

# Adapting Institutions for Life in a Full World

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Today's dominant worldviews and institutions emerged during the early Industrial Revolution, when the world was still relatively empty of humans and their built infrastructure. Natural resources were abundant, social settlements were more sparse, and the main limit on improving human well-being was inadequate access to infrastructure and consumer goods.<sup>1</sup>

Current ideas about what is desirable and what is possible were forged in this empty-world context. "Cheap" fossil fuels have provided the abundant energy necessary for economic growth and helped societies overcome numerous resource constraints. Fertilizers, pesticides, and mechanized agriculture have allowed humanity to stave off Thomas Malthus's predictions of population collapse. As a result, the world has changed dramatically over the past two centuries. It is now a "full" world, where increasingly complex technologies and institutions, mounting resource constraints, and a decreasing energy return on investment have made human society more brittle—and hence more susceptible to collapse.<sup>2</sup>

Laws and policies that incorporate the

empty-world vision are legion. The 1872 Mining Act in the United States, for example, was designed to promote minerals mining and economic growth. It did this by essentially giving away the right to mine on public lands while collecting no royalties and requiring no environmental protection. The act is still in force, even though conditions have changed dramatically. The consequence has been massive environmental destruction and a giveaway of public wealth to private interests.<sup>3</sup>

Today's prevailing worldviews, institutions, and technologies are failing to meet humanity's needs in a rapidly changing world. Climate change, declining oil supplies, biodiversity loss, rising food prices, disease pandemics, ozone depletion, pollution, and the loss of life-sustaining ecosystem services all pose serious threats to humanity. Yet most of these threats were not even imagined when today's worldviews, institutions, and laws were being formed.

All these crises can be traced back to one overarching problem: we have failed to adapt our current socioecological regime from an empty world to a full world.

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Brian Burger

*Landscape consumption in British Columbia, Canada: logging roads, clearcuts, and slash piles.*

## Under Stress in an Increasingly Full World

There are three fundamental reasons why the current regime no longer serves humanity in a full-world context. The first is that unlimited increases in resource and energy use are physically impossible on a finite planet. (See Box 12.) All economic production requires the transformation of raw materials and energy, making these inputs less available to serve as the structural building blocks of the ecosystems that provide life-support services for all species. The global climate crisis is just one example of an ecosystem service—climate regulation—that is being consumed at an unsustainable rate.<sup>4</sup>

The use of fossil fuels not only depletes a nonrenewable resource, it also creates waste emissions that further degrade ecosystem function. But even advances in energy technology cannot create energy out of nothing. While the

development of renewable energy sources is a priority, no currently feasible energy alternative can sustain today's rate of resource-intensive global economic growth.

The second reason why the current regime no longer serves humanity in a full-world context is that unlimited increases in resource and energy use do not continue to increase well-being. Unlimited conventional economic growth (that is, growth in the gross domestic product (GDP)) is not only impossible, it is undesirable. GDP measures marketed income, not welfare. What is really needed is to provide satisfying lives with less economic activity, raw materials, energy, and work required. When GDP rises faster than life satisfaction, this efficiency declines.

The genuine progress indicator (GPI) is one alternative measure of welfare designed to adjust for the inadequacies of GDP, subtracting factors such as the costs of crime and pollution, and adding factors such as the value of household and volunteer work. In the United States, GPI neared its per capita peak in 1975, at a time when per capita GDP was about half what it is today. (See Figure 3.)<sup>5</sup>

Subjective measures of well-being, such as the share of people who consider themselves “very happy,” have also not increased since 1975. Empirical evidence suggests that a return to 1970s per capita consumption levels would not make people worse off but would instead lower resource depletion, energy use, and ecological impacts by half. People would actually be better off because they would have more time and resources to invest in public, non-consumption goods produced by natural and social capital.<sup>6</sup>

The final reason why the current regime no longer serves humanity in a full-world context is that today's institutions are designed to maximize energy and resource use and are poorly adapted to the needs of a full world. Market institutions, for example, enhance economic growth, but they deal well only with pri-

## Box 12. The Folly of Infinite Growth on a Finite Planet

Although the climate challenge is receiving a lot of attention these days, the global temperature increase is but a symptom. The planet has a fever, and it is essential to identify the disease in order to prescribe the right medication. Could the real disease be expanding levels of consumption, growing national economies, and ballooning populations?

Nearly 40 years ago, Jay Forrester warned of the challenge of exponential growth and its implications for a finite planet. This challenge can be illustrated by a biological experiment: If the conditions are right, bacteria will double in number every day, filling the surface of a container by the fiftieth day. But the surface will only be half covered on the forty-ninth day. Humanity may already be on its forty-ninth day and—like a bacteria colony—may completely consume its home if it does not somehow change course.

The ecological capacity of Earth is not expanding, while humanity's footprint is. Global ecological capacity was used up more than 20 years ago. Thus industrial economies, to free up resources for Earth to function and allow developing countries to meet their populations' needs, need to contract significantly.

Many economists believe the opposite, however: that the world economy must continue to grow and that a simple, low-consumption life is a threat to the prevailing economic model. Yet John Stuart Mill, the founding father of modern capitalism, would not support that view. He realized that industrial society, by its very nature, could not last for long and that the stable society that must replace it would be a far better place. "I cannot regard," wrote Mill in 1857, "the stationary state of capital and wealth with the unaffected aversion so generally manifested towards it by politicians of the old school."

Economist Kenneth Boulding went even one step further by claiming that gross

national product (GNP) be considered a measure of gross national cost and that people should devote themselves to its minimization. And it has become increasingly clear that GNP does not couple well with actual well-being, as can be seen in measures like the Genuine Progress Indicator and others. The need for a fundamental rethinking of modern economics is perhaps most eloquently put by Paul Hawken, Amory Lovins, and Hunter Lovins in their book *Natural Capitalism*.

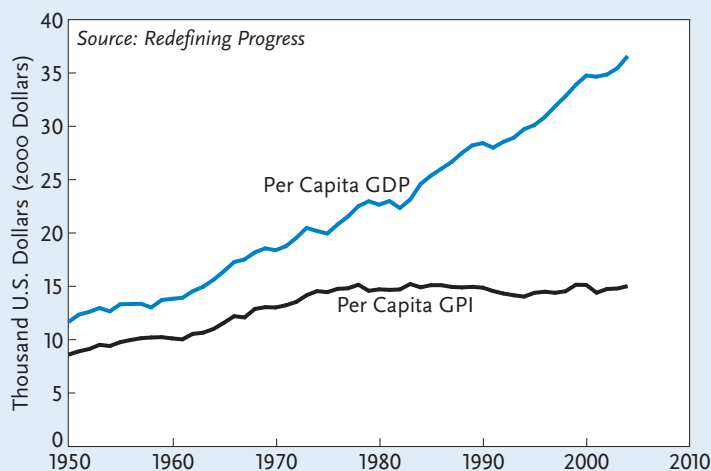
Yet instead of becoming outmoded, the perpetual growth model is now spreading worldwide. From 1958 to 2008 the number of cars increased from 86 million to 620 million. Air passengers skyrocketed from 68 million in 1955 to 2 billion in 2005. The ecological effects of these trends are catastrophic.

The challenge in terms of our fixation on growth is how to get started on a new course. Obviously nobody can expect the Chinese or the Indians to take the initiative on non-growth thinking. At the moment, it looks rather unlikely that any major industrial country will lead the way. But maybe a rich, well-educated country could—a country like Norway or Sweden. With a small population and ample resources, perhaps Scandinavia could lead the way and demonstrate the feasibility of a vision of what the good life in a steady state economy would look like: less hours worked, less stuff, less stress, more time with family and friends, more time for civic engagement, more leisure.

It will not be easy, but it is necessary. It will require a new consumption culture, a new technology culture, and a new intellectual culture—all based on ecological intelligence. In fact, it will demand a fundamental reordering of global priorities.

—Øystein Dahle  
Chairman, Worldwatch Norden  
Source: See endnote 4.

**Figure 3. U.S. Gross Domestic Product versus Genuine Progress Indicator, 1950–2004**



vate goods and services. They often provide these at the expense of public goods and services—such as education, infrastructure, public health, and ecosystem services—that would most significantly improve quality of life in today’s full-world context. A 1997 study valued worldwide ecosystem services at approximately \$33 trillion, more than the value of the gross world product at that time.<sup>7</sup>

Many governments have long-standing policies that promote growth in market goods at the expense of non-market, public goods that are generated by healthy ecosystems. These policies include the more than \$2 trillion in annual subsidies for market activities and externalities that degrade the environment; the privatization or reduced protection of common (shared) resources, such as forests and fisheries; and inadequate regulation and enforcement of existing regulations against environmental externalities. Perhaps the most serious environmental externality facing the world today is climate change. To solve this “mother of all market failures,” the world needs to deal with the atmosphere as a global common asset, not

privatize it. Continuous material economic growth in wealthier countries is a major cause of this biophysical crisis.<sup>8</sup>

Global climatic stability and ecological resilience are global public goods that require cooperative global solutions, whereas fossil fuels are market goods that promote competition and resource struggles. The transition to sustainability demands new energy sources that are “non-rival,” such as energy from the sun and wind. (For example, U.S. development of cheap and efficient solar power will not limit China’s use of this resource; moreover, China would likely improve the tech-

nology, thus conferring benefits to other users.) Unfortunately, international trade institutions such as the World Trade Organization give priority to private, market goods and services at the expense of public goods. Countries that cannot afford renewable energy technologies will continue to burn coal, preventing the new technologies from helping to address climate change. Open access to information about renewable energy technologies is needed to solve this problem.

### Toward a New Sustainable and Desirable Regime

Regime shifts can be driven by collapse or through conscious and integrated changes in worldviews, institutions, and technologies. New goals, rules, and tools can be developed. These changes provide the opportunity to move away from unsustainable practices and to avoid social, economic, and ecological collapse. This section looks at five ideas to stimulate and seed this transition.

*Redefine well-being metrics.* In today’s

full-world context, the goal of an economy should be to sustainably improve human well-being and quality of life. Material consumption and GDP are merely means to that end, not ends in themselves. Both ancient wisdom and new psychological research confirm that material consumption beyond real need can actually reduce overall well-being by creating an unending and unsatisfying drive for more stuff.

Such a reorientation leads to specific tasks. For a start, efforts should be made to identify what actually contributes to human well-being and include the substantial contributions of natural and social capital, both of which are under increasing stress. It is important to distinguish between real poverty (in terms of low quality of life) and merely low monetary income. Ultimately, it is necessary to identify what the economy actually is and what it is for, and to establish a new model of development that acknowledges today's full-world context. Many efforts are under way to develop better well-being measures, including the GPI, but a global effort is needed to build consensus that will allow these alternative measures to gain broad acceptance and credibility.<sup>9</sup>

*Ensure the well-being of populations during the transition.* It will be important that any reductions in economic output and consumption that accompany the shift to a new regime fall on those who will be hurt the least—that is, the wealthy. Presently, the U.S. tax code taxes the third wealthiest man in the world, Warren Buffett, at 17.7 percent, while his receptionist is taxed at the average rate of 30 percent. Appropriate monetary policies can enhance employment, moderate the gap in income, restore the natural environment, and invest more in public goods while overall consumption decreases. For example, ecological tax reform could be implemented that would change consumption patterns and tax the wealthy more because they pollute more, while reducing taxes on social security or other ben-

efits, which will benefit those who rely more fully on these payments.<sup>10</sup>

*Reduce complexity and increase resilience.* History offers lessons about the collapse of societies as well as examples of successful adaptation. While environmental factors often contributed to societal declines, it was cultural and institutional resiliency and adaptability that most influenced a society's chances of survival. Resilience depends on cultural values as well as the ability of political, economic, and social institutions to respond.<sup>11</sup>

Many societies have collapsed due to insufficient resources to sustain their complex structures. The Western Roman Empire, for example, was a thriving, highly complex system as long as increasing resources were available through conquests. But when the limits of conquest were reached, the empire began to tax farmers heavily in an attempt to retain the resource influx, eroding the system's ability to absorb shocks and making it vulnerable to barbarian invasions and other pressures. Maintaining resilience in a full world means shifting the emphasis away from growth and expansion and toward sufficiency and sustainable prosperity.<sup>12</sup>

*Expand the "commons sector."* During the transition to a new regime, it is important to greatly expand the "commons sector" of the economy, the sector responsible for managing existing common assets and creating new ones. Some assets, such as resources created by nature or by society as a whole, should be held in common because this is more just. Other assets, such as information or ecosystem structures (for example, forests), should be held in common because this is more efficient. Still other assets, such as essential common-pool resources and public goods, should be held in common because this is more sustainable.

One option for expanding and managing the commons sector is to create "common asset trusts" at various scales. Trusts, such as the Alaska Permanent Fund and regional land

trusts, can propertize the commons without privatizing them. At a larger scale, a proposed Earth Atmospheric Trust could help to massively reduce global carbon emissions while also reducing poverty. This system would comprise a global cap-and-trade system for all greenhouse gas emissions (preferable to a tax, because it would set the quantity and allow price to vary); the auctioning of all emission permits before allowing trading among permit holders (to send the right price signals to emitters); and a reduction of the cap over time to stabilize atmospheric greenhouse gas concentrations at a level equivalent to 350 parts per million of carbon dioxide.<sup>13</sup>

The revenues resulting from these efforts would be deposited into the Earth Atmospheric Trust, administered transparently by trustees who serve long terms and have a clear mandate to protect Earth's climate system and atmosphere for the benefit of current and future generations. A designated fraction of the revenues derived from auctioning the permits could then be returned to people throughout the world in the form of a per capita payment. The remainder of the revenues could be used to enhance and restore the atmosphere, invest in social and technological innovations, assist developing countries, and administer the Trust.

*Use the Internet to remove communication barriers and improve democracy.* Unlike with television and other broadcast media, very low technological and financial barriers exist to establishing a presence on the Internet. This has the effect of decentralizing the production and distribution of information by returning control to the audience, providing a venue for dialogue instead of monologue. Opinions and services that were previously

controlled by small groups or corporations are now shaped by the entire population. Television news networks, sitcoms, and Hollywood productions are being replaced by e-mail, Wikipedia, YouTube, and millions of blogs and forums—all created by the same millions of people who are the audience for the content.

The 2008 U.S. presidential election marked the first election year where more than half of the nation's adult population became involved in the political process by using the Internet as a source of news and information. Rather than simply receiving uni-directional news, approximately one fifth of the people using the Internet used Web sites, blogs, social networking sites, and other forums to discuss, comment, and question issues related to the election.<sup>14</sup>

## Conclusion

Changes in worldviews, institutions, and technologies will be necessary to achieve lifestyles that are better adapted to today's full-world context. To a certain extent, people can design the future they want by creating a new vision and new goals. If societal goals shift from maximizing growth of the market economy to maximizing sustainable human well-being, different institutions will better serve these goals. It is important to recognize, however, that a transition will occur in any case and that it will almost certainly be driven by crises. Whether these crises lead to decline or collapse followed by ultimate rebuilding or to a relatively smooth transition to a sustainable and desirable future depends on people's ability to anticipate the required changes and to develop new cultures and new institutions.