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## Stewardship for a “Full” World

ROBERT COSTANZA

**T**he economies of China and India are growing at a rapid clip. But these nations seem to be making the same environmental mistakes that Western countries made during their development—this time with a vengeance, given their enormous populations. And their “real” economic improvements, once the costs of environmental and health damage are subtracted, may turn out to be much smaller than growth rates would suggest. Is this an inevitable byproduct of development, one they will eventually outgrow? Or is there something inherently wrong with the conventional development model? Is the impact on the world’s natural resources sustainable? Is there a better way?

### RESOURCES

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The mainstream model of development, sometimes known as the “Washington Consensus,” is based on a number of assumptions about the way the world works, what the economy is, and what the economy is for (see the table on page 33). These assumptions emerged during a period—the early industrial revolution—when the world was still relatively empty of humans and their built infrastructure. Natural resources were abundant, social settlements were sparser, and inadequate access to infrastructure represented the main limit on improvements to human well-being.

It made sense, at that time, not to worry too much about environmental and social “externalities.” They could be assumed to be relatively small and ultimately manageable. It made sense to focus on the growth of the market economy, measured in terms of gross domestic product (GDP), as a primary means of improving human welfare. It made sense, in that context, to think of the economy as

only marketed goods and services, and to think of the goal as increasing the amount of goods and services produced and consumed.

The world, however, has changed dramatically since that time. We now live in a world relatively full of humans and their built infrastructure. Since the end of World War II, the planet has experienced what some have called “the great acceleration” in the consumption of fossil fuels and the growth of market economies. The human footprint has grown so large that, in many cases, limits on the availability of natural resources now constrain real progress more than limits on capital infrastructure do.

In this new context, we first have to remember that the goal of an economy is to sustainably improve human well-being and quality of life. Material consumption and GDP are merely means to that end, not ends in themselves. We have to recognize, as both ancient wisdom and new psychological research tell us, that material consumption beyond real need can actually reduce well-being.

Such a reorientation leads to specific tasks. We have to identify what really does contribute to human well-being, and recognize and gauge the substantial contributions of natural and social capital, both of which are coming under increasing stress. We have to be able to distinguish between real poverty in terms of low quality of life, and merely low monetary income. Ultimately we have to create a new vision of what the economy is and what it is for, and a new model of development that acknowledges the new full-world context.

### THE PRICE OF MATERIALISM

The World Bank and the International Monetary Fund, organizations that had their beginnings at the Bretton Woods conference near the end of World War II, were chartered to speed economic development, stabilize the world econ-

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omy, and end poverty. But these institutions and the World Trade Organization, relying largely on the Washington Consensus, have been unable to achieve their original goals of improving people's lives in the developing world and stabilizing the global economy. The policies they have demanded include removing barriers that check corporate access to a country's resources, and have often included the removal of social and environmental regulations.

Such policies are antithetical to the goal of developing in a sustainable and equitable way. These policies are in no sense a global "consensus," but rather the dictate of a few powerful nations and their attendant organizations. With lending countries and their economists making most of the decisions, borrowing nations have had little say in policies attached to loans—cuts to government salaries, for instance, and privatization of social services. In fact, the execution of this model of development has led to unemployment, falling worker wages, biodiversity loss, environmental degradation, and disintegration of the social fabric.

A coherent and viable alternative is sorely needed. Fortunately, a better development model can be derived from the principles of ecological economics. These include the idea that growth and development are not always linked and that true development should be defined in terms of the improvement of sustainable quality of life, not merely improvement in material consumption.

## THE SCIENCE OF HAPPINESS

A substantial body of new research has emerged on what actually contributes to human well-being and quality of life. This new "science of happiness" clearly demonstrates the limits of conventional economic income and consumption in contributing to well-being. The psychologist Tim Kasser in his 2002 book *The High Price of Materialism* points out, for instance, that people who focus on material consumption as a path to happiness are actually less happy and even suffer higher rates of both physical and mental illness than those who do not. Material consumption beyond real need is a form of psychological "junk food" that only satisfies for the moment and ultimately leads to depression, Kasser says.

The economist Richard Easterlin has shown that well-being tends to correlate well with health, level of education, and marital status, and not very well with income beyond a certain fairly low threshold. In a recent paper in the *Proceedings of the National Academy of Sciences*, he noted that people make decisions assuming that more income, comfort, and goods will make them happier. But then "hedonic adaptation" (humans' tendency to rapidly adapt to improvements in their lives, prompting them to want still more) kicks in, along with continuing social comparisons (with others who are also buying more goods). The effect is to raise people's aspirations "about the same extent as their actual gains, and leave them feeling no happier than before." Most individuals, wrote Easterlin, "spend a disproportionate amount of their

lives working to make money, and sacrifice family life and health, domains in which aspirations remain fairly constant as actual circumstances change, and where the attain-

ment of one's goals has a more lasting impact on happiness."

The British economist Richard Layard, in his 2005 book *Happiness: Lessons from a New Science*, concluded that current economic policies are not improving happiness. He argued that "happiness should become the goal of policy, and the progress of national happiness should be measured and analyzed as closely as the growth of GNP." Similarly, the economist Robert Frank, in his 2001 book *Luxury Fever*, asserted that some nations would be better off—overall national well-being would be higher—if their inhabitants consumed less and spent more time with family and friends, maintaining their physical and mental health, striving to improve their communities, and enjoying nature.

On this last point, there is substantial and growing evidence that natural systems contribute heavily to human well-being. Ecosystem services, as they are called, include food and water, flood and disease control, spiritual and recreational benefits, and the nutrient cycling that maintains conditions for life on the earth. In a paper published in 1997 in the journal *Nature*, my co-authors and I estimated the annual, non-market value of the earth's ecosystem services at \$33 trillion, substantially larger than global GDP.

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*Our entire modern global civilization is addicted to fossil fuels, overconsumption, and the conventional development model.*

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So, if we want to assess the “real” economy—all the things that contribute to real, sustainable well-being—as opposed to only the “market” economy, we have to measure and include the non-marketed contributions to human well-being from nature; from family, friends and other social relationships; and from health and education. One convenient way to summarize these contributions is to group them into four basic types of capital that are necessary to support the real, well-being-producing economy: built capital, human capital, social capital, and natural capital.

Human capital includes the health, knowledge, and other attributes of individuals that allow them to function in a complex society. Social capital includes the formal and informal networks among people: family, friends, and neighbors; social institutions at all levels, such as churches and clubs; as well as nongovernmental groups, international organizations, and local, state, and national governments. Natural capital includes the world’s ecosystems and all the services they provide. Ecosystem services occur at many scales, from climate regulation at the global scale, to flood protection, soil formation, nutrient cycling, recreation, and aesthetic services at the local and regional scales. The market economy takes into account mainly built capital (factories, offices, and other built infrastructure and their products) and part of human capital (spending on labor, health, and education), with some limited spillover into social and natural capital.

## WHERE IS THE PROGRESS?

Given this definition of the real economy, are we really making progress? Is the mainstream development model truly working, even in the “developed” countries? One way to tell is through surveys of people’s life satisfaction, which has been relatively flat in the United States and many other developed countries since about 1975. A second approach is an aggregate measure of the real economy that has been developed as an alternative to GDP, called the Genuine Progress Indicator, or GPI.

Let us first take a quick look at the problems with GDP as a measure of true human well-being. GDP is not only limited—measuring only marketed economic activity or gross income—it also counts all activity as positive. It does not separate desir-

able, well-being-enhancing activity from undesirable, well-being-reducing activity. For example, an oil spill increases GDP because someone has to clean it up, but it obviously detracts from society’s well-being. From the perspective of GDP, more crime, more sickness, more war, more pollution, more fires, storms, and pestilence are all potentially beneficial, because they can increase marketed activity in the economy.

GDP also leaves out many things that do enhance well-being but are outside the market. For example, the unpaid work of parents caring for their own children at home does not show up, but if these same parents decide to work outside the home to pay for child care, GDP increases. The non-marketed work of natural capital in providing clean air and water, food, natural resources, and other ecosystem services does not adequately show

up in GDP, either. But if these services are damaged and we have to pay to fix or replace them, GDP increases. Finally, GDP takes no account of the distribution of income

among individuals. Yet it is well known that an additional \$1 worth of income produces more well-being if one is poor rather than rich. It is also clear that a highly skewed income distribution has negative effects on a nation’s social capital.

The GPI addresses these problems by separating the positive from the negative components of marketed economic activity; adding in estimates of the value of non-marketed goods and services provided by natural, human, and social capital; and adjusting for income-distribution effects. While it is by no means a perfect representation of the real well-being of nations, GPI is a much better approximation than GDP. As the Nobel Prize-winning economist Amartya Sen and others have noted, it is much better to be approximately right in these measures than precisely wrong.

Comparing GDP and GPI for the United States shows that, while GDP has steadily increased since 1950, with the occasional dip or recession, GPI peaked in about 1975 and has been flat or gradually decreasing ever since. From the perspective of the real economy, as opposed to just the market economy, the United States has been in recession since 1975. As already mentioned, this picture is also consistent with survey-based research on people’s stated life-satisfaction. The United States and several

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## A New Development Model

	Current Development Model: the "Washington Consensus"	Sustainable Development Model: an emerging "Green Consensus"
<b>Primary policy goal</b>	<b>More:</b> Economic growth in the conventional sense, as measured by GDP. The assumption is that growth will ultimately allow the solution of all other problems. More is always better.	<b>Better:</b> Focus shifts from mere growth to "development" in the sense of improvement in quality of life, recognizing that growth has negative by-products and more is not always better.
<b>Primary measure of progress</b>	GDP.	GPI (or something similar).
<b>Scale/carrying capacity</b>	Not an issue because it is assumed that markets can overcome any resource limits via new technology, and substitutes for resources are always available.	A primary concern as a determinant of ecological sustainability. Natural capital and ecosystem services are not infinitely substitutable, and real limits exist.
<b>Distribution/poverty</b>	Lip service, but relegated to "politics" and a "trickle down" policy: A rising tide lifts all boats.	A primary concern since it directly affects quality of life and social capital and in some real ways is often exacerbated by growth.
<b>Economic efficiency/allocation</b>	The primary concern, but generally including only marketed goods and services (GDP) and institutions.	A primary concern, but including both market and non-market goods and services and effects. Emphasizes the need to incorporate the value of natural and social capital to achieve true allocative efficiency.
<b>Property rights</b>	Emphasis on private property and conventional markets.	Emphasis on a balance of property rights regimes appropriate to the nature and scale of the system, and a linking of rights with responsibilities. A larger role for common property institutions in addition to private and state property.
<b>Role of government</b>	To be minimized and replaced where possible with private and market institutions.	A central role, including new functions as referee, facilitator, and broker in a new suite of common-asset institutions.
<b>Principles of governance</b>	<i>Laissez-faire</i> market capitalism.	Lisbon principles of sustainable governance.

Basic characteristics of the current development model and an emerging model based on sustainable "ecological economics."

other developed countries are now in a period of what ecological economist Herman Daly has called "uneconomic growth," in which further growth in marketed economic activity (GDP) is actually reducing well-being on balance rather than enhancing it.

In terms of the four kinds of capital, built capital has grown but human, social, and natural capital have declined or remained constant and have more than canceled out the gains in built capital. Is this really the model of development that developing countries should aspire to emulate?

### THE WORLD'S NEXT MODEL?

A better model of development, consistent with our new full-world context, would be based clearly on the goal of sustainable human well-being. It

would use measures of progress that explicitly acknowledge this goal (for example, GPI instead of GDP). And it would acknowledge the importance of ecological sustainability, social fairness, and real economic efficiency.

Ecological sustainability implies recognition that natural and social capital are not infinitely substitutable by built and human capital, and that there are real biophysical limits to the expansion of the market economy. Climate change is perhaps the most obvious and compelling of these limits.

Social fairness implies recognition that the distribution of wealth is an important determinant of social capital and quality of life. The conventional development model, while ostensibly aimed at reducing poverty, has bought into the

assumption that the best way to do this is through growth in GDP. This has not proved to be the case and explicit attention to distribution issues is needed badly. As Robert Frank has argued in his book *Falling Behind: How Rising Inequality Harms the Middle Class*, economic growth beyond a certain point sets up a “positional arms race” that changes the context for consumption. It essentially forces everyone to consume too much of positional goods (like houses and cars) at the expense of non-marketed, non-positional goods and services from natural and social capital. Increasing inequality of income actually reduces overall societal well-being, not just for the poor, but across the income spectrum.

Real economic efficiency implies the inclusion of all resources that affect sustainable human well-being in the allocation system, not just marketed goods and services. Our current market allocation system excludes most non-marketed natural and social capital assets and services, which are huge contributors to human well-being. The current development model ignores this fact and therefore does not achieve real economic efficiency. A new, ecologically sustainable development model would measure and include the contributions of natural and social capital and could better approximate real economic efficiency.

The new development model would also acknowledge that a complex range of property rights regimes is necessary to adequately manage the full range of resources that contribute to human well-being. For example, most natural and social capital assets are public goods. Making them private property does not work well. On the other hand, leaving them as open-access resources (with no property rights) does not work well either. What is needed is a third way to *propertize* these resources without privatizing them. Several new (and old) common property rights systems have been proposed to achieve this goal, including various forms of common property trusts.

The role of government also needs to be reinvented. In addition to its role in regulating and policing the private market economy, government has a significant role to play in expanding the “commons sector” in ways that propertize and manage non-marketed natural and social capital

assets. It also has a major role as a facilitator in society’s development of a shared vision of what a sustainable and desirable future would look like. As Tom Prugh, Herman Daly, and I argued in our 1999 book *The Local Politics of Global Sustainability*, strong democracy based on developing a shared vision is an essential prerequisite to building a sustainable and desirable future. This new vision also implies a core set of principles for sustainable governance.

## THE LISBON PRINCIPLES

The key to achieving sustainable governance in the new full-world context is an integrated approach (across disciplines, stakeholder groups, and generations) based on the paradigm of “adaptive management,” whereby policy making is an iterative experiment acknowledging uncertainty, rather than a static “answer.” My colleagues and I, in a paper published in *Science* in 1998, identified six

core principles (now referred to as the “Lisbon principles”) that embody the essential criteria for sustainable governance. Together they form an indivis-

ible collection of basic guidelines for administering the use of common natural and social resources.

*Responsibility.* Access to common asset resources carries attendant responsibilities to use them in an ecologically sustainable, economically efficient, and socially fair manner. Individual and corporate responsibilities and incentives should be aligned with each other and with broad social and ecological goals.

*Scale-matching.* Problems of managing natural and social capital assets are rarely confined to a single scale. Decision-making should (a) be assigned to institutional levels that maximize input, (b) ensure the flow of information between institutional levels, (c) take ownership and actors into account, and (d) internalize costs and benefits. Appropriate scales of governance will be those that have the most relevant information, can respond quickly and efficiently, and are able to integrate across scale boundaries.

*Precaution.* In the face of uncertainty about potentially irreversible impacts to natural and social capital assets, decisions concerning their use should err on the side of caution. The burden of proof should shift to those whose activities potentially damage natural and social capital.

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*A better development model can be derived from the principles of ecological economics.*

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*Adaptive management.* Given that some level of uncertainty always exists in common asset management, decision-makers should continuously gather and integrate appropriate ecological, social, and economic information with the goal of adaptive improvement.

*Full cost allocation.* All of the internal and external costs and benefits (including social and ecological ones) of alternative decisions concerning the use of natural and social capital should be identified and allocated. When appropriate, markets should be adjusted to reflect full costs.

*Participation.* All stakeholders should be engaged in the formulation and implementation of decisions concerning natural and social capital assets. Full stakeholder awareness and participation contribute to credible, accepted rules that identify and assign the corresponding responsibilities appropriately.

## **BREAKING THE HABIT**

These principles of sustainable governance provide a sharp contrast to the conventional development model. And the latter model is not working, for either the developed or the developing world. It is not sustainable. It is not desirable. It is based on a now-obsolete empty-world vision, and it is leading us to possible disaster.

A highly interconnected set of global problems, including climate change, peak oil supplies, water shortages, financial instability, and international terrorism, increasingly threatens our globalized civilization. We can achieve a much higher quality of life, and one that would be ecologically sustainable, socially fair, and economically efficient, if we shift to a new sustainable development paradigm.

The problem is that our entire modern global civilization is addicted to fossil fuels, overconsumption, and the conventional development model. Even President George W. Bush has acknowledged that we are "addicted to oil." An addictive substance is something to which one has developed a dependence, but which is either unnecessary or harmful to one's long-term well-being. Fossil fuels and excessive material consumption in general fit the bill.

We can power our economies with renewable energy, and we can be happier with lower levels of consumption, but we must first find a way to break deeply ingrained self-destructive habits. It is generally understood that to break any addiction, one must first clearly see the benefits of breaking the habit and the costs of remaining addicted. Fortunately, this information is accumulating every day in studies such as those prepared by the Intergovernmental Panel on Climate Change and the Stern Review on the economics of global warming.

What else can we do to help break our addictions? Among other steps, communities could create and share a vision of a future with zero fossil fuel use and a quality of life higher than today's. The international community could convene a Bretton Woods-style conference to establish new measures to replace GDP, and new institutions to replace the World Bank, the IMF, and the World Trade Organization. These new institutions would promote a shift of primary national policy goals away from increasing marketed economic activity (GDP) toward maximizing national well-being (GPI or something similar). This would help us see the interconnections among built, human, social, and natural capital and help us build well-being in a balanced and sustainable way.

Nations could reform their tax systems to help create the right incentives by taxing negatives (pollution, depletion of natural capital, overconsumption) rather than positives (labor, savings, investment). They could expand the commons sector and improve its management by developing new institutions that can propertize commons without privatizing them. Examples include various forms of common asset trusts, like the atmospheric (or sky) trust proposed by Peter Barnes, the founder of Working Assets. Payments could be required for depletion of natural and social capital and rewards granted for protection of these assets.

As any addict knows, breaking a habit is never easy. But it would not involve a sacrifice in quality of life to give up our addictions to oil, overconsumption, and an outmoded development model. Quite the contrary, it would be a sacrifice not to give them up. ■