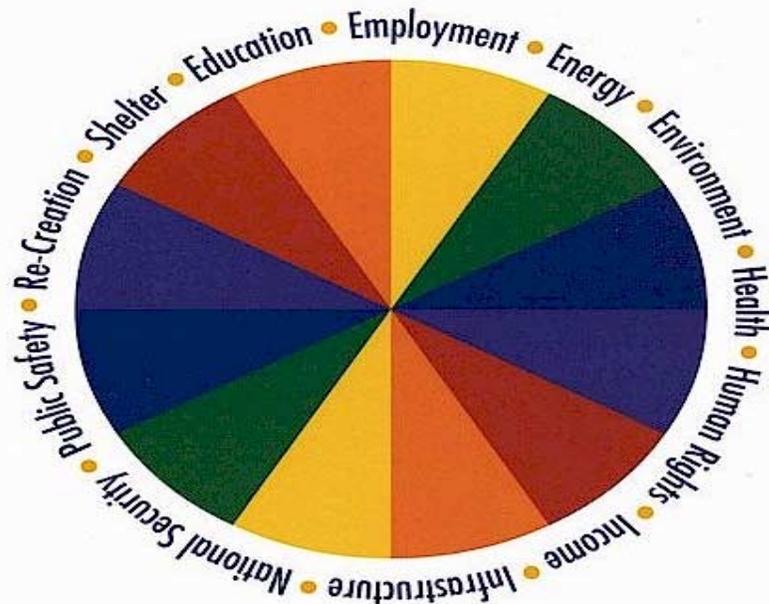
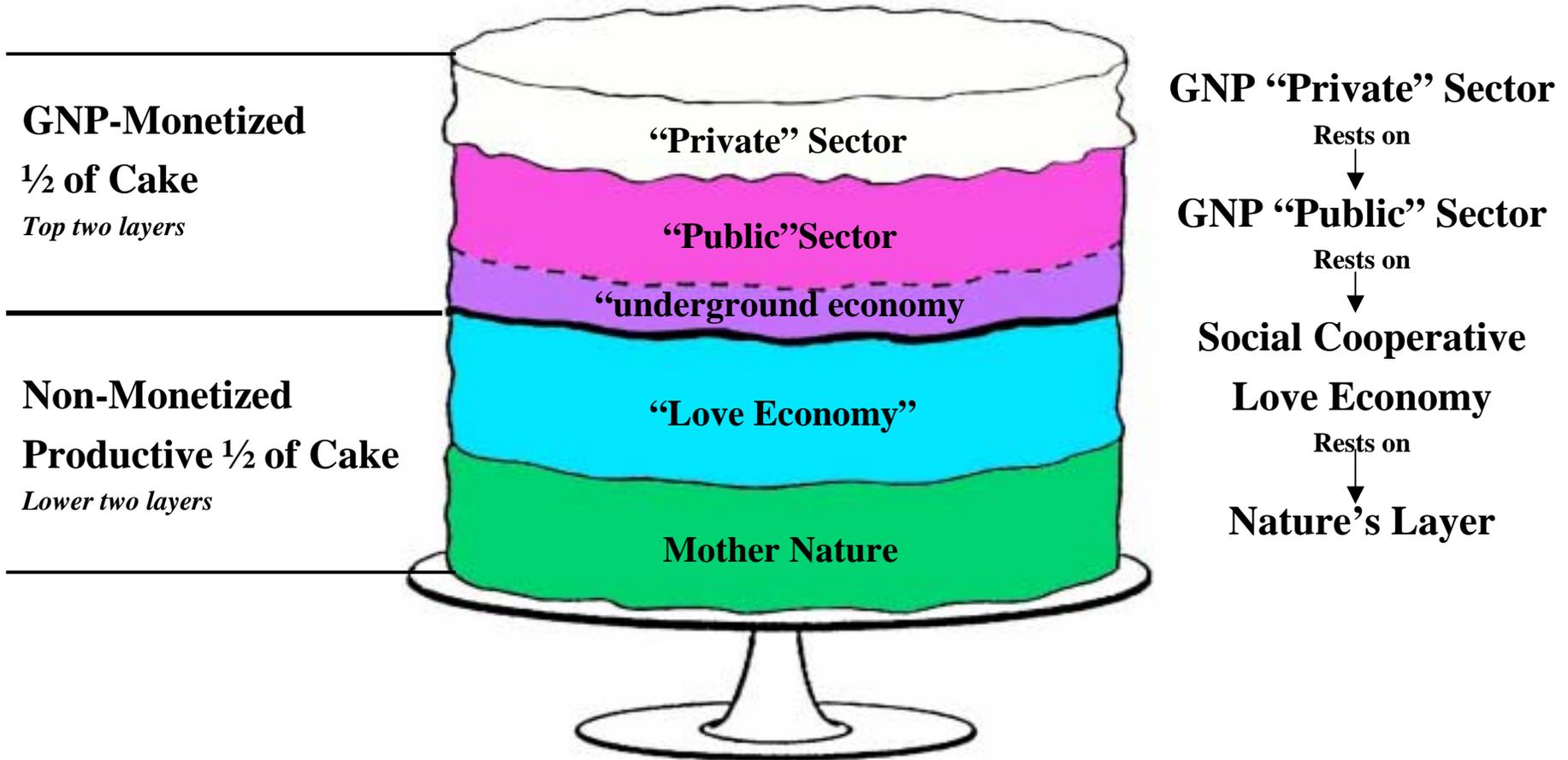

CALVERT-HENDERSON QUALITY OF LIFE INDICATORS



A NEW TOOL FOR ASSESSING NATIONAL TRENDS

HAZEL HENDERSON, JON LICKERMAN, AND PATRICE FLYNN, EDITORS

Total Productive System of an Industrial Society (Layer Cake With Icing)



3 MODES OF RESOURCE-USE IN NATIONAL DEVELOPMENT

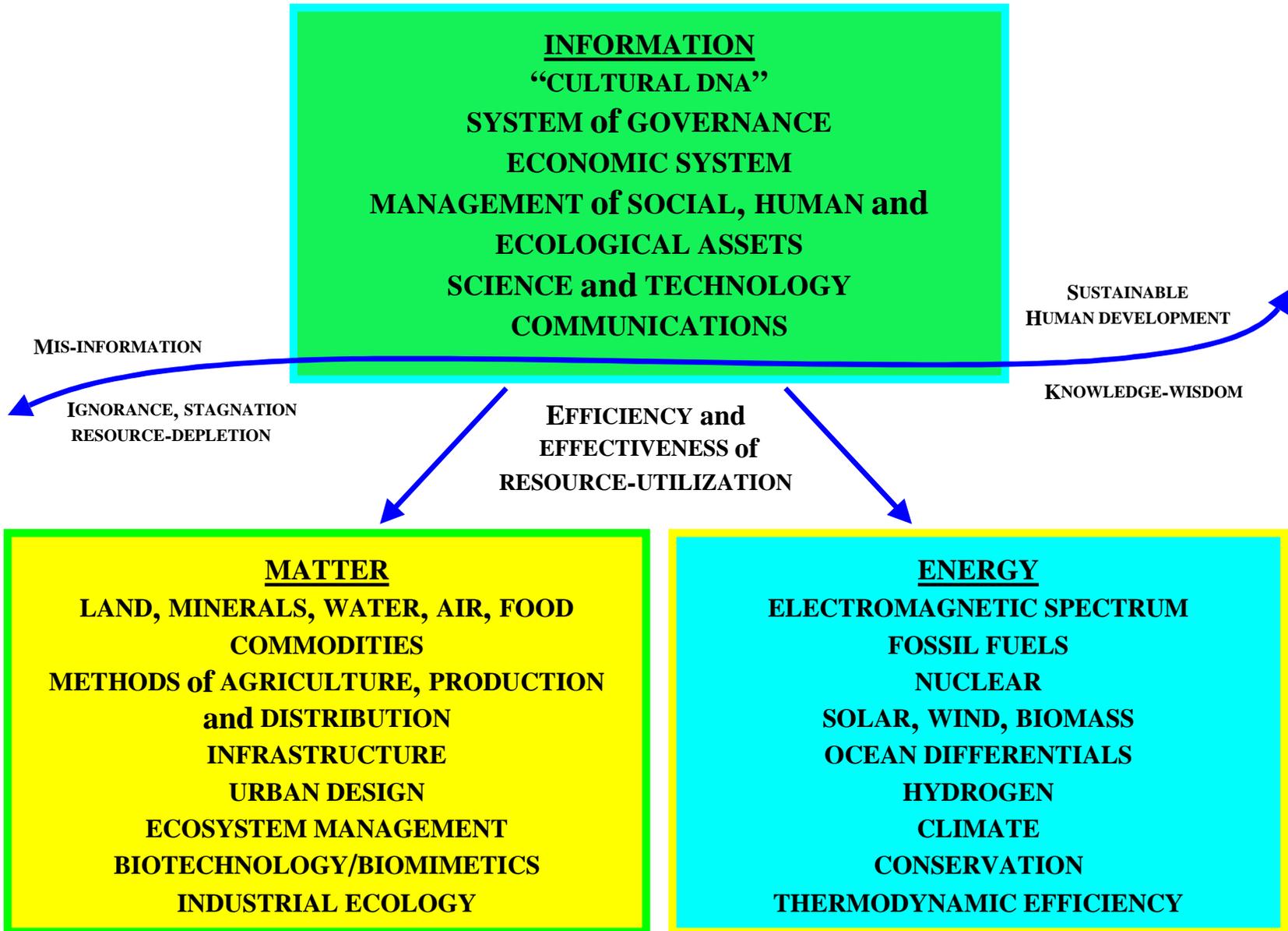
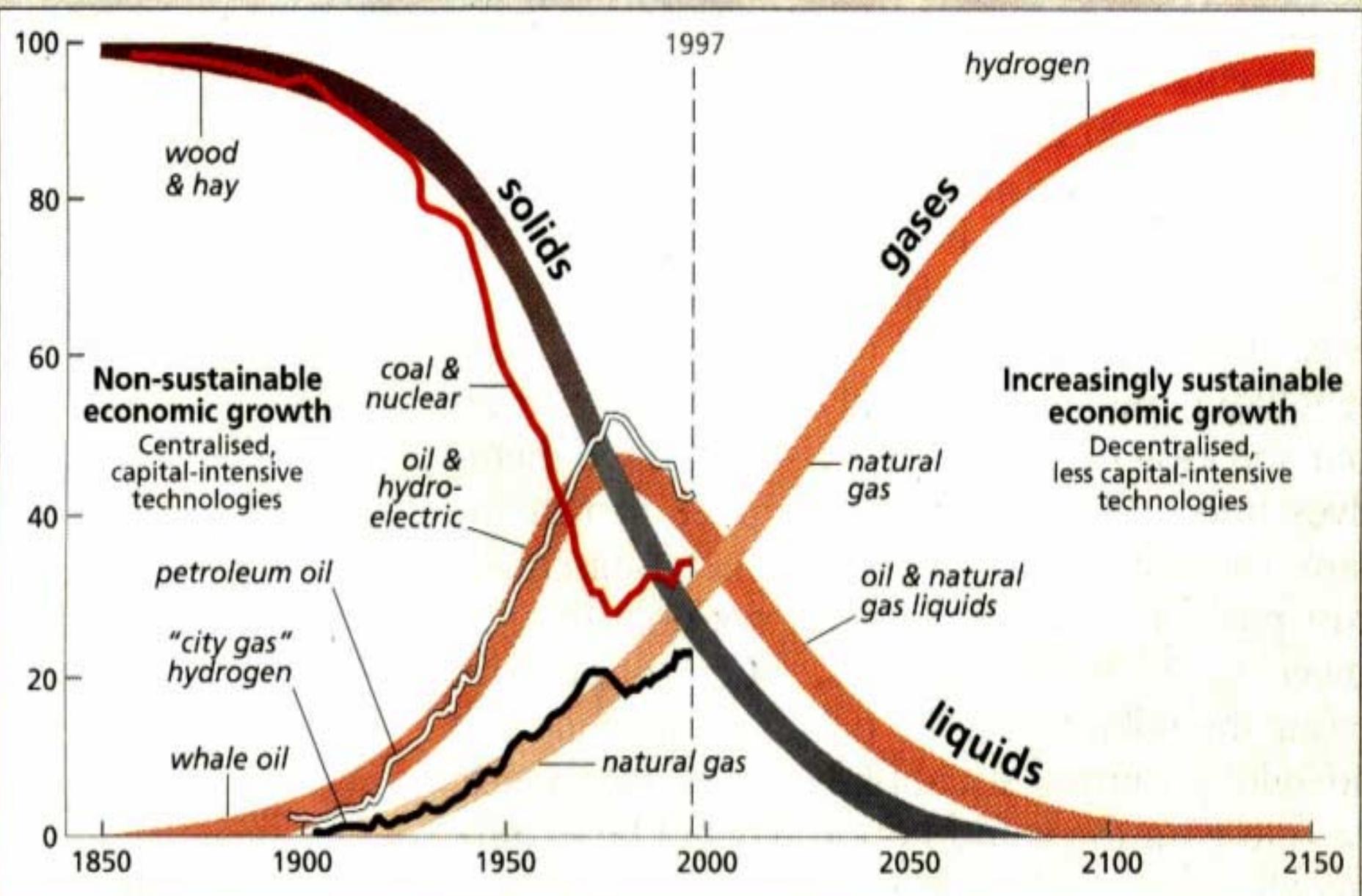


Figure 3

The shape of things to come?

Global energy systems transition, % of market

— actual solids consumption
 — actual gas consumption
 — actual liquids consumption



Calvert-Henderson Shelter Model ^{Figure 5}

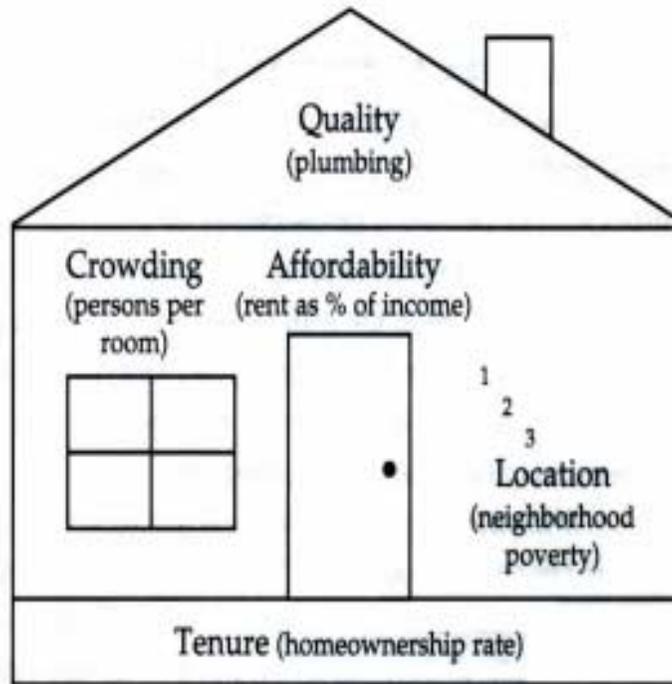
U.S. Resident Population
(249 million or 100%)

Homeless Population
(500,000-750,000
or 0.5%)

(e.g., living on
the streets or
in emergency
shelters)

Population in Housing Units
(242 million or 97%)

Housing Outcomes



**Group
Quarters
Population**
(6.5 million
or 2.5%)

(e.g., living in
college dormitories,
nursing homes,
prisons)

Calvert-Henderson National Security Model

Public Opinion



Figure 6

THE POWER OF INDICATORS

Hazel Henderson, partner

Calvert-Henderson Quality of Life Indicators

www.calvert-henderson.com

www.hazelhenderson.com

INT'L SUSTAINABILITY INDICATORS

NETWORK CONFERENCE

Toronto, Canada

March 15, 2003

My thanks for this opportunity to share my thoughts on why and how new indicators of sustainability and quality of life are gaining political traction globally – as never before. First, some of the “whys,” as I see them, are due to the old paradigms of the industrial revolution now breaking down:

- Natural resources, from fish stocks to biodiversity are depleting, while other effects of human activity on the biosphere, such as climate change are now undeniable.
- Forecasts of reserves and availability of petroleum and natural gas are subject to greater and greater uncertainties. These relate to geopolitics, cartels, U.S. threats of war on Iraq, as well as errors in economic models that ignore thermodynamic realities and other “externalities” in prices and capital asset pricing models (CAPMs)
- Bursting of stock market bubbles in Japan, the US, Europe and Latin America due to erroneous investment and accounting models, unreliable security analyses and herd behavior.
- Unrealistic expectations of investors based on such inadequate economic and accounting models helped exacerbate the corporate crime wave, lead to today’s loss of trust in securities markets.
- The GNP/GDP scorecards focused on material production and narrowly-calculated economic growth are less and less reliable. The *Calvert-Henderson Quality of Life Indicators* offer a multi-disciplinary, systems view (*Figure 1*).
- While conventional economic theory still focuses central bankers on controlling inflation – many countries now fear deflation – Japanese-style. More worried consumers who are not already over-spent and indebted, sit on the sidelines, while growing poverty gaps mean that real human needs are not being met within money-denominated systems. As you know, it is important to distinguish between economic activity both in the official GDP measured portion of societies as well as that in the informal unpaid sectors (*see Figure 2, Total Production “Cake”*)

Never has the need for a broader view beyond economics – been so important in understanding the complex dynamics within countries, all now interlinked in globalized economic and

technological networks. The year 2003 opened with additional disarray in the world's financial markets, driven by widespread anxiety and constant media-coverage concerning threats of terrorism and weapons of mass destruction. Peaceful mass marches of unprecedented numbers of citizens were seen in cities around the world opposing the US Administration's preemptive strike policies targeting Iraq. The opposition is focused on what is seen as the arrogance and unilateralism of the current U.S. Administration, which many feel has challenged the world's painstakingly-built structures of multilateral cooperation and treaties – from the United Nations (UN) and its development agencies to the Millennium Development Goals for the 21st century agreed on by over 190 UN member states in 2000.

Among these goals: reducing poverty and the global gap between the world's rich and poor; bringing better nutrition, education and health care to the world's 2 billion deprived people – and reducing military arsenals while resolving conflicts by negotiation and peaceful means. Instead, we witness arms buildups in the US and many other NATO countries, nuclear proliferation in North Korea, India and Pakistan, the escalating violence in the Middle East and the imminent threat of war against Iraq. All this continues to depress US stock markets, company investments and profits, as well as consumer confidence – currently at record lows.

As the Washington Consensus model of economic growth was being challenged by global realities, gloom fell over the heads of state and corporate CEOs gathered in January at Davos for the World Economic Forum in the snowy Swiss Alps. Meanwhile, a celebratory conference of over 100,000 leaders of civic groups worldwide gathered at the World Social Forum in sunny Porto Alegre, Brasil. The delegates explored in seminars at the city's major universities, the many issues of quality of life: human rights, education, health, environmental restoration and more equitable, culturally-relevant, sustainable paths to human development. Slowly this new paradigm is emerging.

As you all know, journals have been launched to cover the growing debate about quality of life in both the USA and Canada. In the USA, a member of our Calvert-Henderson Advisory Board, Jeff Madrick, editor of the journal Challenge and regular columnist for the New York Times, has launched Indicators: The Journal of Social Health to report on those who are measuring quality of life. Madrick notes in his inaugural Letter from the Editor "For too long, the nation's gross domestic product (GDP) has borne, almost alone it seems, the responsibility of measuring how well-off we are...But consider what GNP does not measure: the distribution of income, the hours people must work, household labor, the degradation of the environment, the use of leisure time.... It tells us little about education, healthcare or job satisfaction...nor does it distinguish between kinds of investment in the future of our economy."

These are all issues covered by the *Calvert-Henderson Quality of Life Indicators* since our inception (see our desk reference manual published in January 2000, available from the Calvert Group, PO Box 30348, Bethesda, MD 20814 or at Amazon.com). In my article for Madrick's Challenge (December 1996) "*What's New in the Great Debate About Wealth and Progress*," I made the same points. Here in Canada, another member of our distinguished Advisory Board, Ron Coleman edits the Journal, Reality Check, which covers this burgeoning debate. Recent issues contain an in-depth examination of how Canada accounts for its wealth of forest resources

and how more accurate valuation of these ecological assets could protect them from over-exploitation; how conventional economic measures distort our sense of who's well-off and who's not, as well as the Canadian government's \$9 million commitment to develop indicators of environmentally-sustainable development. Following this important ISIN Conference is another: "Challenges for Quality of Life in the Contemporary World," the Fifth Conference of the International Society for Quality of Life Indicators being held July 20-24, 2003 in Frankfurt, Germany. The Conference Chair: Wolfgang Glatzer. For details, visit www.qualityoflife-2003.de or direct messages to 2003@isqol.com.

Other initiatives include early stage work on quality of life indicators for Mexico City and the City of Shanghai, China; a Local Sustainability Certification initiative by the Institute for Political Ecology, Santiago, Chile. Visit www.sustainabilitycertification.org. A new set of indicators, Social Watch 2003 was released at the World Social Forum in Brasil, a Citizens Report on the Quality of Life in the World. This is available on a CD. Visit www.socialwatch.org. Japan for Sustainability is a non-profit platform for disseminating information on Japan's progress toward sustainability, at www.japanfs.org. The European Commissions Joint Research Center is continuing work on its Dashboard Tool for Measuring Policy Performance, designed by the Consultative Group on Sustainable Development Indices (CGSDI). Their Policy Performance Index (PPI) evaluates governmental policy and performance on Economy, Environment and Social Care. Contact Jochen Jesinghaus, European Commission, Joint Research Centre IPSC/TERM, TP 361, 1-21020 ISPRA (VA), Italy – email jochen.jesinghaus@jrc.it.

The Disarray of Conventional Economic Development Theory

My own model sees development as the evolution of human societies' understanding of three basic resources: matter, energy and information and the substitution patterns toward greater thermodynamic¹ (not economic) efficiency (*see Figure 3, Models of Resource Use*). Thus, societies' key resource is information and the extent to which its culture educates and nurtures its human and social capital, and applies its knowledge base to managing its material and energy resources. An example is the evolution of fossil-fuel technologies since 1850 from solids and liquids to gases (*see Figure 4, The Shape of Things to Come*). This transition is still dominated by the transnational corporations dominating energy systems, fossil fuels, nuclear power, high-tech weapons systems, industrialization, agribusiness and genetic engineering of living organisms, chemicals, pharmaceuticals, transportation and communications technologies, mass media and networks.

Thus, the search for better forecasting methods, better metrics and new indicators has moved from academia, civil society and a few innovative local governments and agencies to higher more strategic policy levels: For example, the International Conference on Implementing Indicators of Sustainability and Quality of Life, co-sponsored by many key government and academic institutes, business and civic society organizations is being held October 22-25 in Sao Paulo,

¹ My late friend Nicholas Georgescu-Roegen, *The Entropy Law and the Economic Process* (Harvard University Press 1971) grounded erroneous economic theories of "productivity" and "efficiency" in thermodynamics following British chemist, Frederick Soddy, who shared a Nobel Prize with E. Rutherford for the discovery of isotopes.

Brasil. The conference will have two tracks (1) on macro indicators, (2) on municipal, local and corporate social performance indicators. The first Call for Papers will be issued shortly. It is my privilege to serve as a pro bono advisor on the design of this event, which will gather expert participants from many countries and report to the top echelons of the Administration of President Lula da Silva (*contact the Instituto Ethos in Sao Paulo at www.ethos.org.br*).

Beyond the debate about quality of life, the effects of terrorism on society, our economy, the very fabric of our daily lives is undergoing rapid restructuring. The twin forces of globalizing technology and markets are accelerating these changes in all countries as they move us toward a seamless global economy, as I described in *Building a Win-Win World* (1996) and *Beyond Globalization* (1999). We now know that this globalization brings both good and bad news. While globalization brings increased trade, economic growth, and spreading prosperity and democracy—these benefits are unevenly shared. At the 2002 World Summit on Sustainable Development in Johannesburg, South Africa, 20,000 delegates, 700 business leaders, 40,000 civic groups and over 100 heads of State debated how to help the two billion people still lacking adequate food, shelter, clean water, health care and education. In our global village of instant communications, the disparity between rich and poor, consumerism and deprivation, the powerful and powerless stoke the fires of resentment and extremism.

In 2000, the United Nations Secretary-General Kofi Annan initiated the UN Global Compact inviting corporations to engage with its nine principles of good global corporate citizenship in promoting human rights, labor standards and environmental stewardship. The Calvert Group (www.calvert.com), an asset management company with an \$8.7 billion family of socially screened mutual funds and our Partner, is a signatory to this UN Global Compact. Further, Calvert has been donating its social research services to the UN Global Compact, to promote socially responsible investing and business practices globally. It has been an honor for me to facilitate this important relationship. The World Bank also utilizes Calvert's Social Research Department's corporate, social and environmental performance criteria. The need for international standards for corporate social responsibility and stricter accounting principles are now widely recognized. Socially responsible investing is now at \$2.3 trillion in the USA. The European Union mandate that pension plans disclose whether they offer beneficiaries similar socially-responsible investment choices, has spurred interest and many new conferences, as has the Hong-Kong based ASRIA group, www.ASRIA.org.

Linking the New Macro Indicators with similar Micro Indicators of Corporate Performance

Social, environmental, and ethical auditing and the “triple bottom line” of the Global Reporting Initiative (GRI) are driven by similar values as the new macro indicators and indexes of sustainability and quality of life. These links in underlying values are the main reason that The Calvert Group co-developed the *Calvert-Henderson Quality of Life Indicators* to provide vital data on US national trends from a broader sectoral, social and environmental perspective, which can buttress the research on corporate social performance. They were also developed as a public education service to a wide audience beyond the investment community. The Indicators have also been presented at professional conferences in Canada, Mexico, Brasil, Chile, Japan,

Australia, New Zealand, China, and Venezuela as well as at United Nations conferences and in Germany, Britain, Sweden, Poland, Czech Republic and many other European countries.

For example, The Calvert Group, which pioneered corporate social screening of mutual funds in 1982, has developed the Calvert Social Index of around 600 socially responsible corporations. Mainstream markets have adopted social screening including the Dow Jones Sustainability Group Index launched in 1999. In 2001, London's FTSE100 launched its own FTSE4 Good and Brasil's stock exchange, BOVESPA launched its New Market Index of socially-responsible companies, which has out-performed its main index by a steady 1% ever since. The post-Enron climate of questioning financial markets, auditing standards and political corruption has accelerated these trends toward greater transparency and accountability. Canada is a leader in quality of life and sustainability indicators, including the National Roundtable on the Economy and the Environment and the Canadian Policy Research Network, Ottawa, (www.cprn.org). The Toronto Globe and Mail reported on January 7, 2002, the North American Commission for Environmental Cooperation's latest finding that: "The health of [the North American] environment that sustains 394 million people and an economy worth US \$9 trillion is at risk." The Commission, set up by the NAFTA partners, the USA, Canada and Mexico, assesses the sustainability of these three economies.

Progress has been made following the Agenda 21 Agreement signed at the Earth Summit in 1992 in Rio de Janeiro, 170 countries promised to overhaul their national accounts, specifically Gross National Product (GNP) and its narrower version Gross Domestic Product (GDP). As this evolution of the field of social and environmental indicators continues, many are designated as indicators of sustainable development, defined in the Brundtland Commission report, *Our Common Future*, as "development which meets the needs of the present without compromising the ability of future generations to meet their own needs" (1987). Civic groups worldwide since 1992 have created The Earth Charter, now recognized as a universal declaration of human responsibilities, which complements the Universal Declaration of Human Rights. The sixteen principles of The Earth Charter have been adopted by many cities worldwide (www.earthcharter.org). As an early supporter of The Earth Charter, I am proud that our partner, The Calvert Group, was the first major company to endorse the Charter.

The New Politics of Statistics

Some analysts warn that this current era of globalization will bog down in a global deflation or recession following that officially confirmed in the USA by the National Bureau of Economic Research as having started in March 2001. Since the peak of the stock market bubble in 2000, some \$7 trillion of nominal wealth evaporated. Since the late 1990s, Business Week and other financial journals frequently editorialized that technological productivity and globalization could continue to deliver low inflation and full employment with budget surpluses and lower interest rates as well. U.S. Federal Reserve Chairman Alan Greenspan became a believer in the increased productivity that information technology can deliver. Today he is criticized for the Fed's low interest rates, which fueled the stock market bubble. Much of the debate concerns appropriate methods for measuring productivity and inflation. For example, US productivity measurements

flatter the US vis-à-vis Europe, which uses a different metric. When these two methods are conformed, there is little difference between US and European productivity.

While the US Administration sees an economic recovery in 2003, The Economist still sees the current U.S. economy burdened by record trade deficits, heavy consumer and corporate debt, and other potential threats, with foreign investments no longer propping up the dollar. The dollar has lost 9% vis-à-vis the euro and is still over-valued according to many analyses. The Europeans still aim to make the euro a global reserve currency, and it is steadily achieving this status, as central banks diversify their dollar reserves to include euros. Cross-border euro-nominated transactions have climbed from 27.7% to 31.2% of the world total. Some analysts point to the high U.S. growth rate in the late 1990s as the effect of \$10 per barrel oil—the price of which tripled by 2000 and then fell back due to the global economic slowdown. Oil prices have spiked upward to over \$30 a barrel due to uncertainty in the Middle East and the strike of managers of PDVSA, Venezuela’s state-owned oil company. A wildcard is the possibility that OPEC may retaliate against US policies by re-denominating its oil in euros. This would cause a further drop in the dollar and increase the price of oil in the US. The US budget surplus of 2000 disappeared due to tax revenue shortfalls and increased spending, which pushed up the 2002 deficit to \$300 billion, and a fiscal 2003 deficit projected at almost 2% GDP. Alan Greenspan now voices concern over the new Bush tax plan for another \$1.46 trillion in additional tax cuts. Based on “supply-side” theories, such tax cuts are expected to increase economic growth – but if this fails to materialize – enormous increases in the deficit would result.

Clarifying Assumptions

Today, we see many diametrically opposing views of the same market data and official national statistics. This relates to differing worldviews and assumptions underlying both the statistics and the mindsets of the analysts on whose interpretations we rely. For example, Northwestern University economist Robert Gordon, using a similar broader systems view to that used by the Calvert-Henderson Indicators compares standards of living in the USA and the European Union (See “*Two Centuries of Economic Growth: Europe Chasing the American Frontier*” available at <http://faculty-web.at.northwestern.edu/economics/Gordon/355.pdf>. Gordon shows how the US “productivity miracle” in the late 1990s created the misleading impression of a European lag. Since 1990, US productivity has risen by 1.6% per year while the EU’s rose by 1.8%. Since 1950, US productivity averaged 2% while Europe’s rose 3.3%. Gordon then analyses why although GDP per person – hour is so similar, yet the GDP per person measure is 25% lower in Europe. The difference is due not only to higher unemployment, but to preferences for longer holidays, shorter workweeks and more leisure time. Gordon then calculates other factors that over-state US living standards by omitting the social and environmental costs of our higher crime rate and rising prison populations, urban sprawl due to government subsidies to automobiles and roads, energy waste, higher expenditures on heating and air-conditioning. The Economist, February 8, 2003, comments on Gordon’s study “Indeed on Mr. Gordon’s measures, Europe’s productivity may have overtaken that of their poor American cousins.” I hope more economists adopt similar broader views, which capture “defensive” expenditures (i.e., additional costs consumers and businesses must pay just to mitigate negative effects, like pollution) so as to further clarify such issues.

Many current “statistical cameras” are pointed at areas where conditions are rapidly restructuring institutions, whether business, government, academia, or civic society. For example, the composition of GDP in many OECD countries has been changing from goods you can drop on your foot to services. Statisticians are reformulating GDP to reflect these new realities. Services now represent the largest sector of “Information Age” economy. In November 1999, the US Bureau of Economic Analysis re-categorized software as investment rather than consumption in the GDP, which revised average annual productivity growth since 1990 from 1.5 percent up to 2 percent. The debate still rages: over measuring productivity per “manhour” (sic) i.e., labor productivity versus capital productivity, ecological productivity or total productivity. A broader lens is clearly needed, for example, why, in our Information Age, where knowledge is a key factor of productivity, is education still categorized as an “expense” – instead of the investment in human capital that it truly represents? Likewise, is healthcare an expense or an investment in human and social capital? We know the costs of cutting budgets for public health: the return of infectious diseases including tuberculosis.

Background on the Calvert-Henderson Quality of Life Indicators

The Indicators range far beyond the traditional national accounts of GNP and GDP and other money-denominated indexes on inflation (CPI), incomes, interest rates, trade deficits, and the national budget. Our indicators dig deeper, going behind the national statistics on employment, health, education, the state of our infrastructure and national security. They were developed in consultation with many experts (see our website) and a virtual Advisory Board, listed in the Appendix. We are not trying to offer reweighted and recalculated versions of macroeconomic statistics, as many other worthy efforts have attempted. Our approach is to paint a broader picture of quality of life to complement current statistics and identify statistical “blind spots” where new data collection is needed.

All the world’s industrializing societies are undergoing similar changes and restructuring, as they move from the earlier to the later stages of the Industrial Revolution. Part of this great transition is toward information-based economies. Here knowledge, intellectual capital, and the more intangible human and social assets replace manual labor and some of the tangible capital earlier economic textbooks called the “factors of production.” This transition is often accompanied by a deeper knowledge of natural processes and ecological assets and the services nature provides. We slowly shift to recycling our industrial materials in closed-loop production, waste-reduction, re-manufacturing, and re-use. An industrial design revolution is quietly under way. A member of our Advisory Board, architect, William McDonough is a leader in this design revolution, currently advising Mayor Richard Daley in his plans to make Chicago the “greenest” city in the USA. I am honored to be an advisor to Mr. McDonough in this initiative. But all societies still have a long way to go. Macro-economic statistics fell far behind in mapping these fundamental shifts. Only recently have textbooks begun to embrace “full-cost” prices, accounting for all the social and environmental costs of production. Only in the past decade have we seen the rise of environmental and ecological economics, full-cost accounting, and life cycle costing for investment purposes. All this, together with the rise of social and environmental auditing – accounting for “intangibles” and intellectual property, the ongoing debate about how to measure

productivity—and the many attempts to overhaul GNP and GDP represent an ongoing revolution in accounting and statistics. (See for example, [Encyclopedia of Life Support Systems](#), published by UNESCO (Paris, 2002) can be accessed at www.eolss.com.)

Many economists now embrace pieces of the new thinking including Joseph Stiglitz, formerly the World Bank's chief economist and recent recipient of the Nobel Memorial prize, former Harvard economist Jeffrey Sachs, now advising the World Health Organization and President of Columbia University's Earth Institute, and the Massachusetts Institute of Technology's Paul Krugman. The International Society for Ecological Economics (ISEE) and the Association for Evolutionary Economics (AFEE), both of which include me as a member, are in the forefront of reconceptualizing conventional economics.

The most influential, widely used and quoted new formula is the United Nations Human Development Index (HDI), produced by the UN Development Programme every year since 1990. The HDI's stating of per capita income in terms of Purchasing Power Parity has become standard, to account for fluctuating values of different currencies. The deeper methodological debate over new measures of wealth, progress, and human development has concerned the extent to which money coefficients and macroeconomic models can capture broad new areas of concern: human rights, health, education, environmental, and overall quality of life. Many things humans hold most dear cannot be measured in money terms. Conventional methods currently weight all data from different economic sectors into one index. Defensive expenditures, such as cleaning of pollution, costs of accidents or insulating houses near airports from aircraft noise, are all added to GDP as more production – mixing in these “bads” with the goods. Many believe, as we do with the *Calvert-Henderson Quality of Life Indicators*, that aggregating all these “apples and oranges” into one index is inappropriate and often confusing. Another issue concerns the use of “satellite accounts” for such environmental and social data. This designation gives an impression of lesser value for such important data.

Systems approaches to quality of life and sustainability are needed for political transparency and to allow voters to keep politicians accountable for their electoral promises. Unbundled indicators measuring performance on education, health, environment, etc., allow the public direct access to information. Quality-of-life indicators should not be constructed by relying on subjective opinion surveys and focus groups exploring personal satisfaction or happiness. Even scientists poorly understand threats to quality of life in many areas, and often the public is ill informed or misinformed about toxic substances, climate change, budget priorities, human rights and many other factors affecting personal satisfaction and quality of life. Diverse areas of quality of life deserve their own metrics, specifically metrics that are most appropriate within the diverse disciplines that study such fields. For example, money coefficients cannot quantify human rights, air and water quality, recreational satisfaction, education, health, public safety, or national security. Money measures and percentages of national budgets can give clues about quality of life but are often simply input data. Composite indices do not measure outcomes or results.

The Calvert-Henderson Indicators present models linking the major factors and processes, providing a roadmap of how decisions flow through various institutional structures to create outcomes. These systems models help identify why in each area, the USA has succeeded or

fallen short in achieving its stated policy goals. We identified the “holes” in the statistical pictures and where data gathering needs new focus. Thus, our 12 unbundled indicators came together as a broader pattern represented in our logo, the 12-slice colored pinwheel on the home page and on the cover of our manual. At the same time, we have retained the richness and detail of each of the 12 domains. This systems approach allows us to display the wealth of diverse data rigorously, without the loss of detail, which plagues any single index approach. In each indicator, the domain it covers is related to all the other indicators. The 12 indicators were selected using many sources. Firstly, they are major areas of public concern as reflected in public opinion polls, the media, political campaigns, and debates over decades. Secondly, these domains are most often covered in many of the existing sets of local state, national, and international statistics we reviewed. Furthermore, in two separate polls on governmental reform by the highly respected Americans Talk Issues Foundation, Americans were asked if they approved or disapproved of the following proposal:

“In the same way we’ve developed and use the Gross National Product to measure the growth of the economy, [we should] develop and use a scorecard of new indicators for holding politicians responsible for progress toward other national goals, like improving education, extending health care, preserving the environment, and making the military meet today’s needs.”

In these two surveys, the first taken in March of 1993, 72 percent of the American people agreed that such quality of life indicators were needed. These results were verified in a debate format where an opposing view was offered in the second survey in January of 1994:

“Opponents say that eventually economists will be able to calculate a single indicator of progress, a kind of enlarged GNP, that bundles into this money-based statistic our progress in all major areas including the economy, health, education, the environment, and so forth. This single number would be easier for everyone to use to rank ourselves against other nations and to judge the performance of our political leaders.”

Only 22 percent of respondents found this opposing view to be convincing, and when the original question was asked again, support went up to 79 percent (Kay 1998).

The Twelve Calvert-Henderson Indicators

Each of our 12 indicators is in context with the rapid transformation our society is experiencing, and how each indicator may evolve to capture such changes in our world. Each domain is equally important in understanding quality of life in a holistic manner. To illustrate our “public education” approach, I will highlight two Indicators: Shelter (*Figure 5*) and National Security (*Figure 6*)

Shelter

This indicator dissects the macro-economic data to reveal a “good news, bad news” picture. The American dream of home ownership has never been so fulfilled, with a record 68% now owning homes. A majority of Americans are well-housed with over two-thirds in affordable, physically adequate, uncrowded housing. The bad news is that shelter deprivation still exists in spite of the 1995-2000 economic expansion. The Urban Institute estimates that at any given moment, 800,000 people (including 200,000 children) are without housing. Some 5.3 million low-income renters are in distress. These statistics seem to be a reflection of our national poverty gap shown in our Income Indicator. The U.S. savings rate has turned negative, but this statistic is also under challenge as painting too grim a picture. Mortgage debt rose to a record \$5.4 trillion. Since the economy turned sour in late 2000, homeowners have re-financed to consolidate their other loans and take advantage of low interest rates. So far in 2003, housing prices are still rising and many are choosing housing and real estate investments over equities. In mid 2002, Americans had \$14 trillion invested in housing versus \$11 trillion in equities (The Economist, Aug. 31, 2002). Job losses have helped cause mortgage default rates to increase to the highest level in 30 years. Bank and consumer credit is still readily available and rock bottom interest rates made mortgages more accessible. Job losses also make prospective homeowners wary and consumer confidence decline further in 2003. The state of shelter in the United States also affects opportunities for social mobility, education, and energy efficiency, and thus is related to many other indicators, including Employment, Income, Health, Energy, and Environment.

National Security

This indicator received much attention after September 2001, since it warned of terrorism and the need for new defense priorities. The U.S. public’s view of national security has been changing for over a decade. Even before the end of the Cold War, Americans were identifying global economic competitiveness and environmental pollution as issues of national security beyond traditional military views of defense. President Bush ordered a complete review of Pentagon spending priorities, which already has led to abandoning the “Two-War Policy” which assumed that the U.S. must be equipped to fight two major wars simultaneously. The new war on terrorism has changed the focus to so-called “asymmetrical” threats: where suicidal individuals armed with box cutters can turn passenger planes into explosive missiles. Thus, 21st century threats include bioterrorism, suitcase bombs and cyber-warfare. All this calls for even more fundamental changes in national security policy. Bush retains his commitment to continue with Ronald Reagan’s dream of missile defense. The bottom line issue in the scientific community is whether the plan will work technologically, and in a world of asymmetrical threats whether missile defense is even relevant. This together with the September 2002 Administration Security Policy document espousing the doctrine of “preemptive” strikes on other nations, sparked a fierce backlash among our allies in Europe and worsened relations with Russia and China over what many countries, including our allies see as U.S. “unilateralism.”

Our National Security Indicator reveals how Americans, Congress, the Executive Branch, and a host of institutional players actually shape our current national security policy. This inside view from a retired military officer and lecturer at West Point, Col. Dan Smith identifies other

potential lags in the military view of national security. These relate to prevention of threats and conflicts. These must be addressed via intelligence, diplomacy, treaty-making, surveillance, and verification most often involving allies and multilateral agencies including the United Nations. The U.S. has refused to ratify many UN treaties, including the Comprehensive Test Ban Treaty, the International Criminal Court, the Land Mine Treaty and the Anti-Ballistic Missile Treaty as well as the Comprehensive Elimination of All Forms of Discrimination Against Women (CEDAW) and the Kyoto Protocol.

Short-changing anticipatory, preventive policies inevitably leads to more drastic, expensive military interventions such as those that might have been prevented in Bosnia, Kosovo, East Timor, and other trouble spots. Much in the news is the national security priority of reducing US dependence on foreign oil and the need to shift to domestic renewable energy and greater fuel-efficiency. Yet our indicator still shows an alarming drop-off in such preventive activities, (not only the increase in sales of gas-guzzling SUVs), but deteriorating U.S. embassy facilities, cuts to State Department diplomatic activities, pull-backs from international peace-keeping and surveillance operations with our allies and the United Nations. The Congress voted to pay \$580 million of our \$1 billion arrears owed to the UN after 9/11. On September 12, 2002, President Bush sought UN backing for military force against Iraq unless UN weapons inspections were resumed. The President said that if the UN did not enforce its resolutions on Iraq, the US would act unilaterally. Bush cited the new US doctrine of “preemptive” strikes on other nations – rather than current international law, which only allows for self-defense as the justification for going to war with another nation. This has heightened opposition to the US among our allies and caused new disarray in Europe and NATO. The public debate about the changing meaning of “national sovereignty,” and globalization will continue for years to come. Our National Security Indicator will provide an ongoing roadmap to clarify these issues, which are fundamentally linked to all other areas and indicators of our national life.

Brief overviews of the other ten Indicators are in the attached Appendix and on our website.

Many thanks for your attention.

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Appendix attached

APPENDIX

Education

The Education Indicator gives an overview of current educational issues. Swirling around the debates over educational reform, national testing and standards, school vouchers, “charter” schools, and home schooling are those on the shift to today’s globalized information-based economy. Knowledge is now widely recognized as a key factor of production. Politicians in many countries, including the USA, run for office on platforms that stress education. Since 9/11, there have been many calls to “globalize” the curriculum to prepare students for a globally-interdependent, multicultural world. Innovative programs, for example, Brasil’s “bolsa escola” successfully keeps children in school by tying welfare payments to their parents based on school attendance records.

The World Bank and other multilateral institutions now agree that investments in education (particularly at preschool and K through 12 levels) are the new keys, along with investments in health, to economic development. Nothing is changing our business and academic institutions faster than the new definitions of human and intellectual capital. As many new Internet-based, e-commerce businesses know, a company cannot “own” the part of its knowledge base that resides in the heads of its employees. The rise of stock options, partnerships, and Employee Stock Ownership Plans are all related to this new evaluation of intellectual capital on which all technical and social innovation is based. Today, more than ever, education is a basic human right in many countries as well as in the United States. Furthermore, levels of education will drive all the world’s economies toward development, depending on how they structure and invest in educating our most precious resource: our children. Yet current GDP still accounts for education costs as “expenditures” rather than as investments in human capital. Investments needed to repair and upgrade US schools are estimated by the National Association of Education at \$268 billion for infrastructure and another \$54 billion for upgrading technology.

Employment

The field of employment and work has changed immensely in the past decade. In April 2002 the unemployment rate shot up to 6 %, the highest in almost 8 years and still hovers in that range. The boom of 1999-2000 brought the lowest unemployment rate (4 %) recorded since the 1950s. This caused a rethink of the Non-Accelerating Inflation Rate of Unemployment (NAIRU) used by the Federal Reserve in setting interest rates. A NAIRU under 5 % was thought to be inflationary. Today, our economy is still sluggish after the enormous investments in the technology sector proved unsustainable. Even after the layoffs resulting from the terrorist attacks, the U.S. still had historically high levels of employment without a NAIRU expected rise in inflation. This was due, many say, to the “New Economy” productivity factors mentioned earlier. The Bush economic stimulus and additional spending on the military and homeland security boosted employment in the public sector while private-sector employment dropped by almost 1.5 million jobs. Additional government deficit spending projected for the war on terrorism and homeland security would increase public-sector employment further. Current

debates on the Bush 2003 budget for more tax cuts revolve around whether such cuts focused on investors and business will “trickle down” in more private sector jobs or whether temporary payroll tax cuts targeted at the less-affluent would expand jobs more rapidly. Meanwhile, another crisis is brewing as the National Conference of State Legislators announced that state’s current budget gaps have grown to \$26 billion – up 50% since November 2002 – and forecasted to grow to some \$68.5 billion by FY 2004 – auguring continuing layoffs in state services and employment.

The Employment Indicator reminds us that a large but not well measured percentage of productive work is unpaid. This unpaid work in caring for elders, the sick, and children in home or volunteer organization settings is still unaccounted for in the GNP. President Bush has called for all Americans to volunteer 4000 hours to their communities. Many organizations in the nonprofit, civic sector of our society now call for full recognition of the value of this caring work. Some call for housework and parenting to be paid, through statutory pension benefits or in marriage contracts. This area of concern will likely grow as both parents in families are in the paid work force. The “family values” debate encodes many new dilemmas faced by parents as they juggle two jobs plus childcare and elder care as our population ages.

Worldwide, the United Nations HDI in 1995 estimated unpaid work by the world’s women at \$11 trillion and by men another \$5 trillion. This \$16 trillion was simply missing from the 1995 World GDP of \$24 trillion. GDP still omits estimates of unpaid work. Our indicator tracks the growing ranks of the self-employed, part-timers, and the composition by gender, ethnicity and age of the U.S. workforce. And whatever happened to the promise of the Industrial Age for more leisure, as machines and automation took over production tasks? Today, Americans work longer hours than their counterparts in Europe and Japan. Yet, there is much debate over the statistics on work and leisure, as we learn in our Re-Creation Indicator.

Energy

This indicator is a key to the overall efficiency of our economy. Our GNP has been growing with less energy input in the past 25 years, since the first OPEC oil embargo in 1973. But the United States still lags Japan and Europe, using almost twice the energy they use per unit of GNP. This keeps the US vulnerable to the Middle East and OPEC, and the geopolitics of oil while keeping us in an uncompetitive position in our older manufacturing sectors even as our Internet-based and services economy grows. Our reliance on low-fuel efficiency cars and fossil fuels decreases our flexibility. After the Enron and Arthur Andersen scandals, the US General Accounting Office attempted, so far unsuccessfully, to get the White House to disclose which representatives of corporate interests, including Enron, had helped Vice President Dick Cheney create the Bush Energy plan. While President Bush has recently joined those who see hydrogen-powered fuel cells as replacing the internal combustion engine – the new fight will be over whether the hydrogen economy will be based on renewable energy – or whether the nuclear and fossil-fuel industries will win their lobbying efforts to control the production of hydrogen. All these issues of restructuring our economy came to a head in the debate over climate change. The fossil fuel industry lobbied hard and spent millions on ad campaigns to oppose the 1997 Kyoto Agreements to reduce carbon emissions. Yet the scientific evidence now overwhelmingly points to the need

to reduce such emissions. President George W. Bush, after heavy criticism for his stance opposing the Kyoto Protocols, ordered a National Academy of Sciences study which confirmed the role of humans in increasing CO₂ in the atmosphere and its effect in global warming. US refusal to sign on to the Kyoto agreement will not prevent its coming into force since so many countries and companies have geared up emissions trading regimes based on Kyoto's protocols and these markets are growing rapidly. Delegates to the World Summit on Sustainable Development in Johannesburg expressed much anger and booed US Secretary of State Colin Powell off the podium. There is also recognition of the need for greater US energy independence—seen mostly in terms of more US oil, gas, coal and nuclear power. The prospect of war on Iraq and more conflict in the Middle East is now expected to keep oil prices above \$30 per barrel, even though, in real terms, today's prices are lower than they were in 1973 when OPEC first quadrupled prices.

Many analysts, including Amory Lovins of the Rocky Mountain Institute in Colorado, agree that the fossil-industrial transition to the Information Age and what I have called the Solar Age will usher in a prosperous, profitable economy based on renewable resource use and deeper knowledge. Thus energy-efficiency can mean less waste, higher, cleaner profits, more comfortable homes, communities, and travel with less pollution. The transition from here to there is illuminated in the Energy Indicator. Already, the solar, ocean, wind, and other renewable energy sectors are growing rapidly, along with hybrid electric cars, fuel cells and off-grid electric generators. Wind energy is the fastest growing, up 32% while solar photovoltaics use is up 21% since the mid-1990s. Fuel cells and hydrogen have at last, caught the attention of the venture capital and investment community. The electricity price squeeze in California continues leading to increasing use of these renewable clean energy technologies.

Environment

This indicator seeks to embrace the interactions between human society and our economic processes and the natural world, its resources, and other species. Naturally, such a task is too enormous to do more than find within the model some key “surrogate” indicators as proxies for such a vast area. We are learning more about our environments locally and about planetary ecosystems, the crucial role of biodiversity, and human effects on the ozone layer and climate.

While the Environment Indicator recognizes these broad concerns, we focus attention on indicators closest to the lives of a majority of U.S. citizens. Air and water quality became our focus, since people cannot survive without acceptable air and water quality. The public outcry concerning rollbacks in US Environmental Protection Agency (EPA) standards for arsenic in water and for power plants air pollution suggests a growing awareness of health risks from such pollution. This became clear as the anthrax and other bioterrorism threats were encountered and the EPA became key in assessing and countering such threats to national security. The National Research Council's 1999 report, Nature's Numbers, also notes “Greater emphasis should be placed...on measuring actual human exposures to air and water pollution” (Recommendations 4.3 and 5.9). Through these lenses we can understand better the causes of degradation and pollution and the many steps needed to reverse these threats. As our systems approach reveals, many other domains of quality of life, such as infrastructure design, energy use, shelter, health,

employment, public safety, and national security, all impinge on our environment for better or worse. As lessons are learned about homeland security, the role and funding of the EPA will likely increase.

Sheer population increases show by most forecasts a rise from today's 6 billion to between 8 and 10 billion people on our planet early in this new millennium. However, the huge global gap between rich and poor still shows that per capita consumption of energy and resources in the United States is some 50 times greater than that of 2 billion of the world's poor and undernourished. Thus, the most potent threat to the environment is waste and over-consumption, with the United States as the world's chief polluter. Many other countries are still trying to model their own development on this unsustainable U.S. pattern although many, including China and Brasil are now pursuing "technological leapfrog" strategies to avoid the wasteful mistakes of the primitive industrial methods of the past. As we see in our other indicators, the potential for redesigning our infrastructures and production methods using better information and "greener technologies" can also benefit the world's climate and ecology as well as our own quality of life. If the USA leads in these clean development strategies, as for example the City of Chicago has pledged, other countries may well follow.

Health

The Health Indicator begins by explaining that the United States provides more health care services at higher costs per capita than any other country in the world. Yet, after the anthrax attacks, the US public health services were revealed as woefully under-funded and wholly inadequate to their new tasks in an age of bioterrorism. Some funding increases have passed the Congress, but are still viewed by health professionals as a fraction of what is required. The enormous health sector of our economy is also becoming a top focus of national concern since it delivers only modest improvements in health status in some areas and none in others. Of growing concern are the over 40 million Americans who have no health insurance. Meanwhile, the National Bureau of Economic Research (NBER) released a working paper, which finds that better health boosts a country's GNP. Authors David Bloom and JP Sevilla analyzed data from 104 countries and found that a one-year improvement in a country's life expectancy contributes a 4% increase in its economic output. (Dec 3, 2001). This points to the need to re-categorize health budgets in GNP/GDP national accounts from "expense" items to investments in human capital. The debate over a "Patient's Bill of Rights" to hold health maintenance organizations and insurance companies more accountable for decisions over patient treatment is becoming urgent. Pharmaceutical companies' drug prices soar at three times the rate of inflation. Concerns grow regarding the privacy of medical records, and drug reactions and medical mistakes proliferate. Newer worries concern terrorism and the need for public health clinics nationwide, where uninsured people who may have been exposed to pathogens can be quickly tested and evaluated so as to limit epidemics.

This indicator offers a model of our current system that helps to clarify the situation as a systemic set of issues. Health is being redefined beyond the medical intervention model. Today, Americans are focusing on prevention, public health, stress-reduction, and life-style choices. Beyond terrorism, tobacco and alcohol use and even the availability of guns are issues entering

the public health debate. More Americans now consult “complementary” and “alternative” health providers than visit conventional medical doctors and facilities. This is a paradigm shift that is restructuring the entire medical-industrial complex and its technocratic, bureaucratic approach, which represents 14 percent of our GDP.

How will we integrate all these very different approaches to health? How will we provide for those left out of the current system, especially children? An October 1999 study in the Federal Reserve Bank of New York’s Economic Policy Review cites the effects of urban poverty. Fifteen-year-old black and white male’s life expectancy rates were compared in several cities. In areas of New York City that were predominantly low-income and African American, only 37 percent of the population was expected to live to age 65. In Detroit, the figure was 50 percent. White fifteen-year-olds in poverty areas of Detroit and Cleveland did a little better. In Detroit, 60 percent were found likely to live to age 65 with 64 percent likely in Cleveland. Average life expectancy for all U.S. whites is 77 years compared to 62 years for blacks. Our indicator allows us to see such gaps, which of course relate to similar data in our Income, Shelter, Safety, Education, and Human Rights Indicators.

Human Rights

This indicator views the state of human rights in the United States in broad areas: fundamental rights to the security of person and the U.S. Bill of Rights and Amendments to the Constitution, including freedom of expression, religious freedom, right of assembly, and voting rights. After the terrorist attacks, The Patriot Act was signed giving law enforcement officials sweeping new powers. Many of these are opposed by human rights and civil liberties groups, along with libertarians, thus creating new coalitions across the US political spectrum. Beyond our basic rights, the model embraces an evolving international view embodied in the Universal Declaration of Human Rights. Future debates will likely include these broader rights to health, education, jobs and/or minimum incomes.

Human rights issues are of great concern in Europe, Japan and Canada and serve as a cornerstone of U.S. foreign policy. Today a crucial issue is to what extent the sovereignty of a nation must be balanced with the human rights of its citizens—an issue being debated anew in the global war on terrorism. Many other countries already include in human rights economic, cultural, and social rights (to education, social participation, health care, leisure time, and to social security). Another evolution concerns the embracing of women and children in the definition of human rights—now widely recognized—if not fully achieved. The US still lags in ratifying the Comprehensive Elimination of all forms of Discrimination Against Women (CEDAW). This indicator is crucial to quality of life in the United States and worldwide.

Income

This indicator dissects conventional macro-statistics to reveal important information concealed by the averages. U.S. incomes at the low end have been essentially flat for over a decade and the 2001 recession and higher unemployment rates caused setbacks for many wage earners. The gap between rich and poor Americans is still historically high, an issue that does not bode well for

any democracy. As the U.S. economy slowed, higher unemployment pushed many low-income families back below the poverty line. Current political debates focus on the role of tax cuts and the extent to which the tax code and public policy favor powerful interest groups over vulnerable groups and average middle-class taxpayers. Other issues include the extent to which technology and globalization are squeezing the incomes of less skilled Americans. These issues also relate to the Employment, Education and Shelter Indicators. And what are we to make of the 1995 national survey by the Merck Foundation and the Harwood Group that found 28 percent of Americans had opted for lower incomes and moved to rural communities in order to improve their quality of life? Clearly, values are changing and new trade-offs are being made between more money and more time, tranquil and less-polluted environments, as the PBS television special “Affluenza” describes. The debate extends to the issue of choosing shorter workweeks while sharing the loss in productivity with employers. This is how the Kellogg Company of Michigan reduced its workweek to 35 hours, a move followed in France in the late 1990s as a measure to reduce unemployment. Historically, workweeks in most industrial societies have steadily dropped and preferences for more free time have become “quality of life” issues.

Infrastructure

This indicator unpacks macro-statistics to reveal an ongoing debate: to what extent the USA has been overlooking the vital role its infrastructure plays in undergirding our economy. The terrorist attacks of 2001 revealed many inadequacies in our infrastructure and public services, from the security of airlines, airports and postal system to that of water and electricity supplies, bridges, dams and the state of our public health system. A new debate on the mix of US transportation has revived interest in rail systems and the relative subsidies to airlines and the need to balance our public investments between roads, rail and air transport. Growing media attention to sprawl has focused on the problems of relying on automobiles as the main mode of transport. This leads to ever-larger communities, burgeoning suburbs, costly new highways and other infrastructure, while increasing taxes, pollution and inconvenience.

Historically, infrastructure referred to highways, railroads, harbors, bridges, aqueducts, public buildings, dams, and the like. As our industrial societies evolved, we added airports, communications systems, energy supplies, water, and other utilities. Today, we think of infrastructure as including education, research and development, computerized “backbone” systems, and all taxpayer-supported systems that we use in commerce and on which large sectors of our economy rely. A trend picked up by our indicator is the privatization of growing areas of our formerly publicly owned infrastructure, including electric utilities, phone, water, and other services. Such publicly-funded investments used to be “expensed” items in our GDP accounts. As of 1996, a more realistic asset budget in GNP now accounts for such investments as “assets” since they often have a useful lifetime of 50 to 100 years or more. This accounting change contributed to the budget surpluses of the late 1990s, 2000 and 2001.

Another key infrastructure issue, triggered by California’s energy problems is privatization and the extent to which this leaves electricity transmission lines “orphaned” and obsolete. Either these nationwide grids will have to be linked into a more efficient, coherent system (requiring enormous public and private investment), or power consumers will continue to move off the grid

with on-site generation. This trend to decentralized electrical power is accelerating as fuel cells are offering more efficient on-site generation and centralized electric utilities see their future more as power “bundlers” and distributors rather than running huge generating facilities – a scenario I foretold in Planning Review, May, 1974. Water is another serious issue as well as its security, as even more users add pollution and compete for finite supplies. In some areas ground water is being pumped at twice the rate that rainfall can re-charge underground aquifers.

This indicator is related to most other indicators, as infrastructure is the key to energy-efficiency, whether our cities sprawl over virgin lands and farms, or whether we infill older or vacant land in our cities. These factors, in turn, relate to environmental protection, pollution, housing, education, public health, and safety.

Public Safety

This indicator maps the rapid evolution in the debate about this aspect of our quality of life. In October 2001, the U.S. instituted a cabinet-level Office of Homeland Security. This has elevated the public’s awareness about all aspects of public safety and altered the nature of law enforcement along with new laws on security promulgated by the Justice Department. Information-age crimes, from money-laundering and Internet fraud to terrorists and global mafia, now affect domestic public safety. Many critics see the efforts to alert the American people continually about non-specific threats – daily amplified in mass media – are leading to massive loss of confidence and even paranoia. Our Indicator takes a probabilistic approach, i.e., between chances of becoming a victim of crime or terrorism versus many statistically greater threats in daily life – often self-imposed, such as cigarette smoking and unsafe driving habits. As our society became more complex, the views that safety was a personal affair and risk-taking a private choice have evolved.

While individuals are still largely responsible for their behavior, today we live in an interdependent world. Many risks of daily life (e.g., exposure to toxic wastes, gun violence in schools, car and highway design, and risks in foods and other products) are involuntary and often unavoidable. Thus this indicator also captures these new concerns in public safety and links today’s risks to health, education, and cultural factors. Crime statistics and the tragedies of gun violence are seen in this larger setting. This systemic view provides insights for individual risk-reduction and may help us rethink our views on improving public safety. Some of our expert colleagues have suggested that we gather data on the increase of white-collar crime (for example the daily revelations of corporate criminality), as well as money-laundering, international trafficking in drugs, arms and even human beings since the U.S. is involved in all these criminal or terrorist activities. We welcome all such constructive suggestions from professionals in the indicators field.

Re-Creation

This indicator goes beyond the material aspects of our existence and our focus on healthy bodies and well-educated minds to our spirits and how we re-create ourselves. Of course body, mind

and spirit are all integrated within our lives. We all have diverse ways of expressing these aspects of our being and personal development.

This indicator embraces all these aspects in mapping our extraordinarily diverse forms of recreation from volunteering in community projects, helping preserve wildlife, and serving the poor to attending concerts, museums, or just enjoying bowling, hunting, and fishing. The model traces how we organize and spend our private and public resources on such recreational activities. The indicator embraces self-improving experience (from religious, spiritual pursuits to other forms of self-development); patronizing the arts; physical sports and fitness; do-it-yourself crafts; gardening; home-improvement; hobbies; vicarious experience (TV, video games, and the Internet); socializing and home entertaining; travel and tourism (now the world's biggest industry); games of chance and betting; and chemical escape (alcohol, tobacco and drugs).

This indicator is a fascinating panorama of these evolving activities of Americans, which together form the largest and fastest-growing sector of our services-dominated economy. Statistical and methodological debates abound on the size and shape of this emerging "Attention Economy" (Henderson 1996). How do we resolve the tradeoffs between work, money income and leisure time? As in all our indicators, we become vividly aware of the crucial nature of statistics and the assumptions and paradigms driving their collection.

The rapid evolution of the entire field of self-development and re-creation augurs additional social and political change. Today's drive for self-development—an essentially spiritual need—is spilling over into our material lives through the growth of socially responsible investment. Many attest to how the terrorist attacks on the US caused them to reflect deeply on their lives, their meaning and purpose. Communities are opting to honor their local past and culture by building museums and art galleries, as LORD Cultural Resources of Toronto, Canada continues to document. Over 109 million Americans volunteer at least 3.5 hours a week in their communities, and the nonprofit, voluntary sector contributes between 7-10% of the GNP (Independent Sector 1999). A 1999 poll cited in *Business Week*, found that 78% of Americans say that they feel the need in their lives to experience spiritual growth, up from 20% in 1994. Our Re-Creation Indicator will keep us aware of such changes.