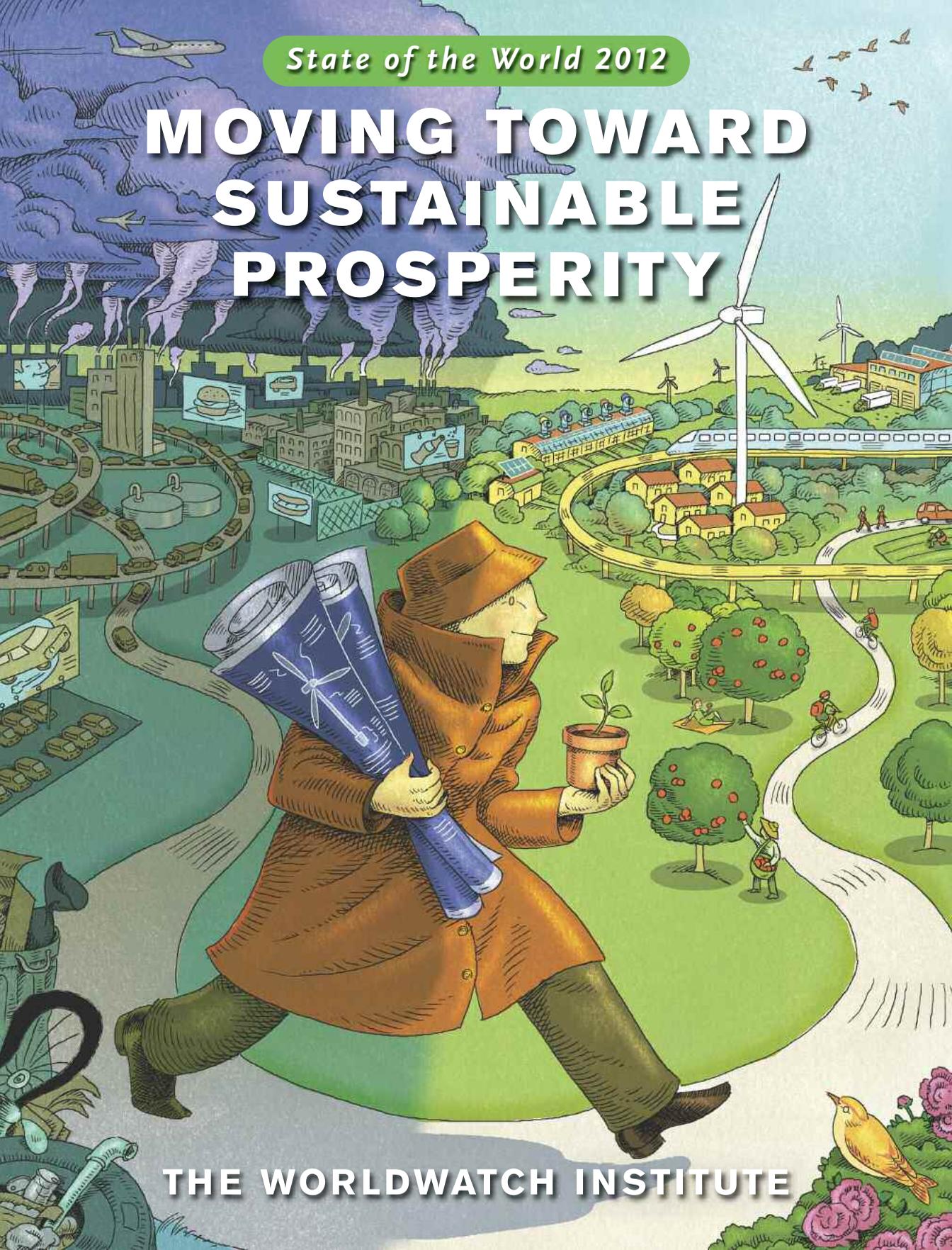


State of the World 2012

# MOVING TOWARD SUSTAINABLE PROSPERITY



THE WORLDWATCH INSTITUTE

# Nine Population Strategies to Stop Short of 9 Billion

*Robert Engelman*

The demographers who calculate the future size of world population are not so much wrong as misunderstood. Humanity may indeed grow to 9 billion people by the middle of this century from 7 billion today and then stop increasing sometime in the twenty-second century around 10 billion. But this outcome is far from inevitable. It is neither an estimate nor a prediction but merely a projection—a conditional forecast of what will come about if current assumptions about declining human fertility and mortality prove true.<sup>1</sup>

No one, however, can be certain where birth or death rates will go in the coming years. (Migration rates are even less certain, but they only influence global population if birth and death rates change because people move.) And although policymakers and the news media rarely mention the possibility, societies can do a great deal to prompt an earlier peaking of world population at fewer than the “expected” 9 billion. Ending population growth would accelerate population aging, which means a rising median age for people in a country or the world. That could challenge societies economically as smaller proportions of a population are working and contributing

to the retirement and health care benefits of a growing number of older, non-working people. Yet that is all but certain to be a manageable trade-off in return for longer lives in a less crowded and environmentally stressed world.

## Ending Population Growth

The contribution that an end to population growth would make to environmentally sustainable prosperity is straightforward. The future of wealth and its distribution will be closely linked to the future of the global climate, the health of nature, and the availability of key natural resources. Since all descendants of today’s low-income, low-consumption populations will anticipate and should expect consumption-boosting economic development, a lower future population would mean less pressure on climate, environment, and natural resources by future generations. It is a scenario without a downside for global well-being.

No ethical person would want an early end to population growth through rising death rates, though such an outcome cannot be ruled out given current trends in climate change, food production, and energy supplies. Nor is

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there now, or for the foreseeable future, significant public support for policies that would impose reproductive limits on couples and individuals. Abundant experience from around the world, however, demonstrates clearly how to reduce birth rates significantly through policies that not only respect the reproductive aspirations of parents and would-be parents but support a healthy, educated, and economically active populace—especially of women and girls. This chapter describes nine strategies that collectively would be likely to end human population growth before mid-century at a level below 9 billion. (See Figures 9–1 and 9–2 for profiles of world population growth since 1970.) Most of the policies are relatively inexpensive to put in place and implement, although some are culturally and hence politically sensitive in many or most countries.<sup>2</sup>

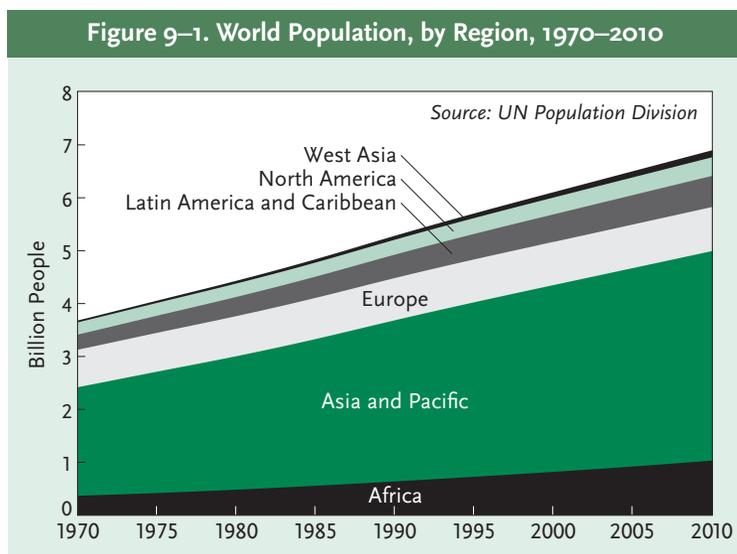
***Assure Universal Access to a Range of Safe and Effective Contraceptive Options for Both Sexes.*** Since the early 1960s the use of contraception has increased markedly, with most women of reproductive age around the world using it. This increasing contraceptive prevalence has closely tracked a comparable and

opposite decrease in average family size worldwide. Nevertheless, more than 40 percent of all pregnancies are unintended, and a conservatively estimated 215 million women in developing countries alone are hoping to avoid pregnancy but not using effective contraception. Although physical access to contraception does not guarantee that all reproductive-age people will use it, it is essential for personal fertility control (especially where there is little or no access to safe abortion). Demographic evidence is growing that if all women could time their pregnancies according to their own desires, total global fertility would fall below effective replacement levels (two-plus-a-fraction children per woman), putting population on a trajectory toward a peak and gradual decline before 2050.<sup>3</sup>

An estimated \$24.6 billion a year would pay for the family planning and related maternal and child health services needed to ensure that all sexually active women in developing countries who seek to avoid pregnancy could gain access to contraception. By comparison, the world spends approximately \$42 billion on pet food each year. (See Box 9–1.) Satisfying the unmet need for contraception in industrial countries would presumably cost less (although no estimates of that are available), as most such countries have fairly well developed health systems that provide at least some level of reproductive services.<sup>4</sup>

Perhaps the dominant obstacle to making access to family planning universal is widespread ambiguity about human sexuality and the persistence of religious and cultural barriers to the principle that women, whether married or not, should be able to choose sexual expression without fear of unintended

Figure 9–1. World Population, by Region, 1970–2010



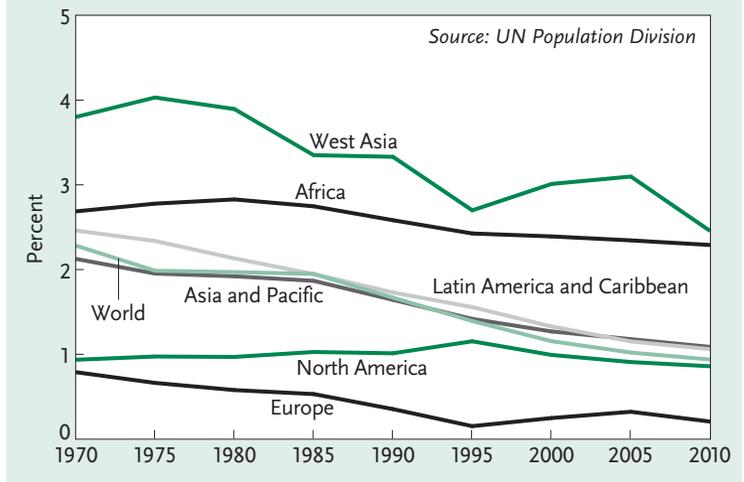
pregnancy. Surveys indicate that the vast majority of Americans, at least, believe that women should be able to choose the timing and frequency of child-bearing by having access to contraception. Ensuring that all couples can make such choices will require much stronger public support in the face of ongoing opposition to family planning and marginalization of the links between women's reproductive choices, population dynamics, and social well-being.<sup>5</sup>

*Guarantee Education through Secondary School for All, with a Particular Focus on Girls.*

Experts differ on whether contraceptive access or educational attainment more directly reduces fertility. In every culture surveyed, however, women who have completed at least some secondary school have fewer children on average, and have them later in their lives, than women who have less education. Surveying literature on this connection, for example, Dina Abu-Ghaida and Stephan Klasen of the World Bank estimated in 2004 that with each year of completed secondary schooling, women's average fertility rates around the world are 0.3–0.5 children lower than those of women without that amount of schooling.<sup>6</sup>

Worldwide, according to calculations by demographers at the International Institute for Applied Systems Analysis, women with no schooling have an average of 4.5 children, whereas those with a few years of primary school have just 3. Women who complete one or two years of secondary school have an average of 1.9 children—a figure that over time leads to a decreasing population. With one or two years of college, the average childbearing rate falls even further, to 1.7. Education

Figure 9–2. Population Growth Rates, by Region, 1970–2010



informs girls about healthy behavior and life options and hence motivates them to endeavor to postpone and minimize the frequency of childbearing so that they can more easily explore aspects of life beyond motherhood.<sup>7</sup>

As with the increasing use of contraception, global progress in educating girls is already impressive. As of 2010, more than three in five individuals age 15 or older—just over 3 billion people—had finished at least some secondary school during their lifetimes. This proportion has risen from 36 percent in 1970 and from 50 percent in 1990. Girls as well as boys have benefited from this improvement. Yet a “gender gap” between female and male educational attainment remains, with the percentage of girls in school consistently about 9 percent lower than the percentage of boys in school. And there appears to be a long way to go before most young women have effective access to a complete and adequate secondary-school education, especially in the least-developed countries. These countries are generally the ones with the most stubbornly high fertility. Investing in education—not just to bring children into schoolrooms but to improve the

### Box 9–1. Environmental Impact of Pets

Along with the human population, another population has been growing rapidly around the world: pets. Today, the large population of dogs, cats, and other companion animals is having a serious impact on the world's environment.

In the United States, for example, there are now 61 million dogs and 76.5 million cats. Just in terms of food, a large dog uses 0.36 global hectares of resources per year, a small dog 0.18, and a cat 0.13 hectares. For comparison, a person in Bangladesh uses on average 0.6 hectares of resources a year in total—less than what two German Shepherds use in a year. Thus, in a conservative estimate, feeding American pets has as much of an environmental impact as the combined populations of Cuba and Haiti.

Many pets today also use more resources in the form of clothing, toys, and elaborate veterinarian care. A small percentage of pets even get treated to costly services like dog walkers, grooming salons, and private pet air travel service. One analysis finds that an American dog owner typically spends anywhere from \$4,000 to \$100,000 on a dog over its lifetime.

This is not just an American phenomenon. Pet ownership is a global phenomenon, with pet food alone costing \$42 billion worldwide each year. The pet industry has worked hard to spread a culture of pet ownership around the world. Brazil has the world's second largest dog population at 30 million, along with 12 million cats. China has the third largest dog population (23 million dogs), and dog ownership is growing so fast that Shanghai passed a "one pet policy" in 2011 in reaction to such problems as dog bites and rabies.

Ultimately, shrinking the population of pets will have the same benefits as stabilizing the human population: it will free up more ecological space for development and for

restoring Earth's systems. Several key strategies, if implemented, will help this process.

First, all pets that are not intended for breeding should be spayed and neutered early in their lives—common practice in some countries but not all. This will prevent unwanted pets as well as feral animal populations, which can damage bird populations and even threaten people. Adopting animals from shelters (and sterilizing them) instead of buying pets from breeders will also help.

Second, policymakers should recognize that pet ownership is a luxury and should make it costlier to own pets, perhaps through a steeper pet license fee or a tax on dog and cat food. Including the costs of ecological externalities in all products—including pet products—would increase the expense of pet ownership further.

Third, there should be better oversight of the pet industry, which has an industry strategy of "humanizing" pet populations so that people will seek out pets to fill companion gaps and spend more on them. Better regulation of marketing efforts may help curb pet populations and over time make pet ownership less normal.

Finally, pet owners (and children—the pet owners of tomorrow) should learn about the significant ecological costs of pets. This may curb some pet purchases and may also reduce excessive purchases for current pets—whether that is extra food (many pets are overweight due to overfeeding), clothing, fancy toys, pet spa treatments, and end-of-life medical care that is more sophisticated than many people in developing countries have access to. Over time, people may also shift to smaller pets, productive pets (like chickens or goats), or pets shared among a community.

—Erik Assadourian  
Source: See endnote 4.

quality of their schooling—is among the rare “triple wins” that boost human well-being, economic development, and women’s intentions and capacities to have fewer children later in their lives.<sup>8</sup>

*Eradicate Gender Bias from Law, Economic Opportunity, Health, and Culture.* While universal access to good contraceptive services and secondary school education in combination would reverse population growth, active efforts to foster legal, political, and economic gender equality would make contraceptive and educational access much easier to achieve and would hasten the reversal of growth. Women who are able to own, inherit, and manage property, to divorce their husbands, to obtain credit, and to participate in civic and political affairs on equal terms with men are more likely to postpone childbearing and reduce the number of their children compared with women lacking such rights and capacities. Indeed, a 2011 comparison of fertility rates with differentials between men’s and women’s political, economic, and health status demonstrated a significant correlation between high gender equality and lower rates of childbearing.<sup>9</sup>

Research indicates that a number of specific indicators of women’s empowerment result in reduced or later childbearing. A study in northern Tanzania, for example, found that women with an equal say to their husbands in household matters preferred to have significantly fewer children than those who had to defer to their husbands’ decisions. This is particularly important because men, free of the physical hazards and discomforts of childbearing and usually investing much less time than women do in childrearing, tend in most countries to want more children than their partners do.<sup>10</sup>

Demographic and health surveys over the past several decades for the U.S. Agency for International Development show that women in almost all developing countries express a

desire for fewer children than they end up having, as well as fewer children than men want. The more children a woman has, the more likely she is to want fewer additional ones than her partner. How any specific indicator interacts with fertility intentions and outcomes remains unclear, but the broad connection of women’s status and autonomy to later childbearing and smaller completed families adds to the reason to change laws and customs that institutionalize gender inequality.<sup>11</sup>

*Offer Age-appropriate Sexuality Education for All Students.* A major obstacle to the prevention of unintended pregnancy is ignorance by young people about how their bodies work, how to abstain from unwanted sex, how to prevent pregnancy when sexually active, and how important it is to respect the bodies and sexual intentions of others. Education in all these matters would further reduce unintended pregnancies and hence slow population growth. This can begin in age-appropriate ways almost as soon as schooling does. Questions about sex typically arise early in children’s lives and require appropriate responses from the adults around them. Children are sometimes the victims of sexual harassment or violence and need to learn early in their lives how to recognize, protect themselves from, and report inappropriate sexual behavior.

Sexuality education differs significantly among countries and is absent from the curricula of many or most. In the United States, comprehensive sex education tends to stress the health and pregnancy-avoidance benefits of abstinence as well as the importance of contraception and safe sexual practices for those who choose not to be abstinent. U.S. data indicate that exposure to comprehensive programs tends to delay the initiation of sex and to increase the use of contraception among young people. Along with the other benefits provided, both of these trends would logically contribute to lower teen birth rates and probably lower completed fertility.<sup>12</sup>

***End All Policies that Reward Parents Financially Based on the Number of Their Children.*** There is no reason to believe that pro-natalist government policies that reward couples financially for each additional birth have significantly raised total fertility rates in any country. Nonetheless, it seems logical that at least on the margin such policies do boost birth rates slightly. The policies may be as blatant as those in Russia and Singapore that directly pay couples for additional children. Or they may be couched as child care tax credits that reduce a parent's taxes for each additional child under 18 without limit, as in the United States. Such policies subsidize "super-replacement" fertility (rates well above two children per woman), contributing to populations larger than they would otherwise be.<sup>13</sup>

ernments can preserve and even increase tax and other financial benefits aimed at helping parents by linking these not to the number of children but to parenthood status itself. A set benefit to all parents would allow them to decide for themselves whether another child makes economic sense given that the benefit will not grow—just as the environment and its resources do not grow—with any addition to the family.<sup>14</sup>

***Integrate Teaching about Population, Environment, and Development Relationships into School Curricula at Multiple Levels.*** Although environmental science education is now well established, especially at the university level, few school systems around the world include curricula that teach young people how human numbers, the natural environment, and human development interact.

Yet today's young people are very likely to spend most of their lives in densely populated human societies facing significant environmental and natural resource constraints. Without advocacy or propaganda, schools should help young people make well-informed choices about the impacts of their behavior, including childbearing, on the world in which they live.

In the United States, the organization Population Connection has an active education program that provides curricular material and training to teachers interested in awakening students of all ages to the dynamics and importance of population growth. It is not clear, however, how widespread the concept is in the United States or other countries. More education about human-environment interactions, including the influence of human numbers, nonetheless could become an important stimulus to a cultural transformation that can hasten an end to population growth.<sup>15</sup>

***Put Prices on Environmental Costs and Impacts.*** Governments need to move toward environmental pricing—including taxes, fees,



Taro Taylor

*Father and son working together in Papua New Guinea*

Where it is clear that women and couples are forgoing childbearing because of social discouragement (for example in the workplace) or a lack of acceptable child care options, governments can address these issues directly. In some northern European countries, for instance, fertility rates rebounded from very low levels after governments made paid leave mandatory for new parents of either sex. Gov-

rebates, and so on—for many reasons as soon as politically feasible. Among the benefits of carbon and other green taxes is their value in reminding parents that each human being, including a new one, has impacts on the environment. In a crowded world of constrained resources, these impacts should be accounted and paid for so that large environmental footprints face economic constraints. These constraints could be government-imposed, as in the case of carbon taxes or usage fees for waste removal services that are based on weight. Such environment-related governmental constraints on consumption are currently rare, however, and may not be feasible politically for some time. Free-market pricing may eventually play a similar role if the costs of food, energy, and various natural resources continue to rise due to scarcity and distribution challenges, as many analysts predict.

The rising financial costs of large families no doubt already discourage high fertility in countries where contraception is socially acceptable and readily available. If at some point governments opt to raise the costs of consumption that has negative impacts on the environment, couples and individuals will still be free to choose the timing and frequency of childbearing. Yet by translating into higher costs the impact of individuals, environmentally based pricing will tend to reduce fertility and birth rates as couples decide the cost of having an additional child is too high. This is hardly the reason to move toward environmental pricing, but it will be among its benefits.

*Adjust to Population Aging Rather Than Trying to Delay It through Governmental Incentives or Programs Aimed at Boosting Childbearing.* Higher proportions of older people in any population are a natural consequence of longer life spans and women's intentions to have fewer children, neither of which societies should want to reverse. The appropriate way to deal with population aging is to

make necessary social adjustments, increasing labor participation and mobilizing older people themselves to contribute to such adjustments, for instance, rather than urging or offering incentives to women to have more children than they think best.

Population aging is a short-term phenomenon that will pass before the end of this century, with impacts far less significant and long-lasting than ongoing population growth, a point policymakers need to understand better. Even if today's policymakers could boost population growth through higher birth rates or immigration, future policymakers would have to grapple with the problems of aging at some later time—when higher population density and its associated problems only make boosting population growth less attractive and feasible.<sup>16</sup>

*Convince Leaders to Commit to Ending Population Growth through the Exercise of Human Rights and Human Development.* Several decades ago, it was not unusual for presidents and prime ministers in industrial and developing countries to declare their own commitment to slowing the growth of population. Today, with twice as many people as were then alive seeking the good life, the need is more acute than ever for political leaders to find the courage to acknowledge the importance of ending population growth. For a variety of reasons, however, population has become a taboo topic in politics and in international affairs, though perhaps somewhat less so in the news media and in public discourse.

Speaking out on the importance of ending human population growth worldwide will be easier if leaders acquaint themselves with how the population field has evolved over the past few decades. They will then understand that human numbers are best addressed—in fact, can only be effectively and ethically addressed—by empowering women to become pregnant only when they themselves choose to do so. One irony of this is that slowing pop-

ulation growth needs to be seen not so much as the goal of some kind of crisis or emergency program—a vision that the public and politicians alike would find frightening—but merely as a recognized and lauded side benefit of a host of policies that improve the lives of women, men, and children. If, through the education strategies described here and a broader cultural transformation on the topic, more people recognize the value of an end to population growth, each of these policies will become more feasible and more effective in bringing about beneficial demographic and environmental change.

### The Impact of the Nine Strategies

To some extent most of these policies already are moving forward, albeit sluggishly, in different countries around the world. Powerful forces—in some cases religious and cultural, in others economic—oppose them, however. Sadly, it may be years or decades before increasing environmental deterioration and resource shortages in an ever more crowded world arouse the public so much that people demand governmental action on root causes. A powerful momentum helps drive today's population growth. As long as many more people are in or approaching their childbearing years than are nearing the end of their lives, as is the case today, humanity will increase for some time even if families are quite small. It will take time for the smaller generations of

children to become parents themselves and produce even smaller generations as the larger, older generations pass on. The longer governments delay policies such as those described here, the more likely the world is to face large and denser populations or increases in death rates—or both.

If, by contrast, each of these policies somehow could be put in place quickly and were well supported by the public and policymakers, population momentum itself would be slowed significantly, through later and fewer pregnancies, than ever witnessed in recorded history. Few demographers have attempted to quantify the population impact of various interventions beyond family planning access and education for girls on fertility. But based on what is known and can be logically conjectured, it seems likely that putting most of these policies together would undermine even population momentum and produce a turn-around in population growth—with the significant social and environmental benefits such a dynamic would offer—earlier than most demographers believe is likely or even possible. World population might indeed stop growing well short of the 9 billion so many believe is inevitable. The fertility declines that could bring a population peak at around 8 billion before the middle of this century, with no increases in death rates, are not unimaginable. If this were to occur, a truly prosperous and sustainable global society would be one long stride closer than ever before.

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### Chapter 9. Nine Population Strategies to Stop Short of 9 Billion

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