

THE DEBATE

Population and the Environment: How Do Law and Policy Respond?

When the modern environmental movement emerged in the West fifty years ago, overpopulation was a central international concern. Paul Ehrlich's 1968 best seller *The Population Bomb* warned that demographic pressures were worsening environmental destruction. The 1972 Club of Rome's *Limits to Growth* used a model that included population growth. The same year, the groundbreaking UN environmental conference in Stockholm, among its principles, listed population growth as a major concern.

Yet, a variety of forces slowly but surely distanced population issues from the mainstream environmental agenda. Sustainable development, with its emphasis on growth, became an international goal. The specter of forced sterilization in India and the excesses of China's one-child policy were alarming, suggesting to some that stabilizing population was synonymous with government excess and human rights violations.

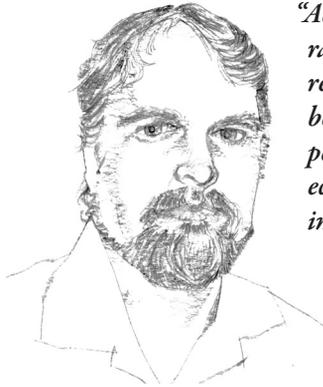
Others argued that the population issue was simply one of poverty and that a demographic transition would automatically follow in countries who move from low to middle income dynamics. And for many, family planning services — primarily abortion but in some cases also contraception — are simply contrary to basic moral precepts.

Enthusiasm for interventions waned. Access to family planning and abortions was cut back as a priority in international aid programs.

Population was under 4 billion people at the time of the Club of Rome report. It is now almost double, an estimated 7.5 billion, and that could reach 11 billion by 2100 — without intervention by policy-makers, philanthropies, and ordinary people.

The disengagement of the environmental movement with issues of overpopulation did little to change environmental impacts. While Malthusian predictions of mass starvation have not yet come to pass, greenhouse gas emission profiles suggest that global climate change will not be solved by technology alone, but will continue to climb if population grows. And populations are already taking over habitat critical for biodiversity.

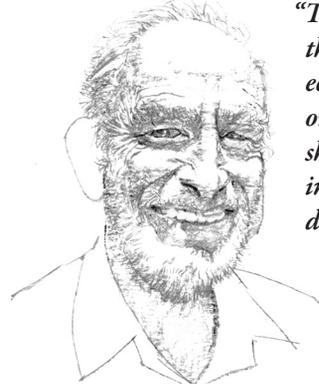
Is humanity pressing on the Earth's carrying capacity? What laws and policies have been developed to address population growth, internationally and within specific countries? Have they been effective in holding off the resource depletion and environmental degradation forecast by scientists and demographers? Based on these lessons, how do we best address population size and growth to meet humanity's resource needs and minimize its effect on the biosphere?



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Director of Issue Advocacy
POPULATION MEDIA CENTER



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STANFORD UNIVERSITY CENTER
FOR CONSERVATION BIOLOGY



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ENTREPRENEURSHIP IN RENEWABLES



“Too slow or even negative growth rates also pose risks to the sustainability of otherwise successful public policy interventions”

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UNITED NATIONS POPULATION
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Alon Tal

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Exceeding Benchmark Projections

By JOE BISH

Quadrupling from 1.86 billion people in 1920 to today's 7.48 billion, the human population has grown in a manner that is both temporally swift and cumulatively massive. In the scientific literature, correlations between this ballooning population and ecological degradation are omnipresent. Biodiversity is in perilous decline. A 2015 study in *Science* found humanity has transgressed four of nine planetary boundaries, increasing risks that human activity will drive Earth "into a much less hospitable state."

Meanwhile, the flagship United Nations population projection — the "medium variant" — assumes incremental decreases in global child-bearing to the year 2100, from today's global average of 2.5 children per woman to 1.99 then. If these assumptions prove accurate, 3.7 billion additional people are expected, totaling a still growing 11.21 billion.

Ecologically speaking, this "business-as-usual" scenario is unacceptable, useful only as a motivational benchmark to measure progress against. An accelerated slowing of growth, an end to total growth well before 2100, and achievement of a far smaller peak population size than ensconced in the medium variant will define success. To achieve these objectives, conditions must be created to facilitate far more rapid declines in child-bearing than medium variant assumptions.

Opportunities are ample: the global measure of 2.5 children is an "average of extremes." It includes Niger's high fertility (7.6), South Korea's low (1.2), and everything in between. Overall, 104 countries have fertility greater than the "replacement level" of 2.1. These countries are prime candidates for policy interventions.

Undue confidence in demographic transition theory, which assumes "economic development is the best contraceptive," will certainly not suffice. Persistently high fertility in economically growing, lower middle-income countries like Zambia and Nigeria — along with well-documented "stalls" in fertility decline across Africa — signal dangerous unreliability in the notion.

A more instructive effort was engineered by Iran, starting in 1986, when its population was 49 million. With women averaging 6 children, the annual growth rate was 3.2 percent. The government faced prospects of a population doubling in just 20 years — posing monumental challenges for food security, education, and jobs. In response, Tehran adopted explicit demographic goals: by 2009, cut the annual growth rate to 2.2 percent and the fertility rate to 3.5 births per woman.

To support this initiative, the government deployed print-media, TV, radio, and pre-marriage counseling to educate the public about population growth. Family planning was encouraged to reduce poverty and enhance access to health and education for future generations. The status of women was boosted considerably, as secondary education was opened up to females and university enrollment for women soared.

The results were dramatic. The government's goals were accomplished by 1993, some 16 years ahead of schedule. Today, Iran's women average 1.65 children, population is expected to peak at mid-century at 92 million, likely decreasing to 70 million by 2100.

Iran's success can inform policy anywhere fertility is above replacement level, but reformers must remain vigilant against authoritarian restrictions on fecundity. For example, from 1996 to 2000, sterilization without informed consent of an estimated 300,000 Peruvians is attributable to the discredited idea of "population control." Likewise, cash incentives for child-bearing, as practiced by some countries with sub-

replacement fertility, should be outlawed. Singapore, with a fertility rate of 1.3, currently pays over \$6,800 for a third child.

Importantly, the medical definition of pregnancy should guide legal systems everywhere. Pregnancy occurs when a fertilized egg implants in the uterine wall; as the Guttmacher Institute notes, this fact distinguishes "between a contraceptive that prevents pregnancy and an abortifacient that terminates it." In the Philippines, faith-based petitioners have delayed implementation of the progressive Responsible Parenthood and Reproductive Health Act of 2012 for over four years by arguing, speciously, that hormonal contraceptive implants are abortifacients. Hamstrung by such inanity, citizens now face impending shortages of the popular contraceptives.

Humanity is capable of sparking rapid global fertility decline with justice-oriented, human rights-enhancing interventions. In addition to policies like Iran's, mass-media "green entertainment" initiatives can educate audiences about small family size decisions and environmental conservation through the use of behavioral role-models, featured in soap operas and video games. Such strategies are recommended by Section 11.23 of the seminal Programme of Action of the 1994 Cairo International Conference on Population and Development.

The need is elemental. Humans have fixed minimum requirements of sustenance and space, yet pursue improved living standards whenever possible. Regulatory oversight to ameliorate environmental impacts of those pursuits are necessary, but not sufficient, to achieve a sustainable civilization. Absent iron-fisted global rationing of material resources — an unattractive delusion — transformative decoupling between human population size and ecological damage is impossible.

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Without Policy Changes, a Global Crash Is Inevitable

By PAUL R. EHRLICH

The basic driver of today's environmental overshoot is aggregate consumption, now causing humanity to live on its natural capital, rather than on the interest that flows from that capital. Natural capital is not just fossil fuels, minerals, and timber, but it also includes soils, plankton, fish stocks, pollinators, natural enemies of crop pests, disease vectors, and sinks for carbon dioxide, plastic trash, and other pollutants and toxins.

Aggregate consumption is a product of population size and per capita consumption, its impact being modulated by the technologies and politico-social arrangements that service the consumption. The signs of overshoot are everywhere: hundreds of millions hungry, and billions of people malnourished in terms of micronutrients, the accelerating sixth mass extinction, the dramatic decline in energy returned on energy invested in the scramble for oil, the heating planet and increasing extreme weather, the escalating refugee crisis, the scramble after remaining high-grade resources, the pollination crisis, the weight of plastic trash in the oceans soon to exceed that of fishes, ocean dead zones, symptoms of global toxification with hormone-mimicking compounds, falling sperm counts, and the automatic decline (with population growth) of democratic government, as each individual voter's say is diluted. These, examples, along with global footprint analyses, show that the human population greatly exceeds Earth's long-term carrying capacity.

From a policy viewpoint, the driver most easily addressed is overconsumption by the rich. We know

when incentives are right, consumption patterns can be changed overnight. This was clearly demonstrated in the rapid U.S. reaction and mobilization after Pearl Harbor.

There are potentially many legal and other mechanisms for curbing overconsumption: regulations, tax policies, campaigns to change norms, etc., but none of them seem feasible considering the hold faith-based economics has on politicians and businesspeople alike. The magical notion that growth on a finite planet can continue forever and that growth is the cure for all economic problems has a death grip on most societies, built into such institutions as fractional reserve banking and advertising.

This myth persists, even though the warnings of the *Limits To Growth* study continue to be confirmed. Nonetheless, limiting consumption among the rich and a substantial redistribution of wealth (say, via Milton Friedman's negative income tax) seem essential for avoiding a worldwide collapse — loss of socio-political-economic complexity accompanied by a dramatic decline in population size — in the next few decades.

Humanely shrinking the global population, the other side of the aggregate consumption coin, will take many decades to show significant progress. It would require moving the total fertility rate (average completed family size) down to somewhere just a little above 1, by making a single child family the ethical norm. But there persists a widespread belief in a right to have as many children as one desires.

All rights, regardless of their putative origins, clearly have attached responsibilities and limitations where they impinge on other peoples' rights. The right to pursue happiness does not allow one to drive 100 miles per hour through school zones or throw garbage over the back fence, no matter how joyous it makes you. In order to suppress

such activities, people form governments, and governments prohibit various actions because they interfere with some of their principal functions: maintaining order and peace and protecting public health. Since overpopulation is now a major threat to all three, indeed to the persistence of civilization, regulating the size of their populations clearly should be a central policy concern of all national governments.

Giving women everywhere legal equal rights to men and providing everyone with access to modern contraception and safe back-up abortion might lead to the critically necessary slow decline in numbers. But the required changing of norms before legal steps could be taken could be a slow process in many societies, and just achieving those goals could be controversial and difficult. More direct regulation, as in China's one-child program, would present even more difficult policy and legal challenges. And whatever steps are taken, because of the momentum built into its age structure, humane shrinkage of the global population is not likely even to reduce it below today's level within this century.

The scientific community's repeated warnings about the population problem have fallen on deaf ears. Numerous studies point to the problem. There is, sadly, no sign that a general abandoning of economic growth-mania or humane global population shrinkage could occur in the critical next few decades. All this means that progressive civil society must start putting its efforts into planning to soften the coming collapse of civilization and finding ways to prepare for a post-collapse recovery that might give survivors in remnant societies a reasonably decent life.

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Turning Up the Heat on Wood Fuel

BY WANJIRA MATHAI

More people on Earth means that more energy will be needed to cater to their needs. We also know, via the Intergovernmental Panel on Climate Change, that to avoid catastrophic effects from warming we must keep planetary temperatures in check. Staying below the 2 degree limit means cutting greenhouse gas emissions globally, most of which come from burning fossil fuels for electricity. There is hardly a more efficient way to cut emissions worldwide than to look at the opportunities presented by the renewable energy sector.

Today in Sub-Saharan Africa (excepting South Africa), wood fuel is an essential part of the energy equation. Over 80 percent of primary energy needs are met using charcoal or firewood. Further, the Food and Agriculture Organization's "State of the World's Forests" report also provides clear evidence of the economic and social significance of wood fuel: Over 50 percent of all wood produced in the world is used for energy. Further, 22 of the 29 countries in which wood fuel represents over 50 percent of all energy use are in Africa. Some 30 percent of the world's households use wood as their main cooking fuel. Importantly, 85 percent of all wood fuel is collected by women and girls.

Wood also accounts for 10 percent of energy consumption in industrialized countries, mostly to heat homes. Increasing demand for wood fuel, especially for charcoal production, is unsustainable and bound to be more destructive under business-as-usual scenarios. That will only worsen as population increases, leading to a spiral of destruction.

While wood fuel use at the household level has been associated with deforestation (primarily through illegal

charcoal production), poor public health, and a worsening of climate change, it will continue to be a significant energy source in the developing world, particularly Sub-Saharan Africa, for the foreseeable future.

The challenges surrounding the production and consumption of wood-based energy, especially charcoal, in developing countries include the unsustainable and often illegal production that leads to forest degradation and in some cases to wood scarcity. These have far-reaching consequences given the demand for this fuel. Indeed, if wood fuel becomes scarce as human numbers increase, health and food security would be at stake.

The opportunity here is to ensure that the fuel is produced sustainably and used efficiently. According to the Partnership for Women's Entrepreneurship in Renewables, non-wood energy sources are available for use in developing countries but their adoption, especially for cooking, will continue to be slow due to the enormous costs associated with the infrastructure required to prospect for, produce, and distribute them. This problem is compounded by the fact that these technologies can be cost prohibitive. Clearly, efforts to provide energy for all communities at an acceptable environmental cost must recognize the importance of wood fuels and should be included in national policies to make them more efficient and sustainable.

Indeed, unless more is done to manage the production and burning of wood, environmental destruction and public health issues will proliferate. According to the Global Alliance for Clean Cookstoves, already the world loses over 4 million people annually from complications related to indoor air pollution from burning wood fuel.

As population pressures, energy demand, and food demand continue to expand, the burden of agriculture (including forestry) and energy needs on the environment are undisputed. Further, since energy poverty disproportionately affects women and children,

given their responsibility for sourcing firewood, there is a strong rationale for directly integrating them when addressing wood supply issues.

What we urgently need is a more sustainable wood fuel supply chain, particularly in Sub-Saharan Africa, to address both the inevitable growing demand for fuel wood and the pressure of population growth. Rather than extracting fuel wood from natural forests that serve other critical functions for society such as water filtration, as carbon sinks, as biodiversity hot spots for ecotourism, and many more benefits, communities must invest in sustainably managed woodlots to supply their energy needs. Growing your own fuel trees on your property is a concept that should be promoted in rural areas, where over 90 percent of all wood fuel is consumed.

The Green Belt Movement, a wPOWER partner, encourages the planting of trees close to the homestead for fuel and discourages the use of natural forests to meet domestic household energy needs. The World Bank 2012 report on wood-based biomass energy in Sub-Saharan Africa estimates that creating a more sustainable wood fuel supply chain would deliver far-reaching benefits. These would include rural employment for up to 8 million people, up to \$2 billion annually in additional revenue for governments through formalized taxation, and approximately 700 million tonnes of wood removals from indigenous forests could be prevented. We must accept that wood fuel is not a transitional fuel. It is here to stay for the foreseeable future. Demystifying the wood fuel value chain, therefore, and pursuing one that is more sustainable as population pressures increase would be a game changer for climate and would stimulate innovations in the use of this essential fuel.

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We Know What to Do; All We Need Is to Do It

By JAIME NADAL ROIG

That population dynamics are not neutral to social and economic development is well known and has been a research subject since the 18th century. Apart from the body of scientific research produced over this period of time, there have been numerous attempts to enact public policies that seek to affect population dynamics in different — often-times opposite — ways.

In 1946, soon after the establishment of the United Nations, a commission was created in order to generate knowledge and guide member states' policies targeting population dynamics. The establishment of the United Nations Population Fund in 1969 and the celebration of several population and development conferences, chiefly the 1994 Cairo meeting, allowed for a more meaningful role of the United Nations in providing technical assistance to countries while safeguarding human rights in matters of reproductive health and rights.

The debate generated around the late 1960s and 1970s, stemming from the publication of *The Population Bomb* and *The Limits to Growth*, revived the Malthusian view that the world was almost pre-destined to its collapse by a natural tendency to overpopulation. Interestingly enough, the views expressed by Condorcet a few years before Malthus published his essay, stating that productivity, education, and social progress would prevent the overpopulation doomsday, were absent from the debate.

Since Malthus, there has been a prevailing view that population growth is a direct threat to humanity. This debate requires a balanced approach that shifts the focus to the ability of

individuals to make choices, and to implement them. While an accelerated growth rate poses significant challenges to development policies, too slow or even negative growth rates also pose risks to the sustainability of otherwise successful public policy interventions.

Scientific research and available data from demographic and health surveys clearly show that the ideal family size tends to replacement levels as education and income rises, but they also show that there are significant gaps between the ideal and the actual number of children people have. The unmet need for family planning, affecting mainly poorer, less educated women, is an important factor in this regard.

Evidence so far points to the fact that greenhouse gas emissions have been produced mainly by developed economies and have been primarily driven not by demographic growth but rather by unsustainable patterns of production and consumption adopted by the richest one fifth of the world. Fostering development through social inclusion, economic growth, and environmental sustainability is perhaps one of the biggest challenges the international community has embarked on.

According to UNFPA, population growth accounts for 40-60 percent of emissions growth, with the rest being attributable to patterns of consumption and production. The challenge, therefore, would be to ensure the well-being of the remaining four-fifths of the world population — as the UN Agenda 2030 states, “Leaving no one behind” — without pursuing the unsustainable patterns adopted by the few wealthier people, which would require resources equivalent up to five times the planet's carrying capacity.

No doubt a slower population growth rate would certainly help in the mid to long run, but it would not be sufficient by itself. Sustainability would require a cleaner energy matrix and a major shift in the patterns of production and consumption, including efforts to ensure a more equitable distribution

of goods and services. Technology could and should play a key role in advancing this shift. Only then could slower population growth play a relevant, positive role.

At this point, it would be important to highlight that slower population growth would also mean a different household structure and, likely, a higher concentration of people living in cities, which could be far more efficient in the deployment of social development initiatives and in adapting to the impact of climate change.

The effects of climate change are known to exacerbate existing inequalities, aggravating the risks already faced by the more vulnerable populations. The Zika epidemic is a clear example of how poor local environmental conditions, poverty, vulnerability, and inequality — amplified by global warming — can create a global health emergency.

The inter-linkages between population dynamics and interventions to mitigate and adapt to climate change and foster environmental sustainability require further research and political attention. Regrettably, the level of resources aimed at enabling women to make decisions about the number and spacing of their children has been declining over time.

As of 2017, there are over 200 million women of reproductive age worldwide with an unmet need for family planning. Unless their needs, demands, and reproductive rights become a priority, the necessary balance between population growth, social inclusion, and environmental sustainability will not exist.

We have the international framework, the scientific evidence, and we know what works — such as universal access to sexual and reproductive health. There is simply no justification for inaction.

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Rejecting a View That Any Human Life Is Dispensable

By LUCIA A. SILECCHIA

Few issues are as contentious and morally sensitive as the relationship between care for the environment and population control. As environmental woes garner attention, it is tempting to view population reduction as a solution. International development policies include population control measures, environmental groups advocate for abortion access, and foreign aid to impoverished nations includes substantial funding for population reduction. At the extreme, China's notorious "one child" policy and its horrific abuses was touted as environmental protection.

Superficially, population reduction seems a straightforward benefit, as it may reduce competitors for limited resources and curb demand for environmentally intense food production, transportation, waste disposal, water, and fuel for heating or cooling. However, the population-environment link is not this simplistic and it is laden with profound moral hazards.

Pope Francis garners much attention as he — like his predecessors — brings principles of Catholic thought to bear on environmental responsibility. He follows a tradition that looks not to population control but to consumption control, poverty relief, and moral transformation as a sounder, but more complex ecological formula.

In his 2015 encyclical "Laudato Si'," Pope Francis critiqued temptations to rely on population control for environmental solutions, writing:

"Instead of resolving the problems of the poor and thinking of how the world can be different, some can only propose a reduction in the birth rate. At times, developing countries face forms of international pressure which make economic assistance contingent on certain

policies of 'reproductive health.' . . .

"To blame population growth instead of extreme and selective consumerism on the part of some, is one way of refusing to face the issues. It is an attempt to legitimize the present model . . . where a minority believes that it has the right to consume in a way which can never be universalized, since the planet could not even contain the waste products of such consumption. . . . [A]pproximately a third of all food produced is discarded."

Thus, he warns against viewing population control as a simplistic solution to environmental problems that avoids the need to reduce excessive consumption, adopt a responsible lifestyle, and reject waste, greed, and "cheerful recklessness."

In this, Pope Francis echoes his predecessors. Pope John Paul II warned in 1990, "If an appreciation for the value of the human person and of human life is lacking, we will also lose interest in others and in the Earth itself. Simplicity, moderation and discipline, as well as a spirit of sacrifice, must become a part of everyday life, lest all suffer the negative consequences of the careless habits of a few."

Similarly, in 2010, Pope Benedict XVI advocated "development based in the centrality of the human person, on the promotion and sharing of the common good, on responsibility, on a realization of our need for a changed life-style, and on prudence, the virtue which tells us what needs to be done today in view of what might happen tomorrow."

Certainly, they recognize population's complications, and Pope Francis warns in "Laudato Si'" that "attention needs to be paid to imbalances in population density."

Yet, serious moral questions are raised by using population control to address environmental harms. Doing so allows wealthy consumers to ignore the impact of their wastefulness by encouraging the poor, who consume far less, to "solve" environmental problems by reducing their numbers. It allows wealthy nations to impose

population control on poorer nations through economic pressures, neglecting the imperialistic overtones of this approach and its disregard for the critical social support structure large families provide.

Ironically, some wealthy nations simultaneously advocate control of populations in poor countries while aggressively implementing policies to increase their own populations — populations who will have a far larger environmental impact. It undercuts the dignity of the human person, made in God's image and likeness, by denying humanity's unique place in creation. It ignores intergenerational solidarity, which places the lives and existence of future generations on an important footing in the setting of environmental policies. It also ignores the demands of intragenerational solidarity, which challenges all to use the world's resources wisely, well, and with responsible respect for all.

Environmental policies should focus on increasing sustainability by developing renewable resources, guaranteeing safer sanitation, safeguarding the water supply, and promoting less environmentally destructive food sources. It should place poverty reduction and increased educational access at its core, since these factors often naturally yield more dispersed and stable populations. It should emphasize safer development and design of urban areas and infrastructures, and curb the rampant waste of food and water that needlessly deprives the poor of their sustenance and the Earth of its treasures. It should focus on corruption and power imbalances that divert necessary resources from those who need and deserve them. Above all, it should reject a view that there is any human life that is dispensable.

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In a Crowded and More Violent Future

By ALON TAL

In 1962, John Calhoun, a behavioral ecologist at the U.S. National Institute of Mental Health, penned one of the most provocative pieces ever published in *Scientific American*. He described a study that assessed how rat populations react to conditions of extreme crowding. As population repeatedly doubled, while space was held constant, the animals grew aggressive, initiated violent sexual attacks, abandoned their pups, and resorted to cannibalism. It did not take long for population levels to crash. Subsequent experiments showed similar dynamics when crowding forced a range of species, from primates to farm animals, into involuntary social encounters.

The implicit message for human society remains clear: As places become more crowded, they tend to become more violent. Notwithstanding our remarkable capacity to adapt in peaceful urban settings, and contrasting cultural norms for acceptable personal space, humans remain territorial animals. If people's territory is invaded, they begin to feel agitated.

Environmental psychology textbooks devote entire sections to documenting the physical and mental symptoms exhibited when crowding elevates physiological stress. Extreme densities can also cause depression and social withdrawal, with many crowded cities showing significantly elevated incidence of mental illness.

When scientist Jared Diamond chronicled the 1994 genocide in Rwanda, he posited that the country's status as the most crowded nation in Africa was not coincidental. Diamond cited a pervasive feeling that there were "too many people on too little land, and that with a reduction in their numbers, there

would be more for the survivors."

Overpopulation can also indirectly drive violent conflict. All over the world, demographic pressures translate into land degradation, with the U.N. estimating that roughly a third of the planet's surface area is affected by abuse. As more people are forced to overgraze rangelands or push marginal lands into food production, the resulting desertification frequently leads to famine. Large displaced populations soon become a vector for violence.

The situation in Syria is instructive. One-dimensional explanations of complex conflict dynamics are bound to be simplistic. Political repression and long-held ethnic animosities were the proximate reasons for the implosion in Syrian society and the civil war. But, the burgeoning population density surely exacerbated water shortages and the hasty rural urban migration, where refugees' frustration in squalid, crowded conditions soon boiled over.

Even after the massive human exodus and many casualties from the war, the 18 million people living in Syria today represent a 900 percent increase in the population levels that existed there less than 70 years ago. It is doubtful whether events would have played out as they did if the country still enjoyed the per capita space and water levels that existed with 2 million.

As Syrian refugees pour into Jordan, Turkey, and Lebanon, they aggravate local conditions that are already explosive due to demographic intensification. Jordan's population of 9.5 million has grown 19-fold since 1950, and local water scarcity is becoming intolerable. This kind of exponential growth sabotages any pretext of food security and caloric self-sufficiency. The associated resource shortages, traffic congestion, unemployment, and collapse of overstretched social services engender frustration, fear, suspicion, and xenophobic anger.

There may be some who look at the density levels in the Middle East

and observe that relative to countries like Japan and the Netherlands, the number of persons per square mile is not particularly high. Such superficial criteria fail to recognize that in hot and arid desert regions, people cannot thrive.

This past summer saw record temperatures soaring beyond 130 degrees in the most desiccated corners of the Middle East. The band of human settlement in water-scarce regions is becoming increasingly narrow. People have little choice but to move along the coasts or to urban areas, where infrastructure exists that can provide reasonable livelihoods and help mitigate harsh climatic conditions. Every year these places become more crowded, degraded, and unpleasant.

Dense settlement of people does not mean that violence is inevitable. One need only look at the murder rates in Tokyo and Singapore versus those in Caracas and Chicago to know that there are cultural factors in play, not to mention very different gun control policies. But, high densities create conditions where existing social pathologies more readily explode into violence; throughout the world, homicide rates in cities are higher than in the countryside.

Most population growth now takes place in Africa, a continent with 16 percent of the world's people, but over half of its military conflicts. As we consider the impact of an additional 3 billion people on the planet's resources, it is well to remember that social cohesion and harmony are arguably the most important resource of all.

Any long-term formula for a sustainable peace requires demographic stability — a state that is still disturbingly elusive. In areas given to historic ethnic and geopolitical violence, family planning is nothing less than a strategic security imperative, while rapidly growing populations remain a recipe for increased enmity and violence.

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