Consumption: Challenge to Sustainable Development . . .

Norman Myers

The problem triad of population, environment, and development is now being joined by consumption. This could prove the least tractable of the four interlinked problems since consumption patterns and expectations are deeply entrenched in most societies and cultures. But change will come, whether by design or default. Present consumption—or rather, excessive and wasteful consumption—by rich communities cannot be sustained, if only for environmental reasons. This is exemplified by carbon emissions, and hence global warming, which stem from the fossil-fuel energy underpinning our economies. The artificially cheap price of fossil fuels encourages profligate use. During 1996, the United States contributed one-fifth more carbon to the global atmosphere than the 4.5 times more populous China. All nations will be affected by global warming, whether they are major or minor sources of carbon dioxide (*1*). The winds carry no passports.

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Industrialized-world citizens overall generate three-quarters of other wide-ranging pollutants, also toxic chemicals and hazardous wastes. Much the same applies to the depletion of many of the world's nonrenewable natural resources (*2*). Hence the consumption problem lies primarily with affluent communities, and they bear a responsibility to pioneer a path toward sustainable consumption. This is all the more pertinent insofar as sizable communities in Eastern Europe and the former Soviet Union, as well as in China, India, Southeast Asia, and Latin America, are entering the consumption classes. Already this group totals 750 million people, or as many as the long-established consumers in rich nations. In 1995, more new cars were sold in Asia than in Western Europe and North America combined (*3*). While poor communities certainly need to increase their consumption, they might consider less wasteful and polluting forms of consumption than those that characterize rich nations.

Consumption is here taken to mean more than total spending on consumer goods, just as it is more than "consumerism" or the excessive use of goods and services to satisfy needs that could be met with less environmental impact. Rather, consumption consists of "human transformations of materials and energy, [and it] is environmentally important to the extent that it makes materials or energy less available for future use, and . . . through its effects on biophysical systems, threatens human health, welfare, or other things people value" (*4, 5*).

There is nothing intrinsically wrong with rich communities consuming a disproportionately large percentage of natural resources if those resources remain plentiful and can be recycled, as in the case of iron and steel (85% of which are consumed by the richest 20%, who do not thereby limit the consumption of the poor). Indeed, the rich nations' conversion of natural resources into human capital can enhance welfare everywhere. It is of scant consequence that the average American consumes 115 times as much paper as the average Indian, provided the American recycles most of the

(*continued on page 54*)

. . . or Distraction?

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Political and economic liberalization have spread rapidly around the globe in the past decade. Although it may be too early to proclaim the "end of history" (*1*), the world has undeniably become more democratic and more market-oriented. These trends have coincided with a third: rising awareness of the connections between environment and development. Sustainable development—"meet[ing] the needs of the present without compromising the ability of future generations to meet their own needs" (*2*)—has become a familiar phrase.

Few argue that democratization is inconsistent with sustainable development. Many, however, have a less sanguine view of economic liberalization. In their view, market-led economic growth has yielded levels of consumption in developed countries that cannot be sustained, much less attained by developing countries. They see consumption as being inherently linked to environmental degradation and resource depletion. The implication is that sustainable development is a zero-sum game: Raising the standard of living in developing countries requires concomitant reductions in developed countries.

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In many ways, the consumption debate is a continuation of the *Limits to Growth* and *Global 2000* debates of the 1970s and 1980s (*3*), except that much more information is now available on the global environment. This Policy Forum reviews information on the links between consumption and sustainable development. It concludes that the problem is not consumption levels, but rather consumption patterns. Achieving more sustainable consumption patterns requires policies to overcome market and policy failures, not a cap on global consumption.

Private Consumption and Environmental Quality

In economics, "consumption" spans the full range of goods and services that contribute to human well-being. It includes not only items produced by households or purchased in markets, but also amenities and a variety of nonuse values, many pertaining to the environment. "Private consumption" as conventionally defined in national income accounts is a narrower measure, which encompasses only marketed (priced) goods and services. It measures material standard of living. If increases in material standard of living are indeed associated with increased environmental degradation, then observed increases in private consumption overstate increases in true, economic consumption

The hypothesis that environmental degradation is linked to private consumption, while seemingly logical, is not well supported by cross-country data on environmental quality compiled since the early 1970s by the Global Environmental Monitoring System (GEMS) of the U.N. Environment Program and the World Health Organization. Comparison of GEMS data (*4*) to World Bank data on per capita private consumption (*5*) reveals that countries with higher per capita private consumption levels have lower atmospheric concentrations of particulates and sulfur dioxide, lower aquatic concentrations of suspended solids and nitrate and nitrite, and higher aquatic

(*continued on page 55*)

(*Myers continued from page 53*)
paper (at present, only 41% is recycled). Much more significant is that the average American consumes 227 times as much gasoline as the average Indian (*6*). A key question is whether consumption uses resources or uses them up.

Exploitation pressures on natural resources are already unsustainable in several respects apart from global warming (*2*). Humans co-opt at least 40% of plants' net annual growth on land, leaving 60% for millions of other species (*7*). What will result when human numbers double and individuals demand still more products from plants? We use over half of available freshwater runoff, an amount projected to rise to three-quarters by 2025 through population growth alone (*8*). The number of water-short people today, 550 million, could well soar to 3 billion by 2025. Much the same prospect—reflecting fast-growing consumption in relation to expanding population and environmentally adverse technology—applies to other strategic resource stocks such as topsoil, forests, grasslands, fisheries, biodiversity, climate, and the atmosphere (*2, 9*). True, technology can often help relieve environmental pressures, but to date it is far from matching the burgeoning scope and scale of the problem (*10*).

Policy Options

We need to correct marketplace failures so that prices reflect all environmental costs. A prime source of externalities is our use of gasoline. If we calculate the "true social cost" of burning gasoline by internalizing the more immediate externalities such as air pollution (which alone is worth $300 billion), the U.S. price would rise by the equivalent of a $2 tax per gallon (*11*). If Americans were to cover all costs of their car culture, including noise pollution (though still omitting global warming), they would pay at least $8 per gallon (*12*). The car culture would then lose many of its attractions; there are few better educators than the wallet. Moreover, the car increasingly fails as a convenience when traffic jams cause Americans to lose time worth $80 billion a year (*13*). This mismatch between prices and costs points up the limitations of marketplace signals as indicators of resource status (*14*). Still other price distortions derive from faulty discount rates and common property problems.

A further measure to correct prices would be to phase out subsidies that exert an adverse impact in the long run on both the economy and the environment. Consider marine fisheries. In 1994 the fish harvest cost $124 billion and was sold for $70 billion, the difference being made up largely by government subsidies which thus stimulated overfishing to meet short-term consumer demand (*15*). Similar subsidies promote overuse of fossil fuels, water, and forests, and they also foster overintensive agriculture. Altogether, these "perverse" subsidies for nonsustainable development total $600 billion a year worldwide (*16*)—a sum equal to the Rio Earth Summit's proposed budget for sustainable development.

We can increase resource-use efficiency through fewer materials inputs, longer product lifetimes, and waste prevention. We could accomplish much by utilizing technologies already available. With the right incentives, there could even be a fourfold increase in resource productivity (*17*). Efficiency enables sufficiency, which means scant need for belt tightening or hair-shirt sacrifices. On the contrary, there is sizable profit in it. During the past two decades, Minnesota Mining and Manufacturing has saved $780 million through recycling and waste management.

In particular, we should better use the "energy source" that is cheapest, most widely available, and least exploited, namely, efficiency and conservation. If the United States were to match the Swedes or the Japanese, it would save $200 billion a year (twice the federal deficit), while making its industry more productive and competitive. It would likewise cut back on acid rain, urban smog, and other forms of grand-scale pollution, reinforcing the win-win situation.

Finally, there is scope for mobilizing the media to promote sustainable consumption. Each day an average American is the target of 300 messages urging him or her to consume more. How about using the media to encourage people to consume more discriminatingly and sparingly? The same American spends an aggregate of 1 year watching television—the main mode of advertising. There are now television sets in 1 billion households comprising almost half of humankind, a total that could well double by 2010 (*18*).

The Role of Science

First, science can elucidate the role of consumption at levels ranging from exceptional affluence to bare subsistence. This entails the concept of carrying capacity from both ecological and economic standpoints. Have we already exceeded carrying capacity in ways that impose critical or irreversible injury on vital resource stocks and environmental services—or on systems of social organization? If so, what will be the ecological, economic, political, and social repercussions? If we do not confront consumption problems, what will be the concealed costs of inaction? How long, if at all, can we afford to wait?

Second, science can determine the relative roles of population growth and adverse technology as well as consumption in our environmental predicament. To what extent do the three interact, especially in multiplicative fashion? What indicators can we devise to measure progress toward (or regress from) sustainable consumption?

Third, science, and especially social psychology and anthropology, can investigate why people overconsume and misconsume. Is it a perceptual hangover from humankind's history that more of anything has virtually always meant better? Or has it become a case of keeping up with the neighbors? Either explanation offers plenty of scope to modify perceptions and inclinations.

Fourth, still other social sciences can analyze the driving forces behind consumption. These are not just a wish for more goods and services. Consider societal infrastructure. The rich-world trend toward smaller households necessitates more homes and appliances; big city freeways encourage or even oblige people to drive cars and thus delay a shift in this entrenched consumption pattern (individuals here are not so much willing consumers as unwitting victims). In a broader sense, our social systems can deter people from making consumption decisions that serve their ultimate needs. We should assess all barriers to change, be they economic, institutional, political, or policy barriers—and how they can be reduced by fiscal incentives and disincentives (for example, a carbon tax), or subsidies for renewable and nonpolluting energy sources and for public transportation (*4, 5, 18*).

Conclusion

According to public opinion polls, more than half of all Americans, and a still greater proportion of the population in several other rich nations, recognize that if we are to surmount our environmental problems, we must accept "changes in lifestyle" and even "reduced consumption" (*18, 19*). Daunting as is the prospect of generating such a behavior revolution in the face of long-established inertia, recall a surprising shift of the 1980s, when 55 million Americans gave up smoking—a social earthquake, virtually overnight. Moreover, a consumption change will generally mark an advance from quantity of livelihood to quality of living (*20*).

Those who insist there is no alternative to endless economic growth fuelled by endless consumption might consider that economic expansion of the conventional sort is not necessarily congruent with human de-

velopment. We do not need to expand the Earth in order to develop it; and ultimately, additional economic growth can bring less rather than more human welfare (*21*). Economic advancement of innovative forms can be based on, for example, electronics technology with its potential for enriched lifestyles and environment-friendly products. Whereas materials account for 40% of the value of the industrial age's icon, the car, they make up 0.3% of the value of a microchip—and all the microchips in the world would fit inside a jumbo jet.

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Response to Myers: In a welcome shift toward the views of mainstream economists, Myers emphasizes full-cost pricing as the principal means of addressing environmental degradation. He has not, however, fully expunged traces of limits-to-growth thinking or taken his economic arguments to their logical conclusions. The former is evident in his worries about the depletion of nonrenewable resources, which is contradicted by data on economic availability; his call for recycling, which is often inferior to substitution; and his concerns about the planet's carrying capacity, which is of questionable policy relevance given that it is not fixed and that environmental degradation is not strictly proportional to economic activity. The latter is evident in his call for research into "why people overconsume and misconsume," when he has already provided an explanation—market and policy failures; and in his recommendations that governments encourage industry to use fewer material inputs and subsidize renewable, nonpolluting activities. Such actions are unnecessary if prices are right.

We are left uncertain just what the consumption "challenge" is. Myers defines consumption as "human transformations of materials and energy." But this describes all human activities. In our view, there is no distinct consumption problem, only institutional failures that reduce human well-being in both the short and long runs. These failures affect both production and consumption, and they occur in poor as well as rich countries. Harnessing the price mechanism is the most cost-effective means of addressing them. The fact that several OECD (Organization for Economic Cooperation and Development) countries have held total energy consumption approximately constant since the early 1970s while doubling their gross domestic product—all without mandating lower consumption levels or subsidizing "better" lifestyles—suggests that this is true even of CO_2 emissions, Myers's prime example.

Jeffrey R. Vincent
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(*Vincent continued from page 53*)
concentrations of dissolved oxygen (which is ecologically beneficial). Similarly, deforestation rates during 1980 to 1990 were lower in countries with higher consumption levels (*5*). Forest cover actually increased between 1980 and 1990 in many countries with consumption levels above U.S.$7500 (1987 price levels).

This evidence is consistent with econometric studies that have found per capita income to be positively associated with many indicators of environmental quality, at least beyond certain income thresholds (*6*). While such correlations are not necessarily causal or optimal (*7*), they do indicate that it is *possible* for private consumption to be associated with improving environmental quality and that this is what has happened historically for several key environmental indicators.

An obvious objection is that countries with higher private consumption levels might have simply shifted environmental degradation to poorer countries by enacting more stringent environmental regulations. Studies on this issue have found that industrial location decisions are driven much more by factors like political stability and labor costs than by environmental regulations (*8*). The evidence also rejects the notion that export-oriented production is the driving force behind environmental degradation in developing countries. Malaysia has one of the most export-oriented economies in the world, but industry generated barely a tenth of total air pollution emissions in 1995 (vehicles were the primary source) (*9*). Throughout the developing world, inadequate sewerage, not industry, is the principal cause of water pollution harmful to human health (*10*). More than 90% of the 1994 roundwood harvest in developing countries was ultimately consumed within developing countries, not exported to rich countries (*11*).

The former East Bloc illustrates perhaps most dramatically that environmental degradation is not proportional to private consumption. Communism was institutionally biased against consumption, yet the fall of the Berlin Wall revealed that it had generated the world's most polluted landscape (*12*).

Private Consumption and Resource Depletion

A second way that private consumption might undermine sustainable development is by accelerating the depletion of energy and other natural resources. But cross-country data do not show that energy consumption rises inexorably with private consumption (*5*). In 1993, per capita energy consumption was higher in countries with higher per capita private consumption, but only up to a per capita consumption level of U.S.$10,000 (1987 prices). Thereafter, per capita energy consumption was lower. Moreover, in most countries with per capita private consumption levels of U.S.$5000