

A New Development Model for a 'Full' World

ROBERT COSTANZA

ABSTRACT *Robert Costanza argues that we need to understand what really does contribute to sustainable human well-being, and recognize the substantial contributions of natural and social capitals, which are now the limiting factors to sustainable human well-being in many countries. We have to be able to distinguish between real poverty in terms of low quality of life, and merely low monetary income. He underlines that 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 this new full world context and vision.*

KEYWORDS *ideology; financial crisis; sustainable development; fossil fuels; natural and social capitals*

Introduction

The 2008 financial meltdown was the result of under-regulated markets built on an ideology of free-market capitalism and unlimited economic growth. The fundamental problem is that the underlying assumptions of this ideology are not consistent with what we now know about the real state of the world. The financial world is, in essence, a set of markers for goods, services, and risks in the real world, and when those markers are allowed to deviate too far from reality, 'adjustments' must ultimately follow and crisis and panic can ensue. This problem was identified as far back as the work of Frederick Soddy in the 1930s (Soddy, 1933). To solve this and future financial crisis, we need to re-connect the markers with reality. What are our real assets and how valuable are they? This requires both a new vision of what the economy is and what it is for, proper and comprehensive accounting of real assets, and new institutions that use the market in its proper role of servant rather than master.

The mainstream model of development (also 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 (Table 1). These assumptions were created during a period when the world was still relatively empty of humans and their built infrastructure. In this 'empty world' context, built capital was the limiting factor, whereas natural and social capitals were abundant. It made sense, in that context, not to worry too much about environmental and social 'externalities', as they could be assumed to be relatively small and ultimately solvable. It made sense to focus on the growth of the market economy, as measured by the growth domestic product (GDP), as a primary means to improve 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 these goods and services produced and consumed.

But, the world has changed dramatically. We now live in a world relatively full of humans and their built capital infrastructure. In this new context, we have to reconceptualize what the economy is and what it is for. We have to first remember that the goal of the economy is to sustainably improve human well-being and quality of life. We have to remember that 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 our well-being. We have to better understand what really does contribute to sustainable human well-being, and recognize the substantial contributions of natural and social capital, which are now the

limiting factors to sustainable human well-being in many countries. 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 this new full world context and vision (Table 1).

Quality of life, happiness, and the real economy

There is a substantial body of new research on what actually contributes to human well-being and quality of life (Costanza *et al.*, 2008). This new ‘science of happiness’ clearly demonstrates the limits of conventional economic income and consumption in contributing to well-being. Kasser (2003) points out, for instance, that people who focus on material consumption as a path to

Table 1. *Basic characteristics of the current development model and the emerging sustainable and desirable ‘ecological economics’ development model*

	Current development model: The ‘Washington Consensus’	Sustainable and desirable development model: An emerging ‘Green Consensus’
Primary policy goal	More: 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.	Better: Focus must shift from merely growth to ‘development’ in the real sense of improvement in quality of life, recognizing that growth has negative by-products, and more is not always better.
Primary measure of progress	GDP	GPI (or similar)
Scale/carrying capacity	Not an issue as markets are assumed to be able to overcome any resource limits through 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.
Distribution/poverty	Lip service, but relegated to ‘politics’ and a ‘trickle down’ policy: A rising tide lifts all boats.	A primary concern as it directly affects the quality of life and social capital and in some very real sense is often exacerbated by growth; a too rapidly rising tide only lifts yachts, while swamping small boats.

Table 1. (continued)

	Current development model: The 'Washington Consensus'	Sustainable and desirable development model: An emerging 'Green Consensus'
Economic efficiency/ allocation	The primary concern, but generally including only marketed goods and services (GDP) and institutions.	A primary concern, but including both marketed and nonmarketed goods, services, and effects. Emphasizes the need to incorporate the value of natural and social capitals to achieve true allocative efficiency.
Property rights	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 properties.
Role of the Government	To be minimized and replaced with private and market institutions.	A central role, including new functions as referee, facilitator, and broker in a new suite of common asset institutions.
Principles of governance	<i>Laissez faire</i> market capitalism.	Lisbon principles of sustainable governance.

happiness are actually less happy and even suffer higher rates of both physical and mental illnesses 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.

Easterlin (2003) 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. He concludes that:

People make decisions assuming that more income, comfort, and positional goods will make them happier, failing to recognize that hedonic adaptation and social comparison will come into play, raise their aspirations to about the same extent as their actual gains, and leave them feeling no happier than before. As a result, most individuals 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 attainment of one's goals has a more lasting impact on happiness. Hence, a reallocation of time in favor of family life and health would, on average, increase individual happiness.

Layard (2005) synthesizes many of these ideas and concludes that current economic policies are not improving happiness and 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.

Frank (2000) also concludes that some nations would be better off – overall national well-being would be higher – if we actually consumed less and spent more time with family and friends, working for our communities, maintaining our physical and mental health, and enjoying nature.

On this last point, there is substantial and growing evidence that natural systems contribute

Development 52(3): Dialogue

heavily to human well-being. Costanza *et al.* (1997) estimated the annual, nonmarket value of the earth's ecosystem services at \$33 trillion/year, substantially larger than global GDP at the time and yet almost certainly a conservative underestimate. The UN Millennium Ecosystem Assessment (2005) is a global compendium of the status and trends of ecosystem services and their contributions to human well-being.

So, if we want to assess the 'real' economy – all the things that contribute to real, sustainable, human well-being – as opposed to only the 'market' economy, we have to measure and include the nonmarketed contributions to human well-being from nature, from family, friends and other social relationships at many scales, 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, human-well-being-producing economy: built capital, human capital, social capital, and natural capital.

The market economy covers 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 the other two. Human capital includes the health, knowledge, and all the other attributes of individual humans that allow them to function in a complex society. Social capital includes all the formal and informal networks among people: family, friends, and neighbors, as well as social institutions at all levels, such as churches, social clubs, local, state, and national governments, NGO's, and international organizations. 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.

Are we really making progress?

Given this definition of the real economy, are we really making progress? Is the mainstream development model really working, even in the

'developed' countries? One way to tell is through surveys of people's life satisfaction, which have 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 Index of Sustainable Economic Welfare (ISEW; Daly and Cobb, 1989), and more recently renamed as the genuine progress indicator (GPI; Cobb *et al.*, 1995).

Let's 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 of these activities as positive. It does not separate desirable, 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 good things, 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 suddenly increases. The nonmarketed 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 those services are damaged and we have to pay to fix or replace them, then GDP suddenly increases. Finally, GDP takes no account of the distribution of income among individuals. But, 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 society'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 nonmarketed goods and services provided by natural, human, and social capital,

and adjusting for income-distribution effects. Although it is by no means a perfect representation of the real well-being of nations, GPI is a much better approximation than GDP. As Amartya Sen and others have noted, it is much better to be approximately right in these measures than precisely wrong.

Comparing GDP and GPI in the United States shows that, although 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 other developed countries are now in a period of what Herman Daly has called 'un-economic growth', where further growth in marketed economic activity (GDP) is actually reducing well-being on balance rather than enhancing it (Daly and Cobb, 1989). In terms of the four capitals, while built capital has grown, human, social, and natural capitals have declined or remained constant, and more than canceled out the gains in built capital.

A new sustainable, ecological model of development

A new model of development consistent with our new full world context (see Table 1) would be based clearly on the goal of sustainable human well-being. It would use measures of progress that clearly acknowledge this goal (i.e., GPI instead of GDP). It would acknowledge the importance of ecological sustainability, social fairness, and real economic efficiency.

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

Social fairness implies recognizing that the distribution of wealth is an important determinant of social capital and quality of life. The

conventional development model, while explicitly 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 sorely needed. As Frank (2007) has argued, economic growth beyond a certain point sets up a 'positional arms race' that changes the consumption context and forces everyone to consume too much of easily seen positional goods (such as houses and cars) at the expense of nonmarketed, nonpositional 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 including 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 nonmarketed natural and social capital assets and services that are huge contributors to human well-being. The current development model ignores this and therefore does not achieve real economic efficiency. A new, sustainable ecological 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 are 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 government's role in regulating and policing the private market economy, it has a significant role to play in expanding the 'common's sector', that can propertize and manage nonmarketed natural and social capital assets.

Development 52(3): Dialogue

It also has a major role to play as facilitator of societal development of a shared vision of what a sustainable and desirable future would look like. Strong democracy based on developing a shared vision is an essential prerequisite to building a sustainable and desirable future (Prugh *et al.*, 2000). This new vision implies a core set of principles for sustainable governance.

Principles of sustainable governance

The key to achieving sustainable governance in the new full world context is an integrated (across disciplines, stakeholder groups, and generations) approach based on the paradigm of 'adaptive management', whereby policy making is an iterative experiment acknowledging uncertainty, rather than a static 'answer'. Within this paradigm, six core principles (the Lisbon principles) that embody the essential criteria for sustainable governance have been proposed (Costanza *et al.*, 1998). Some of them are already well accepted in the international community (for example, Principle 3); others are variations on well-known themes (for example, Principle 2 is an extension of the subsidiary principle); whereas others are relatively new in international policy, although they have been well developed elsewhere (for example, Principle 4). The six principles together form an indivisible collection of basic guidelines governing the use of common natural and social capital assets.

- *Principle 1: 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.
- *Principle 2: Scale matching.* Problems of managing natural and social capital assets are rarely confined to a single scale. Decision making should (i) be assigned to institutional levels that maximize input, (ii) ensure the flow of information between institutional levels, (iii) take ownership and actors into account, and (iv) 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.

- *Principle 3: 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 capitals.
- *Principle 4: 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.
- *Principle 5: Full cost allocation.* All of the internal and external costs and benefits, including social and ecological, of alternative decisions concerning the use of natural and social capitals should be identified and allocated. When appropriate, markets should be adjusted to reflect full costs.
- *Principle 6: Participation.* All stakeholders should be engaged in the formulation and implementation of decisions concerning natural and social capital assets. Full stakeholder awareness and participation contributes to credible, accepted rules that identify and assign the corresponding responsibilities appropriately.

Some policies to achieve real, sustainable development

The conventional development model is not working, for either the developed or the developing world. It is not sustainable and it is also not desirable. It is based on a now obsolete empty world vision and it is leading us to disaster.

We need to accept that we now live in a full world context where natural and social capitals are the limiting factors. We could 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 that incorporates these principles.

The problem is that our entire modern global civilization is, as even former President Bush has acknowledged, 'addicted to oil' and addicted to consumption and the conventional development model in general. An addictive substance is something one has developed a dependence on, which is either not necessary or harmful to one's longer-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 break our addiction to fossil fuels, consumption, and the conventional development model, and as any addict can tell you 'that ain't easy'. But, in order to break an addiction of any kind, one must first clearly see the benefits of breaking it, and the costs of remaining addicted, facts that accumulating studies, such as the IPCC reports, the Stern Review (2007), the Millennium Ecosystem Assessment (2005), and many others are making it more apparent every day.

What else can we do to help break this addiction? Here are just a few suggestions.

- Create and share a vision of a future with zero fossil fuel use and a quality of life higher than today. That will involve understanding that GDP is a means to an end, not the end itself, and that more GDP actually results in less human well-being in some countries today (whereas in others the reverse is still true). It will require a focus on sustainable scale and just distribution. It will require an entirely new and broader vision of what the economy is, what it is for, and how it functions;
- Convene a 'new Bretton Woods' conference to establish the new measures and institutions needed to replace GDP, the World Bank, the International Monetary Fund, and the World

Trade Organization. These new institutions would promote:

- Shifting primary national policy goals from increasing marketed economic activity (GDP) to maximizing national well-being (GPI or something similar). This would allow us to see the interconnections between built, human, social, and natural capitals, and build real well-being in a balanced and sustainable way;
- Reforming tax systems to send the right incentives by taxing negatives (pollution, depletion of natural capital, and overconsumption) rather than positives (labor, savings, and investment);
- Expanding the common's sector by developing new institutions that can *propertize* the commons without privatizing them. Examples include various forms of common asset trusts, such as the atmospheric (or sky) trust (Barnes *et al.*, 2008) payments for depletion of natural and social capitals and rewards for protection of these assets;
- Reforming international trade to promote well-being over mere GDP growth. This implies protecting natural capital, labor rights, and democratic self-determination first and *then* allowing trade, rather than promoting the current trade rules that ride roughshod over all other societal values and ignore nonmarketed contributions to well-being.

We can break our addiction to fossil fuels, overconsumption, and the current development model, and create a more sustainable and desirable future. It will not be easy, it will require a new vision, new measures, and new institutions. It will require a directed evolution of our entire society (Beddoe *et al.*, 2009). But, it is not a sacrifice of quality of life to break this addiction. Quite the contrary, it is a sacrifice not to.

References

- Barnes, P., Robert Costanza, Paul Hawken, D. Orr, Elinor Ostrom, A. Umana and O. Young (2008) 'Creating an Earth Atmospheric Trust', *Science* 319: 724.
- Beddoe, R., Robert Costanza, J. Farley, E. Garza, J. Kent, I. Kubiszewski, L. Martinez, T. McCowen, K. Murphy, N. Myers, Z. Ogden, K. Stapleton and J. Woodward (2009) 'Overcoming Systemic Roadblocks to Sustainability: The evolutionary redesign of worldviews, institutions and technologies', *Proceedings of the National Academy of Sciences* 106: 2483–9.
- Cobb, C., T. Halstead and J. Rowe (1995) *The Genuine Progress Indicator: Summary of data and methodology*, Redefining Progress, San Francisco, CA.

Development 52(3): Dialogue

- Costanza, R., B. Fisher, S. Ali, C. Beer, L. Bond, R. Boumans, N.L. Danigelis, J. Dickinson, C. Elliott, J. Farley, D.E. Gayer, L. MacDonald Glenn, T. Hudspeth, D. Mahoney, L. McCahill, B. McIntosh, B. Reed, S.A.T. Rizvi, D.M. Rizzo, T. Simpatico and R. Snapp (2008) 'An Integrative Approach to Quality of Life Measurement, Research, and Policy', *Surveys and Perspectives Integrating Environment and Society* 1: 1–5.
- Costanza, R., F. Andrade, P. Antunes, M. van den Belt, D. Boersma, D.F. Boesch, F. Catarino, S. Hanna, K. Limburg, B. Low, M. Molitor, G. Pereira, S. Rayner, R. Santos, J. Wilson and M. Young (1998) 'Principles for Sustainable Governance of the Oceans', *Science* 281: 198–9.
- Costanza, R., R. d'Arge, R. de Groot, S. Farber, M. Grasso, B. Hannon, S. Naeem, K. Limburg, J. Paruelo, R.V. O'Neill, R. Raskin, P. Sutton and M. van den Belt (1997) 'The Value of the World's Ecosystem Services and Natural Capital', *Nature* 387: 253–60.
- Daly, H.E. and J. Cobb (1989) *For the Common Good*, Boston: Beacon Press.
- Easterlin, R.A. (2003) 'Explaining Happiness', *Proceedings of the National Academy of Science* 100: 11176–83.
- Frank, R. (2000) *Luxury Fever*, Princeton, NJ: Princeton University Press.
- Frank, R. (2007) *Falling Behind: How rising inequality harms the middle class*, Berkley, CA: University of California Press.
- Kasser, T. (2003) *The High Price of Materialism*, Cambridge, MA: MIT Press.
- Layard, R. (2005) *Happiness: Lessons from a new science*, New York: Penguin.
- Millennium Ecosystem Assessment (2005) *Ecosystems and Human Well-Being: Synthesis*, Island Press.
- Prugh, T., R. Costanza and H. Daly (2000) *The Local Politics of Global Sustainability*, Washington, DC: Island Press.
- Soddy, F. (1933) *Wealth, Virtual Wealth, and Debt: The solution of the economic paradox*, New York: Dutton.
- Stern, N. (2007) *The Economics of Climate Change: The Stern review*, Cambridge, UK: Cambridge University Press.