FUTURE DEVELOPMENT SCENARIOS

Paul D. Raskin
Stockholm Environment Institute, Boston, Tellus Institute, USA

Keywords : future, scenario, barbarization, long-range development

Contents

1. Historical Transition
2. Sustainability, Long-Range Development, and Human Choice
3. The Scenario Approach
4. Visions of the Future
5. Conventional Worlds
6. Barbarization
7. Great Transitions
8. The Grandchildren's Bequest
Acknowledgments
Bibliography
Biographical Sketch

Summary

Civilization is entering the planetary phase of development, the culmination of the era of growth catalyzed by the industrial revolution. The transition is marked by economic globalization, the increasing connectedness brought by communication technology, the global influence of dominant cultures, the new fault lines of geo-political and social conflict, and transformations of the biosphere. Global-scale development brings both rich opportunities and perilous uncertainties.

With its call to pass an undiminished world to our descendants, sustainable development puts the question of the long-range future squarely on development and scientific agendas. While we cannot predict the world of many decades from now, we can use scenarios to describe and analyze alternative development pathways and future visions. Three archetypal groups of scenarios—Conventional Worlds, Barbarization, and Great Transitions—help structure thinking about the range of possibilities that could emerge from current conditions and trends.

Conventional Worlds evolve gradually through incremental adjustments. Poor countries converge slowly toward the dominant development model. In the market-driven Reference variant, efforts to achieve sustainability goals are ineffective, and environmental and social stress intensify in the coming decades. In Policy Reform variants, sustainability initiatives are taken through a comprehensive package of technological and institutional adjustments. The scenarios show that if such a program of reforms is mounted, the conventional development trajectory can be bent toward a sustainable future. However, if the necessary political will is not mobilized, then crisis and fundamental social transformation might ensue.

Barbarization scenarios envision deepening inequality, environmental degradation and institutional erosion. As chaos and conflict spiral out of control, a descent into the anarchy of Breakdown is possible, or an authoritarian response, a Fortress World of elites in protected enclaves with misery outside. In Great Transitions the crisis is transcended, planetary development is seized as an opportunity for social renewal. New actors begin to forge a global society based on respect for nature, quality lifestyles and solidarity with the global community.

The story of the future is not yet written. It will be shaped by our choices and actions as we consider what might be and what could be.

1. Historical Transitions

At the dawn of a new century, one can scarcely get through a day without encountering an article, movie, or website that is concerned about the future and its perils. In some ways, the fascination with the future is not new. Speculation about human destiny is ubiquitous in world cultures, expressed through mythology and religion. But with awareness that human activity places the health of the biosphere at risk, the question of the future is now high on the agenda for policy and science, and on the minds of citizens. The current alarm about the world that one's children and grandchildren might inherit is a most modern phenomenon.

Only a few centuries ago, before the Enlightenment and industrial society gave us such notions as human perfectibility and material progress, the world was a far more static place. Webs of tradition structured daily life, reinforcing the acceptance of, and resignation to, one's place in the order of things. A reasonable expectation for the lives of one's descendants was simply more of the same.

As the modern world took form, the stasis of traditional society gave way to a process of "creative destruction," an expanding spiral of new wants and needs, technological innovation and scientific understanding. The pre-modern sense of acquiescence gave way to hopes for a more prosperous tomorrow, the belief that the reward for hard work would be a better life for one's children. Then, some two centuries ago the process of modernization quickened as the industrial revolution unleashed explosive change in values, technology and institutions.

The industrial era was sparked by technological innovations that vastly increased labor productivity, as machines and inanimate sources of energy displaced human craft and muscle-power. As technology changed, so too did social organization, science and the arts in a reciprocal process of transformation. The modern individual as idealized in economic theory seemed like a member of a new species, a rational and acquisitive agent in a free market, although the reality of people's lives were far more complex.

At the heart of industrial capitalism was a growth imperative that was not to be denied. The new system unleashed a powerful package of acquisitiveness, innovation and competition. The rising entrepreneurial class was in the business of profit maximization, capital investment and expanded production. Inexorably the expanding system incorporated communities in its midst and societies on its periphery. At the same time,

modern legal and constitutional frameworks arose to regulate economic conduct, guarantee contracts and protect civil liberties. But most people remained marginalized as a new urban elite claimed the lion's share of expanding wealth. The factory system displaced traditional livelihoods, communities and values, consigning countless to "satanic mills" and the squalor of a new kind of urban poverty. In response, oppositional movements fought for better working conditions, democratic enfranchisement and opportunity, winning numerous concessions, and the economic growth machine carried on.

The industrial expansion of economic scale, human numbers and global reach would eventually butt up against the planetary limits. Now civilization is on the brink of a new stage of development, the planetary phase. The implications may be as profound as earlier transitions in human society to settled agriculture or to the industrial era itself.

Numerous signs mark the passage to a new era of global change and interdependence. Globalization of the economy is evident in the expansion of international trade, capital flows, financial transactions and consumer markets. The continuing revolution in information and communication technology provides a powerful catalyst for the process of global economic integration. The expanding speed and reach of the new technology also accelerates the global influence of dominant cultural paradigms, promoting homogeneity of lifestyles and values as traditional ways of life tend to converge toward Western norms. As a result of economic and cultural globalization, new geopolitical and social stresses emerge. The expanding global system sparks traditionalist and fundamentalist resistance. The imperatives of a borderless economy challenge the conventional authority of the nation state, and underscore the inadequacies of institutions of global governance. New forms of social conflict arise in a world where socioeconomic inequality increases as aggregate global wealth soars, and a billion people remain mired in poverty.

Perhaps the most striking indication of the planetary era is the transformation of the biosphere, a vast global experiment that binds the world in common perils and projects for rectification. Human activity has always changed the natural environment, but only in recent decades has the human footprint on nature become global in scale. The Earth's atmosphere, oceans and ecosystems have now been significantly altered, and environmental change is likely to accelerate as populations increase and economies grow. The potential impacts on ecosystems, human health, and social stability, while not yet well understood, are sure to be significant.

As they combine and interact, the various dimensions of globalization drive the world system toward greater interdependence and uncertainty. The nature of the uncertainty is deep—the growing complexity and pace of change of the global system expands the scope for social, economic, and environmental surprise. The manner in which the global system responds to internal stresses cannot be foreseen. What is clear is that human expansion on a finite planet cannot increase indefinitely. In our era, the contradiction must be resolved. The troubling question is whether planetary society can begin a transition to a form of development that addresses human aspirations in a manner that sustains Earth's ecological systems.

-
-
-

Bibliography

Alcamo J., Leemans R., and Kreileman E., eds. (1998). *Global Change Scenarios of the 21st Century*, 296 pp. Oxford: Pergamon. [This collection describes a model-based approach to assessing the impact of human development on the global environment.]

Bossel H. (1998). *Earth at a Crossroads: Paths to a Sustainable Future*, 338 pp. Cambridge: Cambridge University Press. [This presents detailed depictions of lifestyles, technologies and governance systems under alternative long-range visions.]

Burrows B., Mayne A., and Newbury P. (1991). *Into the 21st Century: A Handbook for a Sustainable Future*, 442 pp. London: Adamantine. [This survey introduces a range of thinking on future scenarios and development alternatives.]

Gilberto G., Hammond A., Raskin P., and Swart R. (1997). *Branch Points: Global Scenarios and Human Choice*, 47 pp. Boston: Stockholm Environment Institute. [The widely referenced scenario framework of the Global Scenario Group that is relied on in the discussion of alternative development trajectories in this article.]

Kaplan R. D. (2000). *Coming Anarchy: Shattering the Dreams of the Post Cold War*, 198 pp. New York: Random House. [This book extrapolates cases of breakdown in the contemporary world to foresee a grim future of chaos and violence.]

Meadows D. H., Meadows D. L., Randers J., and Behrens, III., W. W. (1972). *The Limits to Growth*, 207 pp. New York: Signet. [A classic exploration of environmentally imposed constraints to growth-oriented development.]

Milbrath L. W. (1989). *Envisioning a Sustainable Society: Learning Our Way Out*, 403 pp. Albany, NY: SUNY Press. [Overview of the sustainability problem and the need for new actions and values.]

Nakicenovic N. et al. (2000). *Special Report on Emissions Scenarios*, 595 pp. Geneva: Intergovernmental Panel on Climate Change/WMO/UNEP. [This update of the IPCC greenhouse gas emissions scenarios goes beyond earlier IPCC scenarios by considering contrasting development possibilities.]

Raskin P., Gilberto G., Gutman P., Hammond A., and Swart R. (1998). *Bending the Curve: Toward Global Sustainability*, 128 pp. Boston: Stockholm Environment Institute. [A detailed discussion and analysis of conventional development alternatives, sustainability targets, and policy implications.]

Svedin U. and Aniansson B., eds. (1987). *Surprising Futures: Notes from an International Workshop on Long-term World Development*, 128 pp. Stockholm: Swedish Council for Planning and Coordination of Research. [This explores possible unexpected pathways of world development.]

Wagar W. (1992). *A Short History of the Future*, 324 pp. London: Adamantine. [A scenario told as a "history" to the year 2100 as society moves through three contrasting stages.]

Biographical Sketch

Paul D. Raskin received his Ph.D. in theoretical physics from Columbia University in 1969. After serving on the physics faculty of City College of New York, Dr. Raskin became Chairman of an interdisciplinary program in human institutions at the State University of New York at Albany. In 1976,

he founded the Tellus Institute, an independent non-profit organization that conducts research and provides advice on resource and environmental strategies and policies. Dr. Raskin serves as President of Tellus Institute where he supervises a broad research program on environment, resources and development policy. In 1989, he also became Director of the Boston Center of the Stockholm Environment Institute, which is hosted by the Tellus Institute. He has conducted research and provided policy assessments for a wide range of governments, multinational agencies and private organizations throughout the world, and has published numerous articles and books on integrated resource, environment and development planning. A major focus of his work has been the design, application and dissemination of methods and data for examining sustainable resource strategies. Dr. Raskin has conceived and implemented widely-used planning computer tools for these purposes including the Long Range Energy Alternatives Policy (LEAP) system, the Water Evaluation and Planning (WEAP) model for integrated water development assessments, the Greenhouse Gas Scenario System (G2S2) which provides detailed national GHG accounts, and most recently the PoleStar System for sustainable development assessment and policy planning. His recent work has focused on scenario-based analyses for assessing the requirements for a transition to sustainability at global, regional, national and local levels. He is the coordinator of the Global Scenario Group, an ongoing international initiative, lead author for the Intergovernmental Panel on Climate Change Third Assessment, and a member of the Board on Sustainable Development of the US National Academy of Sciences.