

SEEKING SUSTAINABILITY:
CRITICALLY IMPORTANT ISSUES REMAIN OFF THE TABLE

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Sustainability

The words *sustainable* and *sustainability* are showing up in more and more places these days, and nowhere more visibly than in association with discussions about the world's forests. These two terms are the focus of increasing numbers of people who are concerned about the long-term effects of human activity on the global environment.

Many writers have sought to define the meaning of the term "sustainable." A favored definition is that from the groundbreaking 1987 report of the World Commission on Environment and Development (the Brundtland Commission report) which defined sustainable development as ". . . development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Fundamentally, the question is whether or not the totality of human activity is altering the earth's biosphere and natural systems so as to degrade them over time. Stated differently, can humans continue on more or less the current path for a long time – say, hundreds or even thousands of years – to come?

In view of the high and growing interest in sustainability issues, it is something of a curiosity that people throughout much of the world appear unwilling or unable to address in any substantial way the pressing reality of population growth. What is most interesting about the exclusion of population growth from planning for sustainability is that the sustainability equation becomes extraordinarily challenging when rapidly rising human numbers are treated as a given. As uncomfortable as these discussions may be, it is worthwhile to consider whether it is possible for the population to double, or more, while simultaneously maintaining the world's biodiversity; the world's remaining indigenous cultures, hunting grounds and sacred areas; the world's current expanse of tropical forests.

Maybe.

How, then, do the answers to these questions change if the global economy increases seven to eight fold within this century, something that the preponderance of economic forecasts suggest is likely? What if per capita consumption continues to rise in developed and developing nations alike?

Forest land managers, government agencies, and wood-using industries in the United States and around the world are increasingly expected to protect and preserve forests and associated values, including biodiversity and indigenous peoples, while at the same time

¹ Based in part on the papers: Bowyer, J.L. 1997. Sustainability and the Resource Manager of Tomorrow. University of Arkansas, Arkansas Forest Resources Center, 1997 Forest Resources Distinguished Lecture (April 10); and Bowyer, J.L. 2003. Consumption and the Sustainability Equation. In Proceedings: Oregon State University College of Forestry, 2003 Starker Lecture Series.

fulfilling the world's need for wood and wood fiber. They are expected to do this, moreover, by a public that is almost totally disinclined to face up to the daunting issues of population growth and rising consumption.

Where will the next century take us? A key question is whether society's leaders will be willing to address or able to influence current trends. As things now stand, it appears that the world will add another four to five billion people within this century.. It appears likely that the U.S. population will double within the same time frame. And as the domestic and global economies grow even more rapidly than the expansion of population, the combined effect will be a need for more space, food, housing, clothing, energy, durable and non-durable goods, and raw materials of all kinds. While this is occurring, environmental concerns will be magnified even further. Sustainability questions will loom even larger. And in the absence of a new approach to environmental planning, disagreements over what to do are likely to become even deeper and conflicts sharper. It is not hard to imagine a future in which interest groups are more prevalent, larger, better financed, and even less willing to compromise than today, yet just as reluctant as society at large to take on the major factors underlying sustainability concerns. In such a future, the ability of future generations to meet their own needs will almost certainly be compromised, despite the rhetoric of today that suggests intentions to do otherwise.

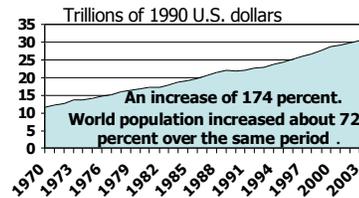
Sustainable Population Growth

As increasingly sophisticated investors we are well aware that even a small amount of periodic, regular savings can result in a large amount of money over a long period of time, even when interest rates are modest. But as Dr. Alvin Bartlett, professor emeritus of physics at the University of Colorado, often points out it seems that we give little thought to the power of compounding when considering growth of populations.

In considering population growth, it is important to realize that birth and death *rates* have been falling for more than 60 years. Birth rates have been falling steadily worldwide since the mid-1930s. Death rates have fallen as well, but generally less rapidly than declines in birth rates (Figure 1). These two factors in combination translate to *declining growth rates*. But how does news of a declining rate of growth square with discussion of rapidly growing populations? Some interpret news of a declining growth rate to mean that the population is not growing. Others have been inspired to declare that population is no longer an issue that humans should be concerned about. However, it is important to understand the difference between the rate of growth and growth in numbers. Over the past six decades, as the rate

During the period 1970 through 2004 the global economy grew 174 percent, while population grew 72 percent.

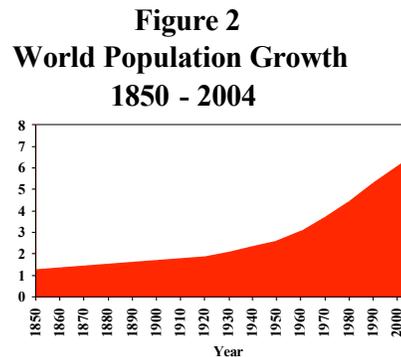
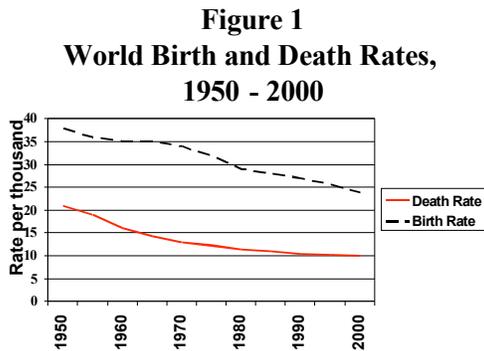
Gross World Product, 1970 -2004



Source: United Nations Statistics Division, 2005.

The current global economy of 31.8 trillion is expected to expand to about 100 trillion by 2050 and to 220-240 trillion by 2100 (with all values expressed in 1990 constant dollars). Thus, the global economy has long been expanding more rapidly than population numbers, and this trend is expected to continue into the foreseeable future.

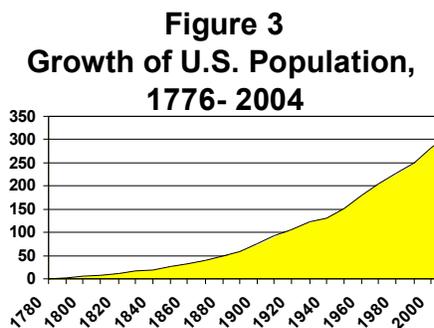
of population growth has been falling, population *numbers* have been rising sharply (Figure 2).



Source: U.S. Census Bureau, International Programs Center, 2005

Let's now take another look at population growth, this time in the context of compounded annual rates of growth. There are currently almost 6.5 billion of us on the planet – 6,500 million. But what pattern of growth led to this number? It is rather sobering to realize that through thousands of years of human history, population numbers didn't reach the three billion mark until 1960, and that it has taken less than 50 years to more than double that number. And what is the rate of growth that has led to this situation? At its peak, the population growth rate reached only 2.2 percent annually, and is now about 1.3 percent. The U.S. rate of population growth has been between 0.9 and 1.1 percent annually for the past 60 years. These are growth rates that are generally dismissed as insignificant.

Whereas world population is growing, but at a decreasing rate, the U.S. population is growing at a rather steady 1.0 percent annual rate. As a result, the U.S. population growth curve (Figure 3) looks rather unlike Figure 2 in that there is no indication of a decline in growth rate in the U.S.



Consider then what would happen if the population growth rate of the United States were to remain at 1.0 percent annually going forward. Using the same simple formula that is used to calculate the increase in value of a money market fund or savings account, it turns out that a 1.0 percent rate of growth translates to a doubling of the principal in 70 years. Thus, \$100 invested in a savings account paying 1.0 percent interest, compounded annually, will double to \$200 by the end of the 70th year. The same result is obtained when

applying this growth rate to a population – a population will double in a 70 year period when the annual rate of growth is 1.0 percent. More interesting, however, is what happens when growth continues beyond a 70-year period. Since a doubling occurs every 70 years, continuation of a 1.0 percent rate of growth for, say, 700 years (a period well within what most people think of when considering the meaning of the term sustainability) results in ten doublings. In that case, the \$100 somehow forgotten in that 1.0 percent per annum savings account would now total \$105,916! It turns out that even a one percent rate of growth is significant over a long enough time frame.

In round numbers, every ten doublings of any number increases its value by 1,024 times, a fact that applies to populations as well as money. So, if the U.S. population, now at about 297 million, were to continue to grow for the next 700 years at a 1.0 percent annual rate, the U.S. population would increase by 1,024 times. The result would be a population of **304 billion** by 2705, **equivalent to 46.8 times the current world population.**

All of this begs the question: In view of the fact that each passing decade leaves future generations with harder choices and fewer options, how many decades will be allowed to pass before a rational discussion about population growth and immigration policy is initiated within the United States? The last U.S. President to suggest attention to population issues was Richard Nixon, a leader who also created a National Commission on Materials Policy, an entity created to examine raw material consumption trends. Unfortunately, Mr. Nixon's subsequent misdeeds served to erase almost all memory of and interest in his earlier work. Is there a future political leader waiting in the wings who will have the courage and foresight to raise these issues? Or, will U.S. policy continue to fundamentally be one of "whatever happens, happens."

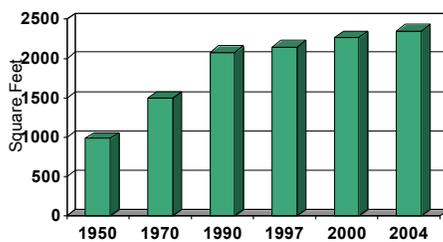
Consumption

Prominent among the recommended actions of the Brundtland Commission was a reduction of per capita consumption on the part of developed nations and diversion of developing nations from development and consumption patterns followed by the wealthiest of the developed nations. This was not the first time that the consumption issue had been raised. While consumption has long been identified as a key determinant of environmental impact, there has been surprisingly little attention focused on consumption per se within western nations. Particularly notable has been the almost total absence of consumption from the discussion agenda in either politics or leading environmental organizations within the world's greatest consuming nation – the United States. In every discussion of the environment, in every administration – Democrat or Republican – and at every level of government, consumption is very simply off the table.

Within the U.S. recent decades have marked steady increases in average new home size (Figure 4), size of vehicles, the number and size of second homes (Figure 5), ownership of recreational vehicles, and so on. Consumption has increased well beyond what might be suggested by population growth, meaning that per capita consumption has continued to rise. At the same time that absolute and per capita consumption has been rising, there has been a clear lack of willingness to take responsibility for the impacts of rising

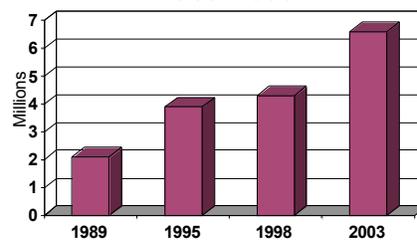
consumption. Environmental planning in the U.S. today very seldom includes any consideration of the reality of consumption or of the accompanying need for raw materials, with decision after decision made wholly on the basis of esthetics or biology, with no thought given to possible unintended consequences of such decisions. As a result, environmentally-based decision making in the U.S. has fostered increasing raw material importation along with a transfer of associated environmental impacts. In short, consumption within the U.S. and other developed countries is causing major negative environmental impacts all over the globe. Impacts are traceable not only to raw material extraction and to basic processing of these raw materials, but to waste disposal as well.

Figure 4
U.S. Average New Home Size,
1959-2004



Source: National Association of Home Builders 2004, 2005.

Figure 5
U.S. Vacation Home Ownership,
1989-2003



Source: Zhu et al. (2001), NAHB (2004)

What could be done? If there were a commitment within society to seek reductions in the impacts of consumption, there are a number of approaches that could be pursued. These include implementation of a broad-based or targeted consumption tax (as is currently being considered within the U.S. Congress as a replacement for the income tax), ending tax incentives for second home ownership, eliminating hidden subsidies on fossil fuels, examining every aspect of the nation's economic system to determine if it is possible to enjoy economic health without continual growth, ensuring that consumption and raw materials needs issues are incorporated into environmental planning processes at every level, halting the practice of shifting environmental impacts of production and consumption to other regions and other countries, requiring that processes for re-designating land use classifications be more rigorous, and providing a means for environmentally concerned citizens to make informed choices in purchasing.

Will the U.S. make any effort to moderate consumption on the part of its citizens? Chances are that a thoughtful, strategic approach to this question would result in a more durable economy, an enhanced lifestyle for U.S. citizens, a more sustainable future for future generations of Americans and global citizens alike, and a healthier environment.

The Bottom Line

Populations continue to grow worldwide despite a declining rate of population growth. Substantial growth of human numbers globally and within the United States is virtually certain in the decades ahead. For the most part, population growth and the impacts of that growth are ignored in environmental planning and decision making. While it is in fashion to suggest that society is fostering development that is sustainable – development that

provides for the present without compromising the ability of future generations to meet their own needs – the failure to face up in any realistic way to the challenges of population and economic growth and associated consumption is clearly leaving future generations with harder choices and fewer options.

If the world is to move to a sustainable mode, innovative and rational thinking, careful planning and coalition building will be needed. Population and economic growth, and growing consumption **must** be a central focus of thinking and planning. The United States and the world, and certainly the global environment, need visionary leaders who can move beyond stridency and gridlock. Citizens who are interested in moving beyond noise and confusion are also an essential ingredient for progress toward sustainability. The time for a paradigm shift is yesterday.

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