



**GLOBAL LEADERS COUNCIL
FOR REPRODUCTIVE HEALTH**

ASPEN GLOBAL HEALTH AND DEVELOPMENT
AT THE ASPEN INSTITUTE

Population Growth, Reproductive Health and Sustainable Development



Sustainable development “meets the needs of the present without compromising the ability of future generations to meet their own needs.”¹

In the 20th century, a tripling of human numbers was accompanied by dramatic gains in development, as measured in food production and economic growth. But much of that development was unsustainable—it focused on the needs of the present at the expense of future generations. Today, the world’s nations must provide for an ever-growing population against a backdrop of food and water shortages, depleted resources, and a changing climate. Slower population growth would make that challenge easier to meet.

Moreover, the means to slow growth—including family planning and other reproductive health services—can promote development that meets human needs today—and tomorrow.

Water

Fresh water is essential for agriculture, industry, and for human health and life itself. Yet the planet’s finite supply of freshwater is distributed inequitably—both by nature and by human beings. While there is no global shortage, a growing number of regions are chronically parched. Many of those regions—including parts of Africa, the Middle East and Asia—are also where population is growing most rapidly. Slower population growth could help reduce pressure on this vital resource.



Water is increasingly scarce for many.

In 1995, 386 million people lived in areas of water stress or water scarcity.² Today, that number has grown to 1.2 billion, almost a fifth of the world’s population. By 2025, largely because of population growth, 1.8 billion people will live in countries where water is scarce, and fully two-thirds of humanity will live under conditions of water stress.³ Many water-stressed countries depend on shared water resources, increasing the risk of conflict over these scarce resources.

Population is growing rapidly in poor, water-stressed countries.

The World Bank has identified 45 countries where water shortages are most acute: countries that are both water stressed and economically poor, with per capita income of less than \$3 per day.⁴ The average total fertility rate in those countries is 4.8, compared to the global average of 2.6, and their population is expected to nearly double by 2050.⁵

Addressing the problem: efficiency, equity and slower growth. Water can be used much more efficiently: In developing countries, for example, 60 to 75 percent of irrigation water is cur-

rently lost to evaporation or runoff.⁶ And better policies can promote more equitable distribution of limited water supplies. Nonetheless, the difficulty of matching human needs to the Earth's supply of renewable fresh water can only increase as population grows. Slower growth can provide breathing room to develop creative solutions to water scarcity.

Food

Ever since Thomas Malthus observed that human numbers tend to grow more rapidly than food supplies, debate has raged over whether an ever-expanding population will be able to feed itself. The last century seemed to put the question to rest, as unprecedented population growth was accompanied by even greater increases in food production. Still, hunger persists. Today, there is enough food for all of the world's people, yet almost one in seven goes hungry. And the future remains uncertain: with a world population approaching nine billion by midcentury, water shortages, land degradation, and the wild card of climate change, it remains an open question whether agriculture can keep pace with demand.

Food production has increased. Despite persistent hunger, humanity made dramatic progress toward food security in the last half-century. Production of the “big three” grains – wheat, rice and corn – has more than tripled since 1950, increasing from 630 million to 2 billion tons.⁷ Those gains were achieved, in part, by increasing the number of acres under cultivation. At the same time, the “Green Revolution” boosted the productivity of each acre with irrigation, high-yield crops, new farming practices and synthetic fertilizer.

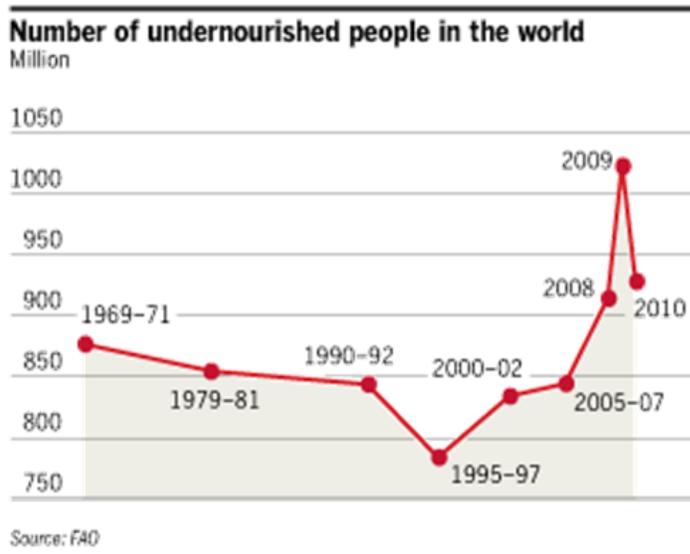
Population is growing most rapidly in poor countries where water shortages are severe and hunger is prevalent.

There is enough food for everyone.

Today, the world's farmers produce more than enough food for everyone on the planet. Supplies would stretch even further if the affluent ate “lower on the food chain.” Indeed, if all of the world's people ate the predominantly vegetarian diet of the average Indian, world harvests would support a population of 10 billion. But if everyone on Earth ate a typically American, meat- and dairy-intensive diet, the annual harvest would support only 2.5 billion people.⁸

Demand is skyrocketing. Human numbers are still growing rapidly: today's population of 7 billion is expected to grow to 9 billion or more by 2050; more than 80 million people are added to the world's population each year. At the same time, rising affluence means that more people are eating grain-fed meat and dairy products. The world's automobiles are also adding to demand, as crops are increasingly diverted from the food supply to make biofuels such as ethanol. The Food and Agriculture Organization (FAO) projects that by 2050, population and economic growth will result in a doubling of demand for food crops globally.⁹

Future gains in productivity are far from assured. Increases in productivity are limited by land degradation, shortages of irrigation water, diminishing returns from fertilizers, climate change, rising fuel costs, and a dwindling backlog of yield-raising technologies. As a result, the rate of increase in the yields



of the big three crops fell below the growth in world population after 1984.¹⁰

Land degradation is severe. One fifth of the world's cropland has been degraded by human activity—such as poor farming practices and overgrazing—and is now unsuitable for farming.¹¹ In Africa, intensified traditional farming practices have caused dramatic declines in soil fertility.¹²

Hunger is growing. The number of hungry people in the world—which was greatly reduced from 1950 to 1984 and continued to decline until the late 1990s—has since turned upward.¹³ Today, more than a billion people—one in seven—go to bed hungry each night.¹⁴ Hunger kills more people than AIDS, malaria and tuberculosis combined.¹⁵ In some cases—including the drought-ravaged Horn of Africa—hunger results when there is not enough food available. More typically, hunger is a function of poverty: the poor cannot afford to buy enough food.

Food prices are rising. The cost of food declined from the early 1960s until 2002, when it began to trend upward.¹⁶ Rising prices signal imbalances in supply and demand, driven by increased demand from population growth and affluence, and reduced supply.¹⁷ The FAO predicts that high and volatile food prices are likely to continue.¹⁸

Fisheries, another important source of food, are threatened by overuse. Fisheries are a critical source of protein for two billion of the world's people, but more than three-quarters of fish stocks are fully or over exploited.¹⁹ In the Philippines, for example, increased demand has depleted fisheries that previously provided up to 80 percent of dietary protein for inhabitants in rural coastal areas.²⁰ The Green Revolution has also taken a toll on fisheries: use of synthetic fertilizer helped boost yields, but nitrogen from fertilizer leaches into bodies of water where it creates “dead zones” that cannot support fish and other aquatic life. The number of dead zones is doubling every decade.²¹

Population is growing most rapidly where hunger is rampant. Many countries with high rates of food insecurity also have high fertility rates and rapid population growth. Sub-Saharan Africa, for example, has the highest growth rate in the world; its population is expected to triple by the end of this century.²² Today, one in four citizens of sub-Saharan Africa is undernourished.²³ Sub-Saharan Africa also has the lowest agricultural productivity in the world and the highest percentage of people living in poverty.²⁴

Elements of a solution. The causes of food insecurity are complex, necessitating both supply- and demand-side solutions. On the supply side, both short-term food aid and long-term investments in agricultural productivity are needed. On the demand side, reduced use of food crops for biofuels would help, as would slower population growth.

Ecosystem Health

Functioning ecosystems are the foundation of human well-being, and they are fundamental to lasting development. But too often, development has come at the expense of ecosystems that provide vital services to humanity. Destruction of ecosystems undermines gains in poverty alleviation, food and water security, and human health.

Healthy ecosystems support human well-being. For example, forests stabilize soil and regulate rainfall, preventing landslides, droughts and floods. Wetlands and coastal mangrove swamps provide a natural buffer against storm surges. And ecosystems provide \$300 billion worth of pest control and pollination services to world agriculture every year.^{25,26}

And ecosystems are vital to alleviating poverty. The lives of the world's poor—and their hopes for a better future—are tightly bound to the health of ecosystems. More than half of the developing world's workforce is employed in agriculture, fisheries and forestry.²⁷ And natural resources represent 26 percent of the asset base of low-income countries, compared to just 2 percent for industrialized countries.²⁸

But ecosystems are in trouble. Less than a fifth of the planet's original forest cover remains intact.²⁹ One-third of coral reefs and mangroves have been lost or damaged.³⁰ Fully two-thirds of the planet's ecosystems—including freshwater and fisheries—are being used in ways that simply cannot be sustained.³¹ And there is new evidence that many damaged ecosystems could soon reach the “tipping point” beyond which they can't be repaired.³²

Preserving ecosystems: a new approach. Current development models often entail liquidating natural assets for short-term gain, which may enrich elites and temporarily boost GDP but drive others deeper into poverty.³³ Sustaining ecosystems for current and future generations requires a new approach to development, which places human needs, and the long-term health of the environment, at its center.

Family Planning and Reproductive Health: Pillars of Sustainable Development

Sustainable development means providing for human needs today, while protecting the environment for future generations. Family planning and reproductive health services support both of those objectives. Ensuring access to reproductive health services empowers women, improves public health and helps break the cycle of poverty. And, where women are able to choose the number and spacing of their children, population growth slows—which reduces pressure on natural resources.



Photo: Shehzad Noorani

Too many women lack access to family planning and other reproductive health services. Around the world, some 215 million women do not want to get pregnant but are not using contraception.³⁴ Addressing that “unmet need” for family planning would have

many benefits for women and families—and it is key to slowing population growth. New research by the Futures Group confirms that addressing unmet need for contraception would substantially slow population growth worldwide.³⁵

Family planning and reproductive health services have numerous benefits for women, families and societies. The health benefits of meeting unmet need for family planning and reproductive health services would be dramatic: unintended pregnancies would drop by more than two thirds; seventy percent of maternal deaths and forty-four percent of newborn deaths would be averted; and unsafe abortions would decline by 73%.³⁶ Also, women who are empowered to make choices about childbearing are more likely to seize economic opportunity and invest in their children’s education; they and their children are less likely to be poor.³⁷

Notes

1. United Nations. 1987. "[Report of the World Commission on Environment and Development.](#)" General Assembly Resolution 42/187, 11 December 1987.
2. Falkenmark, M and Widstrand, C., "Population and Water Resources: A Delicate Balance," Population Bulletin (Washington, D.C.: Population Reference Bureau, 1992).
3. "Water Scarcity," factsheet, United Nations "Water for Life" International Decade for Action, accessed at: <http://www.un.org/waterforlifedecade/scarcity.html>
4. World Bank Independent Evaluation Group, "Water and Development: An Evaluation of World Bank Support, 1997-2007," (Washington, DC: The World Bank, 2010) p. 60, accessed at: http://siteresources.worldbank.org/EXTWATER/Resources/water_overview.pdf
5. Population Reference Bureau, "2011 World Population Data Sheet," (Washington, DC: PRB)
6. Rosegrant, M., 1997, "Water Resources in the Twenty-First Century: Challenges and Implications for Action, Food, Agriculture, and the Environment," Discussion Paper 20 (Washington, D.C.: International Food Policy Research Institute)
7. U.S. Department of Agriculture, 2009, *Production, Supply & Distribution*, electronic database, at www.fas.usda.gov/psdonline.
8. U.S. Department of Agriculture, *op. cit.*; U.N. Population Division, *World Population Prospects: The 2006 Revision Population Database*, at esa.un.org/unpd; cited in Brown, L., "Food: Will There Be Enough?" in Mazur, L., ed., 2009, *A Pivotal Moment: Population, Justice and the Environmental Challenge*, (Washington, DC: Island Press).

9. Food and Agriculture Organization of the United Nations (FAO). 2008, *The State of Food Insecurity in the World 2008* (Rome: FAO).
10. U.S. Department of Agriculture, *op. cit.*; U.N. Population Division, *World Population Prospects: The 2010 Revision Population Database*, at http://esa.un.org/wpp/unpp/panel_population.htm
11. Bai, Z. G., D. L. Dent, L. Olsson, and M. E. Schaepman, 2008, Global Assessment of Land Degradation and Improvement 1: Identification by Remote Sensing, Report 2008/01, FAO/ISRIC, Rome/Wageningen, http://www.fao.org/nr/lada/dmdocuments/GLADA_international.pdf; cited in Organization for Economic Cooperation and Development, 2008, *Natural Resources and Pro-Poor Growth: The Economics and Politics*, OECD, Paris.
12. Julio Hanao and Carlos Baanante, 1999, "Nutrient Depletion in the Agricultural Soils of Africa," policy brief, International Food Policy Research Institute.
13. FAO, FAOSTAT Food Security, electronic database, at www.fao.org/faostat.
14. World Food Program, *Hunger Stats*, at: www.wfp.org/hunger/stats
15. *Ibid.*
16. FAO, 2011, *The State of Food Insecurity in the World* (Rome: FAO).
17. Nelson, G. et. al., 2010, "Food Security and Climate Change: Challenges to 2050 and Beyond," Washington, DC: International Food Policy Research Institute.
18. FAO, 2011, *The State of Food Insecurity in the World*, *op. cit.*
19. U.N. Food and Agriculture Organization, *The State of World Fisheries and Aquaculture, 2007*; and U.N. Food and Agriculture Organization, *The State of World Fisheries and Aquaculture, 2008*.
20. Castro, J. and L. D'Agnes. 2008. "Fishing for Families: Reproductive Health and Integrated Coastal Management in the Philippines" *Focus*. Washington, DC: Woodrow Wilson Center.
21. Hassan et al., 2005, *Ecosystems and Human Well-being*, p. 17–18.
22. U.N. Population Division, *World Population Prospects: The 2010 Revision Population Database*, at http://esa.un.org/wpp/unpp/panel_population.htm
23. FAO, 2010, "Food Security Statistics: Prevalence of Undernourishment in Total Population," at: <http://www.fao.org/economic/ess/food-security-statistics/en/>.
24. Chen, S and M Ravallion, 2008, *The Developing World is Poorer Than We Thought, But No Less Successful in the Fight against Poverty* (Washington, DC: The World Bank)
25. Pimentel, D., et.al., "Economic and Environmental Benefits of Biodiversity," *BioScience*, December 1997.
26. Nabhan, G. and Buchmann, S. "Services Provided by Pollinators," in *Nature's Services: Societal Dependence on Natural Ecosystems*, 1997.
27. World Resources Institute, *World Resources 2005: The Wealth of the Poor*, 2005.
28. Organization for Economic Cooperation and Development, 2008, *Natural Resources and Pro-Poor Growth: The Economics and Politics*, OECD, Paris.
29. "Fragmenting forests: the loss of large frontier forests," World Resources Institute, EarthTrends, at: http://earthtrends.wri.org/features/view_feature.php?theme=9&fid=14
30. Millennium Ecosystem Assessment, 2005, *Ecosystems and Human Well-Being: Synthesis*, Washington, DC: Island Press; Clive Wilkinson, ed., 2004, *Status of Coral Reefs of the World: 2004*, Vol. 1, Global Coral Reef Monitoring Network, Australian Institute of Marine Science (16 November 2004): 7.
31. Millennium Ecosystem Assessment Board of Directors, 2005, *Living Beyond Our Means: Natural Assets and Human Well-being*, Washington, DC: Island Press, accessed online at <http://www.millenniumassessment.org/documents/document.429.aspx.pdf>.
32. Secretariat of the Convention on Biological Diversity, 2010, *Global Biodiversity Outlook 3*, Montréal.
33. World Resources Institute, 2005, "The Bottom Line: The Principal Messages from World Resources 2005," at: <http://www.wri.org/publication/content/7701>
34. Guttmacher Institute/United Nations Population Fund, 2009, *Adding It Up: The Costs and Benefits of Investing in Family Planning and Maternal and Newborn Health*, Washington, DC: Guttmacher Institute, <http://www.guttmacher.org/pubs/AddingItUp2009.pdf>
35. S. Moreland, E. Smith, and S. Sharma, 2010, *World Population Prospects and Unmet Need for Family Planning*, Washington, D.C.: <http://www.futuresgroup.com/publications/world-population-prospects-and-unmet-need-for-family-planning/>
36. Guttmacher Institute/United Nations Population Fund, 2009, *Adding It Up*, *op. cit.*
37. Cleland, J., S. Bernstein, et. al., 2006, "Family planning: the unfinished agenda," *The Lancet* 368 (9549)



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