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**SUSTAINABILITY & QUALITY OF LIFE INDICATORS:
TOWARD THE INTEGRATION OF ECONOMIC, SOCIAL
AND ENVIRONMENTAL MEASURES**

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I. INTRODUCTION

Over the course of the twentieth century, the United States developed a first-rate statistical system to measure well-being. Today, the nation is in the midst of transforming this system in two key areas. First, efforts are being made to integrate economic, social, and environmental indicators to create a comprehensive set of information from which to assess where we stand and where we are headed. The emerging fields of sustainable development and quality of life indicators research provide the testing ground for this new approach to measurement. Second, social scientists are considering the possibility of broadening the national statistical system to incorporate nonmarket activities (e.g., unpaid work, barter, informal education) and asset-based accounts (e.g., minerals, air, water). Together these developments will illuminate subtle shifts in the fabric of the American way of life and enhance public and private decision making.

This article begins with a brief history of the development of economic, social, and environmental indicators. We then articulate how the field of social science research is advancing to expand the purview of the national statistical system, citing examples from sustainable development and quality of life indicators research. We close with a discussion of the utility of an integrated approach to measurement.

II. HISTORICAL INDICATORS

Under the leadership of the federal government, the U.S. national statistical system developed incrementally, beginning with the establishment of economic indicators in the wake of World War I, which in turn fueled interest in social indicators during the Great Depression and environmental indicators following the first Earth Day in 1970.

Economic Indicators

The key set of economic indicators was built on the work of the National Income Unit of the Department of Commerce (1919-38) and the National Bureau of Economic Research (1938-1945) under the direction of Simon Kuznets, the 1971 Nobel Prize winning economist. Kuznets' volume entitled, *National Product Since 1869* recounts how the National Income and Product Accounts (NIPA) was initially formulated to account for the flow of commodities and services during wartime although estimates of peacetime production and consumption were included in subsequent analysis (NBER 1946). A well-known component of the NIPA is the gross domestic product, a broad measure of final output of marketed goods and services.

The government agency charged with the regular collection and release of national accounts data is the Bureau of Economic Analysis of the U.S. Department of Commerce. The first set of accounts was published as a Senate document in 1934 with annual data for the period 1929-1931. Today the accounts are updated quarterly.

With the passage of the Employment Act of 1946, the Council of Economic Advisors was formed and began issuing sophisticated reports that benchmarked economic trends. In 1947, the Council released the first *Economic Report of the President*, highlighting key elements from the national income accounts. The report, issued in February of each year, is supplemented with detailed labor market data provided by the Bureau of Labor Statistics to include, for example, employment, unemployment, labor force participation, and labor productivity.

In time, the Federal Reserve added financial data to the national accounts. Since 1970, district banks issued what was known as the *Red Book* with summaries of regional economic conditions. The information was used internally to set monetary policy. In 1983, the Federal Reserve decided to make these data public and began publishing the *Beige Book* (to reflect the new color of the report cover). The *Beige Book* is released two weeks prior to each Federal Open Market Committee meeting, approximately eight times per year.

Substantial progress in managing businesses, investment, and government economic policy was made possible by the development of economic indicators. Regular reporting of financial and

economic indicators, coupled with short explanations and extended discourse about the causes and consequences of the trends, helped widen public understanding of economics, supported the development of economic theories and models, and informed decision making in many institutions. Researchers, policymakers, businesspeople, and investors have come to rely upon economic indicators, which are available round-the-clock through the Internet, newspapers, television broadcasts, and proprietary information vendors.

Social Indicators

The advancement and high visibility of economic indicators prompted interest among political leaders to collect data on the social well-being of the nation. The impetus was the onset of the Great Depression in 1929, at which time President Hoover called together a group of scientists to provide specifics on the socio-economic condition of the nation to serve as a basis for political action. The President's Research Committee on Social Trends was charged with collecting "records," as distinct from opinions, on the health of the nation, using extant data in the federal system and any other reliable sources. The group issued a single report documenting events and problems that occurred during the eventful first third of the twentieth century by "viewing the disjointed elements in society as a whole rather than a cluster of parts" (Research Committee on Social Trends 1933).

Interest in social indicators resumed in the 1960s to measure the impact of the NASA space program and the War on Poverty initiative. In 1967, Senator Mondale sponsored the Full Opportunity and Social Accounting Act, which called for the establishment of a Council of Social Advisors, the publication of an annual Social Report, and the creation of a Joint Congressional Committee on the Social Report. Leaders also considered having the Council of Economic Advisors issue an annual Economic and Social Report, a concept that never took hold (Mondale 1967).

Table 1
KEY EVENTS IN THE DEVELOPMENT
OF ECONOMIC, SOCIAL AND ENVIRONMENTAL INDICATORS
IN THE UNITED STATES

ECONOMIC INDICATORS

1934	1946	1947	1970	1983
NIPA Commerce	Employment Act	<i>Economic Report of the President</i> Council of Economic Advisors	<i>Red Book</i> Federal Reserve	<i>Beige Book</i> Federal Reserve

SOCIAL INDICATORS

1933	1970
<i>Recent Social Trends in the United States</i> White House	<i>Toward a Social Report</i> Health, Education and Welfare

ENVIRONMENTAL INDICATORS

1948	1963	1965	1970
Water Pollution Control Act	Clean Air Act	Water Quality Act	National Environmental Policy Act

Note: Year represents when a piece of legislation was passed into law, a new institution formed, or a study released.

The closest the nation came to developing a formal set of social indicators was under President Lyndon Johnson who commissioned the U.S. Department of Health, Education and Welfare in 1969 to develop a statistical portrait of the social well-being of the nation. Statistical groupings included, for example, health and illness; social mobility; physical environment; income and poverty; public order and safety; learning, science and art; and participation and alienation (HEW 1970). Three subsequent volumes were produced by the U.S. Department of Commerce (1974, 1977, 1981) to serve as a statistical reference for public policy makers interested in tracking national social conditions.

Community indicators projects, capturing a mix of socio-economic factors, emerged in the late 1980s and 1990s as cities and states turned to overall quality of life and livable communities measures. Advances in local indicators captured the attention of the foundation world, business leaders, community activists, government officials, nonprofit service providers, and concerned citizens interested in the quality of life in their communities (Sawicki and Flynn 1996). By the late 1990s, over 200 community indicators projects were in place throughout the nation to track local social and economic conditions.

Environmental Indicators

In the early years of the twentieth century, cities were proud of skylines that included smokestacks pouring evidence of industrial success and modernity into the air. Waterfronts, which now boast trendy restaurants and shops, were a blight in many cities and had the lowest real estate values. Environment was not a key issue of national policy or law.

The development of environmental indicators differed from economic and social indicators in that data were collected primarily in response to federal regulations. Hence environmental data tend to measure specific problems rather than the well-being of the environment as a whole. For example, water quality indicators—developed to comply with the Water Pollution Control Act of 1948—included acidity, turbidity, biochemical oxygen demand, and fecal coliform count without reference to overall imbalances in the ecosystem.

Widespread response to biologist Rachel Carson's influential book, *Silent Spring* (1962), caught the attention of scientists and government officials, notably President Kennedy. Her description of the effects of pesticides on plants, animals, and humans led to broader awareness of the environment and sufficient political pressure to pass the Clean Air Act of 1963 and Water Quality Act of 1965. The words 'ecology' and 'ecosystem' began circulating, and a sense of the environment as a whole was dawning.

On January 1, 1970, President Nixon signed the National Environmental Policy Act, which created the Environmental Protection Agency and the Council on Environmental Quality (CEQ). These institutions were charged with the collection, monitoring, and reporting of selected environmental data. The Act also specified that "all federal agencies would have to consider and describe the environmental consequences of their major decisions including alternative courses of action" (CEQ 1994-95). The periodic CEQ reports became a key source of information on environmental indicators and, in time, flagged such issues as global climate change (1970), tropical deforestation (1978), and biological diversity (1980). The reports, however, do not view the ecosystem as a whole or provide a consistent set of data and analysis, which is the hallmark of the annual *Economic Report of the President*.

III. INTEGRATING ECONOMIC, SOCIAL, AND ENVIRONMENTAL INDICATORS

Even with the expansion of reporting of environmental, social, and economic statistics throughout the end of the twentieth century, decision making in the three realms remains separate. Economic policy is seldom based on environmental or social indicators.

Environmental policy is justified on the basis of environmental statistics and opposed on the basis of economic information. Social policy remains largely isolated from economic and environmental policy except where labor concerns arise (e.g., unemployment, job safety).

There is a steady trend today, however, to broaden and integrate various types of information used in decision making contexts in American society. Specifically, the trend is to incorporate environmental and social measures into the regular reporting of economic measures and consider

the synergies between these three realms of well-being. Toward this aim, social scientists and government officials are working on the development of a unified system of accounts that incorporates economic, social, and environmental indicators in a systemic fashion. Below are examples of progress to date, drawing from the fields of sustainable development and quality of life indicators research. Both fields attempt to organize information in such a way that promotes better reconnaissance on our economy, society, and environment in areas relevant to policymaking.

Sustainable Development Indicators: Conceptual Framework

The design of sustainable development indicators by scientists and government officials reflects the belief that sustainable development is an evolving process that improves the economy, the environment, and society for the benefit of current and future generations. The selection of useful environmental indicators is based on the recognition that economic activity has consequences external to market transactions. These externalities impose costs and sometimes create benefits not measured by market prices, despite the fact that externalities have powerful effects on peoples' well-being. Market transactions, business decisions, and government policies based primarily on economic indicators tend to cause environmental and social costs that lead to political support for environmental regulations and social programs to prevent or ameliorate these costs. Such programs are controversial because they affect the distribution of wealth and power in society and appear to reduce economic well-being.

In economics, the sustainability principle most useful for our purposes is the “don't spend principal.” The concept defines income as the amount that can be consumed without decreasing the productive capacity of the capital from which income is derived. Depreciation reduces the productive capacity of capital. The difference between gross and net income is savings, some of which must be invested in capital to offset depreciation. Hence, a key engine of economic growth is the expansion of capital.

A fundamental concept of ecological sustainability is that species must live within the carrying capacity afforded them by the ecosystem of which they are a part. Under conditions of sustainability, the flow of ecologically produced services used by each species does not degrade

the ecosystem or put it at risk of sudden collapse or substantial decline. Growth and renewal processes offset any degradation of the ecosystem. To the extent that the health or population of a species decline, other species increase and evolve.

Restated in anthropocentric terms, ecological sustainability requires that the human population avoid using ecologically produced services in ways that exceed the capacity of the biosphere to produce those services. To many, the concept of carrying capacity suggests limits beyond which substantial and possibly irreversible degradation of natural capital will occur. Much of the impetus toward sustainability results from concern about the possibility of large scale, uncontrollable changes in the biosphere that could be set off by gradual degradation that exceeds limits of which we are not well aware.

Economic and ecological concepts of sustainability can be merged by recognizing that ecological capacity is a form of natural capital. Environmental processes tend to maintain and build natural capital, even though some natural processes like volcanoes and hurricanes cause local, short-run destruction. The environmental processes of greatest interest for sustainability from the human perspective tend to be cyclical and are driven almost entirely by solar energy. For sustainability from the human perspective, the degradation or depletion of natural capital that we cause in the biosphere must be less than the natural growth and renewal from environmental processes and our own investments in remediation.

In the discourse about sustainable development, the social realm was originally included because of concerns about the equity issues raised by the differences between wealthy developed countries and poor less developed countries. As the discourse continued, it was recognized that inequities are not limited to wealth and income and more importantly that human well-being is heavily dependent on social relationships and social services. This suggested the possibility of treating the economic, environmental, and social realms in an even handed and logically consistent fashion.

We can now state a condition that combines the concepts of sustainability. *Sustainability is a dynamic condition in which the combined economic, environmental, and social systems meet the*

needs and wants of the current human population while maintaining or increasing the resources and productive capacities that are passed along to future generations. The concern about limits that is addressed by other definitions of sustainability can be incorporated by recognizing the possibility that capacities in any of the three systems can reach conditions in which sudden declines or even collapses occur. Clearly, if our goal is to assure that we pass capacities along to future generations that will provide them the opportunity to be at least as well off as current generations, then we must take care not to exceed such limits.

Indicators of Sustainable Development

The theoretical integration of economic, environmental, and social concerns has a history in practice. In 1987, the World Commission on Environment and Development looked at the connections among economic development, environmental quality, and management of natural resources. The commission was popularly known as the Brundtland Commission in honor of its director, Gro Harlem Brundtland, M.D., then prime minister of Norway and now director-general of the World Health Organization (Brundtland 2002). The commission produced the well-accepted definition of sustainable development noted above.

Five years later, the largest gathering of heads of state in history occurred at the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil. Participants came together to develop a new agenda for the twenty-first century, known as Agenda 21, and encouraged an expanded view of national well-being:

“Commonly used indicators such as gross national product and measurements of individual resource or pollution flows do not provide enough information about sustainability. We need to use environmental, demographic, social and developmental information to produce indicators that show us if we are creating a more sustainable world . . .

Countries and international organizations should provide environment, resource and development data needed for the management of sustainable development to people at all levels, and in forms that are understandable. This should make it easier to produce sustainable development indicators that can be worked into national reports, such as those on the performance of the economy” (1993).

In response to Agenda 21, President Clinton formed the President's Council on Sustainable Development (PCSD) on June 29, 1993. The four-fold mission of the PCSD was to: forge consensus on policy by bringing together diverse interests to identify and develop innovative economic, environmental, and social policies and strategies; demonstrate policies that foster sustainable development; inform people about sustainable development; and evaluate and report on progress by recommending national, community, and enterprise level frameworks for tracking sustainable development. By executive order, the PCSD was chartered through June 30, 1999. The final list of 10 goals included: health and environment, economic prosperity, equity, conservation of nature, stewardship, sustainable communities, civic engagement, population, international responsibility, and education.

During the same time period, the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce started preliminary work on a system of satellite national accounts to show the state of the environment, beginning with non-renewable mineral resources. The first set of Integrated Environmental and Economic Satellite (IEES) Accounts was released in 1994 and included a work plan to develop a set of prototype nonmarket accounts for subsoil assets (e.g., oil, gas, and major non-fuel minerals), renewable and other natural resources (e.g., trees, fish, and water resources), and nonmarket environmental assets (e.g., clean air and water).

Concern in the U.S. Congress that the satellite accounts could somehow have negative implications for the minerals industry led to instructions that BEA desist from further activity until the need for such information and its methodology was confirmed by a study of the National Research Council of the National Academy of Sciences. From 1994 to 1999, the Panel on Integrated Environmental and Economic Accounting performed such an examination under the direction of Yale economist William Nordhaus and 11 other social scientists. The findings were summarized in a report entitled, *Nature's Numbers: Expanding the National Economic Accounts to Include the Environment*, which urged the nation to explore alternative approaches to more fully account for the contributions made by nature to our economic well-being (1999).

Despite the panel's recommendations, the U.S. government did not authorize BEA to continue work on natural resources and environmental accounts. To fill in the gap, the Glaser Foundation

awarded Yale University a \$2 million grant in 2000-2001 to continue research on the development of a comprehensive set of nonmarket accounts for the United States, including a blueprint for research, methodology, and data collection for the environmental sector and other activities such as household work, leisure time, health status, volunteering, and human capital (Glaser Foundation 2001).

As a follow-up to this effort, the National Academy of Sciences formed a new panel in 2002 comprised of academic economists to further examine the design of nonmarket accounts which would parallel the market-based national accounts (see Appendix 1). The panel's final report and recommendations are expected to be released in early 2004.

Another important effort to enhance our national statistical system of accounts through the inclusion of environmental indicators was the establishment of the Interagency Working Group on Sustainable Development Indicators (SDI Group), which reported to the Council on Environmental Quality at the White House from 1996 to 1998. The SDI group contributed to the indicators chosen by the President's Council on Sustainable Development and went on to publish its own report entitled, *Sustainable Development in the United States, An Experimental Set of Indicators* (1998).

The SDI Group proposed a set of 40 indicators comprised of 13 economic indicators, 16 environmental indicators, and 11 social indicators. Statistical trends were recorded and analyzed in order to assess whether the trends resulted in favorable, unfavorable, or uncertain impacts on sustainable development at the end of the century.

Table 2
INTERAGENCY WORKING GROUP ON
SUSTAINABLE DEVELOPMENT INDICATORS:
CATEGORIES AND INDICATORS

	Economic	Environmental	Social
Long-term Endowments & Liabilities	capital assets labor productivity federal debt to GDP ratio	surface water quality acres of major terrestrial ecosystems contaminants in biota quantity of spent nuclear fuel stratospheric ozone greenhouse climate response index	U.S. population children living in families with only one parent present teacher training level and application of qualifications
Processes	energy consumption materials consumption inflation investment in R&D	renewable water supply to withdrawals ratio fisheries utilization invasive alien species conversion of cropland to other uses soil erosion rates timber growth to removals ratio greenhouse gas emissions identification and management of Superfund sites	contributing time and money to charities births to single mothers educational attainment participation in the arts and recreation people in census tracts with 40% or greater poverty
Current Results	domestic product income distribution consumption expenditures unemployment rate households in problem housing homeownership rates	metropolitan air quality nonattainment outdoor recreational activities	crime rate life expectancy educational achievement

Source: Interagency Working Group on Sustainable Development Indicators (1998).

Similar indicators of sustainability are appearing in individual communities like Jacksonville, Seattle, and Santa Monica and in states like New Jersey, Minnesota, and Oregon. Stakeholders in various natural resource industries are working on sectoral sustainability indicators. In 1998, the U.S. Forest Service hosted a series of public outreach meetings on sustainable forestry. This led to the creation of the Roundtable on Sustainable Forests with participation by federal and state government agencies, corporations, and associations in the forestry sector and nonprofit organizations with an interest in developing sustainability indicators for forests. Additional roundtables were formed on rangelands, minerals, energy, and water resources.

In the last two years there has been continued activity in the United States to develop the capacity to create indicators of sustainable development. Conferences in Snowmass, Colorado (April 2001) and Essex, Massachusetts (November 2001) attended by researchers and practitioners in the field of sustainable development led to the formation of the International Sustainability Indicators Network (ISIN), a membership group of professionals in the field of indicator research and implementation (www.sustainabilityindicators.org).

In March of 2002, the Rockefeller Brothers Fund sponsored a meeting at Pocantico, New York that brought together experts on indicators from the business, nonprofit, and government sectors. The resulting “Pocantico Statement” outlines the need for a U.S. system of sustainability indicators, articulates the purpose of such a national system of indicators, and identifies the audiences for and benefits of the system of indicators (ISIN 2002).

Most recently, the federal agencies involved in updating national indicators of sustainable development helped prepare for the World Summit on Sustainable Development in Johannesburg (August – September 2002). Issues discussed included poverty eradication, changing unsustainable patterns of consumption and production, globalization, debt reduction, and the transfer of science, technology and education. The world is recognizing that economic and social issues are integral to the sustainable development of the planet.

Quality of Life Indicators

A second example of progress being made to integrate economic, social, and environmental indicators to assess well-being comes from the quality of life literature. A growing number of scholars and practitioners are investing time and resources to expand the national statistical accounts to incorporate those aspects of life that Americans deem integral to quality of life.

The twin forces of globalizing technology and markets along with information overload beg for greater sophistication and interpretation of extant data on well-being. Consumers and businesses want to know what the statistics mean. How do one set of numbers relate to another? What are the short-term and long-term implications? Is there something significant in the numbers or are we simply collecting more data?

These types of questions led to the development of new methodologies for tracking national well-being, referred to as quality of life indicators. The indicators serve three central purposes. The first is to expand the purview of our national statistical system to incorporate key facets of the contemporary global economy. Second is to create systems that view economic, social, and environmental phenomena as a whole. Third, quality of life indicators look at relationships across variables, domains, and sectors of society and, hence, are an unbundled system of indicators, not a composite index of data.

One of the most visible applications of quality of life indicators is the ranking of America's best places to live and work. Throughout the 1990s, annual releases of the *Places Rated Almanac* and *Money Magazine's* Best Places to Live in America drew attention to communities where citizens experience a high quality of life.

A wave of similar livable community rankings ensued, including The Great Towns of America, The 100 Best Small Art Towns in America, America's 100 Best Places to Retire, *The Utne Reader* America's Most Enlightened Towns, Sperling's Best Places, and Best Places to Live and Work in America. The data are used by the public to inform decisions about where to live, work, retire, recreate, or relocate, and hence attract the attention of planners, elected officials, and policy makers when setting government policies.

While the rankings are based on the same general factors, their results are almost entirely uncorrelated, according to research by the Federal Reserve Bank of St. Louis (Wall 1999). The reason is because people have subjective valuations and put different weights on the various factors included in the list of variables. Funding for schools may be of primary importance to one person while access to quality medical care might be most important to another person. In the vernacular of economists, each person has a unique utility function.

In an effort to avoid the problems associated with subjective weightings inherent in index analysis, the Calvert Group began research and development on a methodology for unbundling quality of life indicators. This was the first time that an asset management firm took an interest in indicators research, which historically has been conducted by academics and government officials. The research began in 1994 as a collaboration with futurist Hazel Henderson to build on her Country Futures Indicators model. The *Calvert-Henderson Quality of Life Indicators* volume was released in 2000 with subsequent online updates (Henderson, Lickerman and Flynn 2000).

The Calvert-Henderson Quality of Life Indicators were constructed by a multi-disciplinary group of practitioners and scholars from government agencies, for-profit firms, and nonprofit organizations with expertise in the 12 respective domains of quality of life. The indicators complement traditional economic, social, and environmental indicator sets while digging deeper into areas where conditions are rapidly restructuring our society and its institutions. Transparency is created in the unbundling of the indicators that allows users to make their own rational choices.

Building on the warehouse of government and private sector data on economic, social, and environmental conditions, the Calvert-Henderson Quality of Life Indicators offer a new methodology for creating a comprehensive picture of overall well-being in the United States, easily replicated at the local and international levels.

Table 3

**CALVERT-HENDERSON QUALITY OF LIFE INDICATORS:
DOMAINS AND INDICATORS**

Domains	Indicators
⇒ Education	<ul style="list-style-type: none"> • educational attainment • educational expenditures • enrollment rates • literacy rates • income by education • access to education • distribution of education
⇒ Employment	<ul style="list-style-type: none"> • civilian labor force • employment rate • unemployment rate • underemployment rate • labor force participation rate • employment-to-population ratio • duration of unemployment • reason for unemployment • non-market work • volunteering • alternative work arrangements • multiple job holders • self-employment
⇒ Energy	<ul style="list-style-type: none"> • energy intensity • energy consumption • carbon intensity
⇒ Environment	<ul style="list-style-type: none"> • air quality • water quality • soil quality • biodiversity • household waste • agricultural runoff • ozone nonattainment • air quality standards • air pollutant emissions • sources of emissions • electric utility generation • wind & water erosion • toxic chemical releases • swimmability & fishability of waters

Domains (cont.)	Indicators (cont.)
⇒ Health	<ul style="list-style-type: none"> • infant mortality by mother’s education, race and ethnicity • life expectancy by gender, race and nationality
⇒ Human Rights	<ul style="list-style-type: none"> • security of person • domestic violence • U.S. Bill of Rights & Amendments • Universal Declaration of Human Rights • immigration • asylum • prison labor • deported aliens • rights of women, children, Native Americans • hate crimes • death penalty • voting • human rights treaties • political action committees
⇒ Income	<ul style="list-style-type: none"> • median family income • male-female wage gap • wealth • low-wage jobs • employment (hours) • labor force participation rate • unemployment rate • sources of income • insurance • pension • taxes • profits • non-labor income • poverty
⇒ Infrastructure	<ul style="list-style-type: none"> • public & private infrastructure • transportation sector • telecommunications sector • utilities sector • social infrastructure (health, safety, education) • capital stock • human capital infrastructure • environmental infrastructure

Domains (cont.)	Indicators (cont.)
⇒ National Security	<ul style="list-style-type: none"> • President's national security strategy • Congressional budget process • international treaties • major armed conflicts • world arms transfers • worldwide military expenditures • completed peacekeeping missions • international terrorist incidents & casualties
⇒ Public Safety	<ul style="list-style-type: none"> • death rates from injuries & infectious diseases • leading causes of deaths
⇒ Re-Creation	<ul style="list-style-type: none"> • self/society improving experience • religious activity • patronized arts • amateur arts • do-it-yourself hobbies • physical activity • spectator sports attendance • vicarious (media) experience • virtual recreation • socializing • recreational drugs • gambling • travel & tourism
⇒ Shelter	<ul style="list-style-type: none"> • homeownership rates • overcrowding • affordability • units lacking complete plumbing • rental cost burden • population in extreme poverty neighborhoods • housing condition inequities
Source: <i>Calvert-Henderson Quality of Life Indicators</i> (2000).	

IV. VALUE OF THE INTEGRATED APPROACH

The various approaches to integrating environmental and social information with economic information to better inform decision makers of the implications or full costs and benefits of alternate courses of action are compatible with each other. The main value of integration of indicators in these differing realms is to get a more complete picture of contemporary society. No one lives in a purely economic world in which only market transactions occur. Each of us

lives a life that includes economics, nature, and social relationships. Integrating the measures moves our deliberate decision making closer to our real lives and sheds light on statistical blindspots.

To put it simply, we could say that when we add satellite accounts that include environmental costs and value of national resources to the national economic accounts, we are getting a fuller picture of the complete costs of economic activity. When indicators relating to the current experience of people in the environmental and social realms are added, whether or not these additional indicators are monetized, we are measuring quality of life. When we further add indicators of the stocks, capacities, and capital that we use today to produce the quality of life that we then pass on to the next generation, we have moved into the measurement of sustainability. Perhaps the distinction between quality of life indicators and sustainability indicators is that the former measure what is happening today and the latter measure the capacity for what will happen tomorrow.

The field of indicators research is ripe for exploration and expansion. A tremendously valuable national statistical system is in place to describe the economic, social, and environmental well-being in twentieth century America. The system provides innumerable insights into commerce, production, human behavior, and natural resources. The charge now is to take this well-spring of raw data and transform the numbers into meaningful indicators that can help us understand what is new about our culture and society. This will entail viewing well-being from a systems perspective in which the relationships between economic, social, and environmental factors are considered simultaneously. In the end, perhaps we will know ourselves, our environment, and the consequences of our actions all the better.

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Theodore Heintz, Jr. is an economist and Assistant Director for Economic Analysis with the Office of Policy Analysis of the U.S. Department of Interior.

REFERENCES

- Brundtland, Gro Harlem. 2002. *Madam Prime Minister: A Life of Power and Politics*. NY: Farrar Straus Giroux.
- Council on Environmental Quality. 1994-1995. *Environmental Quality, 25th Anniversary Report*. Washington, D.C.
- Duncan, Joseph W. 1989. "The History and Future of Social Indicators." Paper presented at the annual meeting of the American Planning Association (September).
- (The) Glaser Foundation. 2001. *Measuring Progress*. Seattle, WA. www.glaserfoundation.org.
- Henderson, Hazel, and Jon Lickerman and Patrice Flynn. 2000. *Calvert-Henderson Quality of Life Indicators: A New Tool for Assessing National Trends*. Bethesda, MD: Calvert Group, Ltd. www.Calvert-Henderson.com.
- Interagency Working Group on Sustainable Development Indicators. 1998. *Sustainable Development in the United States, An Experimental Set of Indicators*. Washington, D.C.
- International Sustainability Indicators Network. 2002. "Pocantico Statement" from the Rockefeller Brothers Fund Meeting on Sustainable Development (March 10-13). www.sustainabilityindicators.org.
- Kuznets, Simon with Lillian Epstein and Elizabeth Jenks. 1946. *National Product Since 1869*. NY: National Bureau of Economic Research, Inc.
- Mondale, Walter. 1967. "New Tools for Social Progress." *Progressive*, Vol. 31: 28-31.
- National Academy of Sciences. 1999. *Nature's Numbers: Expanding the National Economic Accounts to Include the Environment*, ed. William D. Nordhaus and Edward C. Kokkelenberg. Washington, DC: National Academy Press.
- President's Council on Sustainable Development. 1996. *Sustainable America: A New Consensus*.
- Research Committee on Social Trends. 1933. *Recent Social Trends in the United States*. NY: McGraw-Hill Book Company, Inc.
- Sawicki, David S. and Patrice Flynn. 1996. "Neighborhood Indicators: A Review of the Literature and an Assessment of Conceptual and Methodological Issues." *Journal of the American Planning Association*, Vol. 62, No. 2: 165-183 (Spring).
- Savageau, David with Ralph B. D'Agostino. 2000. *Places Rated Almanac*, Millenium Edition. NY: IDG Books Worldwide.

United Nations. 1993. *Agenda 21 Earth Summit: United Nations Program of Action from Rio*. NY: Oceana Publications.

U.S. Department of Commerce. Bureau of the Census. 1981. *Social Indicators III*. Washington, D.C.

U.S. Department of Commerce. Office of Federal Statistical Policy and Standards. 1977. *Social Indicators 1976*. Washington, D.C.

U.S. Department of Commerce. Office of Management and Budget. 1974. *Social Indicators 1973*. Washington, D.C.

U.S. Department of Health, Education and Welfare. 1970. *Toward a Social Report*. MI: University of Michigan Press.

Wall, Howard J. 1999. "‘Voting with Your Feet’ and Metro-Area Livability." The Federal Reserve Bank of St. Louis (April).

World Commission on Environment and Development. 1987. *Our Common Future*. NY: Oxford University Press.

APPENDIX 1

**THE DESIGN OF NONMARKET ACCOUNTS
PANEL MEMBERS
2002-2004**

Katherine Abraham, Ph.D.

Economist
University of Maryland
Chairperson

Matthew Shapiro, Ph.D.

Economist
University of Michigan
Specialty: Macroeconomics

Robert E. Hall, Ph.D.

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