POLICYBRIEF

SEVEN WAYS 7 BILLION PEOPLE AFFECT THE ENVIRONMENT AND SECURITY

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SUMMARY

Today's population of 7 billion people has a significant impact on the planet's natural resources and on global security. Seven critical challenges—security, climate change, water scarcity, food insecurity, deforestation, loss of biodiversity, and future population growth—are affected by population dynamics in complex ways that demand holistic solutions. One effective and relatively inexpensive way to meet these challenges is to empower women by improving their access to education and health care, including family planning.

Seven billion people now live on Earth, only a dozen years after the global population hit 6 billion. But this milestone is not about sheer numbers. Demographic trends will significantly affect the planet's resources and people's security.

Growing populations put stress on dwindling natural resources while high levels of consumption in both developed and emerging economies drive up carbon emissions and deplete the planet's resources. Slow-burning climatic changes and extreme weather threaten both agricultural productivity in rural areas and extensive infrastructure in ever-denser population centers. Meanwhile, neglected "youth bulges"—large groups of young people with too few employment opportunities—have bolstered extremism in fragile states such as Somalia and destabilized nascent democracies such as Egypt.

For the seven critical challenges, the impacts of population growth cut across traditional sectors. These linked issues require holistic solutions that combine diverse approaches, including women's empowerment, natural resource management, renewable energy, resilient governance, and family planning programs.

SECURITY

At the end of the 20th century, nearly 90 percent of countries with very young and youthful populations had undemocratic governments. Eighty percent of all new civil conflicts between 1970 and 2007 occurred in countries where at least 60 percent of the population was below age 30.[1]

According to research by Wilson Center adviser Richard Cincotta, these very youthful countries

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may achieve democracy, but they are less likely to sustain it. He found that, historically, when the proportion of youth dropped to about 40 percent of the total working-age population, states had a 50 percent probability—an even chance—of being stable liberal democracies.[2]

A few years ago, Cincotta predicted that the population age structure in states along the northern rim of Africa—Morocco, Algeria, Tunisia, Libya, and Egypt—would each reach that 50 percent point between 2010 and 2020. The Arab Spring could be the first step toward validating his prediction, but whether Tunisia or Egypt can reach and maintain stable liberal democracies remains to be seen.

"Today we have the largest generation of young people in history, with more than half the world's population under 30," said Wilson Center adviser Elizabeth Leahy Madsen. "The opportunities that are available or not available to these young people will determine their country's futures."[3]

CLIMATE CHANGE

The effects of demographic trends on climate change are complex. Consumption by developed countries is the largest driver of global greenhouse gas emissions; population growth plays a smaller, but still important, role. According to research led by Brian O'Neill of the National Center for Atmospheric Research, slowing population growth by 2050 could produce 16 to 29 percent of the reductions in carbon emissions necessary to avoid dangerous climate change.[4]

The study also found that urbanization and aging trends will have differential—and potentially offsetting—effects on carbon emissions. Aging, particularly in industrial countries, will reduce carbon emissions by up to 20 percent in the long term. In contrast, urbanization, particularly in developing countries, could increase emissions by 25 percent as it leads to greater economic production.

"Slower population growth would not solve the climate problem, but it could make a contribution. It is neither a silver bullet nor a red herring," said O'Neill.

WATER SCARCITY

By 2025, about 1.8 billion people will be living in countries with scarce supplies of water, and two out of three will be living in conditions of water stress. A McKinsey & Company report warns that within two decades, demand for water will exceed supply by 40 percent.[5]

By overpumping aquifers and overusing rivers, people are using water faster than it can be naturally replenished, putting us in danger of "peak water," said MacArthur "Genius" Fellow Peter Gleick. Peak water is the "idea that we are effectively running into constraints and limits on our water use," because of the combination of population growth and increased consumption.[6]

However, the problem with water is not just one of quantity. Most of the rapidly growing cities of the developing world do not have adequate water and sanitation for new arrivals. "As a result, in areas not served by official services, including the city's slums, people pay exorbitant prices to middlemen with tankers selling water of dubious quality," according to Wilson Center adviser Laurie Mazur.[7]

"Rethinking pricing is key," writes Mazur, especially reducing generous irrigation subsidies, increasing efficiency by growing less-thirsty crops, and reducing

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waste. In the urban slums, governments must commit to adequately funding and supporting safe water supplies for the poor.

FOOD INSECURITY

One in seven of the world's 7 billion people is food insecure—and that number could increase dramatically.

"The agricultural productivity gains that helped us keep pace with population growth for so long are beginning to slow," writes Wilson Center adviser Kathleen Mogelgaard. "This comes at a time when the Food and Agriculture Organization reports that food production will need to increase by 70 percent by 2050 in order to adequately feed a larger, wealthier, and more urbanized population."[8]

Meeting those food needs in an environmentally sustainable way will be challenging, given current levels of fertilizer and energy use, soil erosion and degradation, and deforestation. The effects of climate change—including increased temperatures, drought, and floods—could change growing patterns and further reduce yields.

Policymakers need a better understanding of the impacts of population growth on a country's food requirements in the face of these changes. For example, a new Futures Group model shows that in the case of Ethiopia, a slower population growth path could make up for the projected effects of climate change on agriculture by 2050.[9]

DEFORESTATION

An average of 10 hectares of forest were lost each minute between 2000 and 2010, due mainly to clearing for agriculture and timber. In addition, the energy demands of the more than 2 billion people who depend on wood for cooking and heating have helped devastate tropical forests.[10]

Providing alternatives to biomass for cooking and heating is one way to fight this trend. But these efforts are even more successful when combined with family planning services for rural communities living in or near tropical forests.

In Nepal, firewood is the cheapest and most widely available energy source, accounting for 87 percent of domestic energy production, according to World Wildlife Fund (WWF) Nepal. Today, only 30 percent of the country's original forest cover remains. In the rapidly growing Terai region, a WWF program promoted biofuels and fuel-efficient cookstoves and provided family planning tools and services. These efforts gradually lowered rates of respiratory illnesses, reduced the population's effects on the local environment to sustainable levels, and saved more than 1,500 metric tons of firewood per year in the Khata region.[11]

> "Fulfilling the unmet need for contraception of more than 200 million women is an effective and inexpensive step. Empowering women through access to education and health care will help them help their families and their countries."

LOSS OF BIODIVERSITY

Every hour, three species become extinct. "As we have become more numerous, we have also become more adept at altering ecosystems for human use, replacing species-rich natural landscapes with simpler monocultures," said Mazur.[12]

Population density is "a good indicator of biodiversity loss," said Richard Gorenflo of Penn State University. At least half the world's population lives on less than 3 percent of the habitable land, and most people live at densities between 100 and 1,000 people per square kilometer. Using data from the Apache Highlands Ecoregion along the U.S.-Mexico border, Gorenflo found that biodiversity tends to drop off at population densities of more than 10 people per square kilometer.[13]

Understanding how populations grow and are distributed across the landscape may help us find ways to minimize the impacts of population density on specific habitats and biomes.

FUTURE GROWTH

Population growth rates are declining in most parts of the world, but not everywhere. By 2050, the United Nations says the global population will be between 8 billion and 11 billion people, and where it ends up depends in large part on the status of women in developing countries. At current fertility rates, developing regions would grow from 5.7 billion in 2010 to 9.7 billion in 2050, while developed countries' populations would stay mostly the same. But today's fertility rates are not likely to remain stable.[14]

"One of the most direct reasons for past declines in fertility rates was the rapid expansion of family planning and reproductive health programs, supported by country governments and international donors, that enabled women and men to more effectively choose the size of their families," writes Madsen. "Today, about 215 million women across the developing world would like to delay or avoid pregnancy but are using ineffective contraception or none at all. Funding programs to meet the family planning needs of these women, which would cost about $3.6 billion annually, would both empower them and help fertility rates continue to decline."[15]

CONCLUSION

Wealthier people and developed nations consume significantly more resources per capita than poor people and developing countries, driving climate change, deforestation, water scarcity, food insecurity,

and biodiversity loss. Although focusing on rapid population growth is important, we should never ignore the outsize impact of global consumption by wealthier nations.

But there is one underlying factor—gender inequality—that is often neglected by policymakers. Women in developing countries with high fertility rates are more likely to suffer from poor health and low literacy. More children, inadequate health care, and less education make it harder for women and their families to adapt to scarce supplies of food, water, and energy.[16]

These seven challenges do not have quick or easy answers. But fulfilling the unmet need for contraception of more than 200 million women is an effective and inexpensive step. Empowering women through access to education and health care will help them help their families and their countries.

ENDNOTES

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