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Qualitative Growth

A conceptual framework for finding solutions to our current crisis
that are economically sound, ecologically sustainable, and socially just

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The current global recession has been dominating the news since the beginning of the year. Every day we hear about people buying fewer cars, factories that produced sport-utility and recreational vehicles being closed, oil consumption (and thus the price of oil) decreasing dramatically, retailers complaining about consumers spending less money on luxury items, and so on. From an ecological point of view, all of this is good news, since continuing growth of such material consumption on a finite planet can only lead to catastrophe. Yet, it poses a contradictory "paradox of thrift." For example, President Obama's $787 billion stimulus plan is designed to raise consumption levels in both the public and private sectors, while increased savings are also desirable to contain deficits.

At the same time, we hear day after day about companies that respond to the decrease in their sales by reducing their workforce, rather than reducing their profits or taking losses. Thus every decrease of material over-consumption, which is good news ecologically speaking, entails human hardship through increasing job losses. At the same time, over 2 billion people who do not over-consume are even further deprived by conventional economic growth, free trade, and globalization.

It seems that our key challenge is how to shift from an economic system based on the notion of unlimited growth to one that is both ecologically sustainable and socially just. "No growth" is not the answer. Growth is a central characteristic of all life; a society, or economy, that does not grow will die sooner or later. Growth in nature, however, is not linear and unlimited. While certain parts of organisms, or ecosystems, grow, others decline, releasing and recycling their components which become resources for new growth.

In this essay, we want to define and describe this kind of balanced, multi-faceted growth, well known to biologists and ecologists, and apply its principles to the economy, and in particular to the current economic crisis. We propose to use the term "qualitative growth" for this purpose in contrast to the concept of quantitative growth used by

economists.

The economists' practice of equating growth with social "progress" has been critiqued by environmentalists, ecologists, and civic groups dedicated to social justice. It was first widely challenged at the second UN Earth Summit in Rio de Janeiro in 1992. Over 170 governments agreed to correct the economists' quantitative view of growth. These challenges have been ignored until recently, since they included demands that companies and government agencies include on their balance sheets social and environmental costs, which they routinely "externalized" to taxpayers, the environment, and future generations. Concerns about global climate change and pollution are now focusing on "internalizing" such costs in accounting as well as in national accounts.

Gross Domestic Product (GDP)

Most economists still measure a country's wealth in terms of its GDP in which all economic activities associated with monetary values are added up indiscriminately while all non-monetary aspects of the economy are ignored. Social costs, like those of accidents, wars, litigation, and health care, are added as positive contributions to the GDP, and the undifferentiated growth of this crude quantitative index is considered to be the sign of a "healthy" economy. The idea that growth can be obstructive, unhealthy, or pathological is rarely entertained by economists, even though they have been criticized for decades.

The goal of most national economies is to achieve unlimited growth of their GDP through the continuing accumulation of material goods and expansion of services. The over-expansion of financial services, in particular, is parasitic on the real economy and led to the current collapse. Since human needs are finite, but human greed is not, economic growth can usually be maintained through the artificial creation of needs through advertising. The goods that are produced and sold in this way are often unneeded, and therefore are essentially waste. Moreover, the pollution and depletion of natural resources generated by this enormous waste of unnecessary goods is exacerbated by the waste of energy and materials in inefficient production processes.

The recognition of the fallacy of the conventional concept of economic growth, which was pointed out by one of us as early as 1971, is the first essential step in overcoming the economic crisis.[1] Social-change activist Frances Moore Lappé adds, "Since what we call 'growth' is largely waste, let's call it that! Let's call it an economics of

waste and destruction. Let's define growth as that which enhances life — as generation and regeneration — and declare that what our planet most needs is more of it."[2] This notion of "growth which enhances life" is what we mean by qualitative growth — growth that enhances the quality of life. In living organisms, ecosystems and societies, qualitative growth consists in an increase of complexity, sophistication, and maturity.

In order to gain a full understanding of the concepts of quantitative and qualitative growth, it will be useful to briefly review the roles played by quantities and qualities in the history of Western science.

Quantities and Qualities in Western Science

At the dawn of modern science, in the Renaissance, Leonardo da Vinci declared that the painter, "with philosophic and subtle speculation considers all the qualities of forms."[3] He insisted that the "art," or skill of painting must be supported by the painter's "science," or sound knowledge, of living forms, by his intellectual understanding of their intrinsic nature and underlying principles.

Leonardo's science, like Galileo's a hundred years later, was based on the systematic observation of nature, reasoning, and mathematics — the empirical approach known today as the scientific method — but its contents were quite different from the mechanistic science developed by Galileo, Descartes, and Newton. It was a science of organic forms, of qualities, of patterns of organization and processes of transformation.[4]

In the 17th century, Galileo postulated that, in order to be effective in describing nature mathematically, scientists should restrict themselves to studying those properties of material bodies — shapes, numbers, and movement — which could be measured and quantified. Other properties, like color, sound, taste, or smell, were merely subjective mental projections which should be excluded from the domain of science.

Galileo's strategy of directing the scientist's attention to the quantifiable properties of matter proved extremely successful in classical physics, but it also exacted a heavy toll. During the centuries after Galileo, the focus on quantities was extended from the study of matter to all natural and social phenomena within the framework of the mechanistic worldview of Cartesian-Newtonian science. By excluding colors, sound, taste, touch, and smell — let alone more complex qualities, such as beauty, health, or ethical sensibility — the emphasis on quantification prevented scientists for several centuries to understand many essential properties of life. In the 20th century, the narrow

mechanistic and quantitative approach led to major stumbling blocks in biology, psychology, and the social sciences.[5]

The past three decades, however, have seen a renewed attention to quality. During these decades, a new systemic conception of life emerged at the forefront of science, which, in fact, shows many striking similarities with the views held by Leonardo 500 years ago. Today, the universe is no longer seen as a machine composed of elementary building blocks. We have discovered that the material world, ultimately, is a network of inseparable patterns of relationships; that the planet as a whole is a living, self-regulating system. The view of the human body as a machine and of the mind as a separate entity is being replaced by one that sees not only the brain, but also the immune system, the bodily tissues, and even each cell as a living, cognitive system. Evolution is no longer seen as a competitive struggle for existence, but rather as a cooperative dance in which creativity and the constant emergence of novelty are the driving forces. And with the new emphasis on complexity, networks, and patterns of organization, a new science of qualities is slowly emerging.[6]

The Nature of Quality

The new systemic understanding of life makes it possible to formulate a scientific concept of quality. In fact, it seems that there are two different meanings of the term — one objective and the other subjective. In the objective sense, the qualities of a complex system refer to properties of the system that none of its parts exhibit. Quantities, like mass or energy, tell us about the properties of the parts, and their sum total is equal to the corresponding property of the whole, e.g. the total mass or energy. Qualities, like stress or health, by contrast, cannot be expressed as the sum of properties of the parts. Qualities arise from processes and patterns of relationships among the parts. Hence, we cannot understand the nature of complex systems such as organisms, ecosystems, societies, and economies if we try to describe them in purely quantitative terms. Quantities can be measured; qualities need to be mapped.

As the attention shifted from quantities to qualities in the life sciences, there has been a corresponding conceptual shift in mathematics. In fact, this began in physics during the 1960s with the strong emphasis on symmetry, which is a quality, and it intensified during the subsequent decades with the development of complexity theory, or nonlinear dynamics, which is a mathematics of patterns and relationships. The strange

attractors of chaos theory and the fractals of fractal geometry are visual patterns representing the qualities of complex systems.[7]

In the human realm, the notion of quality always seems to include references to human experiences, which are subjective aspects. For example, the quality of a person's health can be assessed in terms of objective factors, but it includes a subjective experience of well-being as a significant element. Similarly, the quality of a human relationship derives largely from subjective mutual experiences. The aesthetic quality of a work of art, as the saying goes, is in the eye of the beholder. Since all qualities arise from processes and patterns of relationships, they will necessarily include subjective elements if these processes and relationships involve human beings.

Accordingly, many of the new indicators of a country's progress use multi-disciplinary, systemic approaches with appropriate metrics for measuring the many aspects of quality of life. For example, the Calvert-Henderson Quality of Life Indicators measure twelve such aspects and use monetary coefficients only where appropriate while rejecting the conventional macroeconomic tool of aggregating all these qualitatively different aspects into a single number, like GDP.[8]

Growth and Development

The previous considerations about qualities and quantities can be applied to the concept of qualitative growth and the phenomenon of development, which is related to growth. Like "growth," "development" is used today in two quite different senses — one qualitative and the other quantitative.

For biologists, development is a fundamental property of life. According to the new systemic understanding of life, every living system occasionally encounters points of instability where there is either a breakdown or, more frequently, a spontaneous emergence of new forms of order. This spontaneous emergence of novelty is one of the hallmarks of life. It has been recognized as the dynamic origin of development, learning, and evolution. In other words, creativity — the generation of new forms — is a key property of all living systems. This means that all living systems develop; life continually reaches out to create novelty.

The biological concept of development implies a sense of multi-faceted unfolding; of living organisms, ecosystems, or human communities reaching their potential. Economists, by contrast, restrict the use of "development" to a single economic

dimension, usually measured in terms of per capita GDP. The huge diversity of human existence is compressed into this linear, quantitative concept and then converted into monetary coefficients. The entire world is thus arbitrarily categorized into "developed," "developing," and “less developed" countries. Economists recognize only money and cash flows, ignoring all other forms of fundamental wealth — all ecological, social, and cultural assets.

It appears that this linear view of economic development, as used by most corporate economists and politicians, corresponds to the narrow quantitative concept of economic growth, while the biological and ecological sense of development corresponds to the notion of qualitative growth. In fact, the biological concept of development includes both quantitative and qualitative growth.

A developing organism, or ecosystem, grows according to its stage of development. Typically, a young organism will go through periods of rapid physical growth. In ecosystems, this early phase of rapid growth is known as a pioneer ecosystem, characterized by rapid expansion and colonization of the territory. The rapid growth is always followed by slower growth, by maturation, and ultimately by decline and decay or, in ecosystems, by so-called succession. As living systems mature, their growth processes shift from quantitative to qualitative growth.

When we study nature, we can see quite clearly that unlimited quantitative growth, as promoted so vigorously by economists and politicians, is unsustainable. An instructive example is the rapid growth of cancer cells, which does not recognize boundaries and is not sustainable because the cancer cells die when the host organism dies. Similarly, unlimited quantitative economic growth on a finite planet cannot be sustainable.[9] Qualitative economic growth, by contrast, can be sustainable if it involves a dynamic balance between growth, decline, and recycling, and if it also includes development in terms of learning and maturing.[9a]

The distinction between quantitative and qualitative economic growth also sheds some light on the widely used but problematic concept of "sustainable development." If "development" is used in the current narrow economic sense associated with the notion of unlimited quantitative growth, such economic development can never be sustainable, and the term "sustainable development" would be an oxymoron. If, however, the process of development is understood as more than a purely economic process, including social, ecological, and spiritual dimensions, and if it is associated with qualitative economic growth, then such a multidimensional systemic process can indeed be sustainable.

Many in business, government, and civic society now use the term "sustainability" to examine these issues, along with hundreds of new academic programs and consulting firms. Much work remains to be done in defining "sustainability" in all these contexts.

Qualitative Economic Growth and the Global Crisis

Let us now return to the central challenge of our economic and ecological crisis: How can we transform the global economy from a system striving for unlimited quantitative growth, which is manifestly unsustainable, to one that is ecologically sound without generating human hardship through more unemployment?

The concept of qualitative economic growth will be a crucial tool in this task. Instead of assessing the state of the economy in terms of the crude quantitative measure of GDP, we need to distinguish between "good" growth and "bad" growth and then increase the former at the expense of the latter, so that the natural and human resources tied up in wasteful and unsound production processes can be freed and recycled as resources for efficient and sustainable processes. A step forward in this direction was the "Beyond GDP" conference in the European Parliament in November 2007, spearheaded by the European Commission together with the World Wildlife Fund for Nature, the OECD, EUROSTAT (Europe's statistical agency), and the Club of Rome.[10]

From the ecological point of view, the distinction between "good" and "bad" economic growth is obvious. Bad growth is growth of production processes and services that are based on fossil fuels, involve toxic substances, deplete our natural resources, and degrade the Earth's ecosystems. Good growth is growth of more efficient production processes and services that involve renewable energies, zero emissions, continual recycling of natural resources, and restoration of the Earth's ecosystems. Climate change and the other manifestations of our global environmental crisis make it imperative that we shift from our destructive production processes to sustainable "green," or "ecodesign" alternatives; and it so happens that these alternatives will also solve our economic crisis in ways that are socially just. We see corresponding systemic policies in the UN's Green Economy Initiative, launched in December 2008 in Geneva by the UN Environment Programme, the International Labor Organization, and the UN Development Program, and keynoted by one of us.[11] Other similar initiatives are the UK-based Green New Deal and the Global Marshall Plan for a socially just green economy, based in Germany.[12]

In recent years, there has been a dramatic rise in ecologically oriented design practices and projects, all of which are now well documented.[13] They include a worldwide renaissance in organic farming; the organization of different industries into ecological clusters, in which the waste of any one organization is a resource for another; the shift from a product-oriented economy to a "service-and-flow" economy, in which industrial raw materials and technical components cycle continually between manufacturers and users; buildings that are designed to produce more energy than they use, emit no waste, and monitor their own performance; hybrid-electric cars achieving fuel efficiencies of 50 mpg and more; and a dramatic rise in wind-generated electricity beyond the most optimistic projections. In fact, with the development of plug-in hybrids and wind farms, the cars of the future could run primarily on wind energy.

These ecodesign technologies and projects all incorporate basic principles of ecology and therefore have some key characteristics in common. They tend to be small-scale projects with plenty of diversity, energy efficient, non-polluting, and community oriented. Most importantly, they tend to be labor intensive, creating plenty of jobs. Indeed, the potential of creating local jobs through investment in green technologies, restoration of ecosystems, and redesigning of our infrastructure is enormous — a fact that has been clearly recognized by President Obama who has begun, together with Congress, to turn these ideas into realities in the American Recovery and Reinvestment Act of 2009.

A detailed roadmap for moving from quantitative to qualitative growth, and thus to find solutions to the global crisis that are ecologically sustainable and socially just, is beyond the scope of this essay. A few steps that seem to be critical are the following.

• Models of qualitative growth need to be formulated by multi-disciplinary teams, compared, and promoted in business, government, and the media. Accordingly, the new sets of broader social/environmental indicators now need to be adopted. This will require political will, public pressure, and education of media editors and reporters.

• Tax systems need to be restructured by reducing taxes on work and raising them on various environmentally destructive activities, so as to "internalize" and incorporate all such costs into prices in the market place. Such "green taxes" are being adopted in many countries. They should include a carbon tax and a gasoline tax, which can be gradually phased in while offsetting them with reductions in income and payroll taxes. Shifting taxes from incomes and payrolls to waste,all pollution as well as carbon and nonrenewable resources will gradually drive wasteful, harmful technologies and

consumption patterns out of the market . This will raise the shareholder value of companies producing green alternatives.

• Beyond tax shifting, companies need to reassess their production processes and services to determine which ones are ecologically destructive and thus in need of being phased out. At the same time, they should diversify in the direction of green products and services. As new accounting protocols are adopted which fully account for social, environmental, and governance (ESG) factors, companies are being steered toward these more sustainable products, services, and practices by their investors, including socially-responsible mutual funds, pension funds, labor unions, civic groups, and individual investors.[14]

• Reforming international finance and monetary systems is now urgent. The G-20 Summit in London, April 2nd, 2009, included debates about how to curb excessive leverage, risk-taking, pay and bonuses; and how to regulate speculation in currency markets ($3 trillion traded daily) and credit derivatives ($683 trillion now outstanding,[15] as compared with global GDP of only $65 trillion). These new rules need to be global by agreements — the only way they can work in our globalized financial system.

• All these reforms will often involve shifts of perception from a product orientation to a service orientation and "dematerializing" of our productive economies. For example, an automobile company should realize that it is not necessarily in the business of selling cars but rather in the business of providing mobility, which can also be achieved, among many other things, by producing more buses and trains and by redesigning our cities. Similarly, countries, and especially the United States, should realize that fighting climate change is today's most important and most urgent security issue. The Obama Administration should reduce the Pentagon's budget accordingly, while increasing funds for diplomacy and building the new "green" economy.

• At the individual level, a corresponding shift of perception will turn from finding satisfaction in material consumption to finding it in human relationships and community building. Such value shifts are now promoted by many civic groups as well as by some television series, such as "Ethical Markets."[16] A proposal to cut the tax credits for corporate advertising across the board aims at reducing advertising in a fair manner without jeopardizing the rights of free speech.[17]

Qualitative Growth Beyond Economics

The challenge of shifting from quantitative to qualitative economic growth will create new industries while downsizing others according to ecological and social criteria. As full-cost pricing, life-cycle costing, as well as social, environmental, and ethical auditing become the norm, we can see which production processes should be increased and which ones should be phased out. Any serious engagement in this endeavor will make it evident that the major problems of our time — energy, the environment, climate change, food security, and financial security — cannot be understood in isolation. They are systemic problems, which means that they are all interconnected and interdependent.

To mention just a few of these interdependencies, demographic pressure and poverty form a vicious circle which, exacerbated by capital-intensive technologies, leads to the depletion of resources — fewer jobs, falling water tables, shrinking forests, collapsing fisheries, eroding soils, wider poverty gaps, and so on. Faulty GDP-growth economics exacerbates climate change and aggravates both resource depletion and poverty, even leading to failing states whose governments can no longer provide security for their citizens, some of whom in sheer desperation turn to terrorism.[18]

The fundamental interconnectedness of our major problems makes it clear that we need to go beyond economics to overcome the global economic crisis. On the other hand, such systemic understanding makes it possible to find systemic solutions — solutions that solve several problems at once. For example, changing from chemical, large-scale industrial agriculture to organic, community-oriented, sustainable farming would contribute significantly to solving three of our biggest problems: energy dependence, climate change, and the health care crisis.[19]

Numerous systemic solutions of this kind have recently been developed and tested around the world.[20] They make it evident that the shift from quantitative to qualitative growth, using all the new quality-of-life and well-being indicators, can steer countries from environmental destruction to ecological sustainability, and from unemployment, poverty, and waste to the creation of meaningful and dignified work. This global transition to sustainability is no longer a conceptual, nor a technical problem. It is a problem of values and political will.

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HAZEL HENDERSON, author of *Ethical Markets: Growing the Green Economy* (2006) and co-creator with the Calvert Group of the Calvert-Henderson Quality of Life Indicators, served on the Organizing Committee for the Beyond GDP conference in the European Parliament (2007).

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[1] Hazel Henderson, "Ecologists versus Economists," *New York Times* business section, October 24, 1971.
[2] Frances Moore Lappé, "Liberation Ecology," Resurgence (UK), January/February 2009.
[3] Quoted in Fritjof Capra, *The Science of Leonardo*, Doubleday, 2007.
[4] See *ibid*.
[5] See Fritjof Capra, *The Turning Point*, Simon & Schuster, New York, 1982.
[6] See Fritjof Capra, *The Hidden Connections*, Doubleday, New York, 2002.
[7] See Fritjof Capra, *The Web of Life*, Anchor Books, New York, 1996.
[8] Hazel Henderson, Jon Lickerman, and Patrice Flynn (eds.), *Calvert-Henderson Quality of Life Indicators*, Calvert Group, Maryland, 2000; Calvert-Henderson Quality of Life Indicators, updated regularly at www.calvert-henderson.com.
[9] See, e.g., Herman Daly, *Steady-State Economics*, W.H. Freeman, New York, 1977; reprinted by Island Press, Washington, DC, 1991.
[9a] Hazel Henderson, "The Limits of Traditional Economics: New Models for Managing a Steady State Economy," Financial Analysts Journal, May-June, 1973.
[10] See proceedings at www.beyond-gdp.eu.
[11] Hazel Henderson, "Re-Designing Money Systems to Reduce Greeenhouse Gases and Grow the Green Economy," www.EthicalMarkets.com.
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[13] See, e.g., Paul Hawken, Amory Lovins, and Hunter Lovins, *Natural Capitalism*, Little Brown, New York, 1999; see also Fritjof Capra, ref. 6.
[14] See Hazel Henderson, *Ethical Markets: Growing the Green Economy*, Chelsea Green, White River Junction, Vermont, 2006.
[15] See Bank for International Settlements, Basel, Switzerland, December 2008.
[16] Seen on PBS stations and at www.ethicalmarkets.tv.
[17] See Hazel Henderson and Alan F. Kay, "The Truth in Advertising Assurance Set-Aside: A Proposal to Help Steer the U.S. Economy Toward Sustainability," United Nations Human Development Report, UNDP, New York, 1998.
[18] See Lester Brown, *Plan B 3.0*, Norton, New York, 2008, for detailed documentation of the fundamental interconnectedness of world problems.

[19] See Michael Pollan, "Farmer in Chief," New York Times Magazine, October 10, 2008; see also Michael Pollan, *In Defense of Food*, Penguin, 2008.
[20] See Lester Brown, ref. 18.