

Climate and Population Debate: Bulletin of Atomic Scientists: Comments by Dr. Fred Meyerson of the University of Rhode Island on Population and Climate Change. See <http://www.thebulletin.org/web-edition/roundtables/population-and-climate-change>

Human population continues to grow by more than 75 million people annually. Since the first Earth Day in 1970, global population and annual carbon dioxide emissions have both increased by about 70 percent. As a result, [per capita emission rates remain steady](#) at about 1.2 metric tons (mt) of carbon per person per year.

Unfortunately, the 1997 Kyoto Protocol has had little measurable effect on per capita emissions, even in the countries that have agreed to national targets. Emissions in Western Europe reached 2 mt per person back in 1970 and have fluctuated just above that level ever since. The same plateau phenomenon, which appears to be related to stages in development, [happened](#) in the early 1970s in "centrally planned Europe," which includes Russia and the former Soviet republics.

Per capita carbon emissions in the United States also leveled off around 1970 at a much higher rate--above 5.5 mt per person--and have barely budged since, through recessions, economic booms, and swings in energy markets. From 1970 to 2004, U.S. population and emissions both rose by 43 percent.

More than any another factor, population growth drives rising carbon emissions, and the U.S. Census Bureau and United Nations both project that global population, currently 6.6 billion, will surpass 9 billion before 2050.

It is, of course, possible that per capita emissions could decrease in the future, but a number of factors make this difficult. First, emission patterns are "sticky" due to slow turnover in our energy-intensive infrastructure, including power plants, housing, and vehicle fleets. Established consumption behavior is hard to change, by either individuals or nations.

Second, while global per capita emissions have been relatively flat for decades, there is now more risk that they will rise, not fall, in the near future. Coal (which releases the most carbon per unit of energy when burned) is more abundant and less constrained than petroleum and gas. As oil becomes scarce and expensive, and population growth and development drive up energy demand, coal use has [grown dramatically](#) in recent years, particularly in China, but also in the United States and India.

Finally, many developing countries that are experiencing explosive economic growth have not yet reached per capita emissions plateaus and also have rapidly rising populations. All these factors more than wipe out the minor savings associated with my family (and others) switching to compact fluorescent bulbs and efficient front-loading washers.

The implication is that one of the best strategies for reducing future greenhouse gas emissions is population stabilization, as quickly as can be achieved by non-coercive means.

But is stabilization likely or possible? The United Nations projects that global population will eventually peak well above 9 billion, based on the assumption that fertility rates in every country on the planet will converge at 1.85 children per woman (below the 2.1 replacement fertility level), and that most countries will achieve this target, or close to it, by 2050. This critical assumption, adopted relatively recently by demographers, is based only on a mathematical formula, and perhaps some wishful thinking. It is quite possible that global population could surge well beyond even current projections.

Unfortunately, given our current trajectory, the disruptions, hardship, and conflict caused by climate change and variability may well increase death rates (and decrease life expectancy) before declining fertility stabilizes population.

So, I believe the best course of action for both human well-being and climate policy is to quickly devote as many resources as possible to reducing unwanted pregnancy, so that we reach stabilization. Almost [half](#) of all pregnancies in the United States, and one-third globally, are unintended. We can do better than that, and several countries [already have](#).

This will require rehabilitation of the population policy and family planning fields, which have been attacked, shunned, and splintered in recent decades. Conservatives are often against sex education, contraception, and abortion, and they like growth--both in population and the economy. Liberals usually support individual human rights above all else and fear the "coercion" label, and therefore avoid discussion of population policy and stabilization. The combination is a tragic stalemate that leads to more population growth. We need to get over it.

And certainly population policy should be front and center at the [U.N. Framework Convention on Climate Change meeting](#), which begins today in Bali.

Global per-capita carbon emissions from fossil fuel have remained nearly constant for almost 40 years (currently about 1.2 metric tons [mt] of carbon per person). Therefore, as global population increases in 2008 by a projected 77 million people, we'll see an increase of about 92 million mt of emissions. In effect, in terms of emissions, we're adding the equivalent of another [Brazil or Australia](#) to the planet every year.

Just stabilizing total emissions at current levels, while keeping pace with population growth, would require reducing global per-capita emissions by 1.2 percent each year. We haven't managed to decrease per-capita emissions by 1 percent in the last 38 years *combined*. The Intergovernmental Panel on Climate Change, former Vice President Al Gore, and many well-intentioned scientific, media, and activist campaigns haven't changed that fact. And because of the rapid economic growth and increased coal use in China and elsewhere, we may now be headed for *higher* per-capita emissions.

We've had much more success with managing population. The global population growth rate has [decreased](#) from 2.1 percent in 1970 to 1.2 percent today, as a result of family planning programs and improved education. If we could reduce global unintended pregnancy rates to the lower levels that already exist in many European countries, population growth would slow further. As I wrote in my December 3 opening statement, for both environmental and social reasons, we should act quickly to address the fact that almost 50 percent of U.S. pregnancies are unintended, through improved education and services.

However, there are large constituencies in favor of high birthrates and continuous population growth, including religious and business groups. In a [front-page story](#) last month, *USA Today* reported that the fertility rates in the United States rose above 2.1 children per woman for the first time since 1971, partly as a result of unintended pregnancies in all age groups. The article also states that a high fertility rate is important to industrialized nations for social and economic reasons such as social security and job replacement. "Be fruitful and multiply" also plays well in churches and corporate boardrooms.

In addition, many human rights groups, women's organizations, and individuals agree with Betsy's position that any discussion of population policy in numerical terms necessarily leads to coercion and racism. This creates an unintentional de facto alliance between those groups and some of the aforementioned business and religious organizations: They all want to suppress dialogue and policies that relate specifically to reducing population growth.

Meanwhile, there's insufficient evidence that population is likely to stabilize with current policies and funding. Betsy states, "The United Nations projects that world population will eventually stabilize, falling to 8.3 billion in 2175." She therefore feels that we don't need to worry about population growth. This is an unwise assumption. Long-term population projections (some only decades into the future) have been notoriously inaccurate. A projection 170 years into the future is little more than a

mathematical exercise, often involving simple assumptions that key variables such as fertility and mortality rates will converge and remain constant. Constancy is a state that is rarely, if ever, found in nature.

Joseph Chamie headed the U.N. Population Division for many years. I hope he will discuss the assumptions behind the U.N. projections in his next posting, and whether or not it is wise to rely on those projections to make climate policy decisions.

If human history or nature is any guide, I believe there's a very low probability that fertility rates will stabilize at the replacement level. It's more likely that some regions will continue to experience high fertility and growth. Therefore, if we want to stabilize population globally, geographical areas with below replacement fertility will also need to exist.

I think it will be easier to reduce unintended pregnancies and births, which we know how to do successfully through improved reproductive health services and education, than to reduce per-capita emissions, where our track record is poor. We can achieve this without coercion and also protect humankind and the planet from the interrelated challenges of population growth and climate change.

There is agreement in our discussion about the need to provide family planning, reproductive health services, and related education to everyone on the planet in a noncoercive way. There's also general agreement that doing so would reduce unintended births, slow population growth, and reduce greenhouse gas emissions, thereby helping with climate change mitigation and adaptation. One difference is that several of us, myself included, feel that stopping emissions growth and climate change will be *unattainable* without universal, effective family planning programs and population stabilization.

The international community should restore the goal of universal access to family planning as a top-tier priority, to protect both the climate and human wellbeing. How can we satisfy current unmet need for contraception and reproductive health services? It is a matter of both political will and money.

About 200 million women in developing countries would like to prevent or delay pregnancy but can't because they lack access to effective contraception. Reaching and helping these women and their partners is critical for climate and human development policy. A consensus of population and health care scientists and organizations estimates that developed nations would need to donate \$5 billion per year (almost ten times the current levels) to reach these women with family planning services. (See "[Family Planning and Reproductive Health: The Link to Environmental Preservation](#)" PDF [PDF] for more). While this is a significant amount, it's small in comparison to other expenditures. For instance,

the United States spends more than \$5 billion on the Iraq war every two weeks, and the same amount on Medicare programs every few days.

The United States should take the lead. The largest and most effective international family planning program in history was pioneered by the [United States Agency for International Development](#) (USAID) in the 1960s. The United States continues to be the largest donor globally to international family planning efforts. However, since the 1980's, decay in funding levels, quality of programs, and political support--along with inflation--has caused the U.S. international family planning programs to fall behind in constant dollar terms and in relation to the needs of a global population growing by more than 75 million people per year.

If the United States were to increase its assistance for population programs by \$1 billion annually, and other donor countries contributed their share, it should be possible to satisfy the global unmet need for family planning within five years. As a result, the population growth rate could be reduced by about 30 percent, with a similar decrease in the growth of greenhouse gas emissions.

Much of the technical knowledge about family planning resides in U.S. institutions (nongovernmental organizations, foundations, and universities), and U.S. political and technical leaders could quickly revitalize this field. The United States could work closely with the [U.N. Population Fund](#); the World Bank; European organizations, and other donor countries; as well as NGOs such as the [International Planned Parenthood Federation](#), the [Planned Parenthood Federation of America](#), [Pathfinder](#), and the [Population Council](#) to quickly and strongly push forward on international family planning. Past efforts have shown how effective noncoercive programs can be, even in extremely poor countries such as Bangladesh and Kenya; and these programs have many other social and developmental benefits.

Developed countries, beginning with the United States, also need to improve their reproductive health services and education. For instance, the United States should be able to lower its unintended pregnancy rate from nearly 50 percent to around 20 percent, the current rate in several European countries, as discussed in my earlier comments. If the Netherlands can do it, the United States can, too. Decreasing unintended pregnancy rates in America would slow population growth and greenhouse gas emissions.

Universal access to family planning is no panacea, nor is it sufficient on its own to achieve population stabilization. We should discuss population education and media programs that affect the demand for services and their effectiveness in subsequent rounds of this debate. But lowering unintended fertility is the necessary first step toward population stability--and the climate mitigation and adaptation benefits that come with it.

Because this is the last round of our discussion, I'd like to make specific policy recommendations that address the related challenges of population growth and greenhouse gas emissions.

First, in a world where climate change will have significant adverse effects on resources and human welfare, we should do everything possible to quickly slow the current annual growth rate of more than 75 million people and stabilize global population.

To achieve this, the United States should increase its assistance for population programs by \$1 billion annually and reestablish global leadership in this area. If other donor countries also increase their support for population programs, it should be possible to achieve universal access to family planning and to satisfy global unmet need within five years. As a result, the population growth rate could be reduced by about 30 percent.

Supplying contraceptives and reproductive health services isn't sufficient to reach population stabilization, particularly where fertility rates and preferences remain high. It will also be necessary to increase the demand for family planning services and to communicate the benefits of smaller families. Television and radio programs, including serial dramas, have often proven effective in reaching underserved populations and increasing awareness of contraception--and the desire to use it. In many cases, these programs have also lowered average family size preference. (See the [Population Media Center](#) for more.)

One hundred million dollars per year in additional funding could be sufficient to ensure that these "demand-side" programs reach the widest possible audience in the developing world, and in the developed world where needed. Some of this money should be spent on further research as to which media approaches are most effective, assessments of the immediate and long-term results of past and current programs, and developing new communication methodologies in a rapidly changing media environment. There's no bright line between "supply" and "demand" family planning efforts. If media programs are successful, they increase the demand for services.

It's important to remember that in a world of 6.7 billion people, every year, 50 million or so teenagers enter their reproductive years, and we will always need new approaches to communicate with them. A [recent Centers for Disease Control and Prevention report](#) that found 25 percent of U.S. teenage girls have at least one sexually transmitted disease and the country's continued [high teenage pregnancy rates](#) are strong indications that this challenge never ends--even in developed countries.

While \$1.1 billion is a lot of money, [it amounts to less than what the United States currently spends on the Iraq War every three days](#). It's a human welfare investment that can improve our image globally

and help us avoid the perils to our species posed by a rising population and an unstable or diminishing resource base as the climate changes more rapidly.

Suppose the combination of supply- and demand-side programs isn't sufficient to stabilize population globally? First, I would recommend increasing funding for the development of new forms of contraception, which has decreased in recent years because of political and social pressure. As long as contraception in the United States has an average annual failure rate of [nearly 10 percent](#), there's obviously work to be done. Second, we should reexamine the web of incentives and disincentives for having children, both in the United States and internationally. Tax and other economic incentives should be continuously reconsidered to make population stabilization more likely.

Stabilizing world population this century, even at 8.5 billion or 9 billion people (the most optimistic realistic scenario) won't avoid serious climate change, but it's a relatively easy first step. It will make both mitigation and adaptation much less difficult than a world of 10 billion or more people, where we're now headed under current population policy.

Reducing per-capita emissions is the second critical (and much more difficult) task. As I documented earlier in this discussion, average global per-capita emissions [haven't changed](#) in nearly 40 years. The only viable way to lower them is to make the price of emitting greenhouse gases so high that it's in everyone's best interest to reduce consumption and turn to other technologies for producing energy, goods, and services. This will involve significant economic and social change and disruption, but then so did the industrial and fossil-fuel revolutions of the past 200 years that fostered the population growth that brought us to this demographic and climate crisis.