



Speak out for nature, people, and the future.

People and organizations worldwide influence the future of life on Earth. It takes these voices to raise awareness and demand change. That's why Global Population Speak Out (Speak Out) focuses on enhancing these voices. A centerpiece of Speak Out is the book, *Overdevelopment, Overpopulation, Overshoot (OVER)*. *OVER* features a series of photo essays illuminating the range and depth of the damage that human numbers and behavior have caused to the Earth. These photo essays are framed by essays by population experts.



Overdevelopment, Overpopulation, Overshoot Introduction William Ryerson

Most conversations about population begin with statistics—demographic data, fertility rates in this or that region, the latest reports on malnutrition, deforestation, biodiversity loss, climate change, and so on. Such data, while useful, fails to generate mass concern about the fundamental issue affecting the future of the Earth.

In reality, every discussion about population involves *people*, the world that our children and grandchildren will live to see and the health of the planet that supports all life. In my roles as president of Population Media Center and CEO of the Population Institute, I spend most of my time in developing countries, where many of my friends and acquaintances are educated and prospering. But I also know individuals who are homeless, unemployed, or hungry. The vast majority of people in these societies, regardless of their current status, do not enjoy a safety net. They live from day to day in hopes that their economic circumstances will improve. Abstract statistics on poverty are irrelevant to families struggling to secure the food, water, and resources needed to sustain a decent life.

Those who blithely dismiss the challenges posed by population growth like to say that we could physically squeeze 7 billion people into an area the size of Texas. They don't stop to

consider the suffering already caused by overpopulation. The population debate is not about the maximum number of people that could be packed onto the planet. The crucial question is: How many people can the Earth sustain, at a reasonable standard of living, while leaving room for the diversity of life to flourish? There is no precise answer to this question, but the facts overwhelmingly support one conclusion: We cannot go on the way we are going. We are already doing severe and irreparable harm to the planet. Something has to give.

If we cannot live sustainably with 7.2 billion people, how are we going to support billions more by the end of this century? The United Nations' latest "medium-variant" projection indicates that we could have 10.9 billion people by 2100, but that may be an underestimation. Fertility rates in many parts of the world are not falling as fast as previously anticipated. In some countries, both developed and developing, fertility rates are actually on the rise again. In 2014 the global total fertility rate—the average number of children born to each woman during her lifetime—was 2.5. If this rate were to remain unchanged, demographers suggest that we could have 27 billion people on the planet by the end of the century. Given our limited inheritance of soil, water, and arable land, sustaining a global population of that size is not even remotely possible.

As vividly illustrated by this book, human numbers and activity are already destroying the planet's ecological integrity—running roughshod over myriad other species. But it's not just the environmental damage we're inflicting that should concern us. Equally appalling is how our actions threaten humanity's future prospects. We have passed a crucial tipping point. Our quest for greater and greater material prosperity is now impoverishing future generations. The Global Footprint Network estimates that humans already use *150 percent* of the Earth's renewable capacity annually, and it estimates further that by 2030 we will need "two planets" to sustain us. Further growth simply deepens the crisis of ecological "overshoot" as we draw down Earth's carrying capacity, and it comes at the direct expense of our own children and grandchildren. Is that any kind of way to behave?

If you care about people, you must care about what we are doing to the planet. If you care about what we are doing to the planet, you must also care about human numbers. Given a planet with infinite space and resources, population growth could, arguably, be a blessing. We do not live on such a planet. However, there was a time when the Earth and its resources appeared boundless. Some people still adhere to that anachronistic belief. If nothing else, the photographs in this book should shatter that illusion.

Many of us today do recognize that the Earth and its resources are limited, yet too many people still cling to the notion that modern science and technology will enable us to defy physical limits. In the Middle Ages, alchemists sought in vain for a "philosopher's stone" that would convert base metals into gold. They never succeeded. Why? Because what they were looking for did not, and could not, exist, because its existence would have violated the physical laws governing the universe.

Modern-day alchemists are trying to find ways of sustaining perpetual growth in a finite and increasingly resource-constrained world, searching for a scientific or technological breakthrough that will enable us to keep growing indefinitely. Like the philosopher's stone, it does not exist. Our faith in breakthroughs is misplaced, as amply demonstrated by the past three hundred years of scientific and technological advances that have accelerated, not slowed, the degradation of the natural world. Even if scientists were to develop a relatively cheap, abundant, and clean form of energy that powered continuous economic and population growth, it would only accelerate the rate at which humanity is destroying the ecological systems that make the planet habitable. In the meantime, while we are waiting for magical breakthroughs, we are in a headlong race to extract and consume fossil fuels at whatever the cost to the Earth. Scientists warn that we will fry the planet if we burn all the world's known reserves of coal, gas, and oil, but that concern has not slowed the relentless exploration for more fossil fuels. An ever-expanding human population and rising demand for products and services makes humanity's hunger for fossil fuels utterly insatiable.

Some cling to the notion that we can achieve sustainability by reducing consumption in the overdeveloped world. As meritorious as that idea may be, it has no critical mass of support. A growing number of political leaders are supporting the idea of "greener" or "smarter" growth, but there is not a single politician of significant stature in the world calling for slower economic growth, no growth (a steady-state economy), or de-growth. Yes, there are individuals who are trying to reduce their carbon and ecological "footprints," but their numbers, for the moment, are dwarfed by the growing numbers of people who want to expand their ecological footprint through additional consumption.

Much of humanity, of course, desperately needs a larger share of Earth's resources. More than 2 billion people in the world live on less than \$2 per day. Nearly a billion people go to bed hungry every night. About half the people in the world do not have access to toilets or other means of modern sanitation. I do not know of anyone who would deny these people a better quality of life, but if world population continues to grow as currently projected, many, if not most, of these people will never have their most basic needs realized, let alone fulfill their aspirations. The world is not that bountiful. I wish it were, but it is not.

If we have any hope of bringing about a genuine balance between what humans demand of nature and what nature can reasonably provide for humanity, we must take crucial steps. Starting with the first step, we must devote more resources to preventing unplanned pregnancies through expanded access to contraceptives. Women everywhere should have the means to time, limit, or space their pregnancies. But greater access to contraceptives alone will not suffice. In those countries where population growth is most rapid today, girls and women lack reproductive choice; they live in traditionally male-dominated societies where large families are still the norm. Large-family norms, misinformation, and cultural barriers account for most decisions to not use contraception. If we do not enable girls to remain in school and

delay marriage until adulthood, provide accurate information, and empower women in the developing world, then we will have failed countless individuals. Moreover, in the face of this humanitarian failure, fertility rate declines may continue only very slowly, or not at all—but certainly not fast enough to avoid the kind of human suffering that results when countries are overpopulated.

In many parts of the world, child marriage is still prevalent. It is estimated that some 14,000 girls become child brides each day. In some areas, particularly poor rural communities, parents require their daughters—who have not yet reached puberty—to wed men who are twice or three times their age. Child brides do not enjoy reproductive choice in any meaningful sense. Most are condemned, if they survive childbirth, to having many children, and their families are condemned, in turn, to a life of continued poverty and deprivation.

As important as it is to reduce unplanned pregnancies in the developing world, it is just as important to do so in the overdeveloped world, where the per capita consumption of resources is so much greater. Nearly half of all pregnancies in the United States are unplanned, and while America's teenage pregnancy rate is declining, it remains the highest among industrialized nations. Shockingly, several state legislatures in recent years have slashed support for family planning, resulting in dozens of clinics having to either close their doors or limit services.

These individual and community-level actions, in aggregate, have global consequences. The leading scientists of the world are concerned that we are approaching as many as nine planetary tipping points, which, if surpassed, would cause irreparable harm to the environment and the well-being of future generations. We have already crossed one boundary in terms of greenhouse gas emissions; the climate is changing, and we have already inflicted incalculable harm on posterity as a result.

Because of population growth and changing diets, the world's demand for food is projected to rise by 70–100 percent over the next forty years. No one knows how we will meet that demand. Cultivated farmlands already occupy a land mass the size of South America, and ranchlands used for livestock grazing occupy a land mass the size of Africa. There's very little arable land left; most of it is in the form of tropical forests, which if cut down to expand agriculture would accelerate biodiversity loss and further complicate efforts to rein in greenhouse gas emissions.

Water scarcity in many parts of the world has already reached crisis proportions. Demand for water is expected to outstrip supply by 40 percent within the next twenty years. As one research organization put it, we will need the equivalent of 20 Nile Rivers—*which we do not have*—to meet demand. By 2030, an estimated 3.9 billion people, nearly half the world's population, will be living in areas of high water stress.

We live today in a “Catch 22” world, where addressing one urgent problem often exacerbates

another. If we double food production to feed a growing world, we expand greenhouse gas emissions. If we discover and exploit more fossil fuels, we fry the planet. If we reduce our water consumption, we curtail our food production. If we grow the world's middle class, we increase the pressure on Earth's natural ecosystems.

There is, however, one exception to our "Catch 22" world, and that concerns population. Viewed from almost any angle, addressing population is a win-win proposition. By empowering girls and women in the developing world and expanding family planning services and information everywhere, we produce a world of good: Fertility rates decline; maternal and child health improve; food security increases; poverty decreases; education and economic opportunities expand; and *degradation of the environment is curtailed*.

In discussions about family planning and its many benefits, the health of nature is often an afterthought. Far too often it is overlooked entirely. We tend to see the well-being of people as somehow distinct from the well-being of the Earth. Some even see the environment as being in "competition" with humans. The obvious truth, although unacknowledged by some, is that we are not separate or distinct from nature. Our hopes and our fate are inextricably linked to the fate of the natural world. We are part of a complex web of interdependent life, and our welfare depends upon the health of the whole. When life took hold on this planet it produced millions of species that have lived and evolved and produced both wondrous beauty and diversity. We modern humans are both products of and beneficiaries of that evolutionary process.

We are, however, acting as *ungrateful* beneficiaries. Scientists tell us that we are exterminating our fellow plant and animal species at a rate that is a hundred or even a thousand times faster than the natural rate of extinction. Leading biologists now warn that human numbers and activity are triggering the "sixth mass extinction," the largest since the dinosaurs were wiped out 65 million years ago.

As a young man, after earning undergraduate and graduate degrees in biology with a specialization in ecology and evolution, my interest in moths and butterflies was so strong that I seriously considered becoming a lepidopterist. Many of the species that piqued my interest as a college student are now in danger of becoming extinct. Even the common *Danaus plexippus*, otherwise known as the monarch butterfly, is fast approaching endangered status. Its winter habitat in Mexico has shrunk dramatically. Biologists warn that herbicide use is decreasing availability of the milkweed plants, limiting a primary food source for monarchs and thus diminishing their numbers.

But it's not just the monarch butterfly that is imperiled. Every year there are fresh reports about the senseless slaughter of elephants, rhinos, lions, tigers, and other "megafauna." Some of their population decline is attributable to poachers seeking to harvest ivory or other body parts, but much of the dramatic decline has been caused by an ever-increasing loss of habitat. Many of these animals live in areas, like sub-Saharan Africa, where human fertility rates

equate to a doubling of the human population every thirty or forty years.

In my college days, we were taught that, since the end of the last Ice Age about 12,000 years ago, humans have been living in the Holocene Epoch, but our impact upon the planet and its environment has become so great that some geologists today suggest we change the epoch's name to the "Anthropocene," or "Age of Man." To most scientists, that development is a frightening prospect; it means that we are changing the planet—for the worse—on a global scale. Some scientists, though a distinct minority, insist that we can "manage" this change; that we can strike a balance with nature that will allow us to feed, clothe, and meet the economic aspirations of an additional 3 or 4 billion people moving forward. As well illustrated by the photographs in this book, that line of thought reflects the worst kind of wishful thinking. Our 7.2 billion on the planet are already doing grave harm to the biosphere. Several decades ago, a cartoon character named "Pogo" made popular the oft-quoted saying: "We have met the enemy and he is us." We might say this today in regards to the challenge the world faces, only it's not a comic matter. If we are to reduce severe poverty, defeat hunger, and bring about a sustainable world, we must achieve change on a global scale, beyond just our consumption habits, and that change must begin with us. This conviction led me to work for the Population Institute more than forty years ago and subsequently spurred me to establish the Population Media Center fifteen years ago.

Despite the widespread belief that simply making contraceptives more widely available can stabilize world population, there are other reasons why women in the developing world end up having more children than they might otherwise desire, as revealed through the Demographic and Health Surveys supported by USAID (United States Agency for International Development). In reality, many of these women have no reproductive choice. Child brides often have nothing to say about how many of their own children they will have or when. Some women abstain from using contraceptives because of misinformation or blatant lies about the possible side effects or risks of using modern methods of contraception. Still other women have more children than they want because of fatalism, or religious teachings, or insistent in-laws who want more grandchildren.

At the Population Media Center (PMC) we create long-running serial dramas (soap operas) that serve to educate women about their contraceptive choices. Using a methodology based upon the "social learning" theories of the great Stanford psychologist Albert Bandura and the programs developed by Miguel Sabido, the vice president of Televisa in Mexico, we work with in-country teams to develop long-running dramas, generally broadcast via radio, that provide positive role models for men and women in the developing world. Our listening audiences learn from popular "transitional" characters who are torn between good and bad influences. In the process the characters and the listening audience discover the benefits of family planning and small family norms.

Our programs also address the deeper social stereotypes that demean women and effectively

deny them reproductive choice. When girls are educated, women are empowered, and gender equity is achieved, women tend to have smaller, healthier families. By changing attitudes and behavior toward girls and women we can improve their lives, the well-being of their families, and prospects for the planet and our posterity.

At PMC we also use the “Sabido methodology,” as it is now known, to achieve positive social change with respect to environmental conservation. In Rwanda, our radio programs have encouraged farmers to participate in reforestation programs aimed at restoring natural habitats and preserving the land for future generations. Similarly, we can use our programs to alter harmful consumption patterns or promote sustainable agricultural practices. The potential is enormous.

While the obstacles before humanity are real, we should be careful not to overestimate the difficulty of following the path of the United Nations’ lowest population projections, which show a possible global stabilization as soon as the year 2050. Achieving this stabilization is a challenge, but it is far from an insurmountable one. The United Nations estimates that it would cost an additional \$3.5 billion per year to provide contraceptive information and services to the more than 220 million women in the developing world who want to avoid a pregnancy but who are not using a modern method of contraception. (That’s less than 4 percent of what Americans spend on beer each year.) That’s a very small price to pay for a more sustainable world. Combine that investment with efforts through entertainment mass media and other means to change attitudes and behavior towards girls and women in the developing world, and we can stabilize world population at 8.3 billion and then begin a gradual reduction in the total number of humans on the planet as soon as 2050.

If we can hew to the United Nations’ low variant demographic projection, by 2100 global population would be back down to 6.7 billion—*more than 4 billion* fewer than can be expected in the business-as-usual, medium variant projection of the human population trajectory. Such numbers may seem incomprehensible but the reality is that these two possible futures—one of 6 billion versus 10 billion humans to feed, clothe, educate, and employ—is the difference between a world of scarcity and nightmarish suffering for much of humanity and a world in which it may be possible to balance the needs of people and nature. Put another way, a population difference of 4 billion—the result of either staying complacent or working hard to share family planning tools and information around the globe—is 46 percent more than the current combined populations of North America, Central America, South America, Oceania, Europe, and Africa (roughly 2.7 billion)!

While I am deeply concerned about the future of humanity and the planet, I’m not a pessimist. It’s not too late. There are things that we can do to achieve a harmonious world and many of the steps that are required, like PMC’s radio programs, do not require an enormous investment of resources. Time, however, is beginning to run out.

Given the central role that population dynamics will play in determining the welfare of future generations, what the world needs today is a wake-up call. This book is that wake-up call. The photographs to follow are emotionally jarring. The thoughts expressed herein are not reassuring; they are deeply provocative. But that is the nature of wake-up calls. The way that human numbers and behavior are transforming the Earth, undermining its ability to support the human family and the rest of life, is apparent for all to see. The reality of this urgent moment calls us to think, to care, and to act.



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