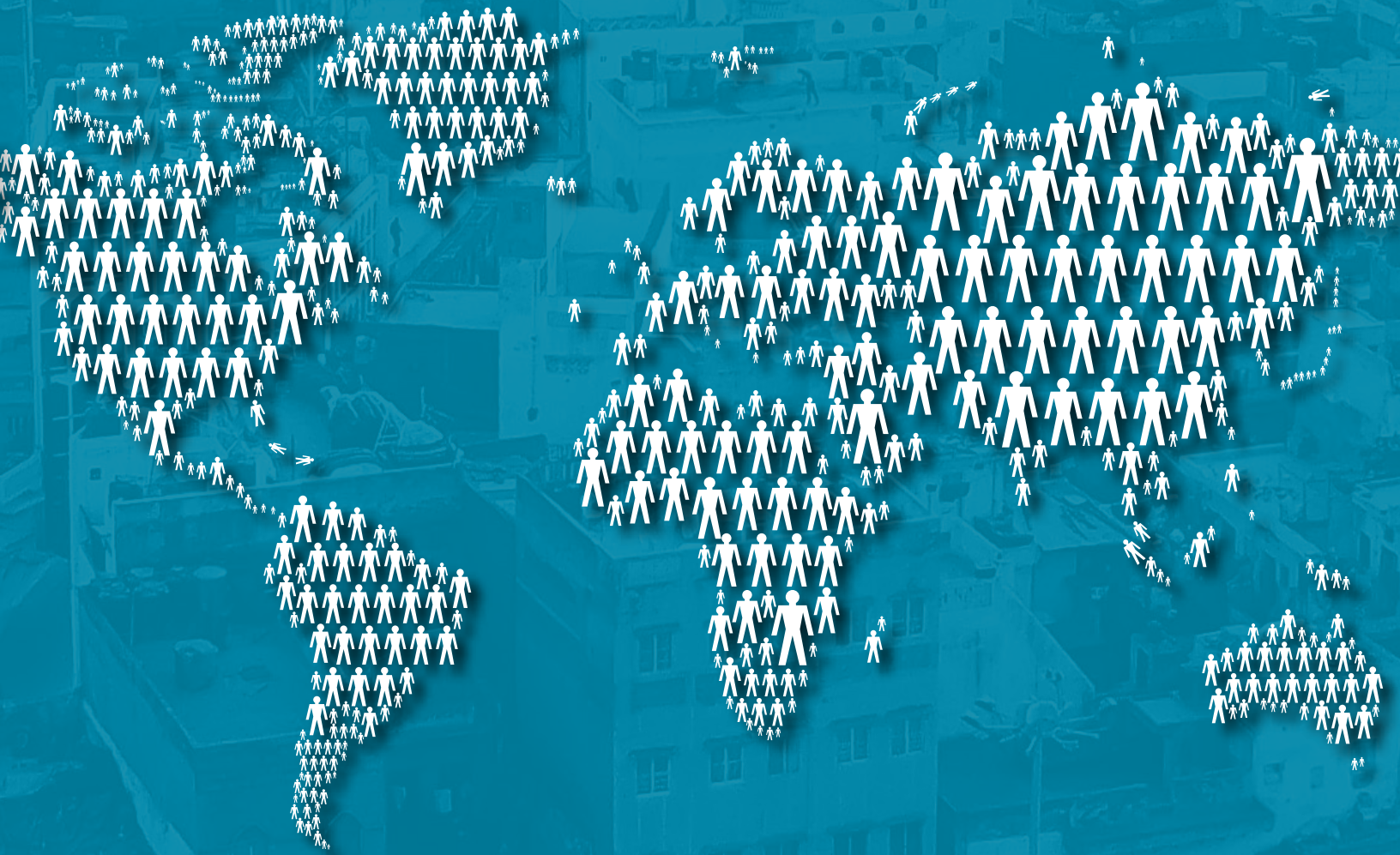


DEMOGRAPHIC VULNERABILITY:

Where Population Growth Poses the Greatest Challenges



**POPULATION
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The Population Institute strives to improve the health and well-being of people and the planet by supporting policies and programs that promote sexual and reproductive health and rights. We build support for those policies and programs by educating policymakers, policy administrators, the media, and the general public about:

- The essential importance of achieving gender equality and promoting sexual and reproductive health and rights;
- The adverse impacts of overpopulation on the environment, scarce natural resources, biodiversity, and efforts to eliminate hunger and severe poverty in developing countries; and
- The personal, social and economic benefits that arise from expanding access to family planning services and information.

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DEMOGRAPHY

Demography is not destiny, but projected population growth is imperiling human and economic development, putting millions of people at greater risk for hunger, poverty and water scarcity. Population pressures are also contributing to environmental degradation and political instability. In effect, rapid population growth is a challenge multiplier, and for many developing countries the challenges are formidable. Based on current indicators and the latest population projections, this report identifies 20 of the world's most demographically vulnerable countries and their areas of greatest vulnerability.

INTRODUCTION

If we lived in a world of infinite size and resources, population growth would be an unmitigated blessing. If severe poverty, water scarcity and hunger did not exist, if we lived in complete harmony with nature and if all governments met the demands of expanding populations, there would be no reason for concern. We live, however, in a world of finite space and limited resources, where severe poverty, water scarcity and chronic hunger do exist, where mothers and children die needlessly, where nature is under constant assault and many governments struggle to meet the needs of their citizens. In such a world, population growth — particularly rapid population growth — can pose severe challenges.



Many countries are completing what demographers call a “demographic transition,” a historic shift from high fertility and high mortality to low fertility and low mortality. In many of these countries fertility has fallen faster than mortality. In some cases the population of the country has stabilized, in others it is declining. These demographic trends matter. Countries close to completing their demographic transitions tend to be significantly healthier, more prosperous and more stable than countries yet to cross what the Population Reference Bureau has described as the “demographic divide.”

The UN’s latest projection indicates world population will reach 9.6 billion by 2050,¹ a half billion more than forecast five years ago. Nearly all the growth is taking place in the world’s poorest countries that are the least able to feed,

GLOBAL DEMOGRAPHIC DIVIDE

Public attention has begun to focus on the “demographic divide,” the vast gulf in birth and death rates among the world’s countries. On one side of this divide are mostly poor countries with relatively high birth rates and low life expectancies. On the other side are mostly wealthy countries with birth rates so low that population decline is all but guaranteed and where average life expectancy extends past age 75, creating rapidly aging populations.

But this gulf is not a simple divide that perpetuates the status quo among the have and have-not nations. Rather, it involves a set of demographic forces that will affect the economic, social and political circumstances in these countries and, consequently, their place on the world stage. Demographic trends are just one of the factors determining the future of these countries, but these trends are a crucial factor.

—Population Reference Bureau, “Global Demographic Divide.”¹

¹ Kent, MM and C Haub, Global Demographic Divide, Washington, DC: Population Reference Bureau, Jan. 2006, <http://www.prb.org/Publications/Reports/2005/GlobalDemographicDivide.aspx>.

educate and employ growing numbers of people. In such a world, rapid population growth can make bad conditions worse. This report examines the vulnerability of developing countries that are struggling to complete their demographic transition.

If a population grows at just two percent a year, it doubles its size every 35 years. The populations of more than 50 countries are currently growing at more than two percent a year, but because of declining fertility rates some will stop short of doubling their population by 2050. Still, even with an anticipated decline in fertility rates, the latest demographic projections by the Population Reference Bureau³ indicate 39 countries are on track to double — or more — the size of their populations in the next 35 years. Three of the countries, Niger, South Sudan, and Zambia, could feasibly triple their populations by 2050.²

Almost without exception, these countries are among the poorest in the world. Their rates of hunger, malnutrition and mortality are among the highest. In some, but not all cases, these countries

also rank very high in terms of water scarcity or environmental degradation. In many cases, these countries are classified as “fragile” or their governments as “failing.” All too often, these countries suffer from sectarian strife or regional conflict. Their cities are growing faster than the infrastructure needed to provide sanitation and other basic services, and their public health systems are struggling to keep pace with the spread of disease. Unless these countries are able to complete their demographic transition, much of the progress made in reducing hunger and poverty and improving human well-being could be imperiled.

We can identify those countries experiencing rapid population growth, but which have the highest degree of demographic vulnerability? And how is such vulnerability manifested? There is no precise measurement of demographic vulnerability, but we know which countries in the world are suffering the most today from hunger, severe poverty, water scarcity, high mortality, environmental degradation and political instability, and the vast majority of them are experiencing some form of population-related stress.



In the case of countries already struggling to feed their people or where severe poverty is widespread and high unemployment is chronic, the demographic vulnerability is evident; rapid population growth for these countries is a challenge multiplier. Similarly, in countries where measurements indicate water availability is already low, land is already degraded or where civil strife is chronic and prevalent, rapid population growth can be a barrier to progress.

Taking into account projected population growth rates and the best available indicators of possible population stress, we have identified 20 countries that have the greatest demographic vulnerability, ranked them accordingly, and identified what form that demographic vulnerability takes, whether it is hunger and malnutrition, severe poverty, water scarcity, resource and environmental degradation or political instability.

These rankings also take into account factors that could serve to increase or decrease the stresses associated with rapid population growth. Unfavorable changes in climate can impede progress and magnify a country's demographic vulnerability, as can regional conflict, government corruption and gender inequality. On the other hand, a reliable source of foreign assistance, a surplus of arable land or undeveloped metal and mineral resources can reduce a country's demographic vulnerability, making it easier to accommodate projected population growth.

As there is no magic formula for measuring demographic vulnerability, there is an inherent and unavoidable degree of subjectivity in making these rankings, but they reflect an important underlying reality. Developing countries with rapidly growing population face an uphill struggle, and while a variety of factors can mitigate or exacerbate the challenges, policymakers need to focus more closely on where the challenges are greatest. Population, in other words, matters.

Fortunately, demographic projections are not written in stone. If contraception can be made more widely available and if we can dismantle the cultural and informational barriers that inhibit women in the developing world from freely exercising their reproductive choice, fertility rates will decline faster than anticipated. We know that from experience. While many developing countries have yet to cross



the demographic divide, many are making the transition relatively quickly, including Bangladesh, Brazil, Iran, Jamaica, Malaysia, Mexico, Qatar, South Africa, Thailand, Tunisia and Vietnam. As fertility and maternal mortality rates have declined, USAID has “graduated” more than two dozen developing countries from its program of family planning assistance.⁴

Despite those family planning successes, the amount of assistance being provided by donor nations for family planning services and information is far below what is needed, and, as a consequence, the UN's goal of providing universal access to reproductive health services by 2015 has not been realized. An estimated 225 million women in the developing world want to avoid a pregnancy, but are not using a modern method of contraception.⁵ Many users of contraceptives in developing countries would benefit by access to a broader range of contraceptives, including long-acting methods. It would cost an estimated \$5.3 billion a year more to meet the contraceptive needs of these 225 million women, while also improving contraceptive options for current users. The use and acceptance of modern contraceptive methods varies widely in the developing world, but contraceptive

USAID AND ITS PRIORITY COUNTRIES

Because of its limited resources, USAID maintains a list of priority countries for international family planning assistance. As contraceptive prevalence rises and the level of “unmet need” declines in selected countries, USAID shifts funding to higher priority countries. To date, two dozen countries have graduated, including several countries in Latin America. Currently, there are 24 countries that are identified as having a high priority for family planning; 23 of them are also priorities for Maternal and Child Health Programs (MCH). The 24 priority countries are:

Africa: Democratic Republic of the Congo, Ethiopia, Ghana, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Nigeria, Rwanda, Senegal, South Sudan, Tanzania, Uganda and Zambia

Asia: Afghanistan, Bangladesh, India, Nepal, Pakistan and Philippines

Middle East: Yemen

Latin America and the Caribbean: Haiti.

prevalence is particularly low in sub-Saharan Africa, where only one out of five married women, aged 15-49, uses a modern method of contraception.⁶

Improved access to contraceptives alone, however, will not ensure women in developing countries are able to space or limit their pregnancies. Male opposition and other cultural barriers, most notably child marriage, may prevent girls and women from exercising their reproductive freedom. Lack of education for girls and misinformation about the possible side-effects of various contraceptive methods are also barriers. The United States and other donor countries must invest more in education and gender equality if women are to exercise their reproductive freedom.

As long as family planning assistance falls short of the need, it is important that donor nations have a clearer understanding of where contraceptive services and information are most urgently needed and where more work needs to be done in terms of educating girls and empowering women. Demographic projections and their implications should not be ignored; demographic vulnerability needs to be addressed and priorities set.

Demographic Vulnerability vs. Aging Populations

Demographic vulnerability, as we define it, is confined to countries with rapidly growing populations. Countries with populations that are both shrinking and aging — such as Germany,

Japan and Russia — face their own set of demographic challenges, including potential labor shortages and a shrinking tax base, but the challenges associated with “aging” populations are quantitatively and qualitatively different. Aging countries are not vulnerable in the same way as Niger, Yemen and Somalia. Having gone through the demographic transition and having reaped their demographic dividend, aging economies are generally more advanced, their capital infrastructure more developed and their labor force better educated. Their populations, for the most part, are not afflicted with widespread hunger and severe poverty, and to the extent their governments are worried about water scarcity, deforestation, pollution or other environmental challenges, declining fertility is a boon, not a burden.

Declining population may, offer some significant advantages, including smaller outlays for schools, roads and other infrastructure. Tight labor markets may also make it easier for marginal workers, including older workers and the long-term unemployed, to re-enter the labor force. A shrinking population may decrease the absolute size of the country’s economy, but that does not mean that per capita incomes have to fall, and while “aging” countries have reasons to be concerned about the financing of social security and health care for the elderly, boosting savings to pay for those programs is a far more logical and viable strategy than trying to boost birth rates.

CHAPTER ONE

Demographic Vulnerability: Areas of Greatest Concern

There are multiple ways in which rapid population growth can adversely impact the health and well-being of people in the developing world, but this report focuses on the five areas of greatest concern: hunger and malnutrition, severe poverty, water scarcity, environmental degradation and political instability. In each of these areas, rapid population growth can be an impediment to progress.



Population and Hunger

Two decades ago, hopes were high that hunger could be eradicated. In 1996, with an estimated 800 million hungry people in the world, delegates to the 1996 World Food Summit in Rome pledged to reduce the number of chronically undernourished in the world by half by 2015.⁷ That goal was never met and progress remains elusive. In 2009, a global food crisis pushed the number of chronically undernourished in the world to more than 1 billion.⁸ Since then, food prices have ebbed and progress has been made in reducing the number of hungry,

but last year the UN estimated 805 million people, about one in nine, were still suffering from chronic hunger.⁹

Uneven progress — Most of the advances made in reducing the incidence of global hunger have occurred in countries or regions where fertility rates are close to the replacement fertility rate, most notably in Latin America, the Caribbean, South-East Asia and East Asia. In areas of rapid population growth, hunger remains a persistent challenge, particularly in sub-Saharan Africa and parts of South Asia. Nearly all countries in these

regions have seen reductions in hunger and poverty rates, though by less than the 50 percent target set by the Millennium Development Goals (MDGs).

In its 2014 progress report on the MDGs¹⁰, the UN warned that sub-Saharan Africa, as a whole, was unlikely to reach any of the targets set by the MDGs, including the goal of reducing by half, between 1990 and 2015, the proportion of people who suffer from hunger. While four nations in sub-Saharan Africa met the MDG target with respect to hunger, the report cautioned that the region, as a whole, has shown “limited progress in recent years” and that it remained the region with the highest prevalence of undernourishment. The report noted that sub-Saharan Africa was the only region where the number of undernourished children actually increased, rising from 27 million in 1990 to 32 million in 2012. In that same time frame, the number of stunted children in the region jumped from 44 million to 58 million.

Several countries in South Asia are also in danger of losing momentum in the fight against hunger. The Global Hunger Index (GHI)¹¹ published by the International Food Policy Research Institute (IFPRI) indicates South Asia made dramatic progress in reducing the incidence of underweight children between 1990 and 1995, but in the past decade the pace of progress has slackened. Since 2005 there has been a major slowdown in reducing the incidence of child hunger and stunting in the region.

Once again, countries with slower population growth rates have tended to do better than those with rapid growth rates. In 1990, Bangladesh did poorly in the fight against hunger. Its GHI score, 36.7, was classified as “extremely alarming,” while Pakistan’s score, 25.9, was described as “alarming.” Today, however, the two countries find themselves in a dead heat, with scores of 19.4 and 19.3, just short of the “alarming” designation. A sustained drop in fertility played a significant role in Bangladesh’s relative success. In 1978, fertility rates in Pakistan and Bangladesh were identical; women in both countries had on average 6.6 children. Since then, fertility rates have fallen in both countries, but Bangladesh’s total fertility rate fell faster, reaching 2.2 in 2011. Pakistan’s decline in fertility has not kept pace; its total fertility rate stands today at 3.3.

As a consequence, Pakistan’s population growth rate is high and it faces an uphill struggle in the fight against hunger. Food inflation is eating away at the household budgets of the urban poor and many farmers are worried about flooding and the potential effects of climate change on crop production. A National Nutrition Survey conducted in 2011 revealed that more than 1.5 million children in Pakistan suffer from acute malnutrition, and a recent study by Pakistan’s Institute of Public Policy (IPPNU)¹² estimated that malnutrition reduces Pakistan’s annual GDP by almost three percent per year because of its deleterious effects on learning and economic productivity.

URBANIZATION IN AFRICA

Urbanization is growing in both developed and developing countries. The proportion of the world’s urban population is expected to increase to about 57 percent by 2050 from 47 percent in 2000. More than 90 percent of future population growth will be accounted for by the large cities in the developing countries. In the developing world, Africa has experienced the highest urban growth during the last two decades at 3.5 percent per year and this rate of growth is expected to hold into 2050. Projections also indicate that between 2010 and 2025, some African cities will account for up to 85 percent of the population. [...] In 2010, the share of the African urban population was about 36 percent and is projected to increase to 50 percent and 60 percent by 2030 and 2050, respectively. This rapid expansion has changed the continent’s demographic landscape. Yet, urbanization in Africa has failed to bring about inclusive growth which, in turn, has resulted in proliferation of slums, urban poverty and rising inequality. Inequality in African cities remains the second highest in the world with an average Gini coefficient of about 0.58, well above the average of 0.4. Rural-urban migration and natural population growth rates in cities are the major causes of the increasing rate of urban growth and slum proliferation in Africa.

— African Development Bank Group, “Urbanization in Africa.”¹

¹ African Development Bank Group, Urbanization in Africa, Dec. 13, 2012, <http://www.afdb.org/en/blogs/afdb-championing-inclusive-growth-across-africa/post/urbanization-in-africa-10143/>.



While hunger has subsided in most of Latin America, it remains a substantial threat in countries still experiencing rapid population growth. In Central America, Guatemala's total fertility rate (3.8) is far higher than the average for the region (2.4), and since 1990 it has made little, if any, progress in the fight against hunger. Last year, its GHI score (15.5), categorized as "serious," was actually higher than in 1990 (15.0). In neighboring Honduras and nearby Nicaragua, where fertility rates have fallen significantly, notable progress has been made in the fight against hunger. Their hunger scores are now in the "moderate" range. The GHI score for Honduras fell from 14.2 in 1990 to 7.9 in 2013, and in Nicaragua the score fell from 24.1 to 9.5.¹³ Again, other factors may account for Guatemala's relative lack of success in reducing hunger, such as the aftermath of a 36-year guerilla war that ended in 1996, but rapid population growth has almost certainly played a role.

The urban poor — In times past, famine and other food emergencies were largely local phenomena, products of a local crop failure, but the face of hunger is changing and demographic trends are playing a leading role. While the world's population growth rate is gradually declining,

the urban population growth rate is still on the rise, as rural poverty and shortages of farmland in many developing countries drive people into urban centers. The urbanization of the world's poor means that an increasing percentage of the world's poor are at the mercy of world food prices. The urban poor living on \$1 a day can easily spend 50 to 70 percent of their household budgets on food.¹⁴ When the prices of rice, cornmeal, flour and other basic food stuffs soar, they are forced to reduce their food intake.

In the past decade, there have been two global food crises, both fueled by a surge in world food prices. In the 2008-09 food crisis, crop failures in Australia and Southeast Asia contributed to a doubling of world grain prices. Grain prices retreated from their record highs in 2010, but 2011 crop failures in Russia and Ukraine triggered a second surge in world food prices, resulting in another record high for the Food and Agriculture Organization's (FAO) Food Price Index of grains and other basic food commodities. During the 2008-09 food crisis, riots broke out in more than two dozen countries. In the 2011 food crisis, food protests led to political upheaval in the Middle East, the so-called Arab Spring.¹⁵

The growing demand for food — In the 20th century, food production kept one step ahead of population growth, but as in the old Wall Street adage, past performance does not guarantee future results. While food commodity prices trended lower during the last half of the 20th century, the long range forecast for the 21st century is for higher food prices. Because of population growth and the world's growing appetite for meat, demand for food is soaring, as is its cost of production. Each day, another 237,209 people (net)¹⁶ are added to the world's dinner table, while the world's farmers are wrestling with climate change, loss of topsoil, shortages of arable land, water scarcity and the high cost of commercial fertilizers.


In 2009, the FAO issued a landmark report¹⁷ on what would be required to feed an estimated 9.1 billion people by 2050. The FAO projected global food production, net of food used for biofuels, would have to increase by 70 percent. Subsequent research, however, suggests the challenge facing the world's farmers may be even greater than the FAO's estimate. In 2011, a team of researchers

led by David Tilman at the University of Minnesota forecast a 100–110 percent increase in global crop demand from 2005 to 2050, and warned the actual increase in crop production would likely be in the range of 38-67 percent.¹⁸ Meanwhile, world population projections for 2050 continue to climb, adding to the projected demand for food. The UN's latest projection indicates world population will reach 9.6 billion by 2050, a half billion more than anticipated in the FAO's 2009 report.

Obstacles to increasing food production —

Research by Jonathan Foley and other experts suggests a doubling of world food production by 2050 is technically feasible. The obstacles,

though, are formidable. The latest climate change assessment by the Intergovernmental Panel on Climate Change (IPCC) noted wheat yields are already declining by two percent a decade because of climate change and warned that high levels of warming could have “large negative impacts on agricultural productivity and substantial risks to global food production and security.”¹⁹ But climate change is far from the only hurdle. Water scarcity, shortages of arable land, desertification and loss of topsoil and the rising costs of fertilizer and fuel could hamper food production efforts in many areas and increase the costs of food production. In issuing its 2009 report on food security, the FAO warned that meeting the projected demand for

|  POPULATION GROWTH IN COUNTRIES WITH HIGH HUNGER SCORES | | | | |
|---|---------------------------------|--------------------|---------|---|
| Country | Global Hunger Index (GHI) Score | Classification | Ranking | Projected Population Growth from 2014 to 2050 |
| Burundi | 35.6 | Extremely alarming | 76/76 | 154% |
| Eritrea | 33.8 | Extremely alarming | 75/76 | 120% |
| Timor-Leste | 29.8 | Alarming | 74/76 | 142% |
| Comoros | 29.5 | Alarming | 73/76 | 86% |
| South Sudan* | 26 | Alarming | 72/76 | 236% |
| Sudan* | 26 | Alarming | 72/76 | 99% |
| Chad | 24.9 | Alarming | 71/76 | 181% |
| Ethiopia | 24.4 | Alarming | 70/76 | 72% |
| Yemen | 23.4 | Alarming | 69/76 | 49% |
| Zambia | 23.2 | Alarming | 68/76 | 226% |
| Haiti | 23 | Alarming | 67/76 | 56% |
| Sierra Leone | 22.5 | Alarming | 66/76 | 67% |
| Madagascar | 21.9 | Alarming | 65/76 | 136% |
| Central African Republic | 21.5 | Alarming | 64/76 | 102% |
| Niger | 21.1 | Alarming | 63/76 | 274% |
| Mozambique | 20.5 | Alarming | 62/76 | 153% |
| Laos | 20.1 | Alarming | 61/76 | 34% |
| Burkina Faso | 19.9 | Serious | 60/76 | 160% |
| Djibouti | 19.5 | Serious | 59/76 | 33% |
| Pakistan | 19.1 | Serious | 57/76 | 79% |

* 2014 GHI score could only be calculated for former Sudan as one entity, because separate estimates for 2011-2013 were not available for South Sudan, which became independent in 2011, and Sudan (from IFPRI Global Hunger Index).

Sources: IFPRI, Global Hunger Index: *The Challenge of Hidden Hunger*, Washington, DC: IFPRI, 2014. <<http://www.ifpri.org/sites/default/files/ghi/2014/index.html>>.

Population Reference Bureau, *World Population Data Sheet 2014*, 2014, <http://www.prb.org/pdf14/2014-world-population-data-sheet_eng.pdf>.

food in the developing world would require \$83 billion a year in agricultural assistance,²⁰ a level few anticipate will be realized. But even if the support materializes and it is technically possible to feed another 2.3 billion people by 2050, there is no guarantee food will be affordable for the urban poor living on \$2 a day or less.

Food insecurity and population – The linkage between food insecurity and population is stark. The 20 countries ranked highest on IFPRI's Global Hunger Index²¹ are all experiencing rapid population growth. Projections indicate all of them will increase their population by about 30 percent or more in the next 35 years. Nine of the 20 will double their population by 2050, and three countries are on course to triple their population. The current food situation in these 20 nations, with only three exceptions (Djibouti, Burkina Faso and Pakistan), is classified as either alarming or extremely alarming.

While hunger is not confined to developing countries experiencing rapid population growth, that is where the vast majority of the chronically hungry live. Unless more is done to slow population growth in those countries, little, if any, progress will be made reducing the number of people in the world who go to bed hungry every night.

Population and Poverty

Up to now, efforts to “decouple” severe poverty from rapid population growth have largely failed. Unless more is done to empower women and give them the ability to determine the spacing and number of their pregnancies, the number of people living at or near the poverty line will remain at two billion or more. Rapid population growth can impede efforts to reduce severe poverty in at least three significant ways.

Rapid population growth can:

- 1 **Weaken capital infrastructure.** Population growth dilutes the existing stock of physical capital, including homes, schools, hospitals, roads and factories. In the long run it may be possible to accommodate a larger population by making the necessary investments in physical capital, but rapid population growth can present significant transitional difficulties, particularly in poor, financially strapped countries that cannot afford the required capital investments.
- 2 **Exacerbate scarcity of natural resources.** Population growth also depletes the existing stock of water, arable land and other natural resources. In countries with substantial untapped resources this may not present a problem, at least in the short term, but at some point the ratio of population to resources can reach a critical threshold. The resulting resource scarcity can drive up

POPULATION AND POVERTY IN SUB-SAHARAN AFRICA

[P]opulation and reproductive health programs and policies that reduce the unmet need for family planning [...] promote welfare directly and will help promote the achievement of the MDG of reducing poverty in developing countries. As families have fewer children, they are better able to make sure that those children are educated and healthy. As adults, these children will be more likely to escape poverty since both education and health improve earnings. In addition, as an earlier, large generation of children reach working age, the extra production they can generate can lead to an increased rate of economic growth and higher incomes. These outcomes, although not sufficient for poverty reduction, are generally necessary if it is to be achieved.

— David E Bloom and David Canning, “Population, Poverty Reduction, and the Cairo Agenda.”¹

¹ David E Bloom and David Canning, “Population, Poverty Reduction, and the Cairo Agenda” *Reproductive Health and Human Rights: the Way Forward*, 2009).



prices and, in extreme cases, deny vulnerable populations access to water, land, timber or other critically needed resources. In rural areas where arable land is in short supply or timber is needed for fuel, population growth can lead to deforestation, which, in turn, can contribute to a loss of topsoil and increased exposure to catastrophic flooding of the type that periodically plagues heavily deforested countries like Haiti and Pakistan.

- 3 **Increase the dependency ratio.** Rapid population growth can alter a country's age structure by increasing the number of child dependents relative to the working age population. In the least developed nations, 40 percent of the population, on average, is under the age of 15 compared to only 16 percent in the developed world. In poverty-stricken Niger, 50 percent of the population is under 15. In developing countries, couples with large families may not be able to send all their children to school and may even lack the resources to adequately feed and clothe them. Poverty-stricken families may find it impossible to accumulate the resources needed to keep children in school, improve health and boost family incomes. At a country level, the resulting lack of capital formation can contribute to economic stagnation and inadequate job creation.

The demographic trap — Nations that achieve significant reductions in mortality without achieving a comparable reduction in fertility experience rapid population growth. In virtually all of the least developed countries, mortality rates, though still high, have fallen much faster than fertility rates, resulting in rapid population growth rates and high child dependency ratios. The danger in these countries is that poverty can perpetuate rapid population growth. Without any form of social security to fall back on, parents rely upon their children to take care of them in their old age. They may believe that having more children will give them greater economic security. Large family size, however, perpetuates poverty, particularly when parents are not able to save money and their children do not receive adequate nutrition and education. Demographers refer to this situation as a “demographic trap” or a “poverty trap.”

The demographic dividend — Countries that successfully lower their fertility rate, not just their mortality rate, can reap what demographers and economists refer to as a “demographic dividend.” As the fertility rate declines, the child dependency rate falls. As a consequence of the smaller family size, children tend to be better educated and nourished and parents can boost their household's economic productivity. At the country level, slower population growth may enable governments to accommodate the growing demand for schools, hospitals, roads and other infrastructure. Slower population growth can also improve a country's access to water and other untapped resources, enabling farmers, for example, to drill wells and governments to build dams. Together, these factors set in motion a virtuous cycle that can create and sustain higher standards of living.

The “demographic dividend,” however, is not guaranteed. A decline in fertility can create a window of opportunity for economic growth, but if the decline in the child dependency rate does not coincide with increased investments in education and public health, the dividend may never materialize. Similarly, if the fall in fertility occurs after a population has reached a critical density, and land and resources are effectively exhausted, the dividend may be very small or non-existent. But if the demographic transition is made in time, and if the freed-up resources are productively employed, the results can be transformative.

The demographic divide — Countries that have undergone the demographic transition, with relatively few exceptions, have much higher incomes than countries that have not, and while a reduction in fertility does not guarantee economic prosperity, it comes close to being a necessary precondition. Unless a country is exceedingly blessed with oil or other natural resources, rapid population growth makes it difficult, if not impossible, to break the bonds of poverty. As with hunger, the demographic divide is sharp.

The United States, Canada and several Western European countries were among the first nations to lower their fertility rates and claim their demographic dividend. In the aftermath of World War II, other nations lowered their fertility rates and saw rapid improvements in their economic


fortunes. The economic successes of Japan and the Asian “tigers” (South Korea, Taiwan, Hong Kong and Singapore), in fact, led demographers and economists to research and document the role of the “demographic dividend” in promoting economic development. After Ireland legalized contraception in 1979, fertility rates dropped sharply, the economy enjoyed a sustained growth spurt and Ireland became known as the “Celtic tiger.”

In recent decades, fertility rates have fallen sharply in many parts of Latin America, and while the economic results have not been quite as impressive as the “Asian tigers,” Brazil, Chile and, more recently, Mexico have scored substantial economic gains and joined the ranks of the “emerging” markets. But in most of sub-Saharan Africa and in several parts of South Asia, the demographic

transition has stalled. Child mortality rates, though still high, have fallen much faster than fertility rates, resulting in rapid population growth rates and high child dependency ratios.

The population/poverty nexus — The big unanswered question for international development efforts is whether the world’s least developed countries will escape the poverty trap. The hope, though it is fading, is that fertility rates will continue to fall and international development assistance will enable these countries to reduce the actual number — and not just the incidence — of people living in extreme poverty.

Measuring extreme poverty is notoriously difficult; many developing countries lack the household surveys needed to provide accurate data. Still, the

|  POPULATION GROWTH IN COUNTRIES WITH HIGH RATES OF POVERTY | | | |
|--|--|----------------|---|
| Country | Multidimensional Poverty Index (MPI) Score | Global Ranking | Projected Population Growth from 2014 to 2050 |
| Niger | 0.584 | 1/91 | 274% |
| Guinea | 0.548 | 2/91 | 106% |
| Ethiopia | 0.54 | 3/91 | 72% |
| Mali | 0.533 | 4/91 | 187% |
| Burkina Faso | 0.508 | 5/91 | 160% |
| Somalia | 0.5 | 6/91 | 151% |
| Guinea-Bissau | 0.495 | 7/91 | 106% |
| Liberia | 0.459 | 8/91 | 114% |
| Burundi | 0.442 | 9/91 | 154% |
| Central African Republic | 0.424 | 10/91 | 102% |
| Madagascar | 0.42 | 11/91 | 136% |
| Sierra Leone | 0.405 | 12/91 | 67% |
| Benin | 0.401 | 13/91 | 109% |
| Democratic Republic of Congo | 0.399 | 14/91 | 172% |
| Mozambique | 0.39 | 15/91 | 153% |
| Senegal | 0.39 | 15/91 | 153% |
| Mauritania | 0.362 | 17/91 | 98% |
| Uganda | 0.359 | 18/91 | 168% |
| Rwanda | 0.352 | 19/91 | 89% |
| Tanzania | 0.335 | 20/91 | 155% |

Sources: UNDP, Multidimensional poverty index (MPI), *Human Development Reports*, 2014, <<http://hdr.undp.org/en/content/multidimensional-poverty-index-mpi>>. Population Reference Bureau, *World Population Data Sheet 2014*, 2014, <http://www.prb.org/pdf14/2014-world-population-data-sheet_eng.pdf>.



larger picture is clear: while significant progress has been made in reducing severe poverty, the vast majority of it has occurred in countries or areas where population growth has slowed and some form of the “demographic dividend” has been realized. The latest UN progress reports²² indicate East Asia and Southeast Asia have already achieved the MDG targets for reducing severe poverty by half between 1990 and 2015. But the UN reports sub-Saharan Africa and many parts of South Asia “still lag behind.” While India has made substantial progress, most of it has occurred in states where population growth rates have substantially abated. In states like Bihar and Uttar Pradesh, where fertility remains high, severe poverty is widespread and shows few signs of receding without a more rapid reduction in fertility.

The overwhelming majority of people living on less than \$1.25 a day belong to two regions: South Asia and sub-Saharan Africa.²³ Monetary measurements, however, may not accurately reflect the extent of poverty or the progress we are making in eradicating it. While the data clearly suggest poverty is retreating in the emerging economies, the rate of global progress may not be as impressive as it appears at first glance. The UN says we have already succeeded in cutting by half the *percentage*

of people living in severe poverty, and by the end of 2015 we may come close to reducing by half the *number* of people in the world living on \$1.25 a day compared to 1990. The latest estimates indicate the number of people living in extreme poverty fell from 1.9 billion in 1990 to 1.2 billion in 2010, but the number of people living on \$2 a day or less shows far less improvement. In 1981, there were an estimated 2.59 billion people living below that monetary threshold; in 2008, an estimated 2.47 billion people were still living on less than \$2 a day.²⁴

The United Nations Development Program maintains a Multidimensional Poverty Index (MPI)²⁵ that seeks to provide a more accurate and comprehensive gauge of poverty. By measuring and weighing multiple deprivations with respect to health, education and standards of living, we get a more nuanced picture. The MPI confirms we are making progress in reducing global poverty but, once again, the biggest gains have been made in countries or regions where fertility rates have fallen relatively fast. Severe poverty, as measured by the MPI, is still closely linked to rapid population growth. Sixteen of the top 20 poorest countries will likely double their populations in the next 35 years, one will triple and the other three will increase their populations by 65 percent or more.

Efforts to “decouple” severe poverty from rapid population growth are failing. Unless more is done to empower girls and women by giving them the ability to determine the spacing and number of their pregnancies, as many as two billion people will continue to live at or near the poverty line.

Population and Water Scarcity

While many countries have an abundance of fresh water, water scarcity in many areas is reaching crisis proportions. Ten years ago, there were an estimated 1 billion people living in water scarce or water stressed regions. By 2050, that number could rise to 3.5 billion.²⁶ While water scarcity afflicts rich and poor nations alike, the poor are far more vulnerable.

URBAN GROWTH, CLIMATE CHANGE AND FRESHWATER AVAILABILITY

Nearly 3 billion additional urban dwellers are forecasted by 2050, an unprecedented wave of urban growth. While cities struggle to provide water to these new residents, they will also face equally unprecedented hydrologic changes due to global climate change. . . . Modeled results show that currently 150 million people live in cities with perennial water shortage, defined as having less than 100 L per person per day of sustainable surface and groundwater flow within their urban extent. By 2050, demographic growth will increase this figure to almost 1 billion people. Climate change will cause water shortage for an additional 100 million urbanites. Freshwater ecosystems in river basins with large populations of urbanites with insufficient water will likely experience flows insufficient to maintain ecological process. Freshwater fish populations will likely be impacted, an issue of special importance in regions such as India's Western Ghats, where there is both rapid urbanization and high levels of fish endemism. Cities in certain regions will struggle to find enough water for the needs of their residents and will need significant investment if they are to secure adequate water supplies and safeguard functioning freshwater ecosystems for future generations.

— Robert I. McDonald *et al.*, "Urban growth, climate change, and freshwater availability."¹

¹ McDonald, R I *et al.*, Urban growth, climate change, and freshwater availability, *Proceedings of the National Academy of Sciences*, Apr. 12, 2011, 108(15): 6312–6317, <http://www.pnas.org/content/108/15/6312.full.pdf+html>.


Wealthy nations that enjoy access to sea water, such as Israel, can afford to supplement their supplies of fresh water by building desalinization plants. Because agriculture accounts for about 70 percent of the water we consume, other nations, such as Saudi Arabia, have reduced their demand for water by growing fewer crops and importing more food. For subsistence farmers, however, there is no substitute for fresh water; it is a matter of life and death. In rural India, dry wells are undoing many of the gains made in the Green Revolution. In Syria, persistent drought has displaced more than a million people and contributed to the political unrest that has led to civil war. Experts describe Yemen as a "hydrological disaster" and warn that Sanaa, its capital city, could run out of water as early as 2025.²

The relationship between population growth and water scarcity is relatively straightforward. If a nation's annual supply of fresh water is constant, a doubling of population will reduce by one half the amount of water available for consumption on a *per capita* basis. Nations, of course, can reduce their demand for water by boosting water productivity. If adequate capital is available, various water conservation strategies can be employed, including water recycling and the use of drip irrigation to grow crops, but the costs can be prohibitively high for subsistence farmers and low-income households. If rainfall is inadequate,

farmers can tap into underground aquifers, but if the withdrawal rate exceeds the rate of natural replenishment, the water table begins to fall and the wells eventually run dry.

For some developing nations water scarcity is simply not a problem. The Democratic Republic of Congo (DRC) is battling hunger and severe poverty, but water is not a constraint, even though its population is expected to soar from 71 million today to nearly 200 million by mid-century.²⁸ Most developing nations, however, are not so fortunate. The World Resources Institute (WRI) last year issued a report indicating that 36 countries are experiencing "very high" water stress, meaning they are consuming more than 80 percent of their annual renewable water supply.²⁹ Projections indicate that 11 of those countries will increase their population by 50 percent or more between now and 2050.

No one really knows how these nations will cope with their projected water deficits, but many will be competing with their neighbors for water resources. WRI's *Aqueduct* project examined the world's largest river basins and found that "18 river basins — flowing through countries with a collective \$US 27 trillion in GDP — face extremely high levels of baseline water stress," meaning "more than 80 percent of the water naturally available to agricultural, domestic and industrial users is withdrawn annually, leaving businesses, farms and communities vulnerable to scarcity."³⁰

|  POPULATION GROWTH IN COUNTRIES WITH “VERY HIGH” WATER STRESS SCORES | | | |
|--|--------------------------------------|----------------|---|
| Country | World Resource Institute (WRI) Score | Global Ranking | Projected Population Growth from 2014 to 2050 |
| Antigua and Barbuda | 5.00 | 1/176 | 40% |
| Bahrain | 5.00 | 1/176 | 38% |
| Barbados | 5.00 | 1/176 | 10% |
| Comoros | 5.00 | 1/176 | 86% |
| Cyprus | 5.00 | 1/176 | 14% |
| Dominica | 5.00 | 1/176 | -10% |
| Jamaica | 5.00 | 1/176 | 0% |
| Malta | 5.00 | 1/176 | -10% |
| Qatar | 5.00 | 1/176 | 30% |
| Saint Lucia | 5.00 | 1/176 | 0% |
| Saint Vincent and the Grenadines | 5.00 | 1/176 | 0% |
| San Marino | 5.00 | 1/176 | 33% |
| Singapore | 5.00 | 1/176 | 27% |
| Trinidad and Tobago | 5.00 | 1/176 | -23% |
| United Arab Emirates | 5.00 | 1/176 | 65% |
| Western Sahara | 5.00 | 1/176 | 33% |
| Saudi Arabia | 4.99 | 17/176 | 38% |
| Kuwait | 4.96 | 18/176 | 78% |
| Oman | 4.91 | 19/176 | 54% |
| Libya | 4.84 | 20/176 | 33% |
| Israel | 4.83 | 21/176 | 69% |
| Kyrgyzstan | 4.82 | 22/176 | 62% |
| Timor-Leste | 4.81 | 23/176 | 142% |
| Iran | 4.78 | 24/176 | 28% |
| Yemen | 4.67 | 25/176 | 49% |
| Palestine | 4.63 | 26/176 | 107% |
| Jordan | 4.59 | 27/176 | 72% |
| Lebanon | 4.54 | 28/176 | 6% |
| Somaliland | 4.38 | 29/176 | n/a |
| Uzbekistan | 4.32 | 30/176 | 24% |
| Pakistan | 4.31 | 31/176 | 79% |
| Turkmenistan | 4.3 | 32/176 | 25% |
| Morocco | 4.24 | 33/176 | 24% |
| Mongolia | 4.05 | 34/176 | 48% |
| Kazakhstan | 4.02 | 35/176 | 42% |
| Afghanistan | 4.01 | 36/176 | 81% |

Sources: Gassert, F, P Reig, T Luo, and A Maddock, Aqueduct country and river basin rankings: a weighted aggregation of spatially distinct hydrological indicators, Working paper, Washington, DC: World Resources Institute, Nov. 2013, <http://www.wri.org/sites/default/files/aqueduct_countrny_rankings_010914.pdf>
 Population Reference Bureau, *World Population Data Sheet 2014*, 2014, <http://www.prb.org/pdf14/2014-world-population-data-sheet_eng.pdf>.

The impact of climate change — Climate change will intensify the scramble for water resources. While the world's annual rainfall may not change appreciably in the decades ahead, climate experts warn areas historically at risk for drought may experience longer dry spells and areas prone to flooding may experience intensified flooding. Many countries, as a result, will see a decline in the amount of annual rainfall that can be usefully employed to address their water needs, and climate change forecasts suggest some of the countries experiencing rapid population growth could be among the worst affected. The African Sahel, in particular, is at serious risk.³¹ Propelled by drought, the Sahara desert is gradually pushing southward, jeopardizing water supplies and food production in countries such as Chad³² and Mauritania,³³ where crop production in some areas has declined by as much as 50 percent in recent years.

A multidimensional threat — The impacts of the global water crisis are not confined to agriculture, sanitation and drinking water. Manufacturing, in one form or another, accounts for about 20 to 25 percent of global water consumption,³⁴ and some industries, such as mining, can consume prodigious amounts of water while at the same time polluting rivers and underground water reservoirs, making water supplies unsuitable for drinking and sanitation. To the extent that water shortages curtail industrial production or expansion, water can be a restraint on economic expansion and the creation of new jobs. Water scarcity, as such, is a multidimensional threat that can adversely affect food security, economic growth, the environment, quality of life and employment prospects.

Developing countries experiencing severe water scarcity will face multiple challenges as they seek to bring their escalating demand for water into balance with a diminishing supply, and while water conservation measures can bring some relief, countries with the highest levels of water stress will confront major challenges if rapid population growth continues.

Population and the Environment

Population growth can put unsustainable pressure on a country's biological capacity resulting in the depletion of natural resources, environmental degradation, the loss of biodiversity and a decline in the quality of life. While some of the resulting damage can be repaired through better environmental management, population growth can complicate efforts to preserve an adequate resource base for future generations, particularly in countries already incurring substantial ecological deficits.

Deforestation – Forests are the lungs of the planet. They store carbon, attract rain, replenish groundwater, mitigate the effects of storms, cool temperatures, stabilize and nurture soils, create animal habitats, preserve biodiversity and deliver countless products that benefit humankind. While resource depletion can take many forms, deforestation is the most visible and perhaps the most devastating. Rapid population growth in poor countries can result in increased deforestation as farmers clear forests to create more farmland, families chop down trees for fuel and charcoal, and loggers, both legal and illegal, level forests for profits and employment. A recent meta-analysis by the Center for Global Development examined 117 cases of deforestation and concluded population growth increases the supply of labor and the local demand for agricultural products, creating a “strong association” with greater deforestation.³⁵

In Haiti, for example, forests covered nearly 60 percent of the country in 1923; today, they cover less than two percent.³⁶ Between 1990 and 2005, Pakistan lost a quarter of its forest cover,³⁷ and while forests now cover only 2.5 percent of the country, its rate of deforestation is still the highest in Asia.³⁸ At one time, about half of Nigeria was forested, but between 1990 and 2010, Nigeria lost more than a third of its forest cover.³⁹

Deforestation has devastating consequences, including increased risk of flooding and the resulting loss of topsoil. Since 1960, about a third of the world's arable land has been lost because of soil erosion, pollution and other forms of degradation.⁴⁰ For economies that depend on agriculture, the consequences can be severe, and while reforestation programs can repair some of the damage, even partial restoration can take decades.



DEMOGRAPHIC VULNERABILITY: AREAS OF GREATEST CONCERN



POPULATION GROWTH IN COUNTRIES LOSING FOREST COVER AT AN ANNUAL RATE OF TWO PERCENT OR MORE (2005-2010)⁴¹

| Country | Annual Rate of Forest Cover Loss (%) 2005-2010 | Population: Rate of Natural Increase (%) 2014 | Projected Population Growth from 2014 to 2050 |
|-------------|--|---|---|
| Comoros | -9.71 | 2.5 | 86% |
| Togo | -5.75 | 2.6 | 107% |
| Nigeria | -4.00 | 2.5 | 123% |
| Uganda | -2.72 | 3.4 | 168% |
| Pakistan | -2.37 | 2.0 | 79% |
| Ghana | -2.19 | 2.5 | 95% |
| Honduras | -2.16 | 2.0 | 43% |
| Guatemala | -2.11 | 2.6 | 97% |
| North Korea | -2.10 | 0.5 | 8% |

Sources: FAO, *Global Forest Resources Assessment 2010*: Main report, Rome: FAO, 2010.

Population Reference Bureau, *World Population Data Sheet 2014*, 2014, <http://www.prb.org/pdf14/2014-world-population-data-sheet_eng.pdf>.

Deforestation, particularly of tropical forests, can be driven by *global* demand for hardwoods, palm oil, minerals, soybeans and other products, but deforestation in many developing countries is driven by *domestic* demand for land and fuel. It is no coincidence that of the nine countries with an annual rate of forest loss of two percent or more between 2005 and 2010, eight have an annual population growth rate, excluding immigration, of two percent or more. Of the nine, only North Korea had a natural rate of population increase of less than two percent a year.

Ecological footprints — Deforestation, however, is only one aspect of resource depletion and environmental degradation. The Global Footprint Network (GFN) calculates the size of humanity's ecological footprint and the extent to which individual countries are maintaining an *ecological*

reserve or running an *ecological deficit*. According to GFN, an ecological reserve exists when the biological capacity of a country exceeds its population's ecological footprint. Conversely, a country incurs an ecological deficit when the ecological footprint of its population exceeds the available biological capacity. If a country is running an ecological deficit, it means the region is importing biological capacity through trade, drawing down its natural assets or emitting wastes into the atmosphere, oceans or other global commons.

While GFN's footprint calculation does not take into consideration the drawdown of *non-renewable* resources, such as metals and minerals, it does serve as a useful starting point for determining whether a country is living within its resource limits. GFN measures a country's total consumption of *renewable* resources and compares that to

ECOLOGICAL FOOTPRINTS FOR NATIONS

In today's world, where humanity is already exceeding planetary limits, ecological assets are becoming more critical. Each country has its own ecological risk profile: Many are running ecological deficits, with footprints larger than their own biological capacity. Others depend heavily on resources from elsewhere, which are under increasing pressure.


In some areas of the world, the implications of ecological deficits can be devastating, leading to resource loss, ecosystem collapse, debt, poverty, famine and war.

— Mathis Wackernagel and André Schneider, "Footprint for Nations"¹

¹ Wackernagel, M and A Schneider, Footprint for Nations, Global Footprint Network and Global Advisory SA, 2014, http://www.footprintnetwork.org/en/index.php/GFN/page/footprint_for_nations/.

its biologically productive land area, including its forests, pastures, cropland and fisheries. Overuse of a country's biological capacity, as measured by the ecological footprint, can also take the form of pollution. In many parts of the developing world, waste products, including human waste, are despoiling rivers and lakes and rendering water unsuitable for agricultural and household use. If the country is consuming or destroying its renewable resources at an unsustainable rate, it runs an ecological deficit which can, in GFN's words, lead to "resource loss, ecosystem collapse, debt, poverty, famine and war."

Some developing nations, like the Central African Republic or Democratic Republic of Congo, are blessed with a large resource base relative to its current population, but most developing nations are not so fortunate. Burundi, one of the poorest and most densely populated countries in the world, is already exceeding its biocapacity by about 167%.⁴² Twenty nations whose population is expected to grow by 80% or more between now and 2050 are already incurring ecological deficits.

|  PROJECTED POPULATION GROWTH IN COUNTRIES INCURRING ECOLOGICAL DEFICITS (2014-2050) | | | |
|---|---------------------------------------|------------------------|-------------------------------------|
| Country | Biocapacity Deficit (gha per capita)* | Biocapacity in Use (%) | Population Growth from 2014 to 2050 |
| Iraq | 1.3 | 533% | 129% |
| Comoros | 0.7 | 333% | 86% |
| Burundi | 0.5 | 267% | 154% |
| Uganda | 0.6 | 200% | 168% |
| Kenya | 0.5 | 200% | 88% |
| Zimbabwe | 0.5 | 183% | 105% |
| Pakistan | 0.3 | 175% | 79% |
| Guatemala | 0.7 | 170% | 97% |
| Nigeria | 0.4 | 167% | 123% |
| Togo | 0.4 | 167% | 107% |
| Sao Tome and Principe | 0.5 | 163% | 100% |
| Rwanda | 0.3 | 160% | 89% |
| Ghana | 0.6 | 155% | 95% |
| Afghanistan | 0.2 | 150% | 81% |
| Benin | 0.4 | 144% | 109% |
| Gambia | 0.3 | 138% | 158% |
| Burkina Faso | 0.2 | 122% | 160% |
| Niger | 0.3 | 121% | 274% |
| Tanzania | 0.2 | 120% | 155% |
| Malawi | 0.1 | 117% | 145% |

*The definition of a global hectare (gha) is a productivity weighted area used to report both the biocapacity of the earth, and the demand on biocapacity (the Ecological Footprint). The global hectare is normalized to the area-weighted average productivity of biologically productive land and water in a given year. Because different land types have different productivity, a global hectare of, for example, cropland, would occupy a smaller physical area than the much less biologically productive pasture land, as more pasture would be needed to provide the same biocapacity as one hectare of cropland.

Sources: © 2015 Global Footprint Network. National Footprint Accounts, 2015 Edition. Licensed and provided solely for non-commercial and informational purposes. Please contact Global Footprint Network at data@footprintnetwork.org for more information.

Population Reference Bureau, *World Population Data Sheet 2014*, 2014, <http://www.prb.org/pdf14/2014-world-population-data-sheet_eng.pdf>.

The drawdown of *non-renewable* resources — principally fossil fuels, metals and minerals — is, by definition, not sustainable, but the extent to which resources are nearing peak production or depletion varies widely. In the case of oil, peak production can occur in a matter of a few decades, and oil reserves can be effectively exhausted within half a century or less. Peak production of any resource, while it lasts, can generate a substantial revenue flow that can be used to compensate for other deficiencies, such as a heavy reliance upon imported food, but unless the revenue stream is profitably invested, countries eventually face a day of reckoning.

A half-century ago, Egypt and Yemen were significant oil producers. In 1985, when Egypt was nearing peak oil production, it had net petroleum exports of nearly 500,000 barrels a day, making it one of the world's leading oil exporters.⁴³ Four years ago, however, Egypt became a net importer of oil, and the oil revenues that formerly helped pay for Egypt's food imports evaporated. Yemen has been highly dependent on oil revenues for the past three decades, but oil production peaked in 2001 and has been declining ever since, causing many experts to wonder how Yemen, one of the world's most water-stressed countries, will feed itself in the decades to come. The International Monetary Fund estimates Yemen would require an oil export price of \$215 a barrel to balance its budget.⁴⁴

All countries deplete their resources and degrade their environment at the peril of future generations, but countries incurring large ecological deficits and rapidly depleting non-renewable resources face — if their population is still growing rapidly — a heightened risk of impoverishment and environmental degradation.

Population and Political Stability

It has long been recognized that population dynamics can affect political stability. In the past two decades much has been written about the challenges created when a country has a disproportionately large number of young people. The “youth bulge,” as it is commonly referred to, can lead to political unrest, and even conflict, as unemployed youth take their grievances to the street. A “youth bulge” can be a transitory concern if fertility rates are falling, but if a country has a stubbornly high fertility rate and a disproportionately high percentage of the population under the age of 15, the “youth bulge” factor can persist for decades. In South Sudan and Yemen, where 42 percent of the population is under the age of 15, and in Somalia, where the percentage is 48 percent, the demographic challenge is stark.⁴⁵

THE EFFECTS OF AGE STRUCTURE ON CONFLICT

Between 1970 and 2007, 80 percent of all new civil conflicts occurred in countries with at least 60 percent of the population younger than age 30. The likelihood of experiencing conflict is highest among countries with “very young” age structures, where up to 77 percent of the population is younger than age 30. Between 2000 and 2007, two-thirds of all new outbreaks of civil conflict occurred in countries with very young age structures: Central African Republic, Côte d'Ivoire, Guinea, Haiti, Mali and Nigeria. PAI's findings are reinforced by empirical analysis by Henrik Urdal at the International Peace Research Institute, who found that after controlling for level of development, regime type, total population size and past outbreaks of conflict, countries with a large “youth bulge” were 150 percent more likely than those with more balanced age structures to experience civil conflict in the last half of the 20th century. The effect is particularly strong for countries with ongoing high fertility rates. While the relationship between age structure and instability is not one of simple cause and effect, the pattern is consistent. There is no single cause of conflict, and precipitating incidents are built on a constellation of deeper issues, of which age structure can be a part.

— Population Action International (PAI), “The Effects of Age Structure on Development”¹

¹ Madsen, E.L., B. Daumerie, and K. Hardee, The effects of age structure on development: policy and issue brief, Washington, DC: Population Action International, 2010. http://populationaction.org/wp-content/uploads/2012/01/SOTC_PIB.pdf.



Demographic projections, while not written in stone, give policymakers an indication of the “shape of things to come,”⁴⁶ and the picture presented for many developing countries is daunting, particularly for countries already experiencing high youth unemployment and rising political unrest. In addition to meeting the escalating demand for food, water and other resources, countries experiencing rapid population growth must also create the jobs that today’s cohort of children will need when they reach adulthood. In developing countries with untapped agricultural potential, the farm economy can continue to expand, but in most developing countries farmland is in short supply and youth in rural areas are moving to the cities in hopes, often vain, of finding gainful employment.

Leaders in developing countries want to replicate the success of China and other emerging economies. They hope new industries will emerge and employ the growing influx of young people needing jobs, but much depends on whether the jobseekers are adequately educated and whether the resources needed to sustain manufacturing will be available. If not, urban unemployment will soar and urbanization will become a liability rather than an asset.

In recent decades, persistent poverty, hunger and political unrest have led to political breakdowns in several countries, creating what has been described as “failing” or “fragile” states. A decade ago, the Fund for Peace and *Foreign Policy* magazine collaborated in the design and publication of an annual “Failed States Index.” Now called the “Fragile States Index,” it ranks 178 nations “based on their levels of stability and the pressures they face.”⁴⁷ In compiling the annual FSI, the Fund for Peace reviews millions of documents. After applying highly specialized search parameters, it scores countries based on 12 key political, social and economic indicators and more than 100 sub-indicators.

In calculating its scores, the FSI includes “demographic pressures”⁴⁸ as one of 12 factors contributing to the final score. Each factor is ranked on a scale of 1-10, with 10 being the worst. Of the 10 states ranked highest on the 2014 FSI, all scored 8.6 or higher for “demographic pressures;” five scored 9.0 or higher. Each of the 20 countries that scored highest for state fragility are experiencing a high rate of population growth. Of those, two have populations projected to triple in the next 35 years, 11 may double their populations and seven will increase their populations by 50 percent or more by 2050.



POPULATION GROWTH IN COUNTRIES WITH HIGH “FRAGILITY” SCORES

| Country | Fragile States Index (FSI) Score | Global Ranking | Projected Population Growth from 2014 to 2050 |
|------------------------------|----------------------------------|----------------|---|
| South Sudan | 112.9 | 1/178 | 236% |
| Somalia | 112.6 | 2/178 | 151% |
| Central African Republic | 110.6 | 3/178 | 102% |
| Democratic Republic of Congo | 110.2 | 4/178 | 172% |
| Sudan | 110.1 | 5/178 | 99% |
| Chad | 108.7 | 6/178 | 181% |
| Afghanistan | 106.5 | 7/178 | 81% |
| Yemen | 105.4 | 8/178 | 49% |
| Haiti | 104.3 | 9/178 | 56% |
| Pakistan | 103.0 | 10/178 | 79% |
| Zimbabwe | 102.8 | 11/178 | 105% |
| Guinea | 102.7 | 12/178 | 106% |
| Iraq | 102.2 | 13/178 | 129% |
| Ivory Coast | 101.7 | 14/178 | 103% |
| Syria | 101.6 | 15/178 | 67% |
| Guinea Bissau | 100.6 | 16/178 | 106% |
| Nigeria | 99.7 | 17/178 | 123% |
| Kenya | 99.0 | 18/178 | 88% |
| Ethiopia | 97.9 | 19/178 | 72% |
| Niger | 97.9 | 19/178 | 274% |

Sources: The Fund for Peace. *Fragile States Index 2014*. Washington, DC: FFP, 2014, <<http://library.fundforpeace.org/library/cfsir1423-fragilestatesindex2014-06d.pdf>>. Population Reference Bureau, *World Population Data Sheet 2014*, 2014, <http://www.prb.org/pdf14/2014-world-population-data-sheet_eng.pdf>.

The FSI, which has ranked countries for 10 years, also provides a useful gauge for determining whether a country is making progress in reducing its “fragility.” In this year’s report, the FSI noted that four countries had suffered “critical worsening” in the past decade. Each of those countries has a current rate of natural population increase of 1.5 percent or above: Guinea Bissau (2.5 percent), Mali (2.9 percent), Senegal (3.2 percent), and Libya (1.7 percent)⁴⁹ Of the 10 countries experiencing “significant worsening” over the past decade, eight had a rate of a natural population increase of 2.0 percent or higher; the only exceptions were South Africa and Greece. Conversely, of the five countries that showed

“significant” improvement in the past decade, all had a natural rate of population increase less than 1.5 percent.

There are many factors that can contribute to state fragility, but rapid population growth in the developing world is a leading cause. Population growth can strain the government’s ability to meet the needs and demands of its citizens, and high fertility rates today ensure a “youth bulge” in future years when today’s children become adolescents and young adults.

CHAPTER TWO

Factors Affecting Demographic Vulnerability



Factors Mitigating Demographic Vulnerability

Population growth is a challenge multiplier, but some countries — particularly those with abundant land and resources — are better able to accommodate projected population growth. Countries with strong institutions and high levels of educational attainment are more resilient in the face of natural disasters or external threats. Positive factors such as these must be taken into account in determining a country's demographic vulnerability.

Various factors can mitigate demographic vulnerability, but chief among them are:

Wealth — Countries with large currency reserves and other forms of wealth are generally more resilient and better able to meet the demands of a growing population. Over the next 35 years,

Saudi Arabia's population is projected to grow by 40 percent, slightly faster than Bangladesh's projected increase of 30 percent. But because of its proven oil reserves and accumulated wealth, Saudi Arabia is almost certainly better positioned to deal with the resulting stresses. While developing countries, almost by definition, lack substantial reserves of wealth, some countries, such as Nigeria, have proven reserves of oil or other resources that can — if appropriately exploited — help to sustain human and economic development. Haiti, by contrast, is a drastically poor country largely devoid of wealth and natural resources and heavily dependent upon foreign remittances for its continued survival. Its population growth rate is significantly lower than Nigeria's, but if Nigeria invests its oil wealth wisely it will make a great deal more progress in advancing human development than Haiti.

Foreign assistance — Developing nations are better able to meet the demands of a growing population if they have a reliable source of foreign aid, including technical assistance. Because of its extremely high dependence on food imports and its projected 70 percent increase in population by 2050, Egypt is demographically stressed, but its demographic vulnerability, at least for the moment, is mitigated by the high level of foreign assistance that it receives from the United States, Saudi Arabia and other wealthy countries in the region. While all developing countries receive some level of foreign assistance, countries, such as Egypt or Yemen, that are deemed strategically important by leading donor nations typically receive more aid.

Unexploited resources — Many developing countries are resource poor, but others have large and relatively unexploited resource reserves that could be used to accelerate human and economic development. Afghanistan and Democratic Republic of Congo, for example, have rapidly growing populations and both are showing signs of severe demographic stress with respect to food, poverty and political instability, but their long-term demographic vulnerability could be relieved to some degree by exploitation of their vast metal and mineral resources.

New commitments to family planning — While demographic projections typically take into account fertility trends, including declining fertility, they may not account for recent changes in government policy that could positively affect fertility trends and result in slower population growth. Two years ago, for example, the Philippines passed a landmark reproductive health law that is improving the affordability and availability of contraceptives for low-income women in that country. Similarly, the president of Uganda recently retreated from his longstanding opposition to family planning, paving the way for the expansion of family planning services and information. Experiences in other developing countries have shown that such changes in government policy or position can have a significant impact on population trends and, as a consequence, reduce a country's demographic vulnerability.

Factors Exacerbating Demographic Vulnerability

Rapid population growth is a challenge-multiplier for any nation struggling to eliminate severe poverty, alleviate hunger, adjust to water scarcity, reduce environmental degradation or ease political unrest, but some nations face additional hurdles to overcoming their demographic vulnerability. These hurdles can impede progress, make necessary reforms more difficult and even slow the demographic transition to lower fertility rates. In determining which countries face the greatest demographic pressures, it is important to take those additional factors into account if they pose significant obstacles to progress.

Climate change — All countries will be affected by climate change in one form or another. For some, the impacts will be minimal and, in rare instances, even beneficial, but for most developing countries, the climate change forecast is not favorable. Some countries, such as Bangladesh, are highly vulnerable to rising seas. Some nations, particularly those in the African Sahel, appear to be at greater risk for drought and desertification. Others, such as Pakistan, could be more susceptible to the intensified flooding associated with climate change.

In many areas, climate change will exacerbate severe poverty, water scarcity and environmental degradation. It could even heighten the risks of conflict. The greatest impact, though, will be in the area of food security. Climatic changes can result in the loss of arable lands, reduce crop and livestock yields, and can even affect the productivity of commercial artisanal fisheries.


While scientists are confident major climatic changes are coming, there is no generally accepted consensus on local climate change forecasts. The chaotic nature of the climate system makes it difficult to predict which countries will endure the greatest increases in temperature or sea level, or which countries will see the worst effects of intensified drought and flooding. But as climatic trends become more pronounced, the risks are coming into sharper focus.

Economic inequality — Some developing countries have an abundance of natural resources which, if exploited, could be expected to boost economic growth, increase resilience and minimize vulnerabilities, but in countries where wealth and income disparities are high, the benefits may flow primarily to the rich, leaving the poor largely unaffected or even worse off. Some observers, such as UCLA's Michael Ross, have actually characterized oil riches as a "curse," arguing that oil-rich developing countries generally have less democracy, heightened economic instability and increased risk of conflict. Similar concerns have been expressed with respect to metal and mineral wealth in nations that suffer from severe economic inequality.

There are various statistical measurements of income inequality, but most scholars and institutions use some form of a Gini coefficient or Gini index. The most commonly cited is the World Bank's Gini index, which measures the extent to which the distribution of income among individuals or households within a country deviates from a perfectly equal distribution.⁵⁰ A Gini index of 0 represents perfect equality (Sweden's Gini index of 25 is the lowest), while an index of 100 implies perfect inequality (Namibia's score, at 63.9, is the highest among countries with a population of greater than one million).⁵¹ While the Gini index is an imperfect analytic tool, its application to developing countries can help identify situations

where nominal increases in national income (from oil exploration or other sources) may have a negligible impact on reducing the number of people living in severe poverty.

Gender inequality — There are many barriers to expanding contraceptive use, but gender inequality is one of the most intransigent. An estimated 225 million women in the developing world want to avoid a pregnancy, but they are not using a modern method of contraception. The Demographic and Health Surveys (DHS) conducted by USAID indicate lack of physical access to contraceptives is not the principal reason for non-use in developing countries. Indeed, in many countries, a small percentage of women of reproductive age cite lack of physical access to contraceptives as their proximate or main reason for non-use. Often, non-use is rooted in cultural norms about the role of women in society. In countries where girls are discouraged from finishing their schooling and are typically married off before they are mature, large families tend to be a deeply rooted social norm. Men, in such circumstances, often oppose the use of contraceptives by their wife or female partner. In such cases a woman's reproductive freedom is limited and expanding physical access to contraceptives may have a limited impact in reducing average family size. Indeed, it is no coincidence nations with high fertility rates generally suffer from gender inequality.

|  POPULATION GROWTH IN COUNTRIES WITH GENDER INEQUALITY | | | |
|--|-------------------------------------|---------|----------------------------|
| Country | Gender Inequality Index (GII) Score | Rank | Total Fertility Rate (TFR) |
| Yemen | 0.733 | 152/152 | 4.4 |
| Niger | 0.709 | 151/152 | 7.6 |
| Chad | 0.707 | 150/152 | 6.6 |
| Afghanistan | 0.705 | 149/152 | 5.1 |
| Mali | 0.673 | 148/152 | 6.1 |
| Democratic Republic of Congo | 0.669 | 147/152 | 6.6 |
| Mozambique | 0.657 | 146/152 | 5.7 |
| Liberia | 0.655 | 145/152 | 4.7 |
| Central African Republic | 0.654 | 144/152 | 6.2 |
| Ivory Coast | 0.645 | 143/152 | 4.9 |

Sources: UNDP, Gender inequality index (GII), *Human Development Reports*, 2014, <<http://hdr.undp.org/en/content/table-4-gender-inequality-index>>. Population Reference Bureau, *World Population Data Sheet 2014*, 2014, <http://www.prb.org/pdf14/2014-world-population-data-sheet_eng.pdf>.

In assessing the human and economic prospects of developing countries, population projections are not to be ignored, but population growth does not occur in a vacuum. Some countries are better equipped to deal with the challenges associated with population growth; others are not.

The United Nations Development Programme (UNDP) publishes an annual Gender Inequality Index (GII)⁵² that measures gender inequalities in more than 150 countries through three lenses: reproductive health (maternal mortality and adolescent birth rates), female empowerment (proportion of parliamentary seats occupied by females and the percentage of females versus males completing secondary education) and economic status (labor market participation of women versus men). Values currently range from .021 to .733; the higher the GII value or score, the greater the disparities between women and men. Nations suffering from high gender inequality tend to have high fertility rates. Niger, which has the highest fertility (7.6 TFR) in the world, is ranked second worst for gender inequality (.709), right behind Yemen (.733). Chad, whose fertility (6.6 TFR) is the third highest in the world, received the third highest score (.707) on the latest GII.

Apart from its impact on fertility, gender inequality is an enormous economic impediment. Adolescent pregnancies and not completing secondary education, for whatever reason, substantially reduce the lifetime earnings of women. As noted by World Bank President Jim Yong Kim, gender equality “plays a vital role in promoting the robust, shared growth needed to end extreme poverty in our increasingly competitive, globalized world.”

Corruption — Poor governance can make it more difficult to respond to the challenges generated by rapid population growth, and corruption is one of the greatest contributors to poor governance in developing countries today. Corruption diverts vitally needed resources, including food and water, from reaching those most in need. Corruption often leads to the improper treatment and storage of wastes and toxic chemicals, accelerating the rate of environmental degradation. Widespread corruption can also breed popular discontent, adding to political unrest and instability.

Transparency International (TI) publishes an annual Corruption Perceptions Index (CPI)⁵³, which seeks to gauge levels of public sector corruption by capturing “the informed views of analysts, businesspeople and experts in countries around the world.” Corruption is certainly not limited to countries experiencing rapid population growth. North Korea, which TI ranks as the world’s second most corrupt government, has a population that is barely growing, but corruption impedes progress in many developing countries with rapidly growing populations. The population of Somalia, which is ranked highest for corruption by the CPI, is projected to increase by about 150 percent over the next 35 years.

Internal or regional conflict — Internal struggles or regional conflict, particularly if they are the result of longstanding ethnic or religious divisions, can make it very difficult for governments to fight hunger and poverty. Persistent conflicts in Somalia and Democratic Republic of Congo have contributed to widespread famine and long-term poverty. As demonstrated by the recent turn of events in Iraq, where Islamic militants have sought to shut off local water supplies, conflict can even exacerbate water scarcity. In some well-documented instances, sustained conflict has contributed to environmental degradation. Carpet bombing and the widespread use of Agent Orange and other defoliants contributed to loss of tropical forests in the Vietnam War. In the 1991 Gulf War, retreating Iraqi troops dumped oil into the Persian Gulf and set fire to the Kuwaiti oilfields, and several years later the Iraqi government punished a Shia uprising by draining the historic Mesopotamian wetlands, which severely damaged a vital bio-habitat and destroyed the local fishing industry. Nature is resilient. In most instances the ecological consequences of war can eventually be reversed, but the human impacts can persist for a generation or longer.

CHAPTER THREE

Population Growth: Key Demographic Indicators

There are several sources of demographic indicators and country-level trends, including periodic reports and projections issued by the United Nations Population Division and the U.S. *Census Bureau*, but this report relies upon the *2014 World Population Data Sheet* published by the Population Reference Bureau (PRB). In assembling its annual data sheet, PRB consults a variety of sources, including official statistical yearbooks, bulletins, Demographic and Health Surveys; the United Nations *Demographic Yearbook, 2012*, and *Population and Vital Statistics Report of the UN Statistics Division*; *World Population Prospects: The 2012 Revision* of the UN Population Division; and the International Data Base of the International Programs Center, U.S. Census Bureau.

The *2014 World Population Data Sheet* provides us with four crucial indicators:

- 1 **Total Fertility Rate (TFR)**, which is defined as, “the average number of children a woman would have assuming that current age-specific birth rates remain constant throughout her childbearing years (usually considered to be ages 15-49).”
- 2 **Rate of Natural Increase**, which is defined as the birth rate minus the death rate. It gives us an estimate of the annual rate of population growth without regard for migration.
- 3 **Population Projections for 2050**, which are made on the basis of “reasonable assumptions on the future course of fertility, mortality and migration,” using official country projections, UN or U.S. Census Bureau projections and its own internally generated projections.
- 4 **Contraceptive Use**, which is the percentage of currently married or in-union women of reproductive age who are using a modern method of contraception.





The first three indicators provide us with valuable insights into how fast population is growing. The last indicates the role contraception plays in regulating fertility. In gauging demographic trends, it is also helpful to look at fertility trends. This year's PRB data sheet provides estimates of the total fertility rates for 1970 and the most current year for which data are available, generally 2013. Trends in fertility influence the population projections made by the UN, the U.S. Census Bureau and PRB, but they also give us insights as to how fast fertility can fall.

The first step in evaluating a country's demographic vulnerability is assessing how fast population is likely to grow. For that purpose, this report relies upon the projected population increases cited in PRB's annual data sheet. It is important to note, however, that demographers refer to these estimates of population increases as "projections" rather than "predictions." They reflect, as indicated above, "reasonable assumptions" about

future fertility, mortality and migration. As such, they can provide us with a rough approximation of a country's demographic trajectory, but projections are not written in stone. Changes in government policy, desired family size and the level of international family planning assistance can significantly alter demographic trends.

There is no commonly accepted definition of rapid population growth, but more than 50 nations have a two percent *rate of natural increase*, which, if maintained, would double the size of the population every 35 years. Because of population dynamics, including age structure and fertility trends, many of those countries will not, in all likelihood, double their population. Still, current projections by the Population Reference Bureau indicate 39 countries are on track to double — or more — their populations in the next 35 years.

| POPULATION: THE FASTEST GROWING COUNTRIES | | | | | |
|---|----------------------------|--------------------------|--------------------------------------|--------------------------------------|------------------------------------|
| Country | Total Fertility Rate (TFR) | Natural Rate of Increase | Population: Mid-Year 2014 (millions) | Projected Population 2050 (millions) | Percent Increase from 2014 to 2050 |
| Niger | 7.6 | 3.90% | 18.2 | 68.0 | 274% |
| South Sudan | 7.0 | 2.40% | 11.7 | 39.3 | 236% |
| Zambia | 6.0 | 3.40% | 15.1 | 49.2 | 226% |
| Mali | 6.1 | 2.90% | 15.9 | 45.6 | 187% |
| Chad | 6.6 | 3.30% | 13.3 | 37.4 | 181% |
| Democratic Republic of Congo | 6.6 | 3.00% | 71.2 | 193.6 | 172% |
| Angola | 6.2 | 3.20% | 22.4 | 60.8 | 171% |
| Uganda | 5.9 | 3.40% | 38.8 | 104.1 | 168% |
| Burkina Faso | 5.9 | 3.10% | 17.9 | 46.6 | 160% |
| Gambia | 5.6 | 3.10% | 1.9 | 4.9 | 158% |
| Tanzania | 5.3 | 3.10% | 50.8 | 129.4 | 155% |
| Burundi | 6.1 | 3.20% | 10.5 | 26.7 | 154% |
| Mozambique | 5.7 | 2.90% | 25.1 | 63.5 | 153% |
| Senegal | 5.3 | 3.20% | 13.9 | 35.1 | 153% |
| Somalia | 6.6 | 3.20% | 10.8 | 27.1 | 151% |
| Mayotte | 4.1 | 2.80% | 0.2 | 0.5 | 150% |
| Malawi | 5.5 | 2.90% | 16.8 | 41.2 | 145% |
| Timor-Leste | 5.7 | 2.70% | 1.2 | 2.9 | 142% |
| Cameroon | 5.1 | 2.70% | 22.8 | 54.3 | 138% |
| Madagascar | 4.4 | 2.70% | 22.4 | 52.8 | 136% |
| Congo | 5.0 | 2.80% | 4.6 | 10.6 | 130% |
| Iraq | 4.1 | 2.60% | 35.1 | 80.5 | 129% |
| Nigeria | 5.6 | 2.50% | 177.5 | 396.5 | 123% |
| Eritrea | 4.7 | 2.60% | 6.5 | 14.3 | 120% |
| Liberia | 4.7 | 2.60% | 4.4 | 9.4 | 114% |
| Benin | 4.9 | 2.70% | 10.3 | 21.5 | 109% |
| Palestine | 4.1 | 2.70% | 4.4 | 9.1 | 107% |
| Togo | 4.7 | 2.60% | 7.0 | 14.5 | 107% |
| Guinea | 5.1 | 2.70% | 11.6 | 23.9 | 106% |
| Guinea Bissau | 5.0 | 2.50% | 1.7 | 3.5 | 106% |
| Zimbabwe | 3.8 | 2.40% | 14.7 | 30.2 | 105% |
| Ivory Coast | 4.9 | 2.30% | 20.8 | 42.3 | 103% |
| Central African Republic | 6.2 | 3.20% | 4.8 | 9.7 | 102% |
| Equatorial Guinea | 4.9 | 2.20% | 0.8 | 1.6 | 100% |
| Sao Tome and Principe | 4.3 | 2.90% | 0.2 | 0.4 | 100% |
| French Guiana | 3.5 | 2.40% | 0.3 | 0.6 | 100% |
| Sudan | 5.2 | 2.50% | 38.8 | 77.1 | 99% |
| Mauritania | 4.1 | 2.60% | 4.0 | 7.9 | 98% |
| Guatemala | 3.8 | 2.60% | 15.9 | 31.3 | 97% |

Source: Population Reference Bureau, *World Population Data Sheet 2014*, 2014, <http://www.prb.org/pdf14/2014-world-population-data-sheet_eng.pdf>.



CHAPTER FOUR

The 20 Most Demographically Vulnerable Countries

This section profiles and ranks the 20 most demographically vulnerable countries and highlights where their vulnerability is greatest. These rankings are inherently subjective, but they rely heavily upon objective measures and indices, including the latest population growth projections and current indicators with respect to hunger, poverty, water scarcity, environmental degradation and political instability. In ranking these countries for demographic vulnerability, consideration is also given to factors that can diminish or increase their ability to cope with the demands of a growing population.

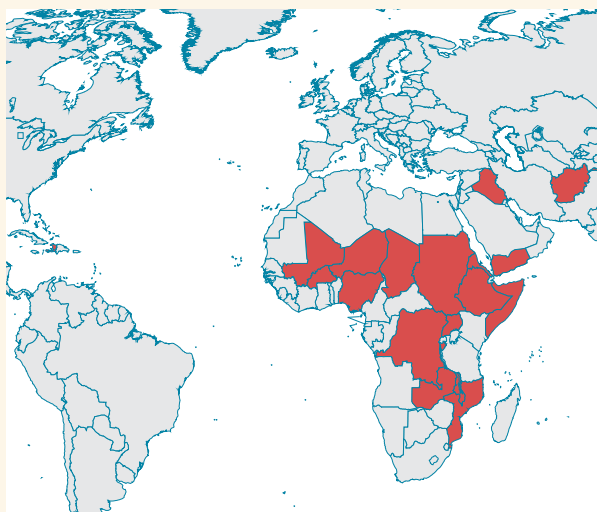
Each country profile provides information regarding:

Population— Current population (2014) and population (2030 and 2050) as projected by PRB.

Level of vulnerability—Each country's ranking (low, moderate, high, or severe) for hunger, poverty, water scarcity, environmental degradation, and political instability

Key Indicator, Score, and Global Rank—Current indicators of stress. For hunger, it is IFPRI's 2014 Global Hunger Index score. For poverty, it is UNDP's 2014 Multidimensional Poverty Index (MPI) score. For water scarcity it is WRI's 2013 Water Stress score. For environmental degradation it is GFN's 2011 estimate of the percentage of biocapacity in use. For political instability, it is FFP's 2014 Fragile States Index score. If a score is not available, another key indicator is selected.

Demographic Indicators—Lifetime births per women (total fertility rate), the rate of natural increase, the projected population growth (2014-2050) percent, and percent of married women using modern contraceptives [PRB, 2014 World Population Data Sheet]



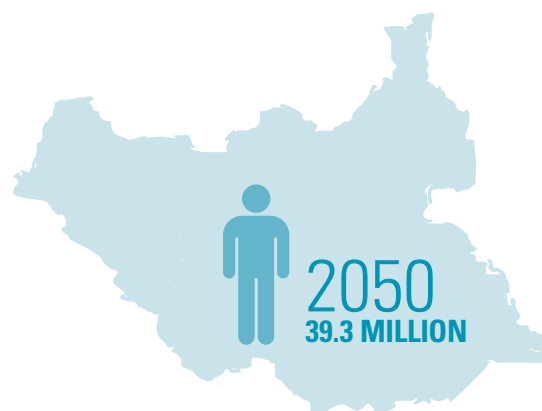
Exacerbating Factors—Factors that could make it more difficult to accommodate projected population growth.

Mitigating Factors—Factors that could make it easier to accommodate projected population growth.






Assessment—A brief summary analysis of the country's demographic vulnerability.

#1 SOUTH SUDAN

POPULATION/PROJECTED POPULATION (PRB)



STRESS INDICATORS

| AREA | LEVEL | KEY INDICATOR | SCORE | GLOBAL RANK |
|---|---------------|---|-------|-------------|
|  HUNGER | Severe | Global Hunger Index (IFPRI) | 26 | #5 |
|  POVERTY | Severe | Poverty headcount at or below national poverty lines (World Bank) | 50.6% | — |
|  WATER SCARCITY | Low | Baseline Water Stress Score (WRI) (0-5) | 0 | — |
|  ENVIRONMENTAL DEGRADATION | Not Available | Percent of Biocapacity in Use (GFN) | — | — |
|  POLITICAL INSTABILITY | Severe | Fragile States Index (FFP) | 112.9 | #1 |

DEMOGRAPHIC INDICATORS (PRB)

7 LIFETIME BIRTHS PER WOMAN (TFR)

2.4% POPULATION RATE OF NATURAL INCREASE

236% PROJECTED POPULATION GROWTH (2014-2050)

1% BIRTH CONTROL: (PERCENT OF MARRIED WOMEN USING MODERN CONTRACEPTIVES)

EXACERBATING FACTORS

Conflict: Since the outbreak of civil war in 1962, Sudan has been the scene of near constant fighting. While the division of Sudan in 2011 generated hopes for peace in the region, those hopes have yet to be realized in South Sudan, where fighting and civil war have resumed. Ethnic divisions and disputes over oil rights dim prospects for a lasting peace.

Corruption: Corruption is a major impediment. South Sudan ranks 171st out of 175 nations on Transparency International's *Corruption Perception Index*.

Climate Change: Drought and desertification in the north will likely intensify, adversely affecting cattle and crops.

Economic Inequality: Typical of nations heavily dependent on oil for revenue, South Sudan suffers from significant economic inequality.

Gender Inequality: While South Sudan does not appear on UNDP's *Gender Inequality Index*, social norms, including child marriage practices, strongly foster gender inequality.

Health: Maternal and infant mortality rates are among the highest in the world.

Refugees: Conflict has resulted in large internal and external displacement.

MITIGATING FACTORS

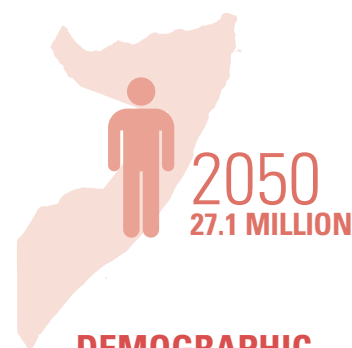
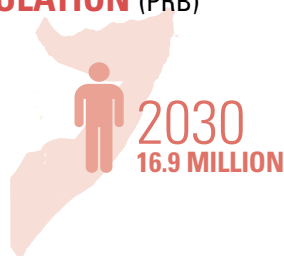
Resources: South Sudan has ample oil and mineral resources. Though internal disputes and conflict with Sudan may limit their exploitation, revenues could help fund economic development.

Foreign Assistance: Since its creation, South Sudan has received significant foreign assistance, and aid levels are expected to remain relatively high in the near term.






ASSESSMENT: While South Sudan has abundant resources, its human and economic development is severely hampered by corruption, ethnic divisions, chronic conflict, lack of infrastructure and economic inequality. Conflict, child marriage and gender norms, combined with a lack of reproductive health services, may slow the decline in fertility and exacerbate the demographic challenge, which is already formidable. The nation may require a high level of humanitarian assistance for decades to come.

#2 SOMALIA

POPULATION/PROJECTED POPULATION (PRB)



STRESS INDICATORS

| AREA | LEVEL | KEY INDICATOR | SCORE | GLOBAL RANK |
|--|--------|--|-------|-------------|
|  HUNGER | High | Percentage of food insecure population (IPC) | 10% | — |
|  POVERTY | Severe | Multidimensional Poverty Index (MPI) | 0.5 | #6 |
|  WATER SCARCITY | Low | Baseline Water Stress Score (WRI) (0-5) | 0.46 | — |
|  ENVIRONMENTAL DEGRADATION | High | Percent of Biocapacity in Use (GFN) | 92% | — |
|  POLITICAL INSTABILITY | Severe | Fragile States Index (FFP) | 112.6 | #2 |

DEMOGRAPHIC INDICATORS (PRB)

6.6 LIFETIME BIRTHS PER WOMAN (TFR)

3.2% POPULATION RATE OF NATURAL INCREASE

151% PROJECTED POPULATION GROWTH (2014-2050)

1% BIRTH CONTROL: (PERCENT OF MARRIED WOMEN USING MODERN CONTRACEPTIVES)

EXACERBATING FACTORS

Conflict: Afflicted by a bloody civil war that began in 1991, Somalia is frequently categorized as a “fragile” or “failed” state. The conflict has severely disrupted the economy. The central government has been largely ineffectual and, at times, non-existent. While the UN is actively working with Somalia’s army to contain the Al-Shabaab insurgency, a permanent peace remains elusive.

Corruption: Somalia ranks 174th out of 175 nations on Transparency International’s *Corruption Perception Index*. Somalia has significant oil and gas resources, but corruption and conflict have slowed their development.ⁱ

Climate Change: Somalia’s arid regions, especially in the northeast, are highly susceptible to drought. A severe drought in 2011, combined with the ongoing conflict, created a near famine in the south. Four million people, almost 40 percent of the population, were affected, and nearly a million people remain in a “crisis” situation.ⁱⁱ

Gender Inequality: Gender inequality is a major barrier to progress, Somalia had the fourth highest score on UNDP’s 2012 *Gender Inequality Index*.

Health: Maternal and infant mortality rates are among the highest in the world.

Refugees: Somalia has close to a million internally displaced persons.ⁱⁱⁱ

MITIGATING FACTORS

Resources: If peace is restored, oil production could expand and proven reserves of natural gas could be tapped, allowing the government to address critically needed infrastructure, including water storage facilities in drought susceptible regions.

ASSESSMENT: One of the poorest nations in the world, Somalia’s economy is heavily dependent on oil, remittances and cattle for its survival. While oil revenues and remittances may continue to expand, growth of the cattle industry will likely be hampered by drought and a shortage of grazing land. Unless a permanent peace can be achieved, corruption curtailed and a strong central government restored, Somalia will have great difficulty building an economy capable of supporting 27 million people by mid-century. In the meantime, Somalia will require large amounts of external assistance, including emergency food aid. Any progress in reducing poverty and hunger will be slow.

#3 NIGER

POPULATION/PROJECTED POPULATION (PRB)



STRESS INDICATORS

| AREA | LEVEL | KEY INDICATOR | SCORE | GLOBAL RANK |
|---------------------------|--------|---|-------|-------------|
| HUNGER | Severe | Global Hunger Index (IFPRI) | 21.1 | #14 |
| POVERTY | Severe | Multidimensional Poverty Index (MPI) | 0.584 | #1 |
| WATER SCARCITY | Low | Baseline Water Stress Score (WRI) (0-5) | 0.11 | — |
| ENVIRONMENTAL DEGRADATION | Severe | Percent of Biocapacity in Use (GFN) | 121% | — |
| POLITICAL INSTABILITY | Severe | Fragile States Index (FFP) | 97.9 | #19 |

DEMOGRAPHIC INDICATORS (PRB)

| | |
|------|---|
| 7.6 | LIFETIME BIRTHS PER WOMAN (TFR) |
| 3.9% | POPULATION RATE OF NATURAL INCREASE |
| 274% | PROJECTED POPULATION GROWTH (2014-2050) |
| 8% | BIRTH CONTROL: (PERCENT OF MARRIED WOMEN USING MODERN CONTRACEPTIVES) |

EXACERBATING FACTORS

Conflict: Despite decades of political instability, Niger has been relatively peaceful. In the past year however, Boko Haram has made inroads. Given Niger's severe poverty and the growing strength of Boko Haram in the country's north, concern is rising.

Corruption: Corruption, along with the difficulty of doing business in Niger, has discouraged private investment outside the mining industries. Niger ranks 103rd out of 175 nations on Transparency International's *Corruption Perception Index*.

Climate Change: Extreme drought, already a major concern, could add to Niger's chronic food insecurity.

Gender Inequality: Niger suffers from a very high degree of gender inequality. It has the second highest score on UNDP's *Gender Inequality Index*.

Health: Maternal and infant mortality rates are among the highest in the world.

Dependence on Emergency Food Relief: Extreme drought has led to numerous food crises and a growing dependence on the World Food Programme for emergency aid.

MITIGATING FACTORS

Resources: Niger has substantial reserves of uranium and gold, but a sustained decline in uranium prices has reduced export earnings. Oil output, however, is increasing.

Water: Niger has substantial underground water reserves that could help boost crop production and minimize the impacts of drought, but it may not be able to afford the necessary infrastructure.






ASSESSMENT: Niger, which by some measures is the poorest country in the world, is also the fastest growing in terms of population. Its fertility rate is the highest in the world and social norms support large families. When severe drought has occurred, as has happened several times in the past 15 years, the World Food Programme has mobilized to prevent starvation. Young children in many parts of Niger are in chronic danger of malnutrition and stunting. The export earnings produced by oil and mineral exploration are not able to alleviate the severe poverty and hunger, and climate change could make matters worse. Though Niger has a relatively peaceful history, Islamic militants could destabilize the country and its fragile economy.

#4 BURUNDI

POPULATION/PROJECTED POPULATION (PRB)



STRESS INDICATORS

| AREA | LEVEL | KEY INDICATOR | SCORE | GLOBAL RANK |
|--|--------|---|-------|-------------|
|  HUNGER | Severe | Global Hunger Index (IFPRI) | 35.6 | #1 |
|  POVERTY | Severe | Multidimensional Poverty Index (MPI) | 0.442 | #9 |
|  WATER SCARCITY | Low | Baseline Water Stress Score (WRI) (0-5) | 0 | — |
|  ENVIRONMENTAL DEGRADATION | Severe | Percent of Biocapacity in Use (GFN) | 267% | — |
|  POLITICAL INSTABILITY | Severe | Fragile States Index (FFP) | 97.1 | #21 |

DEMOGRAPHIC INDICATORS (PRB)

6.1 LIFETIME BIRTHS PER WOMAN (TFR)

3.2% POPULATION RATE OF NATURAL INCREASE

154% PROJECTED POPULATION GROWTH (2014-2050)

18% BIRTH CONTROL: (PERCENT OF MARRIED WOMEN USING MODERN CONTRACEPTIVES)

EXACERBATING FACTORS

Conflict: Burundi's civil war, which raged from 1993-2006, is over, but the potential for conflict remains. The Hutu/Tutsi division, along with resource scarcity, economic inequality, severe poverty and regional strife dim prospects for a permanent peace. National elections in 2015 could be a crucial test.

Corruption: Corruption is a major concern. Burundi ranks 159th out of 175 nations on Transparency International's *Corruption Perception Index*.

Climate Change: Increased drought is expected in the northern and eastern provinces, while the remainder of the country could see increased flooding. Maize production could suffer.

Gender Inequality: Burundi does better than many of its neighbors by some measures of gender equality, but child marriage is still prevalent.

Health: Maternal and infant mortality rates are among the highest in the world.

Refugees: Conflict has resulted in large internal and external displacement.

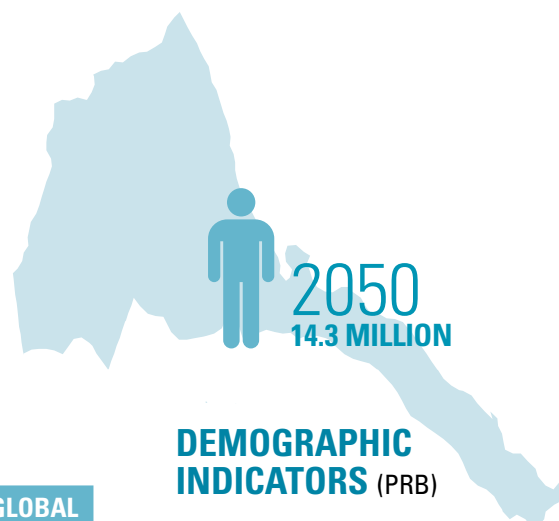
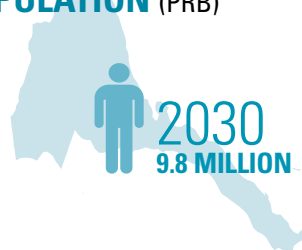
MITIGATING FACTORS

Foreign Assistance: Burundi receives a substantial amount of foreign assistance, but if donor fatigues sets in, the level of support could decline.






ASSESSMENT: Burundi has enjoyed nearly a decade of relative peace following its civil war, but it still has a long way to go in addressing the causes that sparked earlier genocidal conflict. Its total fertility rate (6.1) is among the highest in the world and a substantial barrier to reducing poverty and alleviating hunger. Child marriage contributes to large family size. A densely populated country, Burundi also suffers from an acute shortage of arable land. Intensive farming has resulted in significant deforestation and loss of topsoil. Population growth threatens to overwhelm the country's fragile resource base.

#5 ERITREA

POPULATION/PROJECTED POPULATION (PRB)



STRESS INDICATORS

| AREA | LEVEL | KEY INDICATOR | SCORE | GLOBAL RANK |
|---|----------|---|-------|-------------|
|  HUNGER | Severe | Global Hunger Index (IFPRI) | 33.8 | #2 |
|  POVERTY | Severe | Poverty headcount at or below national poverty lines (World Bank) | 69% | — |
|  WATER SCARCITY | High | Baseline Water Stress Score (WRI) (0-5) | 3.02 | — |
|  ENVIRONMENTAL DEGRADATION | Moderate | Percent of Biocapacity in Use (GFN) | 38% | — |
|  POLITICAL INSTABILITY | Severe | Fragile States Index (FFP) | 95.5 | #23 |

DEMOGRAPHIC INDICATORS (PRB)

4.7 LIFETIME BIRTHS PER WOMAN (TFR)

2.6% POPULATION RATE OF NATURAL INCREASE

120% PROJECTED POPULATION GROWTH (2014-2050)

7% BIRTH CONTROL: (PERCENT OF MARRIED WOMEN USING MODERN CONTRACEPTIVES)

EXACERBATING FACTORS

Conflict: After a long struggle with Ethiopia, Eritrea declared its independence in 1993. Hostilities resumed from May 1998 through June 2000, but Eritrea preserved its independence. While the conflict subsided, tensions along the disputed border remain high. Eritrea could be potentially affected by other disputes within the region, including border disagreements with Djibouti and to Eritrea's support for militant factions in neighboring Somalia.

Corruption: Eritrea ranks 166th out of 175 nations on Transparency International's latest *Corruption Perception Index*, and the World Bank lists Eritrea as one of the most difficult places in the world to do business due to the level of corruption.

Climate Change: Rising temperatures and intensified drought threaten livestock and crop yields. Subsistence farmers, in particular, are at risk. Eritrea has a long coastline; marine and coastal resources could be impacted by rising seas.

Gender Inequality: In Social Watch's *Gender Equity Index (GEX)*, Eritrea ranked high for gender inequality (134th out of 168 countries).

Health: Maternal and infant mortality rates are among the highest in the world.

Foreign Assistance: Eritrea, which has been sanctioned by the United Nations for its role in Somalia, refuses to take any foreign assistance.

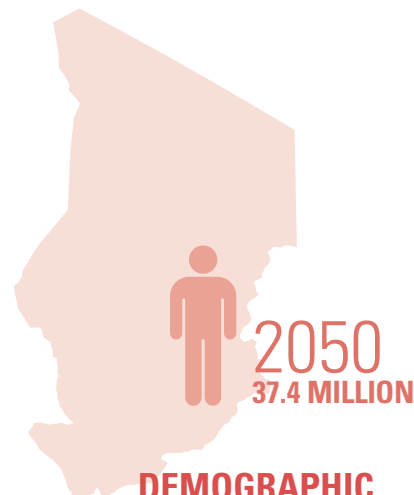
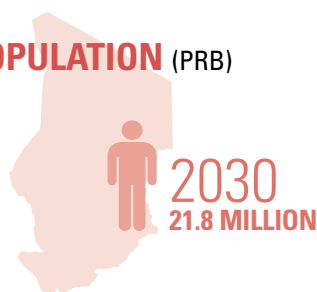
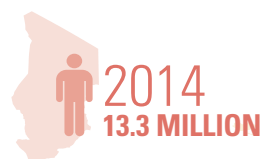
MITIGATING FACTORS

Resources: Eritrea has significant deposits of copper, gold, granite, marble and potash. Mining in recent years has helped revive the economy.






ASSESSMENT: Despite a paucity of current data, poverty in Eritrea is believed to be very high, as are hunger and malnutrition. Eritrea has enjoyed a mini boom in recent years as a result of expanded mineral exploration, but growth prospects are still limited. Even if Eritrea avoids further conflict with its neighbors, political and regulatory barriers, along with gender inequality, will make it difficult for the government to maintain its economic momentum, particularly if commodity prices for gold and copper remain low. Expanded contraceptive use could slow Eritrea's population growth, but significant cultural and informational barriers would have to be overcome.

#6 CHAD

POPULATION/PROJECTED POPULATION (PRB)



STRESS INDICATORS

| AREA | LEVEL | KEY INDICATOR | SCORE | GLOBAL RANK |
|--|----------|---|-------|-------------|
|  HUNGER | Severe | Global Hunger Index (IFPRI) | 24.9 | #6 |
|  POVERTY | Severe | Poverty headcount at or below national poverty lines (World Bank) | 46.7% | — |
|  WATER SCARCITY | Moderate | Baseline Water Stress Score (WRI) (0-5) | 0.52 | — |
|  ENVIRONMENTAL DEGRADATION | Moderate | Percent of Biocapacity in Use (GFN) | 54% | — |
|  POLITICAL INSTABILITY | Severe | Fragile States Index (FFP) | 108.7 | #6 |

DEMOGRAPHIC INDICATORS (PRB)

6.6 LIFETIME BIRTHS PER WOMAN (TFR)

3.3% POPULATION RATE OF NATURAL INCREASE

181% PROJECTED POPULATION GROWTH (2014-2050)

2% BIRTH CONTROL: (PERCENT OF MARRIED WOMEN USING MODERN CONTRACEPTIVES)

EXACERBATING FACTORS

Conflict: Regional conflict threatens the peace and stability of Chad, which hosts nearly half a million refugees.

Corruption: Chad ranks 154th out of 175 nations on Transparency International's *Corruption Perception Index*. Regulatory barriers to foreign investment, along with significant corruption, make Chad one of the world's worst places to do business.

Climate Change: As drought intensifies, the Sahel is expanding and Lake Chad is shrinking.

Gender Inequality: The status of women is bad, Chad has the third highest score on UNDP's *Gender Inequality Index*.

Health: Maternal and infant mortality rates are among the highest in the world.

Refugees: A flood of refugees from Nigeria, the Central African Republic and South Sudan has created a humanitarian crisis requiring emergency food relief.

MITIGATING FACTORS

Resources: Chad has substantial reserves of oil, but the decline in prices will reduce export earnings in the near term.






ASSESSMENT: Rapid population growth, climate change, competing water claims and regional conflict vastly complicate Chad's future. While emergency food relief helped ease the food crisis, the long-term prognosis is not good. Population growth, in particular, is a major challenge. The primary barriers to fertility reduction in Chad are cultural and informational. The status of women is extremely low; husbands generally desire large families, and commonly accepted misinformation about side effects is a deterrent to contraceptive use. Climate change and water scarcity will adversely affect food production, increasing Chad's dependence on external food aid. Cotton production will also suffer. Oil reserves will help, but by mid-century oil production and revenues will likely be in decline without an alternative source of export earnings.

#7 DEMOCRATIC REPUBLIC OF CONGO (DRC)

POPULATION/PROJECTED POPULATION (PRB)



STRESS INDICATORS

| AREA | LEVEL | KEY INDICATOR | SCORE | GLOBAL RANK |
|--|--------|--|-------|-------------|
|  HUNGER | High | Percentage of food insecure population (IPC) | 9% | — |
|  POVERTY | Severe | Multidimensional Poverty Index (MPI) | 0.399 | #14 |
|  WATER SCARCITY | Low | Baseline Water Stress Score (WRI) (0-5) | 0.01 | — |
|  ENVIRONMENTAL DEGRADATION | Low | Percent of Biocapacity in Use (GFN) | 26% | — |
|  POLITICAL INSTABILITY | Severe | Fragile States Index (FFP) | 110.2 | #4 |

DEMOGRAPHIC INDICATORS (PRB)

6.6 LIFETIME BIRTHS PER WOMAN (TFR)

3% POPULATION RATE OF NATURAL INCREASE

172% PROJECTED POPULATION GROWTH (2014-2050)

5% BIRTH CONTROL: (PERCENT OF MARRIED WOMEN USING MODERN CONTRACEPTIVES)

EXACERBATING FACTORS

Conflict: Wracked by a civil war that commenced in 1996, conflict, famine and disease have claimed an estimated 5 million lives over the past two decades. A new constitution went into effect in 2006 and foreign troops withdrew, but fighting in many areas continued, complicating efforts to restore the economy.

Corruption: Corruption became deeply entrenched during Mobutu Sese Seko's rule (1965-1997). Today, despite efforts to root out corruption, DRC ranks 154th out of 175 nations on Transparency International's latest *Corruption Perception Index*. DRC has abundant mineral resources, but corruption and conflict make it one of the world's most difficult places in the world to do business.

Climate Change: Nationwide, DRC has ample water resources, but drought in some areas, including Kinshasa, could adversely affect food production.

Economic Inequality: Like many mineral rich countries, DRC suffers from significant economic inequality.

Gender Inequality: The low status of women is a barrier to progress. DRC has the sixth highest score on UNDP's *Gender Inequality Index*.

Health: Maternal and infant mortality rates are among the highest in the world.

Refugees: DRC has more than 2 million internally displaced persons, and more than 400,000 people have fled to neighboring countries.

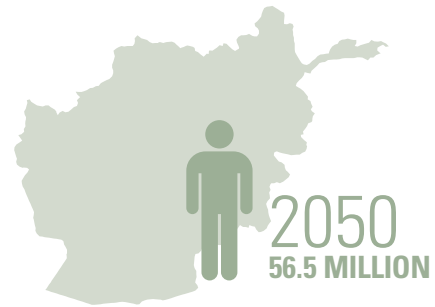
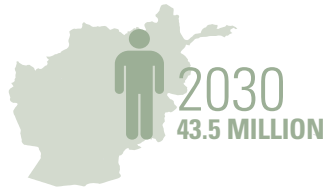
MITIGATING FACTORS

Resources: DRC has vast mineral resources and will likely qualify for compensation under the UN's Reducing Emissions from Deforestation and Degradation (REDD) program. DRC also has significant hydroelectric potential.






ASSESSMENT: Despite an abundance of minerals, forests and water, progress is slow in the fights against hunger, poverty and disease. Conflict, corruption and economic inequality negate its vast potential. Absent improvements in gender equality and changes in social norms, DRC's rapid population growth could set back efforts to eradicate severe poverty. According to the latest Demographic and Health Survey (2013-14),^{vi} 37 percent of women age 20-24 were married before age 18. Congolese men want, on average, seven children, while women would like six. Because of child marriage and large family norms, contraceptive use has been very slow to expand.

#8 AFGHANISTAN

POPULATION/PROJECTED POPULATION (PRB)



STRESS INDICATORS

| AREA | LEVEL | KEY INDICATOR | SCORE | GLOBAL RANK |
|--|--------|--|-------|-------------|
|  HUNGER | Severe | Percentage of food insecure population (IPC) | 23.4% | — |
|  POVERTY | High | Multidimensional Poverty Index (MPI) | 0.293 | #26 |
|  WATER SCARCITY | Severe | Baseline Water Stress Score (WRI) (0-5) | 4.01 | — |
|  ENVIRONMENTAL DEGRADATION | Severe | Percent of Biocapacity in Use (GFN) | 150% | — |
|  POLITICAL INSTABILITY | Severe | Fragile States Index (FFP) | 106.5 | #7 |

DEMOGRAPHIC INDICATORS (PRB)

5.1 LIFETIME BIRTHS PER WOMAN (TFR)

2.7% POPULATION RATE OF NATURAL INCREASE

81% PROJECTED POPULATION GROWTH (2014-2050)

20% BIRTH CONTROL: (PERCENT OF MARRIED WOMEN USING MODERN CONTRACEPTIVES)

EXACERBATING FACTORS

Conflict: Despite a peaceful transfer of power and recent gains in the field against the Taliban, Afghanistan remains mired in conflict, with no realistic end in sight.

Corruption: Afghanistan ranks 172nd out of 175 nations on Transparency International's latest *Corruption Perception Index*, and corruption may be increasing.

Climate Change: Increased drought is likely to compound concerns about desertification and soil erosion. In some areas, increased flooding could be a problem. Subsistence farmers, including poppy producers, could be severely affected.

Gender Inequality: Gender inequality is severe, particularly in rural areas where girls often marry at a very early age. In 2013, Afghanistan received the fourth highest score on UNDP's *Gender Inequality Index*. Afghanistan has been labeled by some observers as the "worst place in the world to be a woman."

Health: Despite significant investments in health delivery systems over the past decade, maternal and infant mortality rates are among the highest in the world.

MITIGATING FACTORS

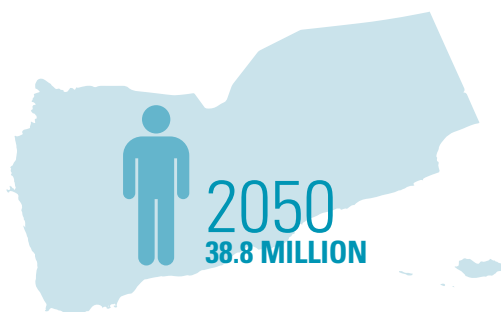
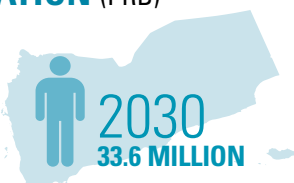
Resources: Afghanistan has large, unexploited mineral and gas deposits. These resources could help fuel economic growth and poverty reduction for decades to come, but conflict, corruption and water scarcity stand as barriers to successful development.

Foreign Assistance: As long as the Taliban does not seize power, Afghanistan will continue to receive generous amounts of aid from the United States and its NATO allies.






ASSESSMENT: With no end in sight to the fighting, it will be extremely difficult for Afghanistan to realize its economic and human development potential. Even with massive amounts of Western aid, far too little progress has been made reducing poverty and lowering mortality rates. Even less progress has been made improving the status of women. And while there has been a decline in fertility, those gains could be lost if the Taliban extends its area of effective control or the current government falls. Climate change may not have a major impact on conditions in Afghanistan, but under the best scenarios, water scarcity will likely restrain economic growth prospects. With appropriate infrastructure investments, Afghanistan could mitigate its water scarcity problems, but such improvements are unlikely to materialize any time soon.

#9 YEMEN

POPULATION/PROJECTED POPULATION (PRB)



STRESS INDICATORS

| AREA | LEVEL | KEY INDICATOR | SCORE | GLOBAL RANK |
|--|--------|---|-------|-------------|
|  HUNGER | Severe | Global Hunger Index (IFPRI) | 23.4 | #8 |
|  POVERTY | High | Multidimensional Poverty Index (MPI) | 0.191 | #41 |
|  WATER SCARCITY | Severe | Baseline Water Stress Score (WRI) (0-5) | 4.67 | — |
|  ENVIRONMENTAL DEGRADATION | Severe | Percent of Biocapacity in Use (GFN) | 160% | — |
|  POLITICAL INSTABILITY | Severe | Fragile States Index (FFP) | 105.4 | #8 |

DEMOGRAPHIC INDICATORS (PRB)

4.4 LIFETIME BIRTHS PER WOMAN (TFR)

2.8% POPULATION RATE OF NATURAL INCREASE

49% PROJECTED POPULATION GROWTH (2014-2050)

29% BIRTH CONTROL: (PERCENT OF MARRIED WOMEN USING MODERN CONTRACEPTIVES)

EXACERBATING FACTORS

Conflict: Over the past 50 years, Yemen has endured chronic political instability, internal conflict, and on more than one occasion, civil war between the north and south. In recent years, al-Qaeda has become a destabilizing force, and with the takeover of the capital by Houthi rebels, Yemen, once again, is on the brink of civil war.

Corruption: Yemen suffers from pervasive corruption. It ranked 161st out of 175 on Transparency International's *Corruption Perception Index*.

Resources: Oil revenues are in sharp decline because of dwindling production and falling prices.

Climate Change Forecast: Yemen will likely lose coastal areas to sea level rise. Malaria will extend into the mountainous regions. Crop yields will fall if drought and flooding intensify.

Gender Inequality: Yemen received the world's worst ranking on the UNDP's *Gender Inequality Index*. Child marriage is prevalent in rural areas.

MITIGATING FACTORS

Water Conservation Potential: Water scarcity in rural areas could be relieved by curbing production of qat, a narcotic plant and major cash crop for Yemeni farmers.

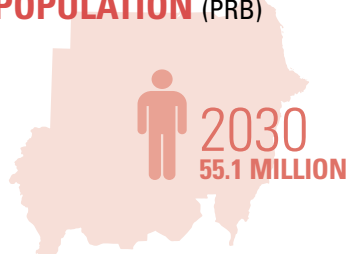
Natural Gas: Yemen has shale gas deposits that are commercially exploitable.

Foreign Assistance: While Yemen has received substantial support from the United States and Saudi Arabia, the government's collapse could trigger a sustained shutoff of aid.






ASSESSMENT: Yemen is on the verge, once again, of civil war. Even if some form of peace agreement can be implemented, political instability and terrorism will likely persist. Often labeled a "failed" state, Yemen is living up to its reputation. With the collapse of the central government, basic services will be jeopardized, the economy will suffer and efforts to combat poverty and hunger will falter. If the political situation can be stabilized, Yemen still must address the problem of water scarcity. Water tables in many areas are falling at an alarming rate. Sanaa, the capital, could run out of water within a decade. Food, too, will be a major challenge unless Yemen's population growth is slower than projected.

#10 SUDAN

POPULATION/PROJECTED POPULATION (PRB)



STRESS INDICATORS

| AREA | LEVEL | KEY INDICATOR | SCORE | GLOBAL RANK |
|--|---------------|---|-------|-------------|
|  HUNGER | Severe | Global Hunger Index (IFPRI) | 26 | #5 |
|  POVERTY | Severe | Poverty headcount at or below national poverty lines (World Bank) | 46.5% | — |
|  WATER SCARCITY | Low | Baseline Water Stress Score (WRI) (0-5) | 0.91 | — |
|  ENVIRONMENTAL DEGRADATION | Not Available | Percent of Biocapacity in Use (GFN) | — | — |
|  POLITICAL INSTABILITY | Severe | Fragile States Index (FFP) | 110.1 | #5 |

DEMOGRAPHIC INDICATORS (PRB)

5.2 LIFETIME BIRTHS PER WOMAN (TFR)

2.5% POPULATION RATE OF NATURAL INCREASE

99% PROJECTED POPULATION GROWTH (2014-2050)

N/A BIRTH CONTROL: (PERCENT OF MARRIED WOMEN USING MODERN CONTRACEPTIVES)

EXACERBATING FACTORS

Conflict: Despite a peace agreement with South Sudan, Sudan remains highly vulnerable to conflict. Darfur, in particular, is a hot spot. Communal violence persists in many parts of Sudan and more than 2 million people are displaced. In South Kordofan and in the Blue Nile region, Sudanese government forces are fighting the Sudan Revolutionary Front (SRF). Longer term, ethnic and tribal divisions, along with severe poverty, make Sudan highly susceptible to internal conflict.

Corruption: Sudan suffers from rampant corruption, ranking 173rd out of 175 nations on Transparency International's latest *Corruption Perception Index*.

Climate Change: Sudan's arid regions, particularly in the north, are prone to intensified drought and desertification. Sorghum yields, in particular, could be impacted by drought and higher temperatures.

Gender Inequality: Sudan ranks very high on UNDP's *Gender Inequality Index*, 13th out of 152 countries. A 1991 law permits children to marry at age 10. In some areas, three out of five girls marry before age 18.

Health: Maternal and infant mortality rates are among the highest in the world.

MITIGATING FACTORS

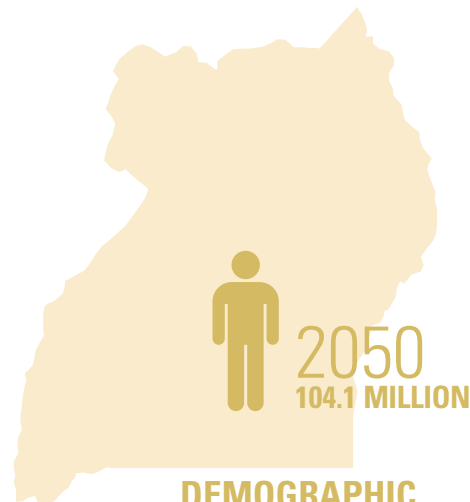
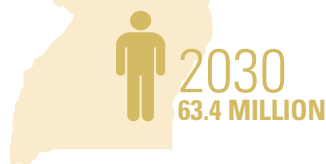
Resources: Oil production is limited, but if peace is restored, economic development in Sudan could get a boost from its copper, gold and silver deposits. Economic inequality and deeply rooted corruption, however, could limit the beneficial impact on longer-term economic development.

Foreign assistance: If Sudan successfully reins in its human rights abuses, it could receive substantial assistance from the United States and other donor countries.






ASSESSMENT: Often classified as a "failed state," Sudan faces an uphill struggle, made all the more challenging by a population that could easily double over the next 35 years. While the fighting has somewhat ebbed, conflict is likely to persist in some form for decades, making it very difficult to exploit resources in a way that promotes sustainable development. The legally sanctioned practice of child marriage is a major impediment to lowering fertility. Climate change will hinder efforts to boost crop production of its basic staples (sorghum and wheat) and its two major cash crops, cotton and peanuts.

#11 UGANDA

POPULATION/PROJECTED POPULATION (PRB)



STRESS INDICATORS

| AREA | LEVEL | KEY INDICATOR | SCORE | GLOBAL RANK |
|--|--------|---|-------|-------------|
|  HUNGER | High | Global Hunger Index (IFPRI) | 17 | #21 |
|  POVERTY | Severe | Multidimensional Poverty Index (MPI) | 0.359 | #18 |
|  WATER SCARCITY | Low | Baseline Water Stress Score (WRI) (0-5) | 0 | — |
|  ENVIRONMENTAL DEGRADATION | Severe | Percent of Biocapacity in Use (GFN) | 200% | — |
|  POLITICAL INSTABILITY | Severe | Fragile States Index (FFP) | 96 | #22 |

DEMOGRAPHIC INDICATORS (PRB)

5.9 LIFETIME BIRTHS PER WOMAN (TFR)

3.4% POPULATION RATE OF NATURAL INCREASE

168% PROJECTED POPULATION GROWTH (2014-2050)

26% BIRTH CONTROL: (PERCENT OF MARRIED WOMEN USING MODERN CONTRACEPTIVES)

EXACERBATING FACTORS

Conflict: After two decades of fierce fighting in northern Uganda, and Uganda's involvement in the First Congo War (1996-97), Uganda is a more peaceful place. The Lord's Resistance Army has been largely defeated, but severe poverty and the presence of other militant groups still pose a threat to peace and stability, particularly in the north.

Corruption: Uganda ranks 142nd out of 175 nations on Transparency International's latest *Corruption Perception Index*, and oil exploration could exacerbate the corruption.

Climate Change: While most of Uganda is not widely affected by drought, the northeast is susceptible, and other parts of Uganda could see intensified flooding as a result of climate change. Uganda could also suffer from increased incidence of malaria and dengue fever. Rising temperatures could adversely affect production of coffee, a major cash crop.

Gender Inequality: Uganda has the 38th highest score on UNDP's *Gender Inequality Index*. Child marriage is prevalent, particularly in rural areas.

Health: Early pregnancies and inadequate health care services contribute to a high maternal death rate, while pneumonia, diarrhea, malaria and malnutrition produce a very high child mortality rate.

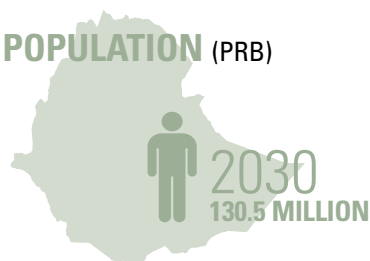
MITIGATING FACTORS

Resources: Uganda has significant oil reserves, which could help fund human and economic development.






ASSESSMENT: One of the poorest countries in the world, Uganda faces an ongoing demographic challenge. Its population over the past 65 years has grown from 5 million to 38 million, and the latest projections indicate the population could grow to 104 million by 2050. At current rates of deforestation, Uganda could lose all its forests by mid-century. Abundant oil and water resources could help propel economic development, but progress will be mitigated by climate change, corruption and gender inequality. Internal conflict could also hinder development, as could a reduction of foreign assistance resulting from proposed anti-gay legislation. The government is newly committed to expanding public access to contraceptives, but social norms, including gender inequality and child marriage, may limit the reduction in fertility.

#12 ETHIOPIA

POPULATION/PROJECTED POPULATION (PRB)



STRESS INDICATORS

| AREA | LEVEL | KEY INDICATOR | SCORE | GLOBAL RANK |
|--|--------|---|-------|-------------|
|  HUNGER | Severe | Global Hunger Index (IFPRI) | 24.4 | #7 |
|  POVERTY | Severe | Multidimensional Poverty Index (MPI) | 0.54 | #3 |
|  WATER SCARCITY | Low | Baseline Water Stress Score (WRI) (0-5) | 0.61 | — |
|  ENVIRONMENTAL DEGRADATION | Severe | Percent of Biocapacity in Use (GFN) | 180% | — |
|  POLITICAL INSTABILITY | Severe | Fragile States Index (FFP) | 97.9 | #19 |

DEMOGRAPHIC INDICATORS (PRB)

4.1 LIFETIME BIRTHS PER WOMAN (TFR)

2.1% POPULATION RATE OF NATURAL INCREASE

72% PROJECTED POPULATION GROWTH (2014-2050)

40% BIRTH CONTROL: (PERCENT OF MARRIED WOMEN USING MODERN CONTRACEPTIVES)

EXACERBATING FACTORS

Conflict: It has been nearly 15 years since the end of conflict with Eritrea, but relations between the countries remain tense. In 2006, Ethiopia invaded Somalia to fight al-Shabab but withdrew its forces two years later. A few years ago Egypt threatened military action against the construction of Ethiopia's Grand Renaissance Dam on the upper reaches of the Nile, but the countries recently reached a tentative agreement permitting its completion.

Climate Change: Rising temperatures and erratic rainfall could disrupt food production, particularly in the pastoralist communities.

Gender Inequality: The status of women is improving, but child marriage is prevalent in northern Ethiopia, where nearly half of girls are married by age 15.

Deforestation: Ethiopia has lost much of its natural forest cover, leading to substantial soil erosion in many areas.

Food Insecurity: Ethiopia has a long history of food insecurity, including major drought-induced famines. Even in relatively good times, 3-5 million people rely on external food aid.

MITIGATING FACTORS

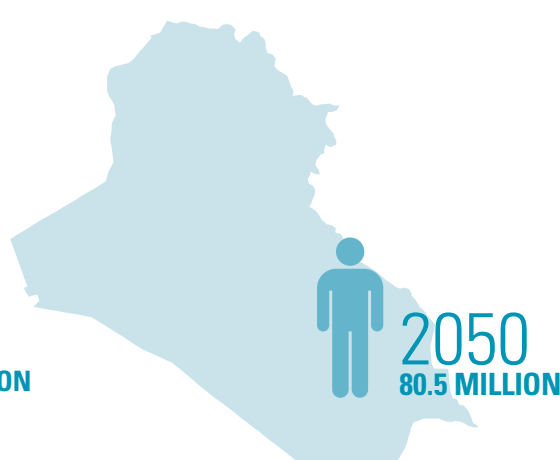
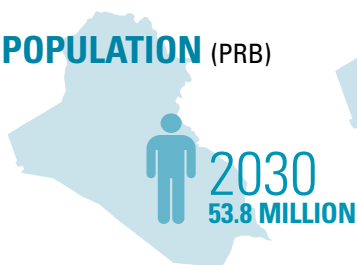
Agricultural potential: Ethiopia's economy is predominantly agricultural and there is significant room for boosting crop yields, but realization of its potential will require major investments in agricultural productivity and infrastructure.

Foreign Assistance: Ethiopia is one of the world's largest recipients of humanitarian assistance.






ASSESSMENT: One of the poorest countries in the world, Ethiopia has made a notable demographic turnaround. Since 2000, the contraceptive prevalence rate quadrupled, while the total fertility rate fell from 6.7 children in 1970 to 4.1 in 2013. The demographic challenge, however, has not gone away. Ethiopia's population is still projected to rise from 96 million to 165 million by mid-century. The economy, too, has shown dramatic improvement, but Ethiopia's resource base will have a hard time meeting the needs of a larger population. While the Grand Renaissance Dam may help provide water and electricity for some people in the north, drought for many farmers will remain a threat. Any sustainable improvement in living standards will require advances in gender equality and, in particular, the education of girls. Investments in agricultural development are desperately needed.

#13 IRAQ

POPULATION/PROJECTED POPULATION (PRB)



STRESS INDICATORS

| AREA | LEVEL | KEY INDICATOR | SCORE | GLOBAL RANK |
|---|----------|---|-------|-------------|
|  HUNGER | High | Global Hunger Index (IFPRI) | 12.7 | #50 |
|  POVERTY | Moderate | Multidimensional Poverty Index (MPI) | 0.052 | #54 |
|  WATER SCARCITY | High | Baseline Water Stress Score (WRI) (0-5) | 3.48 | — |
|  ENVIRONMENTAL DEGRADATION | Severe | Percent of Biocapacity in Use (GFN) | 533% | — |
|  POLITICAL INSTABILITY | Severe | Fragile States Index (FFP) | 102.2 | #13 |

DEMOGRAPHIC INDICATORS (PRB)

4.1 LIFETIME BIRTHS PER WOMAN (TFR)

2.6% POPULATION RATE OF NATURAL INCREASE

129% PROJECTED POPULATION GROWTH (2014-2050)

33% BIRTH CONTROL: (PERCENT OF MARRIED WOMEN USING MODERN CONTRACEPTIVES)

EXACERBATING FACTORS

Conflict: Twelve years after the U.S. invasion, conflict continues to embroil Iraq, and there is no end in sight. While ISIS gave up some of its early territorial gains, the Shia/Sunni divide is likely to persist in some form for decades. Deep-seated political divisions and disputes over oil and water rights could also destabilize Iraq.

Corruption: Iraq is ranked as the sixth most corrupt country in the world according to Transparency International's Corruption Perception Index. Oil and mineral development, along with continued political instability, will likely exacerbate the corruption.

Climate Change: Severe drought could intensify water scarcity concerns. Crops in 2007-09 were severely impacted by drought.

Gender Inequality: Iraq scores high for gender inequality, ranking 33rd out of 152 nations on UNDP's Gender Inequality Index. Iraq's legislature was the brunt of international outrage last year when it actively considered legislation that would have lowered the legal age of marriage to 9. Child marriage is being restored in ISIS-controlled areas.

Health: Despite U.S. foreign assistance, maternal and child mortality rates have remained stubbornly high and will likely rise in areas now controlled by ISIS.

MITIGATING FACTORS

Resources: Iraq has significant oil reserves and abundant mineral resources, but conflict will likely slow their development.

Foreign assistance: Iraq is still the beneficiary of substantial U.S. foreign assistance, but the long-range outlook is uncertain. A government collapse could lead to a cutoff in aid.






ASSESSMENT: Iraq's total fertility rate fell from 7.4 in 1970 to 4.1 in 2013, but gender inequality is deeply entrenched and religious extremism in some areas, particularly in those controlled by ISIS, could limit future reductions, particularly if child marriage practices expand. Current demographic projections show Iraq's population growing from 35 million to 80 million by 2050, but that could prove an underestimate if political conditions continue to deteriorate. While Iraq has abundant resources, conflict, corruption and water scarcity could slow economic development and hinder efforts to reduce poverty. ISIS or other hostile forces could cut off hydroelectric power and reduce the amount of water available for irrigation.

#14 ZAMBIA

POPULATION/PROJECTED POPULATION (PRB)



STRESS INDICATORS

| AREA | LEVEL | KEY INDICATOR | SCORE | GLOBAL RANK |
|--|----------|---|-------|-------------|
|  HUNGER | Severe | Global Hunger Index (IFPRI) | 23.2 | #9 |
|  POVERTY | Severe | Multidimensional Poverty Index (MPI) | 0.318 | #24 |
|  WATER SCARCITY | Low | Baseline Water Stress Score (WRI) (0-5) | 0.08 | — |
|  ENVIRONMENTAL DEGRADATION | Moderate | Percent of Biocapacity in Use (GFN) | 36% | — |
|  POLITICAL INSTABILITY | High | Fragile States Index (FFP) | 86.2 | #49 |

DEMOGRAPHIC INDICATORS (PRB)

| | |
|------|---|
| 6 | LIFETIME BIRTHS PER WOMAN (TFR) |
| 3.4% | POPULATION RATE OF NATURAL INCREASE |
| 226% | PROJECTED POPULATION GROWTH (2014-2050) |
| 27% | BIRTH CONTROL: (PERCENT OF MARRIED WOMEN USING MODERN CONTRACEPTIVES) |

EXACERBATING FACTORS

Climate Change: The climate change forecast for Zambia is relatively mild compared to many countries in sub-Saharan Africa, but intensified drought could adversely affect small farmers and accelerate urbanization. Three out of five Zambians work in agriculture.

Gender Inequality: Zambia is ranked high for gender inequality. While forbidden by law, child marriage is still highly prevalent, particularly in the east.

Economic Inequality: Typical of mining-dependent economies, Zambia suffers from severe economic inequality. About two-thirds of the population lives on \$1.25 a day or less.

Health: The HIV/AIDS epidemic has had a devastating impact, sapping economic growth and overwhelming Zambia's public health systems.

Urbanization: Zambia has one of the highest rates of urbanization in Africa, creating a daunting challenge for urban planners. By 2030, half the population could be living in cities and towns.

MITIGATING FACTORS

Resources: At current rates of production, Zambia has enough copper to last for several decades, but Zambia's dependence on copper leaves it highly vulnerable to commodity price swings. Four years ago, copper peaked at about \$4.60 a pound, but, as of this writing, is at \$2.60.

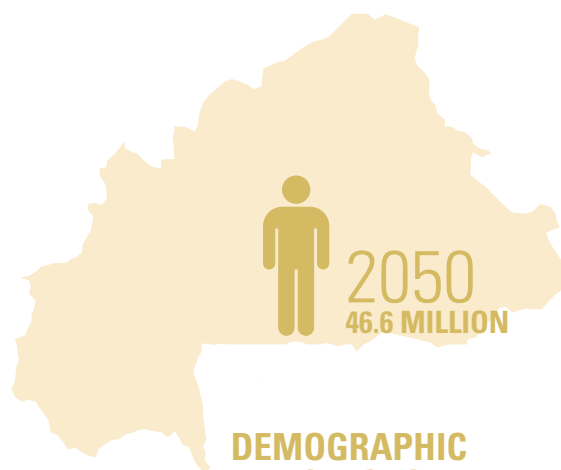
Foreign Assistance: In developing Zambia's mining industry, China has financed infrastructure projects, though much of the assistance has come in the form of loans.

Ease of Doing Business: Zambia is given relatively high marks for ease of doing business.






ASSESSMENT: Despite an abundance of copper, Zambia still struggles. Even when copper prices were high, far too little progress was made in reducing poverty. When the copper mines are depleted later in this century, Zambia will need an alternative source of export earnings, but efforts to diversify the economy have faltered. If drought intensifies, the rate of urban migration will increase, overwhelming the urban infrastructure. Zambia's future may depend on advances in gender equality, particularly in secondary education, as girls continue to lag behind boys. If copper prices remain depressed, it will be difficult to keep pace with the needs of a growing population, most importantly employment.

#15 BURKINA FASO

POPULATION/PROJECTED POPULATION (PRB)



STRESS INDICATORS

| AREA | LEVEL | KEY INDICATOR | SCORE | GLOBAL RANK |
|--|--------|---|-------|-------------|
|  HUNGER | Severe | Global Hunger Index (IFPRI) | 19.9 | #17 |
|  POVERTY | Severe | Multidimensional Poverty Index (MPI) | 0.508 | #5 |
|  WATER SCARCITY | Low | Baseline Water Stress Score (WRI) (0-5) | 0 | — |
|  ENVIRONMENTAL DEGRADATION | Severe | Percent of Biocapacity in Use (GFN) | 122% | — |
|  POLITICAL INSTABILITY | High | Fragile States Index (FFP) | 89 | #39 |

DEMOGRAPHIC INDICATORS (PRB)

5.9 LIFETIME BIRTHS PER WOMAN (TFR)

3.1% POPULATION RATE OF NATURAL INCREASE

160% PROJECTED POPULATION GROWTH (2014-2050)

15% BIRTH CONTROL: (PERCENT OF MARRIED WOMEN USING MODERN CONTRACEPTIVES)

EXACERBATING FACTORS

Conflict: Burkina Faso is relatively peaceful, but regional conflict remains a threat, and last year's resignation of president Blaise Compaoré could lead to longer-term political instability. Elections are scheduled to take place in October 2015.

Climate Change: Like other countries in the Sahel, Burkina Faso is at risk for intensified drought and desertification. In recent years, it has suffered from higher temperatures and locust invasions. Some areas of the country are subject to flooding.

Gender Inequality: Burkina Faso ranks very high for gender inequality, 20th out of 152 nations on UNDP's *Gender Inequality Index*. Child marriage is prevalent, particularly in the Sahel.

Economic Inequality: Typical of mining-dependent economies, Burkina Faso suffers from severe economic inequality. About 44.5% of the population lives on \$1.25 a day or less.

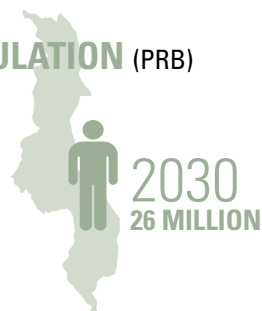
MITIGATING FACTORS

Resources: Burkina Faso is Africa's fourth largest gold producer and has significant zinc deposits.






ASSESSMENT: One of the poorest countries in the world, Burkina Faso has made progress in achieving some of the MDGs, but far too little progress has been made in reducing severe poverty and chronic hunger. In recent years, it has been negatively impacted by declining gold prices, and economic growth has slowed as a consequence. Food production has rebounded since the 2011-12 food crisis, but desertification, poor soil conditions and climatic changes could hinder efforts to boost food production in a country already struggling with child stunting and chronic malnutrition. Heavily reliant upon cotton and mineral production, Burkina Faso needs to diversify its economic base, but high rates of illiteracy will make it difficult to attract industry. With a population that could triple in the next 40 years, the challenges are formidable.

#16 MALAWI

POPULATION/PROJECTED POPULATION (PRB)



STRESS INDICATORS

| AREA | LEVEL | KEY INDICATOR | SCORE | GLOBAL RANK |
|--|--------|---|-------|-------------|
|  HUNGER | High | Global Hunger Index (IFPRI) | 13.6 | #28 |
|  POVERTY | Severe | Multidimensional Poverty Index (MPI) | 0.332 | #21 |
|  WATER SCARCITY | Low | Baseline Water Stress Score (WRI) (0-5) | 0.11 | — |
|  ENVIRONMENTAL DEGRADATION | Severe | Percent of Biocapacity in Use (GFN) | 117% | — |
|  POLITICAL INSTABILITY | High | Fragile States Index (FFP) | 89.1 | #38 |

DEMOGRAPHIC INDICATORS (PRB)

5.5 LIFETIME BIRTHS PER WOMAN (TFR)

2.9% POPULATION RATE OF NATURAL INCREASE

145% PROJECTED POPULATION GROWTH (2014-2050)

42% BIRTH CONTROL: (PERCENT OF MARRIED WOMEN USING MODERN CONTRACEPTIVES)

EXACERBATING FACTORS

Conflict: A long-standing border dispute with Tanzania over Lake Malawi has heated up because of Malawi's plans to explore for oil in the region.

Climate Change: Rising temperatures and drought pose a significant threat to subsistence farmers. In some areas, major floods are a chronic threat. More needs to be done to prevent water-borne and vector-borne diseases that may increase with climate change.

Gender Inequality: Malawi ranks high for gender inequality, 22nd out of 152 countries according to UNDP's *Gender Inequality Index*. While laws and the constitution restrict child marriage, the practice is still prevalent in many rural areas.

Deforestation: Malawi's high rate of deforestation is contributing to soil erosion and increased risk of severe flooding.

Food Insecurity: With a long history of food insecurity, Malawi suffers from very high rates of child malnutrition and stunting. Arable land is scarce and average farm size is small.

MITIGATING FACTORS

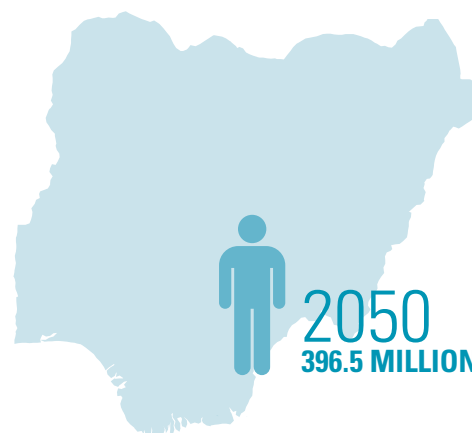
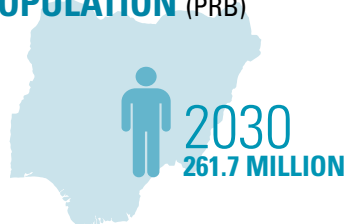
Water: Malawi has ample water, including Lake Malawi, but infrastructure improvements are required to transport water to areas of greatest need.

Mineral Resources: Malawi is capable of expanding its cement and uranium production, but the overall mining potential is limited. Agriculture will continue to be the mainstay of the economy.






ASSESSMENT: With a poorly performing economy and a limited resource base, Malawi has made little progress in reducing poverty, fighting hunger and improving living conditions. While Malawi has ample water, the country is too reliant on agriculture. With a population projected to increase from 17 million to 41 million by mid-century, it needs to create jobs for those displaced from small farms. If Malawi is going to make progress improving health and living conditions for the poorest of the poor, family planning and empowerment of women must play a central role, as will agricultural assistance.

#17 NIGERIA

POPULATION/PROJECTED POPULATION (PRB)



STRESS INDICATORS

| AREA | LEVEL | KEY INDICATOR | SCORE | GLOBAL RANK |
|--|--------|---|-------|-------------|
|  HUNGER | High | Global Hunger Index (IFPRI) | 14.7 | #26 |
|  POVERTY | High | Multidimensional Poverty Index (MPI) | 0.239 | #31 |
|  WATER SCARCITY | Low | Baseline Water Stress Score (WRI) (0-5) | 0.29 | — |
|  ENVIRONMENTAL DEGRADATION | Severe | Percent of Biocapacity in Use (GFN) | 167% | — |
|  POLITICAL INSTABILITY | Severe | Fragile States Index (FFP) | 99.7 | #17 |

DEMOGRAPHIC INDICATORS (PRB)

5.6 LIFETIME BIRTHS PER WOMAN (TFR)

2.5% POPULATION RATE OF NATURAL INCREASE

123% PROJECTED POPULATION GROWTH (2014-2050)

9% BIRTH CONTROL: (PERCENT OF MARRIED WOMEN USING MODERN CONTRACEPTIVES)

EXACERBATING FACTORS

Conflict: Boko Haram has emerged as a serious threat to the peace and security of Nigeria and neighboring countries. While the current insurgency may yet be contained, Nigeria will remain at high risk for religious strife between the predominantly Muslim north and predominantly Christian south. Poverty and severe economic inequality also add to the political tensions, particularly in the Niger Delta.

Climate Change: Nigeria faces a multitude of climate-related threats. Drought in the north and flooding in the south could severely affect food production, while rising seas could displace millions of people living along the coast or in the Niger Delta. Climate change could also increase the number of refugees fleeing to Nigeria from the Sahel.

Gender Inequality: While the status of women is gradually improving, child marriage and polygamy remain prevalent in the north.

Economic Inequality: Typical of oil-rich economies, Nigeria suffers from severe economic inequality. About 62% of the population lives on \$1.25 a day or less.

MITIGATING FACTORS

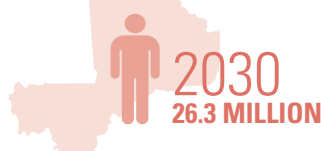
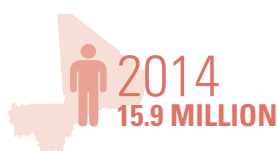
Resources: Nigeria has abundant oil and gas reserves. It is the largest oil producer in Africa and is among the world's top five exporters of Liquefied Natural Gas (LNG). Oil production, however, has been disrupted by the political instability in the Niger Delta. At current rates of production, the proven oil reserves could last about 45 years.

Family planning: At the London Family Planning Summit, Nigeria boosted its support for family planning, and last year the federal government committed to increasing the contraceptive prevalence rate to 36 percent by 2018. That is a highly ambitious goal. If realized it could substantially alter the country's population trajectory.






ASSESSMENT: The revenues from Nigeria's oil and gas production, even at today's low prices, could enable the country to make major gains in human and economic development, but much depends on whether its plans to scale-up contraceptive use are successful. Unless more is done to change the social norms that encourage large families, it will be difficult to meet the targeted contraceptive prevalence rate of 36 percent now set for 2018. If population grows as projected, Nigeria's population of 177.5 million could reach nearly 400 million by 2050. If so, it will be difficult, even with higher oil prices, to make major gains in living standards for the poorest of the poor. Internal conflict, corruption, economic inequality and climate change will hinder efforts to reduce poverty. The larger question is, what will drive the Nigerian economy after the oil runs out?

#18 MALI

POPULATION/PROJECTED POPULATION (PRB)



STRESS INDICATORS

| AREA | LEVEL | KEY INDICATOR | SCORE | GLOBAL RANK |
|--|--------|---|-------|-------------|
|  HUNGER | High | Global Hunger Index (IFPRI) | 13 | #49 |
|  POVERTY | Severe | Multidimensional Poverty Index (MPI) | 0.533 | #4 |
|  WATER SCARCITY | Low | Baseline Water Stress Score (WRI) (0-5) | 0.20 | — |
|  ENVIRONMENTAL DEGRADATION | High | Percent of Biocapacity in Use (GFN) | 79% | — |
|  POLITICAL INSTABILITY | High | Fragile States Index (FFP) | 89.8 | #36 |

DEMOGRAPHIC INDICATORS (PRB)

6.1 LIFETIME BIRTHS PER WOMAN (TFR)

2.9% POPULATION RATE OF NATURAL INCREASE

187% PROJECTED POPULATION GROWTH (2014-2050)

10% BIRTH CONTROL: (PERCENT OF MARRIED WOMEN USING MODERN CONTRACEPTIVES)

EXACERBATING FACTORS

Conflict: Mali is threatened by internal conflict. Following the resignation of Prime Minister Cheick Modibo Diarra in December 2012, Islamic militants seized several northern towns. After the militants threatened to march on the capital, French troops intervened. Subsequent negotiations between the government and separatists resulted in a peace deal in June 2013, but fighting has renewed. Despite ongoing negotiations, Mali may be facing a long-term insurgency.

Climate Change: Extreme drought and rising temperatures in the Sahel region could have a severe impact on Mali's traditional agriculture and fisheries.

Gender Inequality: Mali suffers from a very high degree of gender inequality. It has the fifth highest score on UNDP's *Gender Inequality Index*.

Health: Maternal and infant mortality rates are among the highest in the world.

Dependence on Food Imports: In the past, Mali has depended on imports of rice and wheat to feed its people. Cereal harvests have improved, but the level of food insecurity remains high. There is significant room for agricultural expansion, though a very high level of agriculture-related investments, including road construction and water conservation, will be needed to realize that potential.

MITIGATING FACTORS

Resources: Mali's mineral resources, principally gold and phosphates, could help promote longer-term economic development.

Foreign Assistance: In response to the Islamic insurgency, France and other donor nations have substantially increased aid commitments.






ASSESSMENT: While Mali could expand its agricultural production, it will have a hard time keeping up with projected population growth. Conflict and climate change pose major obstacles. Reported links between Islamic separatists in the north and Boko Haram in the south could complicate efforts to mediate a long-term solution to the conflict. Climate change could have a devastating impact on subsistence farmers. Cultural and informational barriers will slow any reduction in fertility, and the political insurgency will make it difficult to overcome those barriers. Mali faces a long-term food crisis.

#19 MOZAMBIQUE

POPULATION/PROJECTED POPULATION (PRB)



STRESS INDICATORS

| AREA | LEVEL | KEY INDICATOR | SCORE | GLOBAL RANK |
|--|----------|---|-------|-------------|
|  HUNGER | Severe | Global Hunger Index (IFPRI) | 20.5 | #15 |
|  POVERTY | Severe | Multidimensional Poverty Index (MPI) | 0.39 | #15 |
|  WATER SCARCITY | Low | Baseline Water Stress Score (WRI) (0-5) | 0.82 | — |
|  ENVIRONMENTAL DEGRADATION | Moderate | Percent of Biocapacity in Use (GFN) | 43% | — |
|  POLITICAL INSTABILITY | High | Fragile States Index (FFP) | 85.9 | #50 |

DEMOGRAPHIC INDICATORS (PRB)

- 5.7** LIFETIME BIRTHS PER WOMAN (TFR)
- 2.9%** POPULATION RATE OF NATURAL INCREASE
- 153%** PROJECTED POPULATION GROWTH (2014-2050)
- 11%** BIRTH CONTROL: (PERCENT OF MARRIED WOMEN USING MODERN CONTRACEPTIVES)

EXACERBATING FACTORS

Political Instability: After 15 years of civil war, democratic elections were held in 1994, but Mozambique remains plagued by political instability, and its elections marred by charges of vote fraud. Tensions remain high between the party in power (FRELIMO) and the political opposition (RENAMO).

Climate Change: With an exceptionally long and densely populated coastline, Mozambique is at high risk for cyclones and rising seas. Climate change could have an enormously detrimental impact on fishing and rain-fed farming. The southern and central parts of the country are highly susceptible to drought.

Economic Inequality: With an economy heavily reliant on extractive industries, Mozambique suffers from severe economic inequality. Despite a relatively healthy economy, half the population remains poor and child malnutrition is on the rise.

Gender Inequality: Child marriage is highly prevalent. Sex trafficking and gender-based violence are matters of growing international concern. Mozambique's parliament tried last year, unsuccessfully, to weaken existing domestic violence protections for women.

Health: Mozambique is severely afflicted by malaria, HIV/AIDS and tuberculosis. Child mortality rates are exceptionally high.

Food Insecurity: Severe weather-related events, including cyclones, contribute to food insecurity.

MITIGATING FACTORS

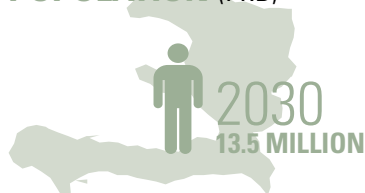
Resources: Mozambique has an abundance of natural resources, though apart from aluminum, political instability has slowed the exploitation of other assets, including liquefied natural gas.

Foreign Assistance: Mozambique relies on foreign assistance to cover about one-third its public expenditures.






ASSESSMENT: While Mozambique's economy continues to grow, far too little progress has been made reducing poverty and improving food security. The country still has significant untapped resources, but unless more of the revenues derived from their exploitation are invested in human development, little progress will be made reducing food insecurity, high mortality rates, poverty and economic inequality. The climate change forecast for Mozambique is especially worrisome. Cyclones and rising seas could require significant adaptation measures. Gender violence and inequality must also be addressed if Mozambique is to make big gains advancing living conditions for the poorest of the poor.

#20 HAITI

POPULATION/PROJECTED POPULATION (PRB)



STRESS INDICATORS

| AREA | LEVEL | KEY INDICATOR | SCORE | GLOBAL RANK |
|---|----------|---|-------|-------------|
|  HUNGER | Severe | Global Hunger Index (IFPRI) | 23 | #10 |
|  POVERTY | High | Multidimensional Poverty Index (MPI) | 0.242 | #30 |
|  WATER SCARCITY | Moderate | Baseline Water Stress Score (WRI) (0-5) | 2.38 | — |
|  ENVIRONMENTAL DEGRADATION | Severe | Percent of Biocapacity in Use (GFN) | 250% | — |
|  POLITICAL INSTABILITY | Severe | Fragile States Index (FFP) | 104.3 | #9 |

DEMOGRAPHIC INDICATORS (PRB)

3.4 LIFETIME BIRTHS PER WOMAN (TFR)

1.9% POPULATION RATE OF NATURAL INCREASE

56% PROJECTED POPULATION GROWTH (2014-2050)

31% BIRTH CONTROL: (PERCENT OF MARRIED WOMEN USING MODERN CONTRACEPTIVES)

EXACERBATING FACTORS

Corruption and Instability: For over half a century, Haiti has suffered from corruption, political instability, economic mismanagement and a series of natural disasters that severely hindered reform efforts.

Deforestation: Haiti has lost 98 percent of its natural forest cover, resulting in a crucial loss of topsoil and a chronic risk of severe flooding.

Economic Inequality: Severe economic inequality helps perpetuate Haiti's severe poverty. Three quarters of Haitians live on less than \$2 per day and half earns less than \$1 per day. Many Haitians depend on remittances for economic survival.

Natural disasters: Haiti is highly prone to natural disasters, particularly hurricanes. In 2008, Haiti was struck by four hurricanes that wiped out an estimated 70 percent of its crops and precipitated major flooding in many parts of the country. In the past 70 years, Haiti also was hit by two major earthquakes: an 8.0 quake in 1946 and a 7.0 quake in 2010 that killed more than 300,000 people and left more than a million homeless.

Food Insecurity: Natural disasters have contributed to a history of major crop failures, and despite large amounts of emergency aid and longer-term agriculture assistance, Haiti remains highly food insecure. At present, nearly a third of the population is categorized as food insecure and an estimated 600,000 people rely on emergency food aid.

MITIGATING FACTORS

Foreign Assistance: In response to natural disasters, the United States and other donor nations have significantly increased assistance over the past decade. The Haitian economy is also bolstered by a large influx of remittances from Haitians working overseas.

ASSESSMENT: Despite generous levels of foreign assistance, including an ambitious reforestation effort, Haiti remains an economic and ecological disaster. Resource poor and highly prone to natural disasters, economic and social development in Haiti face uphill struggles, but the greatest challenge is Haiti's fragile ecology. While reforestation may help, it will take a long time to compensate for the loss of soil that accompanied deforestation. In the meantime, flooding will be a chronic threat. Haiti desperately needs a strong, unified government, but efforts to restore democracy in Haiti have been marred by election fraud, including charges of vote rigging in the last presidential election held in 2011. While its fertility and population growth rates are not precipitously high, they add significantly to the enormous challenges facing the poorest country in the Western Hemisphere.

Other Nations Confronting Demographic Challenges

Demographic vulnerability is not limited to the 20 countries profiled in this report. Many other countries, some of them major players on the international stage, face significant challenges as a result of projected population growth. The following is a brief look at the demographic-related challenges facing three high-profile countries:



India—Since 1970, India's TFR has declined from 5.5 to 2.4. Within two decades or less, its fertility will likely fall to a replacement rate of 2.1 or lower. But because of the high percentage of young people who have yet to enter the prime reproductive years, India's population, currently 1.3 billion, continues to show significant growth. By 2020, India will likely surpass China as the world's most populous country, and by 2030 its population will likely reach 1.5 billion. By 2050, India's population could increase to more than 1.65 billion. The vast majority of that growth will occur in Northern India, where fertility rates, particularly in rural areas, remain high. In two of the largest states, Bihar and Uttar Pradesh, TFR remains above 3.5.

While the expansion of family planning and reproductive health services to remote communities is helping to reduce fertility, significant cultural and informational barriers to

contraceptive use persist. Cultural norms in many areas promote marriage before adulthood and dictate that young people demonstrate their fertility as soon as possible after marriage.⁵⁴

While India's population growth rate is waning, severe poverty remains a significant challenge. Home to more than one-third of the world's poor, more than one in five Indians live on \$1.25 a day or less. Hunger, too, is a major challenge, particularly as water scarcity in many areas is constraining food production and threatening to roll back some of the gains achieved during the "Green Revolution." Environmental damage, including the pollution of the Ganges from human and chemical waste, is also a concern.

Egypt—Two thousand years ago, Egypt was the breadbasket of the Mediterranean, but Egypt today imports somewhere between 40 and 50 percent of its food. With market reforms and greater investments in agricultural productivity, Egypt might reasonably be expected to feed 60-70 million people, but its population, currently 88 million, is projected to increase to 146 million by 2050.

No one really knows how Egypt will accumulate the currency reserves needed to pay its escalating food bills. At present, Egypt is heavily dependent upon aid and credit from the United States, Saudi Arabia



and other allies in the region. At one time, Egypt was a significant oil exporter, but Egypt is now a net importer, and because of the ongoing political instability, revenues from tourism have declined sharply in recent years with no rebound in sight.



Egypt desperately needs to build a manufacturing sector, but because of a high rate of illiteracy among young adults, chronic political unrest and a resulting lack of investment capital, prospects are dim.

For decades, Egyptian leaders have talked boldly about boosting crop production and making the western “desert bloom,” but a shortage of arable land and looming water scarcity are constraining factors. Rising seas are already contributing to the salinization of farmland in the Nile River delta, and upstream users of the Nile, most notably Ethiopia, are gearing up to retain and consume more of the Nile’s water, reducing the amount available to Egyptian farmers.

Pakistan—Internal conflict, political corruption and turmoil, chronic energy shortages, deforestation, water scarcity and climate change are dampening hopes that Pakistan will be able to join the ranks of the emerging economies. With a TFR of 3.8, Pakistan’s population, currently 194 million, is projected to reach 348 million by 2050, retaining its

status as the sixth most populous country. Pakistan made substantial economic progress in the 1960s, but in the past two decades GDP growth has slowed, and so has the progress in eradicating poverty. While the percentage of people living in severe poverty (21 percent) is slightly less than in neighboring India, 60 percent of the people still live on \$2 a day or less according to Pakistan’s latest Economic Survey.⁵⁵

While Pakistan faces many challenges, political instability looms largest. Persistent poverty, chronic energy shortages and corruption undermine popular support for elected governments, while internal conflicts, including major insurgencies in Balochistan and the Federally Administered Tribal Areas, add to the challenges of governing, as does the ongoing military and political standoff with India. Future governments, whatever their political ideology or degree of popular support, will face an uphill struggle in meeting the health, education, energy and infrastructure needs of a population that is expected to increase by more than 150 million in the next 35 years.



CHAPTER FIVE

Reducing Demographic Vulnerability

Rapid population growth is a challenge multiplier, and for the 20 countries profiled in this report the resulting demographic vulnerability is daunting. Unless their fertility rates fall faster than they are now, many of these countries will make slow progress in eliminating hunger, reducing severe poverty, managing water scarcity, minimizing environmental degradation and avoiding political instability. Countries with the greatest vulnerability and the least resilience could even experience significant reversals. The situation in most countries, however, is far from hopeless. Many of the programs needed to reduce demographic vulnerability, including family planning, yield multiple benefits and are relatively inexpensive to implement. Delays in addressing demographic challenges, however, can be costly.

Altering the Demographic Trajectory: Family Planning

Many women in the least developed countries, particularly those living in remote rural areas, lack access to a full range of family planning and reproductive health services. The UN's target, MDG 5(b), of ensuring universal access to reproductive health services by 2015 has not been met. The UN estimates there are 225 million women in developing countries who want to avoid a pregnancy but are not using a modern method of contraception. Every woman, regardless of where she lives or how much she earns, deserves access to family planning services and information.

In addition to increasing the number of women who have access to some form of contraception, we need to improve contraceptive options and method mix available for existing users. For women with uncooperative husbands, access to male condoms may not be a practical means of contraception; female condoms, birth control pills, or injectables may be far more effective. But for women in remote areas who must walk many miles to reach the nearest family planning clinic, birth control pills may not be a practical option

either, particularly if the clinic is prone to "stock-outs." Women in such instances should have access to a long-acting reversible method, such as an intrauterine device (IUD), or a contraceptive implant, such as Norplant or Jadelle, which can provide contraceptive protection for as long as five years.

The latest *Adding It Up* report, published by the Guttmacher Institute and United Nations Population Fund (UNFPA), estimates it would cost an additional \$5.3 billion a year to meet the contraceptive needs of 225 million women, while also improving contraceptive options for current users. That's an exceedingly small price to pay for reducing maternal and child mortality and reducing the demographic vulnerability that arises as a result of rapid population growth, particularly as many of those costs are quickly recouped in the form of lower outlays for maternal and child health. Indeed, the *Adding it Up* report estimates the \$5.3 billion investment would reduce the number of women needing medical care as a result of unsafe abortions by 74 percent and the number of maternal deaths from unsafe abortions by 81 percent. The number of newborn deaths would also drop dramatically.

Support of international family planning received a critical boost at the 2012 London Summit on Family Planning, as 20 governments, leading international agencies and numerous civil society organizations committed to boosting their support for family planning services and information in developing countries. The summit, which established a goal of enabling 120 million more women and girls to use contraceptives by 2020, led to the creation of Family Planning 2020 (FP2020),⁵⁶ a global partnership that supports the rights of women and girls to decide, freely, whether, when and how many children they will have. Even if the 2020 goal is reached, however, it will still fall short of fulfilling the UN's commitment to providing universal access to reproductive health services, and if, as some fear, the new Congress cuts U.S. support for international family planning assistance, the level of unmet need for family planning services and information could remain quite high in many developing nations.

Expanding access to contraception is crucially important, but the cultural and informational barriers to contraceptive use must also be addressed. While supply concerns exist and must be addressed, demographic and health surveys (DHS) conducted with support from USAID indicate that only a small percentage of women cite cost or lack of physical access as their primary or proximate reason for non-use. More often, women who want to avoid a pregnancy cite other reasons for not using contraceptives, including male opposition, religious prohibition and fear of side effects. In many developing countries, a significant percentage of women believe that using pills, an IUD, or long-acting "injectables" will make them sterile. In some areas, women commonly believe condoms are "tainted" with the HIV virus. Much greater access to accurate information is needed. If fertility rates in developing countries are going to fall faster than currently anticipated, these cultural and informational barriers must be overcome through the broader use of entertainment education and behavior change communication strategies, including the use of "social content soap operas" that encourage women and men to consider the benefits of birth spacing and limiting family size.

Gender equality and reproductive freedom

— In many of the countries profiled in this report, gender inequality is the single greatest factor contributing to high fertility. In countries that are traditionally male-dominated, where child marriage practices remain prevalent and girls are not allowed to finish their schooling, the reproductive freedom of women is severely limited. Girls and women in these circumstances may have little voice in determining if they will have children, when they will start having children, how many they will have, and when they will have them. In addition to expanding contraceptive options for girls and women in these countries, far more emphasis must be placed on empowering girls and women to make their own reproductive decisions.

While the international community is devoting more resources to promoting gender equality, much of that assistance may not be reaching the countries of greatest need. While gender equality is a universal imperative, the need for change is greatest in the least developed countries, but in its 2014 report on fragile states, the Organization for Economic Cooperation and Development (OECD) cautioned that aid for gender equality in fragile countries "grew at the same pace as in other countries" over the past decade.⁵⁷

Gender equality is not just a moral imperative; it's a development imperative.

The issue of child marriage, at least, is receiving heightened international attention. UNFPA estimates one in three girls in the developing world, excluding China, will probably be married before they are 18. One out of nine girls will be married before their 15th birthday.⁵⁸ The Elders, an independent group of global leaders working together for peace and human rights, has made the elimination of child marriage one of their top priorities. The group, originally formed by Nelson Mandela, has declared "with political will, appropriate investments, and programmes tailored to local settings, we can bring an end to child marriage by 2030."⁵⁹ We must realize that commitment. In addition to promoting gender equality and empowering women, delaying marriage to adulthood serves to lower fertility

rates and reduce average family size. UNICEF and Women Deliver estimate that when a girl is enrolled in school for seven years or longer, she will marry four years later and have 2.2 fewer children on average.⁶⁰

Women need access to appropriate, safe, reliable and affordable means of contraception, and they need the freedom to use them.

Building Capacity/Increasing Resilience

While reductions in fertility rates can ease demographic pressures, fertility rates in many of the countries profiled in this report will not, in all likelihood, fall fast enough to alleviate hunger, poverty, water scarcity, environmental degradation or political instability. Under the most optimistic demographic scenarios, many of these countries will continue to face significant development challenges. While these countries must make gender equality and family planning a high priority, they also need policies and programs that will maximize human capital, build institutional capacity, protect and preserve vital resources, boost resilience and promote long-term sustainability.

A complete description of the kinds of programs that should be considered is beyond the scope of this report, but the general approaches that are needed to build strength and resilience are well known.

Hunger — Food security is the greatest challenge facing demographically vulnerable populations. Countries such as Niger that are already food insecure and on course to triple their population over the next 40 to 50 years must make agricultural development a high priority. The challenge for many of these countries is finding ways to expand crop production without reducing forest cover or depleting underground aquifers. Where water resources are abundant, expanded irrigation can boost yields, but when water is scarce, farmers will need to use drought-resistant hybrids. Where soil is nutrient poor, commercial fertilizers may be needed, but greater emphasis must be placed on growing organic food and other sustainable agricultural practices that do not harm the environment or lower soil productivity.

Water — For countries that are already consuming a significant portion of their annual renewable water supply, every effort must be made to boost water productivity, particularly in areas where water tables are falling. While some of the more advanced water conservation strategies, such as drip-irrigation, may not be practical for many subsistence farmers, governments must support water conservation strategies that are readily deployable, including the recycling of water used for industrial and urban purposes. In some instances, governments may need to eliminate water subsidies or raise the price of water, as long as these approaches do not deny the poor the access to the water that they need for drinking and sanitation.

DETERMINING WHAT IS SUSTAINABLE: NATURAL RESOURCE ACCOUNTING

Balancing development aspirations with the need to ensure that progress is sustainable, the United Nations is in the process of drafting a set of Sustainable Development Goals (SDGs) that will place the issue of sustainability at the center of the UN's post-2015 development agenda. The SDGs will be designed to promote, among other things, greater efficiency in the use of energy and other resources. Improvements in efficiency alone, however, will not ensure that development plans are sustainable. Every nation, developed and developing alike, needs to move toward sustainable levels of consumption and production. That requires, as a starting point, the adoption of natural resource accounting and the creation of biophysical "balance sheets" to track resource use and determine whether current and projected consumption levels are sustainable. Just as governments need "fiscal budgets" to maintain and ensure solvency, nations need "ecological budgets" to ensure development aspirations can be sustained. No one would think of driving a car or flying a plane without a fuel gauge. By the same token, country leaders need to know whether they have enough resources (water, arable land, etc.) to satisfy their development needs.

Poverty — Of all the strategies for fighting poverty in developing countries, the most proven and cost effective is the education of girls. Investments in girls' education, particularly in programs that increase secondary school enrollment, can pay big dividends. The World Bank reports that an extra year of secondary schooling for girls will, on average, increase their future wages by 10 to 20 percent.⁶¹ While substantial progress has been made in achieving MDG 2a — ensuring that, by 2015, boys and girls everywhere will be able to complete a full course of primary schooling — much still remains to be done. Between 2000 and 2012, the global primary completion rate rose from 81 percent to 92 percent, but many primary school graduates, particularly girls, leave school without obtaining the essential skills necessary for a fully productive life.⁶²

Environment — The developing world has suffered significant environmental damage from deforestation, unregulated mining and lack of adequate sanitation. Population growth will likely accelerate the pace of environmental degradation, but there are steps that can be taken to minimize environmental impacts and even restore, in some instances, biological capacity. Reforestation can help to curtail soil erosion, revitalize regional watersheds, restore critical bio-habitats for endangered species and help to alleviate water scarcity. Efforts, for example, are being made to restore some of Haiti's forest cover. Tighter regulation of polluting companies in Nigeria and elsewhere can yield improvements in water or air quality. The restoration of wetlands, for example in Iraq, can improve water quality, restore aquatic life, reduce soil erosion and create vital barriers against storms and flooding.

Political Instability — Corruption is highly corrosive. Political corruption undermines government integrity and makes the challenges of meeting the needs of an expanding population all the more formidable. Corruption in the armed forces, law enforcement agencies and the judiciary contributes to human rights abuses and fosters public anger and distrust. Corruption in the administration of public agencies erodes the effectiveness of government programs, while corruption at the polls disenfranchises voters. Corruption in the extractive industries saps tax revenues, increases economic and income

disparities and even undercuts the fight against hunger and severe poverty.

Corruption in developing countries is far from universal, and those governments that are more effective at rooting it out tend to be more stable. Endemic corruption, however, is difficult for government leaders to address, and its correction often requires monitoring by civil society and prodding from the international donor community.

There is no "magic bullet" when it comes to reducing government instability and preventing political or ethnic conflict, but there are measures that promote political stability and help to heal ethnic divisions. In almost all cases, the greatest challenge is the restoration of public confidence. Citizens have to believe that their government is committed to improving their lives and ensuring that justice is done.

The alleviation of longstanding ethnic tensions requires deft handling. Governments must put a high premium on political inclusiveness. The good news is there are success stories. Rwanda, for example, has rebounded from the 1994 genocide by working assiduously to bridge the divide between the Tutsis and Hutus. Similarly, Liberia in the past 25 years have suffered 14 years of conflict, but government efforts to heal tribal divisions has yielded significant gains in the past decade. In both cases, a large infusion of aid from the international donor community supported the work of political reconciliation.



CONCLUSION

Demography is not destiny, but demographic trends do matter and rapid population growth, along with rapid urbanization, can strongly affect a country's welfare and destiny. Nations with rapidly growing populations can still make gains in eliminating hunger, alleviating severe poverty, coping with water scarcity, minimizing environmental damage and restoring or maintaining political stability, but population growth can make progress more elusive. Rapid population growth, as outlined in this report, is a challenge multiplier and the challenges are already urgent for countries like South Sudan, Niger, Burundi, Sudan, Yemen and Somalia.

Every country in the world may eventually make the “demographic transition” to lower mortality and lower fertility, and their populations will eventually stabilize, but the speed at which a nation makes that transition can be highly consequential, profoundly affecting the health and wellbeing of future generations. Countries that remain on the wrong side of the “demographic divide” for a prolonged period will tend to underperform with respect to economic growth, nutrition, health outcomes, resource management and even conflict prevention. Their public health systems may suffer, making them more prone to disease, and they may also be less resilient in responding to climate change, regional conflict or natural disasters.

In planning for the future, national leaders must, therefore, be mindful of demographic trends and their implications. The manner in which developing countries exhibit demographic vulnerability varies. Planning and environment ministers and other government officials need to understand their country's demographic vulnerability and their biophysical limitations. For countries blessed with ample supplies of fresh water the projected population growth rates may not create water scarcity. On the other hand, countries that are severely water-stressed may encounter considerable difficulties in accommodating even modest population growth. Assessments of



demographic vulnerability and resource limitations can, and should, help to guide policymakers in the design of programs and the allocation of funds.

USAID and other international donor agencies need to take demographic vulnerability into account in determining which recipient countries should be given the most aid and in what form. In most



countries, particularly for those appearing on our list of the 20 most demographically vulnerable, family planning services and information should be given a high priority, particularly in countries experiencing multiple forms of population stress. Reproductive health and rights in these countries must be fully integrated into national development strategies. As a matter of moral and economic necessity, every woman should be able to decide, free from coercion, how many children to have and when. Family planning in these countries is crucial to the empowerment of women, their families and their communities.

But as important as family planning is in reducing demographic vulnerability, donor agencies cannot neglect other forms of assistance, such as agricultural development, that can help to meet the needs of a growing population. In particular, programs that empower women and promote gender equality deserve a high priority. In addition to reducing fertility and projected population growth, investments in gender equality can boost human capital and help communities and entire countries realize their full economic potential. Special attention must be given to ending child marriage practices that rob girls of their schooling, their adolescence, their health, their adult potential and their reproductive freedom.

The challenges posed by population growth in developing nations are formidable, but not insurmountable. In the past half century, numerous countries have succeeded in making the transition from high mortality and high fertility to low mortality and low fertility. In doing so, many of them have claimed their demographic dividend, stabilized their populations, and made enviable gains in reducing poverty, curbing hunger, and improving quality of life for their citizens. While population growth is only one of many factors affecting the welfare of nations, it is no coincidence that countries with the slowest growing populations in the world today enjoy higher standards of living than countries with rapid rates of population growth. Nations that remain on the other side of the demographic divide have an uphill fight. While every country may eventually make the demographic transition, delays in reducing fertility can prove costly for countries that are experiencing water scarcity, running short of arable land, or encountering great difficulty in eliminating severe poverty. These nations are, and will likely remain, vulnerable until population eventually stabilizes.

Demographic vulnerability is a formidable challenge, but far from insurmountable. If we can improve access to family planning services and information, combat gender inequality, boost sustainable food production, conserve water and promote good governance, there are grounds for optimism.

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Acronyms/Abbreviations

CPI Corruption Perceptions Index

GDP Gross Domestic Product

DHS Demographic and Health Survey

DRC Democratic Republic of Congo

FAO Food and Agriculture Organization

FFP Fund for Peace

FSI Fragile States Index

GDP Gross Domestic Product

GEX Gender Equity Index

GFN Global Footprint Network

GHI Global Hunger Index

GII Gender Inequality Index

IFPRI International Food Policy Research Institute

IPC Integrated Food Security Phase Classification

IPCC Intergovernmental Panel on Climate Change

MDG Millennium Development Goal

MPI Multidimensional Poverty Index

OECD Organisation for Economic Co-operation and Development

PRB Population Reference Bureau

REDD Reducing Emissions from Deforestation and Forest Degradation

LNG Liquefied natural gas

SDG Sustainable Development Goal

TFR Total Fertility Rate

TI Transparency International

UN United Nations

UNDP United Nations Development Programme

UNFPA United Nations Population Fund

UNICEF United Nations Children's Fund

USAID United States Agency for International Development

WFP World Food Programme

WRI World Resources Institute