDC 3.0 process recognizes the need to integrate health, nutrition, and gender equality policies with climate strategies.

To ensure the NDC process reflects community priorities and perspectives, JVE Niger actively facilitates community dialogues that connect climate change, population dynamics, and resilience strategies. These dialogues have resulted in local communities prioritizing improved access to clean water, advocating for investments in rural water infrastructure, and promoting gender and youth integration in policies. Such outcomes demonstrate the impact of grassroots engagement on shaping climate policy responses.

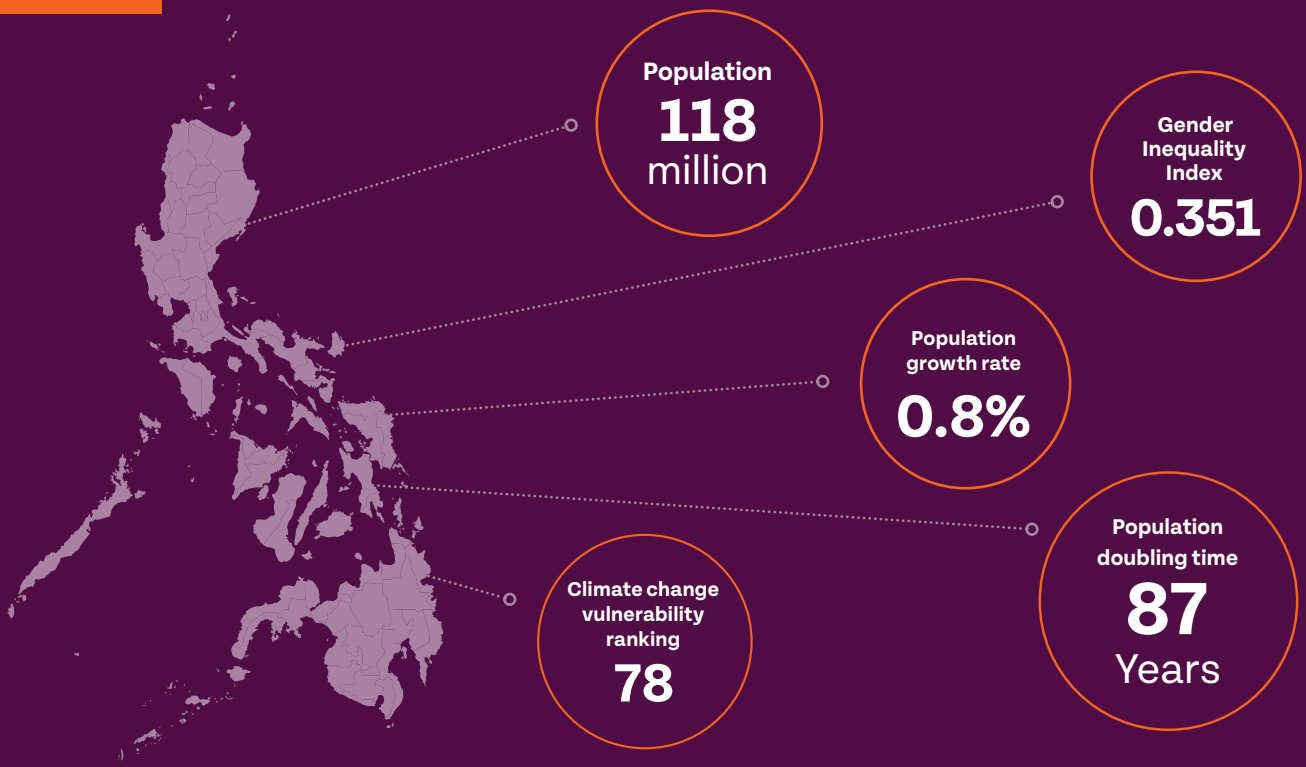
Tackling these complex, interconnected challenges requires solutions that integrate climate adaptation, social services, and inclusive development policies. JVE Niger has intensified advocacy efforts to ensure family planning is incorporated into national climate policies and adaptation plans, recognizing its significance even in sensitive contexts. Expanding on this multisectoral approach, JVE Niger has worked to amplify the voices of children and youth in climate policy. In March 2026, JVE Niger co-organized a NDC 3.0 youth and children's consultation workshop in Niamey alongside Save the Children Niger and the Ministry of Environment, Hygiene, and Sanitation. During this workshop, participants identified access to clean water as a top priority for climate adaptation and recommended increased investment in rural water infrastructure as a concrete solution.

> **"Meaningful climate action must be rooted in local leadership and community participation, especially in our Sahel region. Through our engagement on Niger's NDC 3.0 process, JVE Niger is working to ensure that the voices of children, youth, civil society, and vulnerable communities help shape ambitious, inclusive, and accountable climate commitments."**
>
> —SANI AYOUBA, JVE NIGER

The workshop brought together young people and children to collect their perspectives on climate adaptation priorities, ensuring their experiences and recommendations are reflected in Niger's updated climate commitments. This initiative represents a significant advancement in inclusive climate governance, reinforcing the principle that effective climate action must be developed collaboratively with the full participation of the next generation.

PART 3

Country Profile: **Phillippines**



The Philippines faces some of the most extreme disaster risks in the world, and such risks are projected to intensify as climate change accelerates.[32] The country experiences an average of 20 cyclones a year, with approximately eight making landfall, jeopardizing the safety of millions of people and causing extensive damage. In 2013, for example, Typhoon Haiyan killed more than 6,000 people and left 4 million people homeless.[33]

The Philippines is an archipelago of more than 7,000 islands, and its extensive coastline means many residents are exposed to sea-level rise, extreme weather, and storm surge. Sea-level rise is advancing at an above-average rate in some areas, exposing up to 1 million people to flooding from rising sea levels by 2070-2100.[34] Excessive heat is another threat, posing challenges to both health and livelihoods: The number of Filipinos potentially affected by extreme heat—defined as heat indices greater than 42°C (107°F)—is projected to reach up to 11 million by 2030 and could increase to 74 million by 2050.[35] In the absence of effective adaptation action and disaster risk reduction strategies, climate change is likely to exacerbate existing high levels of income and wealth inequality, and progress on poverty alleviation will be slowed.[36]

The size of the population and increasing population density in climate-sensitive landscapes will play a significant role in shaping climate change vulnerability in the coming decades. Population growth will also further strain the capacity of coastal fisheries and agricultural systems that support livelihoods and food security for millions of residents. Meanwhile, communities across the Philippines face persistent barriers to sexual and reproductive healthcare, with the poorest and most isolated communities facing the most significant barriers. These challenges are reflected in national-level reproductive health indicators that underpin population growth. The adolescent birth rate, for example, continues to be among the highest in the region, and only 61 percent of women have their needs for family planning satisfied with modern methods of contraceptives.[37]

PATH Foundation Philippines: Mainstreaming Gender, Population, Health, and Environment Into Coastal Resilience Building

Understanding coastal resilience requires looking beyond

environmental change to the social systems that shape how communities respond and adapt. To generate insights into the social dimensions of coastal resilience in Mindoro Island, PATH Foundation Philippines conducted a study examining how climate-related changes in livelihoods, governance, and community systems are reshaping gender roles. The study finds that climate pressures are prompting shifts not only in economic activities but also in household and community dynamics.[38]

Results of the study indicate that as environmental and livelihood uncertainties grow, women are increasingly taking on expanded roles. Many engage in additional income-generating activities to support their families while also becoming more active in community leadership—particularly through women-managed area associations. These changes reflect a gradual shift in gender norms, with women playing a more visible role in both conservation and local decision-making.

Respondents also cited that climate change affects multiple aspects of life, including their health. They noted that access to sexual and reproductive health services and family planning contributes to healthier families, which in turn strengthens their capacity to adapt, manage resources sustainably, and participate in conservation initiatives.

Migration emerged as another key adaptation strategy. Vulnerable households, particularly from rural and coastal areas where fish catch and agricultural yields are declining due to changing weather patterns, often resort to temporary or circular migration. This migration involves moving to areas with better employment opportunities to secure alternative sources of income.[39] While this strategy can help stabilize household finances, respondents noted its social implications, especially on children's well-being, including increased risks of behavioral challenges and early pregnancy when parents are away.

Overall, while women's expanding roles signal increased agency and participation, they may also add to existing care and domestic responsibilities. These findings highlight the need for gender-responsive and health-inclusive approaches that support both empowerment and well-being in building climate-resilient coastal communities.

PATH Foundation Philippines has a long history of implementing holistic, community-based programs that respond to the interconnected issues of population, health, and the environment (PHE). For more than two decades, PATH Foundation Philippines and other nongovernmental organizations that make up the PHE Network Philippines have developed and strengthened integrated strategies to improve natural resource management, deliver greater reproductive health services, and enhance food security and sustainable livelihoods across the Philippines.[40] Evidence indicates that such multisectoral programs in the Philippines can deliver stronger outcomes than single-sector approaches—and they offer significant hope for effectively addressing the multiple dimensions of climate change vulnerability.[41] Currently, PATH Foundation Philippines integrates PHE into its interventions in Mindoro Island, particularly through its peer education training.

"Our recent assessments in Mindoro show that coastal stakeholders increasingly understand human health—including sexual and reproductive health—as a core pillar of climate adaptation and resilience building. Improving behavior in accessing SRHR information and services enables healthier, more empowered families who are better able to engage in sustainable resource management and conservation efforts. In turn, these outcomes strengthen inclusive participation and contribute to more climate-responsive coastal governance systems."

—JOAN CASTRO, PATH FOUNDATION PHILIPPINES INC.

PART 3 Country Profile: **Uganda**

Population
53
million

Gender Inequality Index
0.524

Population growth rate
2.7%

Population doubling time
27
Years

Climate change vulnerability ranking
32

Uganda bears the consequences of climate change with a severity disproportionate to its contribution to the crisis. The increasing frequency and severity of extreme weather events have deeply undermined the country's economy and its people's well-being. Major climate-induced hazards—prolonged droughts, floods, landslides, windstorms, hailstorms, and lightning—directly and indirectly disrupt and threaten agricultural productivity, livelihoods, ecosystems, and the health and well-being of millions of people.[42] This vulnerability is compounded by entrenched structural constraints. Per capita income remains at US$931 (2024), approximately 18 percent of the population lives below the poverty line, 92 percent of employment is informal, and more than 70 percent of the labor force depends on rain-fed agriculture.[43]

Climate change vulnerability is accentuated by the population's high dependence on climate-sensitive sectors such as agriculture, fisheries, tourism, and forestry. Floods and droughts in particular devastate people and the economy. Since 2000, more than 1,000 damaging flood events have been recorded nationally, displacing communities and damaging infrastructure.[44] Current flood risk is highest in eastern Uganda and parts of central Uganda, including districts such as Katakwi and Bulambuli. Projections indicate that risk will intensify in the West Nile subregion and central Uganda, where population density and infrastructure exposure are high.[45]

Drought presents an equally pressing threat, particularly in the Karamoja subregion of northeastern Uganda, where 8 in every 10 households are food insecure. In one year alone, more than 900 people reportedly died of hunger related to prolonged drought.[46] Projections suggest that drought risk will expand geographically across northern and western Uganda as the century progresses.[47]

Landslide risk adds to vulnerability in highland areas. In districts within the Mount Elgon region of eastern Uganda, the Rwenzori Mountains in the west, and the southwestern highlands near the Muhabura volcanic area, more than 80 percent of the population and most residential buildings sit within landslide hazard zones.[48] Increasing rainfall intensity is projected to push additional districts into higher

risk categories by mid-century. Simultaneously, rapidly urbanizing districts—including Kampala and its surrounding areas—face dual exposure to flooding and drought, reflecting the growing concentration of people and infrastructure in urban settings.[49]

These spatial patterns underscore the importance of place-based adaptation strategies that address climate hazards and underlying drivers of vulnerability, including poverty, land degradation, rapid and unplanned urbanization, and weak disaster response coordination. Meanwhile, Uganda is also experiencing one of the world's most rapid population growth rates, straining efforts to adapt to climate change and exposing more people to risk. If current population growth rates continue, Uganda's population would double from 53 million to more than 105 million in 27 years.[50]

Child and early marriage, limited access to family planning and reproductive health services, and high rates of unintended pregnancy underpin the high fertility rates driving population growth while simultaneously denying women and girls education and economic participation, which are long-term determinants of climate resilience. Women and girls—who often experience a disproportionate burden of the impacts of climate change—have limited opportunities to go to school, enter the workforce, and exercise autonomy in multiple aspects of their lives. Insufficient access to reproductive health services is reflected in Uganda's high adolescent birth rate and a maternal mortality ratio roughly 25 percent above the global average.

Regenerate Africa: Working With Partners to Generate Evidence to Advance Multisectoral Policies and Programs for Climate Change Adaptation

Regenerate Africa, a Uganda-based nongovernmental organization, is at the forefront of advocacy efforts to encourage policies and programs that directly address intersecting challenges of climate change vulnerability, high population growth rates, and gender inequity.

It implements integrated population, health, and environment approaches in communities across Uganda, encouraging continuous, informed, and constructive multisectoral engagement with policymakers, practitioners, and other stakeholders to build a broad understanding of the interconnectedness of issues often addressed in silos. These community-level programs are deliberate platforms for evidence generation that link grassroots realities to national, regional, and global policy conversations, ensuring the frameworks governing Uganda's climate response are grounded in the experiences of the communities most affected by climate change.

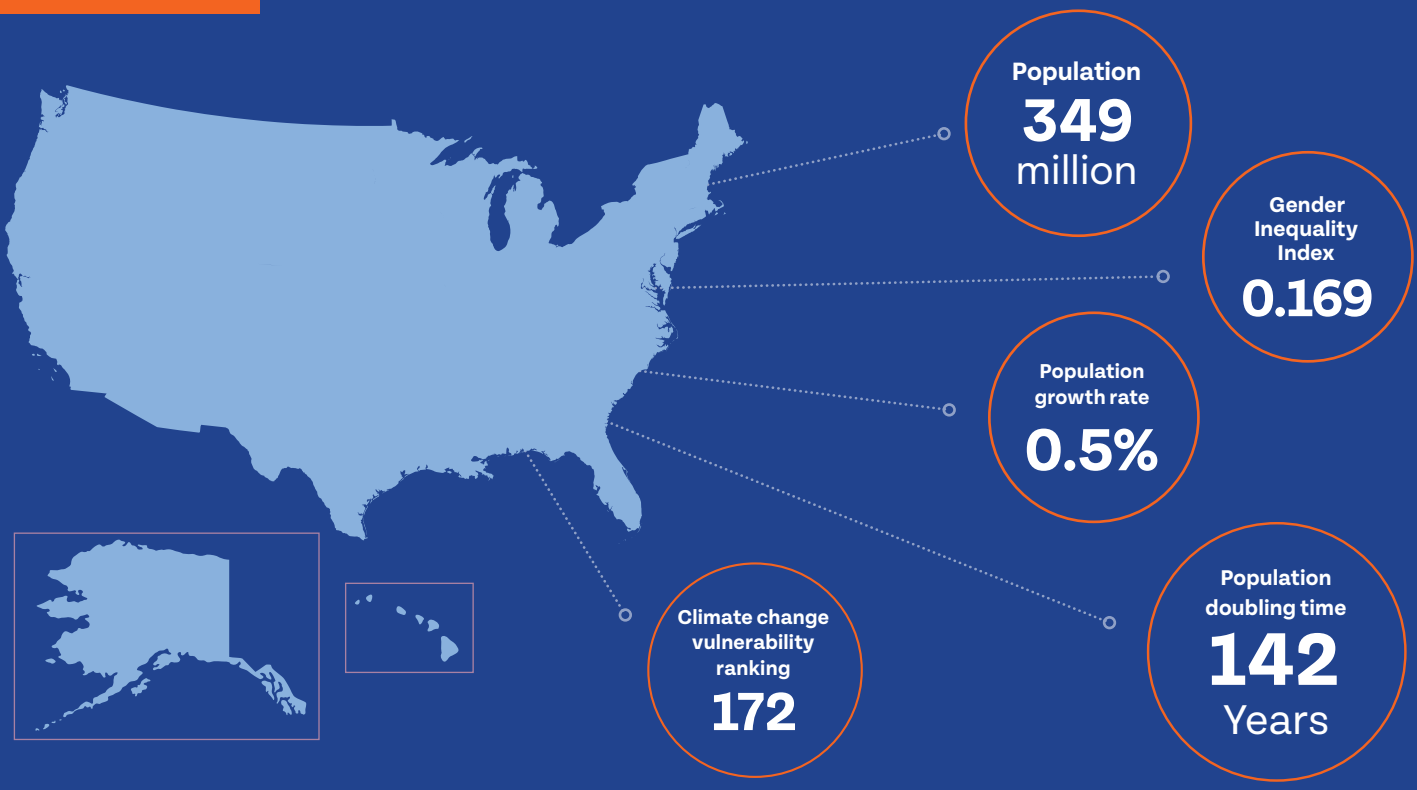
Regenerate Africa has built a comprehensive, interconnected body of evidence and advocacy work that spans community research, multimedia communications, and high-level policy engagement. In addition to producing peer-reviewed literature and a documentary film that uplifts communities' experiences on gender, health, SRHR, and climate change intersections in Uganda, the organization captures key analyses and policy implications in policy briefs for decisionmakers in key government positions.

This evidence directly enables Regenerate Africa's policy influence: It has contributed to Uganda's position papers for international climate change negotiations and provided technical support for the country's Health National Adaptation Plan (H-NAP), resulting in the integration of gender and SRH across multiple plan components. Within its strategies, the H-NAP calls for joint multisectoral risk management that explicitly includes SRH alongside water, sanitation, nutrition, and air quality, with particular attention to women, girls, youth, persons with disabilities, and other marginalized groups. It also calls for periodic research on the interlinkages between climate change and health outcomes spanning SRH, gender, and nutrition.

"Uganda stands on the frontline of the climate crisis, facing impacts far beyond its contribution. Yet the greatest challenge is not only vulnerability—it is the persistent gap between climate ambition and the financing required to turn commitments into action. Without urgent investment in adaptation and in the rights and health of women and girls, resilience will remain out of reach for the communities that need it most."

—CHARLES KABISWA, REGENERATE AFRICA

PART 3 Country Profile: **United States**



As indicated by its climate change vulnerability ranking, the United States is better positioned than most countries to manage the impacts of climate change, an unjust irony given that it bears the greatest responsibility of any nation for the build-up over time of atmospheric greenhouse gases that cause climate change.[51] Notably, it is the world's preeminent economic powerhouse. Nevertheless, as illustrated by the impacts of wildfires, drought, and extreme storms in recent years, climate change creates a wide range of risks in the United States. These risks also include increases in infectious and chronic diseases and intensified social and economic stresses.[52] The impacts of climate change are projected to intensify as sea levels and temperatures continue to rise, snow and rainfall patterns shift, and extreme weather becomes more common.[53]

While population is growing more slowly in the United States than in the world as a whole, understanding population dynamics is vital to understanding climate change vulnerability and adaptation planning. For example, evidence suggests that the U.S. population has grown disproportionately faster in places exposed to climate hazards such as wildfires and hurricanes.[54] Florida and Texas—the former especially vulnerable to hurricanes and sea-level rise, the latter to extreme heat and drought—are two of the fastest growing states in the country.

Understanding social vulnerability is also critical for adaptation planning. While the impacts of climate change affect everyone in the United States, vulnerability is heightened among people with low incomes, people with less education, people and communities of color, recent immigrants, and older adults.[55] As in many places around the world, such social vulnerabilities can result in variations by gender in how people are able to respond to extreme weather events or long-onset climate change impacts across communities.[56]

A recent evidence review found, for example, that men make up the majority of the U.S. workforce in sectors with significant occupational exposure to the effects of climate change, while women face heightened risk of gender-

based violence in the aftermath of natural disasters. Additional gender variations exist across climate impacts associated with health, employment, and extreme weather events, as well as with people's perceptions, attitudes, knowledge, and behavior. The review also found that family planning use can be affected by disasters; following hurricanes Katrina and Ike, for example, many women reported difficulty accessing contraception.[57]

Center for Biological Diversity: Filling the Resiliency Gap

Despite the growing evidence base on the ways in which social factors contribute to vulnerability to the impacts of climate change, gender and racial equity are often left out of climate preparation and planning in the United States. The Center for Biological Diversity, a U.S.-based nongovernmental organization, provides research and resources to help fill this resiliency gap.

In 2026, the Center conducted an analysis of U.S.-based college and university climate plans to determine how well campuses address health, equity, and other underlying drivers of climate change.[58] Universities are uniquely positioned to lead in this endeavor. They function as microcosms of society while facing global challenges like climate change, allowing them to showcase practical applications of interconnected climate initiatives on campus.

The Center's analysis found gender and racial equity noticeably lacking in the plans, with only three of the 15 analyzed plans even mentioning these issues. Reproductive health, like family planning, was absent from all analyzed plans. Only 10 of the plans noted population or growth as a concern, though 14 of the 15 plans mentioned consumption. These findings mirror a larger trend of gender and racial equity being overlooked in climate plans. In 2022, the Center conducted an analysis of 21 municipal climate plans and only two mentioned that women face unique climate-related vulnerabilities.[59]

The new analysis recommends that universities support and invest in comprehensive climate planning that engages students, staff, and the community, particularly vulnerable populations. It also recommends that universities expand education and training on climate, equity, and health to ensure inclusive and cross-sector climate governance from different university branches, including sustainability, campus operations, and health services. To strengthen plans in relation to these elements, the Center provides technical assistance.

In 2025, the Center also conducted an analysis of state emergency preparedness checklists and found sexual and reproductive health items are often absent, even though climate-fueled severe weather disasters can make it impossible for people to access family planning and period supplies.[60] To address and bridge the intersection of reproductive justice, gender equity, and climate resilience—and help raise awareness of the need to expand these checklists—the Center created sexual health emergency preparedness (SHEP) kits.

The free kits include condoms, emergency contraception, period products, and pregnancy tests and

"There's a growing body of research showing that gender and racial inequity are exacerbated as climate change worsens. No community can say they're truly prepared for climate-fueled disasters while ignoring the specific needs of vulnerable populations. Reproductive justice and gender equity aren't just important considerations in climate planning—they're crucial solutions to the climate crisis, too."

—KELLEY DENNINGS, CENTER FOR BIOLOGICAL DIVERSITY

are given away at community and collegiate events. The kits provide essential sexual and reproductive health items to communities while highlighting the need for people and municipalities to consider such items in their own emergency preparations. To help people bring SHEP kits to their communities, the Center created a how-to guide and actively recruits U.S.-based partners to expand SHEP kit distribution around the country.[61]

PART 4

Conclusion

PART 4

Population trends will play a meaningful role in shaping the future we will live in. Climate change is a long-term challenge that humanity must respond to, and over the long term the size of the human population will be among the decisive factors easing or complicating that response. But population growth rates and the number of people can't tell the story on their own. Where people live, how they live, the agency they have in their lives, and their access to resources and opportunities—all of these factors are critical to understanding how population trends will affect our future.

These factors are also important to understanding how population growth matters for climate change vulnerability. In this report, we've looked at specific ways in which population growth affects people's climate change exposure, sensitivity, and adaptive capacity, and we've shown that because population is growing disproportionately in countries that are already highly vulnerable to the impacts of climate change, incorporating a deeper consideration of population growth trends in the context of adaptation planning is warranted.

A deeper consideration of population growth trends includes investigating gender inequity and deficits in sexual and reproductive health and rights, both of which worsen vulnerability and limit adaptive capacity. It is then possible to create climate change adaptation strategies that incorporate the significance of these trends and their intersections and craft interventions designed to tackle them. Examples highlighted in this report—from Bangladesh, Niger, the Philippines, Uganda, and the United States—offer insights and inspiration for such strategies. These examples are worthy of greater investment, replication, and scale up.

The malleability of population trends, while not well understood by policymakers and the public, is among the most hopeful in a range of promising aspects of the needed societal responses to human-caused climate change. We know that population trends will follow a more sustainable path in response to better access to and more use of contraception; more education for young people; and sustained improvements in gender equality and the autonomy of women, girls, and LGBTQ+ people. And we know that climate change adaptation plans will be stronger and more durable when such plans incorporate interventions that empower people while ensuring a more sustainable population future, including investing in rights and opportunities for women and girls, addressing people's sexual and reproductive health needs, and advancing reproductive autonomy.

Rights build resilience, and resilience gives us the tools to weather the impacts of a changing climate together.

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