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Foreword

TIMOTHY E. WIRTH

Fifteen years ago, Laurie Mazur asked me to write the foreword to another contributed volume, *Beyond the Numbers: A Reader on Population, Consumption and the Environment*. The year was 1994; I was serving as Undersecretary of State for Global Affairs under President Clinton.

It was a heady time. The polarized thinking of the Cold War was receding into history, and a broader concept of national security—one that encompasses environmental sustainability—was ascendant. The much anticipated “peace dividend” promised new resources for a broad range of measures to improve human well-being.

And it was the eve of the UN International Conference on Population and Development (ICPD), in Cairo, a time when the old divisions over population issues—divisions between north and south, between advocates for population stabilization and advocates for women’s rights and health—gave way to consensus and collaboration. In Cairo, the world’s nations agreed that rapid population growth and unsustainable resource consumption threaten our common future. They approved a groundbreaking plan to address those problems by ensuring access to family planning and reproductive health services, alleviating poverty, and ensuring the human rights of girls and women. For those of us who took part in the Cairo conference (I had the privilege of leading the

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U.S. delegation to that meeting), there was a sense that a significant revolution had begun.

The revolution, it seems, was postponed.

The world's nations have not kept the promises made in Cairo. In the United States, the very success of the Cairo conference invigorated conservative groups who oppose family planning and wider opportunities for women. With the advent of a conservative Congress in 1994, followed by the Bush victory in 2000, those groups amplified their political power. As a result, the United States has decreased its support for international population programs by almost 40 percent since 1995.¹ At the same time, the sheer magnitude of the AIDS epidemic overshadowed the Cairo agenda, while the introduction of promising new antiretroviral therapies in the mid-1990s shifted resources from prevention to treatment, often at the expense of comprehensive prevention strategies that include reproductive health and family planning. While the reasons are complex, the impact is clear: By neglecting the Cairo agenda, the world's nations missed opportunities to slow population growth and improve human well-being. Opportunities were missed on the environmental side of the equation as well: Failure to grapple with the looming threat of climate change has left us with precious little time to head off unthinkable consequences.

NEW CHALLENGES AND OPPORTUNITIES

Those missed opportunities have undoubtedly intensified the challenges we face today. But, reading the essays in this new volume, I am struck by the extraordinary opportunities we have now to construct a future that is sustainable *and* just—opportunities we cannot afford to miss.

Demographically, the challenges are clear. Countless women and men lack the power to make real choices about childbearing because of crushing poverty or persistent gender discrimination. And neglect of the Cairo agenda means that over 200 million women in developing countries who wish to delay or prevent pregnancy still lack access to family planning services.² Less than a quarter of developing countries offer free reproductive health services in public health facilities and maternal health services in remote areas.³ Earlier gains have been lost: As Carmen Barroso and Steven W. Sinding observe in Chapter 19, in many countries community-based family planning programs have closed their doors, leaving a void that has not been filled by any other

form of health care. Indeed, because of funding declines, progress toward universal reproductive health care, including family planning, is moving at a slower pace than in the 1980s and 1990s.

As a result, huge disparities remain in reproductive health. Barroso and Sinding note that in parts of sub-Saharan Africa, women have a 1 in 6 chance of dying in childbirth, while in parts of North America and Europe, that risk is as low as 1 in 8,700. There are between 70 and 80 million unintended pregnancies in the developing world each year,⁴ 46 million of which end in abortion.⁵ Unsafe abortions kill some 74,000 women every year.⁶

Progress toward smaller families is also uneven. In more than a third of the world's nations, fertility rates are now below the "replacement level" of 2.1 children per woman. But fertility remains above 3.0 in another third of countries; one-fifth still average more than 5 children per woman.⁷ Fertility declines have stalled altogether in six sub-Saharan states.⁸

The world has chosen precisely the wrong moment to neglect family planning and reproductive health. As several authors in this volume observe, the largest generation in history is now coming of age. The need for health care, education, and jobs will increase dramatically as the young men and women of this generation move into adulthood.

By meeting the reproductive health needs of this largest generation, we have a chance to stabilize world population at the lower end of the projected spectrum—at 8 billion rather than 11 billion. A smaller world population is not a panacea for the environmental and social problems before us—but it will lower the hurdles we must leap.

Meeting the needs of these young men and women will not be easy. Nor will it be easy to tackle the deeply rooted injustices that constrain their choices. But, by so doing, we will make an essential investment in the future. The young men and women of the twenty-first century, who enter adulthood saddled with the legacies of the twentieth century—including debt and climate change—deserve no less.

Missed opportunities mean that the environmental crises we face today are much more serious than most of us imagined in 1994. Our profligate use of fossil fuels is changing the climate so quickly that many events that were expected to happen much later this century are

A smaller world population is not a panacea for the environmental and social problems before us—but it will lower the hurdles we must leap.

happening right now. The Arctic Ocean—engine of the Northern Hemisphere’s weather—could be ice-free in summer within five years.⁹ The polar ice caps are melting so quickly that the world’s oceans are rising more than twice as fast as they were in the 1970s.¹⁰ In accepting the 2007 Nobel Peace Prize, Al Gore said, “We, the human species, are confronting a planetary emergency, a threat to the survival of our civilization,”¹¹ and he was right.

Civilization was built around the climate we have—along coastlines that may be washed away by storms and rising sea levels, around farmland and forests that may become less productive as water supplies diminish, and away from lowlands infested with insect-borne disease. Changing the climate puts the very organization of modern civilization at risk.

But here, too, daunting challenges contain the seeds of change. Climate change—perhaps more than any other environmental issue—illustrates the profound interdependence of people and the planet. It is a problem that transcends national borders and links the fates of the world’s people. Recognition of that interdependence has galvanized a dynamic global movement to address climate change. The energy and ingenuity of that movement inspire hope that a sustainable future is possible.

There are other reasons for hope. Notably, the Obama administration has ushered in a new era of U.S. leadership in addressing these challenges. Early in his presidency, Obama signaled his determination to begin a “fresh conversation on family planning” and to find common ground in addressing the needs of women and families around the world.¹² And he is moving swiftly to address the looming threats of climate change and other environmental problems.

COMPLEX PROBLEMS CAN BE SOLVED

The demographic and environmental challenges we face are bewilderingly complex, linked through intricate chains of cause and effect. Nonetheless, as the authors of this volume demonstrate, there are clear steps we can take to address this knot of interrelated problems.

We must first ensure that the young women and men of the largest generation have the means and the power to make real choices about childbearing. That requires access to voluntary family planning as part of comprehensive reproductive health services. It requires education and employment opportunities, especially for women. And it requires

tackling the inequities—both gender and economic—that are associated with rapid population growth. In short, it requires keeping the promises we made in Cairo.

In policy terms, this means the United States must more than double its contribution for family planning through its bilateral assistance program and through the multilateral UN Population Fund (UNFPA), consistent with the levels agreed to at ICPD. We must also mobilize the resources to meet our commitments to the Millennium Development Goals, which set measurable targets on poverty reduction, education, maternal and child health, gender equality, and environmental sustainability.

At the same time, those of us in the industrialized world must dramatically reduce our consumption of resources—we must do more with less. It can be done: McKinsey & Company, the consulting firm, estimates that the United States could shave nearly 30 percent off the amount of greenhouse gases we emit at fairly modest cost and with only small technological innovations.¹³ Sustainable development means meeting the needs of current generations without stealing from the future. That is a standard we must meet.

ECONOMIC CRISIS AND FALSE CHOICES

Against the backdrop of demographic and environmental challenges, we now face a global financial crisis, the severity and duration of which we cannot fathom. It is unclear what impact that crisis will have on mobilizing the resources and political will to address the demographic, humanitarian, and environmental challenges outlined here. But the crisis will likely embolden those who argue that we cannot afford to address these problems—that development assistance and environmental protection are luxury items to be purchased later, when we can afford them.

In fact, we cannot afford *not* to make these investments. An investment in the next generation is a down payment on future peace, prosperity, and progress. All of the problems we seek to address will be more costly later if we fail to invest now. And these investments are our fundamental moral obligation to the future.

Pitting prosperity against environmental sustainability is likewise a false choice. Ecological systems are the very foundation of our economy. Five essential biological systems—croplands, forests, grasslands, oceans, and fresh waterways—supply all the raw materials for industry

and provide all our food. Stated in the jargon of the business world, the economy is a *wholly owned subsidiary* of the environment. When we pollute, degrade, and irretrievably compromise that ecological capital, we destroy the very foundations of our economic well-being.

Other false choices may present themselves in troubled times. The severity of climate change and other environmental crises may revive calls for “population control.” Some will argue that human rights are secondary to the urgent need to slow population growth. But history shows that human rights and slower population growth are not mutually exclusive; they are, in fact, mutually reinforcing. Where people have the rights and the power to make real choices

about childbearing, they have fewer children, and they invest more in each child.

The choice before us is not between respecting rights or protecting the environment—respecting rights *will* protect the environment.

The old thinking that pitted individual rights against the common good was wrong. The choice before us is not between respecting rights or protecting the envi-

ronment—respecting rights *will* protect the environment. The choice is whether to continue on our current path toward global disaster or to empower all individuals to make informed decisions about whether and when to bear children—with full knowledge of the impact those decisions will have on their lives, their communities, and the world.

IDEAS FOR CHANGE

The economist Milton Friedman once said, “Only a crisis—actual or perceived—produces real change. When that crisis occurs, the actions that are taken depend on the ideas that are lying around.”¹⁴

The future will offer no shortage of crises, real and perceived. The ideas in this book are the ones to heed. Its authors call for a nuanced understanding of the relationship between human numbers and environmental harm—and the inequitable patterns of consumption that mediate that relationship. They offer solutions that are grounded in human rights and social justice—solutions that can meet human needs today without diminishing the prospects of future generations. These ideas can spark the change we need.

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Introduction

LAURIE MAZUR

We are living in a pivotal moment.

Even a casual glance at the headlines reveals this to be a pivotal moment *environmentally*: In 2007, scientists warned that we have less than a decade left to head off catastrophic climate change.¹ Now it seems that even those dire forecasts were optimistic: Recent evidence shows that the climate is changing much more quickly than predicted just a few years ago.² And it's not just the climate. From acidifying oceans to depleted aquifers, the natural systems we depend upon are nearing “tipping points,” beyond which they may not recover.

But it is less well known that this is a pivotal moment *demographically*. While the rate of population growth has slowed in most parts of the world, rapid growth is hardly a thing of the past. Our numbers still increase by 75 to 80 million every year, the numerical equivalent of adding another United States to the world every four years.³ And while a certain amount of future growth is virtually inevitable—an echo of the great boom of the late twentieth century—the ultimate size of the human population will be decided in the next decade or so.

That's because right now the largest generation of young people in human history is coming of age. Nearly half the world's population—some 3 billion people—is under the age of twenty-five.⁴ Those young people will, quite literally, shape the future. The decisions they make, especially about sexuality and childbearing, will have a great impact on

their own lives and on the well-being of their families and communities. Collectively, their choices will determine whether human numbers—now at 6.8 billion—climb to anywhere between 8 and nearly 11 billion by mid-century.

These phenomena—environmental crisis and population growth—are connected, in ways that are profound and complex. Of course, the

Nearly half the world's population—some 3 billion people—is under the age of twenty-five. Collectively, their choices will determine whether human numbers—now at 6.8 billion—climb to anywhere between 8 and nearly 11 billion by mid-century.

relationship between population growth and environmental harm is not simple or linear. Human numbers are not a primary cause of environmental degradation, but they do magnify the harmful effects of unsustainable production and consumption. Some people have much greater environmental impact than others; we in the industrialized countries use about thirty-two

times the resources—and emit thirty-two times as much waste—as our counterparts in the developing world.⁵

Nonetheless, the evidence presented here suggests that it would be better for human beings and the environment if world population peaks at 8 or 9 billion rather than almost 11 billion. Of course, slowing population growth is not *all* we must do. Our numbers are almost certain to grow by more than 30 percent by 2050. That means we must swiftly reduce our collective impact by a third just to maintain the disastrous status quo; a truly sustainable future will require sweeping social and technological changes. Slowing population growth won't feed the hungry or eradicate poverty, either; that will require a wholesale rethinking of development, trade, and other economic policies.

But slower population growth could help give us a fighting chance to meet these challenges. It could reduce pressure on natural systems that are reeling from stress. And it could help give families and nations a chance to make essential investments in education, health care, and sustainable economic development.

Yet while the goal of a smaller world population is an important one, it matters—a lot—how we get there. As the authors of this volume show, the best way to slow population growth is not with top-down “population control” but by ensuring that all people have the means and the power to make real choices about childbearing. That means, first, that all people must have access to family planning and other reproductive

health services.* Second, it means addressing the economic and gender inequities that limit choices for so many of the world's people. Finally, and urgently, it means investing in the young men and women of the largest generation. All of these steps are worth taking for their own sakes, as a matter of human rights and social justice. Together, they will shape a sustainable, equitable future.

THE DAWN OF THE ANTHROPOCENE

The twentieth century saw the human enterprise—and its environmental impact—grow as never before. It took our species about 200,000 years to go from a few thousand individuals to a billion around 1800.⁶ We rounded the corner of the twentieth century at 1.65 billion and then took off. Our numbers nearly doubled—to 3 billion—by 1960 and then doubled again—to 6 billion—by 1999.⁷

We hit our peak rate of growth—2.1 percent per year—in the second half of the twentieth century. That half century also marked a seismic shift in our relationship with the natural world: In just fifty years, we altered the planet's ecosystems more than in all of human history combined.⁸ In previous millennia, the Earth was transformed by massive forces of nature—the advance of glaciers, volcanic eruptions, the clash of continents. But in the late twentieth century, the “Anthropocene” era dawned as human beings became the most powerful force of environmental change.⁹ Humanity has developed the capacity to transform—and destroy—the fundamental processes of nature that sustain us.

Climate change offers a dramatic example. Our emissions of heat-trapping gases—from burning fossil fuels, agriculture, deforestation, and other activities—have already warmed the planet's land areas by about 2 degrees Fahrenheit.¹⁰ This seemingly small change has, in fact, thrown a switch on the slow-moving machinery of the climate. As a result, the Intergovernmental Panel on Climate Change (IPCC) predicts the twenty-first century will bring widespread famine in Africa and elsewhere, more violent storms, and the extinction of nearly a third of the Earth's species.¹¹

While no region will be completely spared, the worst effects of climate change will fall on the poorest people in the tropics and subtrop-

*Reproductive health services include family planning; prenatal, obstetric, and postnatal care; and prevention and treatment of reproductive tract infections, including sexually transmitted diseases like HIV/AIDS.

ics. In other words, says UN Secretary-General Ban Ki-moon, “Those who have done the least to cause the problem bear the gravest consequences.”¹² For the world’s most marginalized people, those consequences “could be apocalyptic,” according to the United Nations Development Program (UNDP).¹³

Climate change threatens the natural systems that undergird human civilization. Consider this: One in six people on the planet gets their drinking water from glaciers and snowpack on the world’s great mountain ranges—including the Hindu Kush, the Himalayas, and the Andes. Those glaciers are receding worldwide; when they are gone, so is the essential water they provide.¹⁴

And the effects of climate change are not consigned to the future—they are being felt today by the thousands killed and tens of millions displaced in the record-breaking 2007 south Asian monsoons,¹⁵ by the 15,000 people in France who died in the heat wave of 2003,¹⁶ by children in east Africa who are dying from malaria as disease-carrying mosquitoes move into new latitudes and altitudes.¹⁷

While climate change is beginning to get the attention—if not the action—it deserves, few are aware that human activities are threatening the planet’s life-support systems in more direct ways. Nearly two-thirds of the planet’s ecosystems—including freshwater and fisheries—are being used in ways that simply cannot be sustained.¹⁸ As we have transformed natural systems to meet human needs, billions have been lifted from poverty and bare subsistence. But according to the Millennium Ecosystem Assessment, a five-year study that involved 1,360 scientists worldwide, those improvements in human well-being have come at great cost to the complex systems of plants, animals, and biological processes that make the planet habitable. As a result, “the ability of the planet’s ecosystems to sustain future generations can no longer be taken for granted.”¹⁹

Climate change, says environmental journalist Andrew Revkin, is not the story of our time; it is “a subset of the story of our time, which is that we are coming of age on a finite planet and only just now recognizing that it is finite.”²⁰

IS POPULATION GROWTH THE PROBLEM?

It is tempting to ascribe these environmental problems to the growth of human population. Surely it is no coincidence that our environmental impact accelerated just as our numbers took off. It makes sense that more people require more food, more electricity, more freshwater—

more of everything we take from the Earth. That is true, but the story is not that simple.

First, a focus on aggregate numbers masks vast disparities in the human condition—and in environmental impact. The gains of the last half century were distributed very unevenly. Some 2.5 billion people—40 percent of the world’s population—live on less than \$2 per day, accounting for just 5 percent of global income. One billion of those live on the knife edge of survival at less than \$1 per day. Meanwhile, the richest 10 percent of the world’s population, almost all of whom live in industrialized countries, claim more than half of all income. Huge disparities exist within, as well as between, countries. Even before the financial crisis that began in 2007, income inequality was *increasing* in countries that are home to more than 80 percent of the world’s population.²¹

Not surprisingly, those at the top of the income curve have a disproportionate impact on the global environment. Again, climate change offers an example. The average American or Canadian produces more than 18 metric tons of CO₂ emissions every year, while each sub-Saharan African produces little more than a ton. Clearly, the less populous countries of the global north bear far more responsibility for creating the climate crisis than the populous south (though that may change in the future; read on). If we measure the environmental “footprint” of each nation, the United States is surely Bigfoot: Per capita, Americans use more resources and produce more pollution and waste than anyone in the world. In fact, if everyone in the world lived as Americans do, we would need five Earths to support us.²²

Moreover, our footprints can be seen on every continent. In an ever more integrated global economy, consumption in the affluent countries drives environmental destruction worldwide. The food we eat, the clothes we wear, our children’s toys—all leave a trail of harm that spans the globe. The shrimp served at my local Red Lobster began life in a man-made lagoon in Thailand; to meet the growing demand for their products, shrimp farmers are destroying mangroves that provide essential protection from storm surges and tidal waves—like the 2004 tsunami.²³ And, about a third of all Chinese carbon dioxide emissions are the result of producing goods for export, mostly to the United States and other affluent countries.²⁴

LOCAL IMPACTS, GLOBAL CAUSES

Even where rapid population growth and environmental degradation coexist, the damage may be driven by consumers on another continent.

Take Ghana, for example. Ghana has very high rates of population growth—at 2.2 percent a year, double the average for the world as a whole.²⁵ It also has significant environmental problems: In less than fifty years, Ghana’s primary rain forest has been reduced by 90 percent; a quarter of its forest cover was lost just between 1990 and 2005.²⁶ When the forests are lost, flooding and erosion degrade the land, often leaving it unsuitable for any productive use.²⁷ As a result, according to the United Nations Environment Programme, a third of Ghana’s land is in danger of turning to desert.²⁸

At first glance, you might think that growing human numbers are to blame for deforestation in Ghana. But it is not, for the most part, the citizens of Ghana who are cutting down the forests—or profiting from their sale. Most logging is done by the timber industry, whether legal (multinational corporations) or illegal (wildcat loggers)—for sale on the global market.²⁹

Ghana’s story is typical of developing countries. Beginning in the 1980s, the World Bank and International Monetary Fund (IMF) required Ghana to deregulate its economy and develop export-oriented industries, such as timber and mining, in exchange for loans. Regulations were relaxed; foreign investment was courted with generous incentives. As money poured in, Ghana’s resources flowed out: Mahogany logs, gold, and cocoa beans filled ships bound for Europe and North America.³⁰ The success of export industries sparked robust economic growth that reached 6.3 percent in 2007.³¹ However, that growth has come at a terrible environmental cost, and it has not delivered the promised benefits to Ghana’s people.

Ask Awudu Mohammed, who was just finishing high school when a gold mine opened in his village of Sanso in central Ghana. “There was gold under [our] farm so they wanted to mine the place though my father disagreed with them,” Mohammed told the BBC. “They went and brought police, all of them holding guns.” Mohammed’s father was given the equivalent of \$50 to compensate for the loss of his livelihood. Now his family lives in a squatter’s camp, eking out a living by illegally panning for gold. Mohammed’s family is hardly alone: It is estimated that hundreds of thousands of people in Ghana have been evicted from farms to make way for multinational mining interests in the last twenty years.³²

Some may view such dislocation as the “creative destruction” that inevitably accompanies the transition from subsistence agriculture to a more prosperous modern industrialized economy. But many of Ghana’s

people are not making that transition. While there have been reductions in poverty overall, the profits from mining and other export industries are not “trickling down” to poor, rural Ghanaians. The UNDP found that a large number of people are not benefiting from Ghana’s robust growth and are thus socially excluded.³³ Even the World Bank’s independent evaluation department has questioned whether mining has brought real benefit to Ghana’s people; in 2003, Bank analysts concluded that “it is unclear what the true net benefits to Ghana from large-scale gold mining are.”³⁴

Those who were left out of Ghana’s economic boom are, in fact, paying for the wholesale liquidation of resources that fueled it. “Resource degradation accounts, to a large extent, for the persistence or worsening of social exclusion among some social groups,” says the UNDP. “Depletion of forests and mangroves, soil erosion, degeneration of soil fertility, drying rivers and streams, desertification have become common features of environments in which the poor eke out an existence.”³⁵

The twenty-first century presents two equally urgent imperatives: to lessen human impact on the environment and to reduce the glaring inequalities that divide humanity. Slowing population growth is central to both.

So, does Ghana have a population problem? Certainly, high rates of population growth are a challenge for displaced subsistence farmers who are moving into forest reserves and cutting trees for firewood, or overcultivating marginal land and depleting the soil. The poorest Ghanaian women have more than six children, on average.³⁶ Nearly one in four would like to prevent or delay having another child but lacks access to contraceptives.³⁷ But rapid population growth is not to blame for Ghana’s poverty or environmental problems. And while the people of Ghana need family planning and other reproductive health services, that is certainly not all they need. Most urgently, they need trade and development policies that encourage broad-based sustainable development.

In Ghana, and around the world, people need alternatives to an economic system that—in the words of Adriana Varillas—“promises prosperity but ignores the natural world on which prosperity depends; . . . which delivers wealth for a few, and grinding, inescapable poverty for many more.” That system, a brand of capitalism forged in the United States and exported throughout the world, has

spawned great wealth and even greater inequality, while laying waste to the natural resources and processes that make the planet habitable. It is, therefore, unsustainable—environmentally, economically, and morally. It is also, at this writing, a system in crisis.

The challenge, writes James Gustave Speth, is to change “the operating instructions for the modern world economy,” to reorient economic and social systems toward sufficiency rather than excess; to reward the protection, rather than the destruction, of the natural resource base. Fundamentally, the twenty-first century presents two equally urgent imperatives: to lessen human impact on the environment and to reduce the glaring inequalities that divide humanity. Slowing population growth is central to both.

8 VERSUS 11 BILLION

In the words of the authors of the Millennium Ecosystem Assessment, “the living machinery of Earth has a tendency to move from gradual to catastrophic change with little warning. Such is the complexity of the relationships between plants, animals, and microorganisms that these ‘tipping points’ cannot be forecast by existing science.” We don’t know when such tipping points will be reached, but the pressure that human societies have placed on natural systems “makes it likely that more will occur in the future.”³⁸

In this context, it matters whether we add 1 billion, 2 billion, or nearly 4 billion people to the world’s population by 2050. (Those are, respectively, the UN’s low, medium, and high population projections.) While there are great disparities in environmental impact among the world’s citizens, everyone has *some* impact. We all share an inalienable right to food, water, shelter, and the makings of a good life. If we take seriously the twin imperatives of sustainability and equity, it becomes clear that it would be easier to provide a good life—at less environmental cost—for 8 rather than almost 11 billion people.

The dual challenges of sustainability and equity are vividly illustrated by the climate crisis. In Chapter 5, *Climate Change and Population Growth*, Brian C. O’Neill concludes that slower population growth could make a significant contribution to solving the climate problem. To put that contribution in perspective, imagine a pie divided into slices—each representing an action begun today that would eliminate a billion tons of CO₂ per year by 2050—for example, energy efficiency and renewable energy. Seven slices are needed to avert cata-

strophic climate change. O'Neill estimates that stabilizing world population at 8 billion, rather than 9 or more, would provide one—or even two—“slices” of emissions reductions.

Now, wait a minute, you might say. Climate change is mostly caused by greenhouse gas emissions in the industrialized world, where population growth rates are low. And most population growth is taking place in the developing countries, where per capita emissions are a fraction of ours. So how can slower population growth help solve the climate crisis?

The answer lies in the future. The developing countries are where the lion's share of population growth will occur, and they are also where development *must* occur for half of humanity to escape from grinding poverty. The affluent countries can reduce emissions by reducing the vast amounts of waste in our systems of production and consumption. But the developing countries are not likely to raise their standards of living without more intensive use of resources and higher emissions.

In fact, the aggregate emissions of developing countries are already beginning to overtake those of what we call the industrialized countries. The biggest emitters of carbon dioxide, in absolute terms, are not the affluent countries of the north but the rapidly emerging economies of the global south. According to the Center for Global Development (CGD), which tracks CO₂ emissions from 50,000 power plants worldwide, rapidly rising emissions would put developing countries on track to produce their own climate crisis in just twenty years—even without emissions from the high-income countries.³⁹

Of course, absolute numbers gloss over huge inequities in *per capita* emissions. China now emits more CO₂ overall than the United States, but the average Chinese citizen produces a tenth as much carbon dioxide as the average American.⁴⁰ Those inequities have stymied efforts to broker a global treaty to cap emissions, because developing countries do not want to be “capped” at a level that precludes growth. After all, since fossil fuel emissions are closely correlated with per capita wealth, “what sane government would agree to cap its citizens’ per capita emissions in perpetuity below those of other countries?” asks Robert Engelman in Chapter 6, *Fair Weather, Lasting World*. Any global climate treaty that secures the support of the developing countries—and a treaty without that support would be worthless—must find a way to lower emissions without locking in those inequities (see Chapter 6 for how we might do this).

Slowing population growth is a piece of the “pie”—it is part of what

we must do to avert catastrophic climate change. And, compared with the other things we must do to stabilize the climate, this is a relatively easy one. Everything we must do to slow population growth—ensuring access to reproductive health services, improving the status of girls and women, alleviating poverty—is something we should be doing anyway. And slowing population growth in this way is surprisingly cost-effective. For example, the developed countries' share of the cost to provide reproductive health services for every woman on Earth is \$20 billion—about what the bankers on Wall Street gave themselves in bonuses in 2008.⁴¹

THE INEQUALITY CONNECTION

Like the population-environment connection, the relationship between population growth and poverty is equally complex. But it is fair to say that rapid population growth is both a cause and an effect of poverty and inequality, and slower growth can help close the gaps that divide men and women, rich and poor.

Population growth rates have fallen in most of the world but remain high where poverty and gender inequality are most intractable. Poverty can be an engine of population growth: For example, in poor communities where many children don't live to see their fifth birthday, couples may have many children in order to make sure that some survive. Conversely, high fertility can worsen poverty—for families and for entire nations—by diminishing the per capita resources available for education, health care, and productive investment. Many families and communities are caught in what Rachel Nugent calls a “high-fertility poverty trap,” in which poverty exacerbates high fertility rates and vice versa. As we have seen, the trap is often set by economic policies that deepen inequality. But high fertility and rapid growth can make it harder to escape.

Gender discrimination also fuels population growth. Where women are denied education, secure livelihoods, property ownership, credit—in short, the full legal and social rights of citizenship—they are forced to rely on childbearing for survival, status, and security. And in many parts of the world, girls and women are forced into early marriage and/or childbearing, either by the subtle pressure of social norms or by the overt coercion of threats and violence. Nearly half of young women in south Asia are married before the age of eighteen.⁴² Girls who are married in their teens have more children, on average, and both they and their children fare worse than children of older mothers.

Here, too, the connection is a two-way street. High fertility can exacerbate gender inequality—and poverty—by limiting women’s ability to pursue education and employment, which diminishes prospects for women and their children. The vicious cycle of high fertility and gender inequality is one reason that women constitute 70 percent of the world’s poor.⁴³

At the same time, slower population growth is part of a “virtuous circle” that can help promote equality. Where family planning is available, where couples are confident their children will survive, where girls go to school, where young women and men have economic opportunity, couples will have healthier and smaller families—and the gaps that divide men and women, rich and poor, will diminish.

POPULATION POLITICS AND THE UNFINISHED REVOLUTION

Rapid population growth has not ended. And population growth is connected—albeit indirectly—to the crucial issues of our time, such as climate change and poverty. Yet, until quite recently, population issues had all but fallen off the public agenda. When world leaders gathered in 2005 to affirm the Millennium Development Goals—an ambitious plan to eradicate poverty—population growth was not mentioned. Why?

The answer is a long one, but here it is in broad strokes. In the 1960s and 1970s, there was a broad political consensus in the United States and elsewhere about the need to address rapid population growth. That consensus launched the international family planning movement—bilateral and multilateral programs that brought contraceptive services to the developing world and sparked a revolution in reproductive behavior. Between the mid-1960s and the mid-1990s, contraceptive use increased from less than 10 percent to nearly 60 percent.⁴⁴ The movement also helped reshape the hockey stick-shaped curve of population growth: During that period, average fertility in the developing world fell from six children per woman to about three, and growth rates fell accordingly.⁴⁵

But family planning programs soon became embroiled in controversy. Some—notably in India and China—flagrantly abused human rights with coercive practices such as forced sterilization and abortion (which continue to this day in China). And many first-generation programs focused more on demographic “targets” than on individual needs. With limited choice and poor quality of care, these programs

BOX i.1***Beware the Techno-Fix*****Laurie Mazur and Shira Saperstein**

We can dream of nonpolluting power plants and fail-safe birth control, but technology alone can't solve today's population and environmental challenges. While some technologies may be inherently better than others, it is their social context that determines whether they advance—or limit—human rights and well-being.

Technology can be a double-edged sword. Its impact depends on the specific cultural, economic, social, and political contexts into which it is introduced. For example, new options for contraception and abortion hold great promise, but they have failed to improve women's lives where underlying health, rights, and poverty issues have not also been addressed. In unjust environments, they may exacerbate rather than alleviate human suffering and undermine rather than advance human rights. Consider, for example, the mass sterilization campaigns in India during Indira Gandhi's emergency regime, or the coercive use of abortion in China today.

Closer to home, women in the United States have often encountered separate and unequal treatment when seeking reproductive health care. Women of color have been steered—and sometimes forced—to use permanent methods of contraception, like sterilization, or “provider-controlled” methods, like Depo-Provera and Norplant. So the same technologies can be experienced very differently: For some, they are liberating; for others, they are a source of oppression.

Power and wealth are not evenly distributed, nor are the costs and benefits of technology. Too often, the benefits accrue to elites, and costs are borne by the marginalized. For example, the Green Revolution was to let us break free of limits to the planet's carrying capacity. Indeed, hybrid plant varieties and fertilizers led to dramatic increases in crop yields. But they also had unintended effects. As agriculture became more profitable, rich farmers and corporations bought up the best, flattest land, forcing poor peasants—who could not afford expensive seeds and fertilizer—onto environmentally fragile marginal lands. The Green Revolution also left a distinctly un-green legacy: depleted soils and aquatic “dead zones” from fertilizer runoff.

Biofuels offers a more recent example. The United States has subsidized production of ethanol, made from corn, as an alternative fuel. But given indus-

trialized agriculture's heavy use of oil, ethanol has proved no greener than conventional fuels. And by forcing the world's poor to compete with automobiles for a share of the corn crop, ethanol contributed to a food crisis in 2007–2008 that drove millions to the brink of starvation.

Of course, new technologies can play an important role in advancing reproductive rights and health and in shrinking our environmental footprint. For example, more-efficient technologies—like those used in Europe—could sharply reduce resource consumption in the United States. The average Italian uses exactly half the energy of the average American.^a The Washington, DC, area produces 25 percent more CO₂ than all of Sweden, which has nearly twice as many people.^b

But real sustainability will require sweeping changes in behavior, which will require a new menu of policy choices. On the environmental side, those could include subsidized public transportation, rather than oil and gas exploration. On the reproductive health side, they might include health coverage for contraception, not just for Viagra. Unfortunately, the menu of choices is often set by the powers that be.

Recently, some 12,000 young people gathered in Washington, DC, for PowerShift 2009. They marched in the streets, lobbied in Congress, and engaged in civil disobedience at a coal-fired power plant. Of course, PowerShift attendees want to see coal plants replaced with clean, renewable sources of energy. But the conference's name and agenda show a deeper understanding of the challenges we face: "We are having a broader conversation than just climate change, or climate science," said Marcie Smith,^c a student at Transylvania University in Kentucky, who attended the meeting. "This is a conversation about justice, equity and opportunity."^d

Climate change and the other urgent problems we face today call for a true shift in power—a democratization of decision-making about the technological "hardware" we use and the social "software" that drives it. Anything less is a temporary fix, not the durable solution we need.

^aEnergy Information Administration, 2008, *International Energy Annual 2006*, table posted December 19, <http://www.eia.doe.gov/emeu/international/energyconsumption.html>.

^bFarenthold, David A., 2007, DC area outpaces nations in pollution, *The Washington Post*, September 30.

^chttp://www.transy.edu/news/new_story.htm?id=465&obj=index.

^dQuoted in Jenkins, Jesse, What the Press Didn't Tell You about the Largest Youth Movement in Decades, http://watthead.blogspot.com/2009/03/what-press-didnt-tell-you-about-largest_4486.html.

reflected—and exacerbated—the low status of women. Women’s health and human rights advocates criticized these programs and went on to articulate and implement an alternative paradigm for reproductive health.

Then, in the 1990s, demographers and reproductive health professionals made a game-changing realization: You don’t need to control anyone to slow population growth. Given high levels of unwanted fertility in many parts of the world, simply addressing this “unmet need”—by providing reproductive health services that enable women to realize their own fertility goals—would decrease birthrates by as much as, or more than, was called for in most countries’ demographic targets.⁴⁶

This shift in thinking enabled feminists, reproductive health advocates, and demographers to make common cause at the 1994 International Conference on Population and Development, in Cairo. That meeting produced a new, rights-based approach to population that embraces voluntary contraception and comprehensive reproductive health services, as well as efforts to empower women and foster development. The Cairo consensus holds that when women have more control over their lives—including their reproductive destinies—they will have healthier, smaller families and invest more in each child. This has immediate benefits for women and families, and those benefits reverberate outward to communities, nations, and the world. The Cairo approach won unprecedented support from NGOs and governments, and it has spurred change in reality as well as rhetoric.

But the revolution remains unfinished. As growth rates fell and the “population bomb” was defused, policymakers moved on to other urgent priorities. The Cairo agenda was eclipsed by the HIV/AIDS crisis, which gathered deadly momentum throughout the 1990s. While funding for HIV/AIDS has increased, funds for family planning and other elements of reproductive health have fallen sharply.⁴⁷ At the same time, support for reproductive health declined as the Religious Right rose in power in the United States and elsewhere. As a result, developing countries and donors alike failed to make good on the financial commitments they made in Cairo. Since the mid-1990s, funding for reproductive health services has declined relative to other health spending.

Because of the shortfall in public funding, shocking inequities persist in the reproductive health of rich and poor, both within and between countries. Some 200 million women in developing countries lack access to family planning services.⁴⁸ Access can be a matter of life

or death: Every year, pregnancy-related complications kill half a million women, one every minute.⁴⁹ According to *The Lancet*, a quarter of those lives could be saved if women were able to delay or limit childbearing.⁵⁰

As long as women risk their lives to bring children into the world, the work of the family planning/reproductive health movement is far from complete. As the members of the largest generation in history move into their childbearing years, the need for reproductive health services will grow exponentially. Access to these services is essential for the health and well-being of today's young women and men. And ensuring that they can make real choices about childbearing could help stabilize world population at 8 rather than nearly 11 billion—which will, in turn, make climate change and poverty easier to address. As Timothy E. Wirth argues in his Foreword, “The world has chosen precisely the wrong moment to neglect family planning and reproductive health.”

THE RETURN OF “POPULATION CONTROL”

While the neglect of reproductive health continues, population issues are making something of a comeback today, in the context of concern about climate change and other environmental problems. The new interest in population growth presents both an opportunity and a challenge. It could, for example, help mobilize support for reproductive health, gender equity, and other measures to slow population growth—the long-neglected Cairo agenda.

Or—and here's the challenge—it could take us back to the pre-Cairo days of “population control.” Unfortunately, some players in the debate take a simplistic view of the relationship between human numbers and environmental harm, and propose solutions that are coercive at best.

A few examples: In a bestselling book called *The World Without Us*, environmental journalist Alan Weisman takes the reader on a tour of the planet after human beings have been wiped out by some hypothetical disaster. He then makes a modest proposal for how we can avoid extinction: by adopting a mandatory “one child per human mother” policy. In a post on the progressive Web site AlterNet, journalist Chris Hedges asserts that “all efforts to stanch the effects of climate change are not going to work if we do not practice vigorous population control.”⁵¹ A rather less draconian solution was offered in the *Medical Journal of Australia*: a “carbon tax” for families with more than two children.

Coercive measures to slow population growth are unnecessary,

counterproductive, and just plain wrong. First, as we have seen, it is not necessary to control anyone to slow population growth: Birthrates come down where individuals have the means and the power to make their own reproductive choices.

And coercion often backfires. In Chapter 22, *Going to Extremes: Population Politics and Reproductive Rights in Peru*, Susana Chávez Alvarado offers a cautionary tale about what can happen when demographic goals trump reproductive rights. In the 1990s, Peruvian President Alberto Fujimori sought to alleviate poverty by reducing birthrates among poor women. Targets were set for numbers of women to be sterilized, and coercive tactics—including brute force—were used to meet those targets. The legacy of Peru's forced sterilizations endures, most notably for the women who were its victims. It also produced a backlash by the Religious Right, which launched a successful campaign against sterilization and other forms of contraception. Where once women were sterilized against their will, now women who want permanent contraception cannot obtain it.

In another troubling development, the population-environment banner has lately been seized by groups seeking to sharply limit immigration to the United States. As Priscilla Huang observes in Chapter 28, *Over-Breeders and the Population Bomb*, a coalition of anti-immigration groups has launched a high-profile advertising campaign that links immigration-fueled population growth to a host of environmental problems, from climate change to suburban sprawl.

Must we limit immigration to save the environment? It is true that immigration contributes to U.S. population growth, as it has throughout our history. But environmental destruction is driven by a wide range of policies and practices, as well as population growth. It is disingenuous to blame burgeoning human numbers for traffic, as the anti-immigration groups do, without mentioning, say, the chronic neglect of public transportation in the United States.

More broadly, the anti-immigrant groups misrepresent the nature of the environmental challenges we face today. They imply that we are in a lifeboat with limited resources, and if too many people get in, we will all sink. But there is a flaw in that thinking: We may be in a lifeboat, but it's not the United States. It's our planet, and we are all in it together.

POPULATION JUSTICE: AN ETHICAL COMPASS

In a world where limits are near and population is still growing, a world riven by inequality and threatened by catastrophic climate change, eth-

ical dilemmas will continue to arise. In that context, how can individuals, nations, and the global community address the complex knot of interrelated issues at the nexus of population and the environment?

Here we propose a “population justice” framework for understanding—and acting upon—these issues. The framework draws inspiration from the reproductive justice and environmental justice movements, both of which grew from the struggle for civil rights in the United States.

Reproductive justice asks us to look at the totality of people’s lives, and especially at inequalities of gender, race, and class that shape and constrain women’s choices.⁵² For example, a legal right to abortion doesn’t mean much to a woman who cannot afford one, and reproductive choice remains elusive where families lack health care and other resources they need to raise healthy children. Similarly, the environmental justice movement looks at the inequalities that affect the quality of the air we breathe and the water we drink—for example, by influencing which neighborhood gets the polluting bus depot or waste incinerator.

In this vein, population justice takes a broad view of the population-environment nexus. It calls for a nuanced understanding of the relationship between human numbers and environmental harm, and the inequitable patterns of consumption that mediate that relationship—because a simplistic understanding can lead to simplistic, and even dangerous, solutions. Most importantly, population justice urges attention to the inequalities—both gender and economic—that underlie both rapid population growth and the destruction of the natural environment.

A population justice framework encompasses individual human rights—including the right to bodily integrity and autonomy and free decision-making about sexuality, reproduction, and family. But it’s bigger than individual rights. Justice addresses our obligations to one another. If our basic rights are secured (a big “if” for many people in the world), then we have an obligation to ask what impact our choices have on others, including future generations. In the context of an unfolding environmental crisis, the question is an urgent one.

This framework can help prioritize action on population-environment issues. Of each proposed action, we must ask, Does it uphold and enhance established human rights? Does it advance the cause of social justice; will it reduce inequality? Will it promote human well-being and protect the environment?

When viewed through this lens, certain priorities emerge—though

they will change in different times and places. For example, forty years ago, when few women in the developing world had access to contraception, ensuring access to voluntary family planning was an obvious way to enhance health and human rights. Today, as Judith Bruce and John Bongaarts observe in *The New Population Challenge* (Chapter 20), family planning is necessary but not sufficient to achieve those ends.

Current population-environment challenges suggest a range of actions around the globe. In Ghana, a top priority might be to rethink export-led development that is ravaging the resource base, while making sure that poor, marginalized Ghanaians have access to education and health care, including family planning. In south Asia, where almost half of girls are married before their eighteenth birthday, ending child marriage and ensuring equal rights and opportunity for women demands a place at the top of the agenda. And in the United States, the number one priority is to change our systems of production and consumption, so that Americans—with 5 percent of world population—no longer account for one-third of global consumption.⁵³

Meeting the ethical criteria outlined above seems a tall order, and indeed, there are several interventions that do *not* fit the bill: government-imposed limits on childbearing, which violate human rights; carbon taxes on children and similar disincentives, which may penalize those who lack reproductive choice; draconian limits on immigration and the police-state tactics needed to enforce them.

But there are many ways to address population-environment issues that meet the highest ethical standards. These include voluntary family planning and other reproductive health services; broad-based “human development” programs that ensure equitable access to education, health care, and sustainable livelihoods; and efforts to improve efficiency and conserve resources.

If our goal is to create a world that is sustainable and just, population-environment policies must serve those ends. “Solutions” that do not meet that ethical test are not really solutions; they are problems in themselves.

THE JOURNEY

Ethical compass in hand, the first steps of the journey become clear. But there is a great distance between where we are now and where we must go, if we are to “not only survive but also demonstrate that we deserve to,” as Gordon McGranahan puts it. To get from here to there

will require a sea change in consciousness, and a monumental mobilization of political will. Climate change and other environmental crises are truly without precedent in human history. Never before have we held such capacity to transform the thin layer of earth and sky that is home to all known life. Never before have the fates of the world's people been so closely entwined.

As I think about these challenges, I contemplate what my kids call “the extra-stinky jar of nature” sitting on the windowsill of my office. It's an old mason jar filled with treasures found in the small patch of woods behind our house: turquoise robin's egg fragments; a goldfinch feather; monarch wings; a shed snakeskin. The jar is named for the powerful aroma of decomposing organic matter that awaits anyone who makes the mistake of opening it.

I inherited a passionate appreciation for nature from my mother and grandmother, which I've passed on to my snakeskin-collecting children. But what else will my kids inherit? The extra-stinky jar of nature, now a living record of their world, could be a relic by the time they are grown. We have now entered what scientists call the Sixth Great Extinction, which could eliminate one in three species from the planet. Unlike other mass extinctions, like the one that did in the dinosaurs, this one is entirely caused by humans.

Last fall, no acorns fell from the oak trees in our backyard. Nor, for the first time in memory, did they fall throughout much of the eastern United States.⁵⁴ The honeybees that pollinate our crops have been decimated by a mysterious “colony collapse disorder.”⁵⁵ The Chesapeake Bay, ridiculously bountiful back when my great grandfather worked on a crabbing boat there, is in its death throes: Oyster and rockfish populations have collapsed, and the blue crab—the cultural icon of Baltimore, my hometown—is not far behind.⁵⁶ Of course, the bay may recover, the bees and acorns may rebound. But there is a growing sense today that the natural world is unraveling, that we have crossed a threshold, or are peering over its edge.

My kids will inherit a natural world that is greatly diminished, but they are the lucky ones. What about the other children—the other members of the largest generation in history?

Among the reports on my desktop, two images call out to me. One shows a boy about the age of my younger son, digging in a hellish open-pit gold mine in the Congo. His filthy shirt is torn, his slender back bent over his work. Another shows an eleven-year-old girl in Bangladesh, dressed in a bright pink sari and an orange head cloth. It is hard to

read the expression in her shadowed eyes, but her round cheeks are those of a child. It is her wedding day. Her husband, a man of about twenty-five, stands by her side.

What choices do they have, and what kind of future awaits them?

As we peer over the edge, as we contemplate the damage we have done—and could do—to the habitability of our planet, it has never been more clear that we are in this together. The fate of every living thing on Earth, and of the natural systems that sustain us, is bound up with the hopes and dreams and needs of the young men and women of the largest generation. It is my hope that that recognition will help mobilize the ingenuity, and the resources, and—most important—the compassion needed to create a more sustainable and equitable world for all of us.

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