

GLOSSARY OF SUSTAINABILITY

A very abbreviated list of key terms, concepts, and manifestations of sustainability

BIODIVERSITY: Biodiversity is the variety of different types of life found on earth. It includes genetic variation within species, the variety of species in an area, and the variety of habitat types within a landscape. Perhaps inevitably, such an all-encompassing definition, together with the strong emotive power of the concept, has led to somewhat cavalier use of the term biodiversity, in extreme cases to refer to life or biology itself. But biodiversity properly refers to the variety of living organisms. Biological diversity is of fundamental importance to the functioning of all natural and human-engineered ecosystems, and by extension to the ecosystem services that nature provides free of charge to human society. Living organisms play central roles in the cycles of major elements (carbon, nitrogen, and so on) and water in the environment, and diversity specifically is important in that these cycles require numerous interacting species. There are interesting parallels between biodiversity and *cultural diversity*.

<http://www.eoearth.org/view/article/150560/>

BIOMIMICRY: the study and imitation of nature's forms, processes, and ecosystems to create more sustainable and healthier human technologies.

<http://biomimicryinstitute.org/> and <http://www.asknature.org/>

BIOREGIONALISM: An approach to natural resource management and to human society that emphasizes an intimate connection with one's distinctive bioregion. Bioregionalism is also a social movement that seeks to create a sense of deep connection to one's local region, activities that are in harmony with the local ecology, a sense of self as an integral part of local nature, and diverse decentralized societies that are characterized by social egalitarianism, local self-reliance, and ecological sustainability. See also "*Place*."

<http://www.planetdrum.org/> and <http://wp.bioregionalcongress.net/> and <http://www.ilsr.org/>

CARRYING CAPACITY: One of the earliest concepts related to the issue of scale is that of carrying capacity¹. Biologists define carrying capacity as the maximum population of a given species that can survive indefinitely in a given environment. It was originally applied to relatively simple population-environments such as the number of sheep or cattle that could be maintained on grazing land without degrading the land so that it could no longer support the animals. It depends on the conditions and resources available in the specific area, and the consumption habits of the species considered. Because both what is available in the area, and the consumption habits of the species change over time, carrying capacity is always changing. Carrying capacity is a measure of sustainability within these changing conditions.

<http://sustainable-scale.org>

EARTH CHARTER: An international declaration based on the sixteen principles of respect and care for the whole community of life. The four key categories of principles are: 1.) ecological integrity; 2.) social and economic justice; 3.) participatory democracy; 4.) peace and nonviolence.

<http://www.earthcharterinaction.org> and <http://earthcharter.us.org/>

ECOLOGICAL ECONOMICS: "Ecological economics is a transdisciplinary field of academic research that aims to address the interdependence and coevolution of human economies and natural ecosystems over time and space. It is distinguished from environmental economics, which is the mainstream economic analysis of the environment, by its treatment of the economy as a subsystem of the ecosystem and its emphasis upon preserving natural capital." (*Wikipedia*) *Related terms:* natural capital; steady state economics

<http://www.ecoeco.org>

ECOLOGICAL FOOTPRINT: Human activities consume resources and produce waste, and as our populations grow and global consumption increases, it is essential that we measure nature's capacity to meet these demands. The Ecological Footprint has emerged as one of the world's leading measures of human demand on nature. Simply put, Ecological Footprint Accounting addresses whether the planet is large enough to keep up the demands of humanity. Ecological Footprint represents the productive area required to provide the renewable resources humanity is using and to absorb its waste. The productive area currently occupied by human infrastructure is also included in this calculation, since built-up land is not available for resource regeneration. Many online resources exist to calculate the ecological footprints of individuals, communities, and nations. A related concept is the *carbon footprint*.

<http://www.footprintnetwork.org>

ECOLOGICAL LITERACY: Ecological literacy, or eco-literacy, is a term first used by American educator David W. Orr and physicist Fritjof Capra in the 1990s, in order to introduce into educational practice the value and well-being of the Earth and its ecosystems. It is a way of thinking about the world in terms of its interdependent natural and human systems, including a consideration of the consequences of human actions and interactions within the natural context. Ecological literacy equips students with the knowledge and competencies necessary to address complex and urgent environmental issues in an integrated way, and enables them to help shape a sustainable society that does not undermine the ecosystems upon which it depends. *Sustainability Literacy* is a related term.

ECOSYSTEM SERVICES: “Humankind benefits from a multitude of resources and processes that are supplied by natural ecosystems. Collectively, these benefits are known as ecosystem services and include products like clean drinking water and processes such as the decomposition of wastes. These services were popularized and their definitions formalized by the United Nations 2005 Millennium Ecosystem Assessment (MEA). This grouped ecosystem services into four broad categories: *provisioning*, such as the production of food and water; *regulating*, such as the control of climate and disease; *supporting*, such as nutrient cycles and crop pollination; and *cultural*, such as spiritual and recreational benefits” (http://en.wikipedia.org/wiki/Ecosystem_services). The concept of ecosystem services provides a way of putting a value on ecosystem integrity and natural systems.

ENVIRONMENTAL JUSTICE: A branch of ethics and environmentalism that focuses on disproportionate environmental harm done to differing social groups and individuals. It is a significant principle in the U.S. E.P.A, for which “Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.” (<http://www.epa.gov/environmentaljustice/>) Environmental injustice often takes the form of “environmental racism.”

<http://www.ejrc.cau.edu/> and <http://www.ejnet.org/ej/principles.html>

FAIR TRADE: Fair Trade is an alternative system of trade that aims to improve lives and protect the environment by empowering poor farmers and producers in the developing world, creating a trade system that is more fair and transparent, while creating a framework for ecologically friendly practices.

<http://www.fairtradefederation.org/> and <http://www.fairtraderesource.org/>

GREEN ENERGY, ALTERNATIVE ENERGY: Energy produced without fossil fuels. Prominent sources are wind, solar, and biomass. Some consider nuclear power “green energy,” while other strongly reject that inclusion.

<http://www.greenenergycouncil.com/>

GREEN PARTY: A political organization and international political movement that is explicitly aimed at the three pillars of sustainability. The Ten Key Values of the green movement are: grassroots democracy, social justice, ecological wisdom, non-violence, decentralization, community-based economics, feminism, respect for diversity, personal and global responsibility, and future focus and sustainability. Note the similarity between the first four key values (known as the Four Pillars) and the main principles of the Earth Charter. In some European countries, the Green Party has significant political power.

<http://www.gp.org> and <http://www.globalgreens.org/>

IPAT EQUATION: IPAT, which is sometimes written as $I = PAT$ or $I = P \times A \times T$ is an equation that expresses the idea that environmental impact (I) is the product of three factors: Population (P), Affluence (A) and Technology (T). This equation was first proposed by two scientists named Paul Ehrlich and John Holdren in the early 1970s as a way to calculate the impact of humans on the environment. While this equation seems like an oversimplification of the many problems our environment faces, it is a good starting point to help understand the effects of economic prosperity and technological advancements on the environment. For example, if person A lives in a village in a third world country where there is no electricity or automobiles, his ecological footprint, which is the measure of the demand for resources required to support a lifestyle, will be lower than person B who lives in a suburban neighborhood of the United States, who drives to and from work every day in an SUV and relies on electricity for everything from cooking his dinner to air conditioning his home.

LEED: “Leadership in Energy and Environmental Design” consists of “a suite of rating systems for the design, construction and operation of high performance green buildings, homes and neighborhoods.

Developed by the U.S. Green Building Council (USGBC) . . . LEED is intended to provide building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.” (*Wikipedia*) Several grades or degrees are recognized: LEED, LEED silver, LEED gold, and LEED platinum. UWO’s Sage Hall is rated as LEED gold.

<http://www.usgbc.org/>

NATURAL CAPITALISM: *Natural Capitalism: Creating the Next Industrial Revolution* is a 1999 book co-authored by Paul Hawken, Amory Lovins and Hunter Lovins. The term has also come to stand for an approach to the reform of modern capitalism to acknowledge ecological values and limits. The authors describe the global economy as being dependent on natural resources and ecosystem services that nature provides and critique “industrial capitalism” for its failure to recognize and account for this dependency. Natural capitalism recognizes the critical interdependency between the production and use of human-made capital and the maintenance and supply of natural capital. The fundamental questions of the book are: What would an economy look like if it fully valued all forms of capital? What if an economy were organized not around the abstractions of neoclassical economics and accountancy but around the biological realities of nature? What if accounting principles recognized natural and human capital not as a free amenity in inexhaustible supply but as a finite and integrally valuable factor of production?

NATURAL STEP: “The Natural Step is a non-profit organization founded with the vision of creating a sustainable society. For two decades, The Natural Step has been at the forefront of international research and dialogue about sustainable development. We have developed a proven, science based model that helps communities and businesses better understand and integrate environmental, social, and economic considerations.” (<http://www.naturalstep.org/>).

The Four System Conditions...	. . . Reworded as The Four Principles of Sustainability
In a sustainable society, nature is not subject to systematically increasing:	To become a sustainable society we must...
1. concentrations of substances extracted from the earth's crust	1. eliminate our contribution to the progressive buildup of substances extracted from the Earth's crust (for example, heavy metals and fossil fuels)
2. concentrations of substances produced by society	2. eliminate our contribution to the progressive buildup of chemicals and compounds produced by society (for example, dioxins, PCBs, and DDT)
3. degradation by physical means	3. eliminate our contribution to the progressive physical degradation and destruction of nature and natural processes (for example, over harvesting forests and paving over critical wildlife habitat); and
4. and, in that society, people are not subject to conditions that systemically undermine their capacity to meet their needs	4. eliminate our contribution to conditions that undermine people’s capacity to meet their basic human needs (for example, unsafe working conditions and not enough pay to live on).

PLACE. “Place” indicates a distinctive local area that is infused with human meaning (unlike mere “space”). Developing “a sense of place” is often considered an essential part of realizing oneness with nature and leading a sustainable way of life. The term has become important in environmental philosophy, ecospirituality, ecopsychology, human geography, environmental sociology, and ecological anthropology. It is central to the ideal of “place-based education,” while modern society is seen as characterized by “placelessness” and alienation with the natural world one lives in. Closely related to bioregionalism.

PRECAUTIONARY PRINCIPLE: The Precautionary Principle (or Approach) is a perspective that, when human or ecological health might be in danger, the burden of proof is on those actors or organizations that might render environmental and social harm, rather than being on an agency to prove that the danger is real.

- “When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.” (<http://www.sehn.org/wing.html>)
- The February 2, 2000 European Commission Communication on the Precautionary Principle notes: "The precautionary principle applies where scientific evidence is insufficient, inconclusive or uncertain and preliminary scientific evaluation indicates that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the high level of protection chosen by the EU." (http://en.wikipedia.org/wiki/Precautionary_principle)

RESILIENCE: Resilience has become an important way of conceptualizing sustainability, and is closely linked to the concept of socio-ecological systems. It is “the ability to absorb disturbances, to be changed and then to re-organise and still have the same identity (retain the same basic structure and ways of functioning). It includes the ability to learn from the disturbance. A resilient system is forgiving of external shocks...Resilience shifts attention from purely growth and efficiency to needed recovery and flexibility. Growth and efficiency alone can often lead ecological systems, businesses and societies into fragile rigidities, exposing them to turbulent transformation. Learning, recovery and flexibility open eyes to novelty and new worlds of opportunity.” (http://www.resalliance.org/index.php/key_concepts)

<http://www.resalliance.org/>

<http://www.stockholmresilience.org/>

SOCIO-ECOLOGICAL SYSTEMS: “Scholars have used the concept of socio-ecological systems to emphasize the integrated concept of humans in nature and to stress that the delineation between social systems and ecological systems is artificial and arbitrary. While resilience has somewhat different meaning in social and ecological context the SES approach holds that social and ecological systems are linked through feedback mechanisms and that both display resilience and complexity.” (http://en.wikipedia.org/wiki/Socio-ecological_system)

- “Linked systems of people and nature...by "social-ecological system" we mean a multi-scale pattern of resource use around which humans have organized themselves in a particular social structure (distribution of people, resource management, consumption patterns, and associated norms and rules).”

(http://www.resalliance.org/index.php/key_concepts)

<http://www.stockholmresilience.org/>

SUSTAINABLE FOOD: Four principles are recognized as elements of sustainability in food production and consumption: 1.) Locally grown; 2.) Organically grown; 3.) Humanely raised (animals); 4.) Fair Trade. It is possible that there may be conflicts between them, such as the question: is it better to buy food produced by a local family farmer but that is not organic, or organic food that is grown far away.

Related terms: sustainable agriculture; community sustained agriculture; agroecology; slow food; permaculture; organic farming; sustainable forestry & forest stewardship

SUSTAINABLE DEVELOPMENT: Sustainable development has been defined in many ways, but the most frequently quoted definition is from *Our Common Future*, also known as the Brundtland Report: “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: the concept of needs, in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.” All definitions of sustainable development require that we see the world as a system—a system that connects space; and a system that connects time. In application, the term is sometimes controversial, as critics have charged that it has paved the way for business as usual development practices.

SYSTEMS THINKING: Systems thinking utilizes habits, tools and concepts to develop an understanding of the interdependent structures of dynamic systems. When individuals have a better understanding of systems, they are better able to identify the leverage points that lead to desired outcomes. In nature, systems thinking examples include ecosystems in which various elements such as air, water, movement, plants, and animals work together to survive or perish. In organizations, systems consist of people, structures, and processes that work together to make an organization “healthy” or “unhealthy.”

TRIPLE BOTTOM LINE: The phrase “the triple bottom line” was first coined in 1994 by John Elkington, who argued that companies should be preparing three different (and quite separate) bottom lines. One is the traditional measure of corporate profit—the “bottom line” of the profit and loss account. The second is the bottom line of a company's “people account”—a measure in some shape or form of how socially responsible an organization has been throughout its operations. The third is the bottom line of the company's “planet” account—a measure of how environmentally responsible it has been. The triple bottom line (TBL) thus consists of three Ps: profit, people and planet. It aims to measure the financial, social and environmental performance of the corporation over a period of time. Only a company that produces a TBL is taking account of the full cost involved in doing business.

<http://www.economist.com/node/14301663>