LANE COMMUNITY COLLEGE
INTRODUCTION TO SUSTAINABILITY

SUSTAINABILITY TERMS

This list of terms was first created by the Intro to Sustainability class of winter 2008 and updated by subsequent classes. It is a dynamic "living" document that is used for discussion and deepening our understanding of the words that are most often used in this field. It is and remains the work of students.

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Alternative Transportation

Transportation that does not involve a gasoline automobile with solely a single passenger. Options include, but are not limited to; biking, car/van pooling (although this is still car use), public transit, skate-boarding, using a Segway and walking. Facilitation may include a lifestyle change, such as moving closer (within a few miles) to a workplace or city center.

Global Stewards, *Sustainable Solutions for Getting Around Town: Alternative Transportation and Improving Fuel Efficiency*. Retrieved 5/11/08 from:
http://www.globalstewards.org/town.htm

Aquaculture

"Aquaculture is the farming of freshwater and saltwater organisms... also known as aquafarming, is the cultivation of aquatic populations under controlled conditions... Particular kinds of aquaculture include algaculture (the production of kelp/seaweed and other algae), fish farming, shrimp farming, oyster farming, and the growing of cultured pearls... Fish farming offers an alternative solution to the increasing market demand for fish and fish protein... Fish species raised by fish farms include salmon, catfish, tilapia, cod, carp, trout and others."

*Student notes that aquaculture is controversial and requires critical thinking and research surrounding the subject.

http://en.wikipedia.org/wiki/Aquaculture
http://en.wikipedia.org/wiki/Fish_farming

interesting link
http://gliving.tv/news/fish-farming-a-pound-of-flesh/

this is a link that has a pdf format of a book that has all you would ever want to know about aquaculture
http://spice.stanford.edu/catalog/introduction_to_aquaculture_the_pros_and_cons_of_fish_production/

Biological Diversity or (Biodiversity)

Can be used to measure number of diverse species and relationships in a given habitat. Everything in the world is interdependent. Without preserving the proper levels of biodiversity in a given habitat it will not be healthy and will slowly disintegrate.

Wilson, E. O. (1998). Biological Diversity Life in the Balance.The Columbia Encyclopedia (vol. 6 pp. 312) NV:Lernout & Hauspie Speech Products.

Carbon sequestration

Carbon dioxide (CO2), a principal greenhouse gas, is emitted when fossil fuels are burned, contributing to global climate change. "Atmospheric levels of CO2 have risen from preindustrial levels of 280 parts per million (ppm) to present levels of 375 ppm. Evidence suggests this observed rise in atmospheric CO2 levels is due primarily to expanding use of fossil fuels for energy" (p. 1). Storage of CO2 reduces or slows down the atmospheric concentration of carbon dioxide. This process is known as carbon sequestration. By storing CO2, carbon sequestration may help slow climate change. To sequester CO2, carbon sinks are used. A carbon sink stores the CO2 for a long time. Carbon sinks can be forests, oceans, newly planted trees, biomass, underground geologic formations or other methods.

U.S. Department of Energy, Office of Science. (N/d). *Carbon sequestration*. Retrieved May 22, 2008 from: http://cdiac2.esd.ornl.gov/

Community

"Gemeinschaft" A German translation of community meaning an association in which individuals are oriented to the large association as much if not more than to their own self interest to benefit a group.

Deflem, Mathieu. (2001). "Ferdinand Tönnies (1855-1936)." In the *Routledge Encyclopedia of Philosophy*, edited by Edward Craig. London: Routledge

Community Capital

A broad term used to sum up three parts. Social/human, natural, and built capital make up the whole of community capital.

Hart, Maureen. (1998-2006) *Key Term: Community Capital*. Hartford, CT. Retrieved May 6th 2008

Kerri Sullivan
Intro to Sustainability
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Carrying capacity

Ecological carrying capacity, is the maximum population of a given species that can be supported indefinitely in a defined habitat without permanently impairing the productivity of that environment. This includes all plant matter, oxygen, oil, water, etc.

R. Costanza, (1990). *Ecological economics: The science and management of sustainability*, pp. 47-57. New York; Columbia University Press

Collaboration

"New forms of mass collaboration are changing how goods and services are invented, produced, marketed, and distributed on a global basis." "My Space, You Tube, Linux, and Wikipedia today exemplars of mass collaboration are just the beginning; a few familiar characters in the opening pages of the first chapter in a long running of saga that will change many aspects of how the economy operates." "What's the first thing that comes to mind when you hear the word collaboration? If you're like most people, you conjure up images of people working together happily and productively. In everyday life, we collaborate with fellow parents at PTA meetings, with other students on a class project, or with neighbors to protect and enhance our communities. In business we collaborate with coworkers at the office, with partners in a supply chain, and within teams that traverse departmental and organizational silos. The new promise of collaboration is that with peer production we will harness human skill, ingenuity, and intelligence more efficiently and effectively than anything we have witnessed previously."

Author: Don Tapscott
Wikinomics How Mass Collaboration Changes Everything
Copyright Don Tapscott and Anthony D. Williams, 2006
First Published in 2006 by Portfolio a member of Penguin Group Inc.
80 Strand, London WC2R ORL, England

Conservation

The protection or wise use of natural resources that ensures their continuing availability to future generations; the intelligent use of natural resources for long-term benefits.

www.epa.gov/epaoswer/education/quest/gloss1a.htm

<http://www.google.com/url?sa=X&start=2&oi=define&q=http://www.epa.gov/epaoswer/education/quest/gloss1a.htm&usg=AFQjCNF8xI1l4ACbStVVcfbko47dKF848A>

Corporate social responsibility

(CSR, also called corporate responsibility, corporate citizenship, and responsible business) “is a concept whereby originations consider the interests of society by taking responsibility for the impact of their activities on customers, suppliers, employees, shareholders, communities and other stakeholders, as well as the environment.”

Edited and writhen by Wayne Visser, Dirk Matten, Manfred Pohl, Nick Tolhurst(2007):
The A to Z of corporate social responsibility: a complete reference guide to concepts, codes, and organizations; published by library of congress catalog

Cradle-to-Cradle
A more sustainable way of manufacturing that replaces the take-make-waste business model with the borrow-use-return approach. Developed in McDonough and Braungart’s book of the same name, cradle-to-cradle manufacturing looks to shift from the current cradle-to-grave mode back to a process not so dissimilar to Nature’s in which materials are never ‘waste’ but instead fodder for a new revolution in a cycle.

McDonough, W. &
Braungart, M. (2002). Cradle to Cradle.
New York:
North Point Press.

Democratization of Sustainability

In a democracy, people have both a right and a responsibility to participate in the political process. Extending this concept to the practice of sustainability, public policy should be put in place that recognizes people's right to live sustainably. This means that sustainable lifestyle choices would become more accessible — and more affordable — than unsustainable ones. People should not be financially penalized for living sustainably.

http://www.proutinstitute.org/pdfs/Democratization_of_Sustainability.pdf

Deregulation

Lifting of government controls over an industry.

countrystudies.us/united-states/economy-12.htm

<http://www.google.com/url?sa=X&start=0&oi=define&q=http://countrystudies.us/united-states/economy-12.htm&usg=AFQjCNEqZsT3L-1lGQKZqDB5p6EvQ6kRkg>

Earth Charter

The Earth Charter is essentially a global mission statement for creating a participatory sustainable future. The Earth Charter encompasses values and principles such as; respecting the community of life, creating and maintaining ecological integrity, promoting economic and social justice, and upholding the doctrines of peace and non-violence. The Earth Charter evolved from

a 1997 United Nations Commission which foresaw the need for a comprehensive global charter on sustainable development.

Earth Charter Australia. (2007). The Earth Charter Principles. *Social Alternatives*, 26, (3), 38-40, Queensland, Australia: Griffith University Nathan.

Eco Literacy

"If literacy is driven by the search for knowledge, ecological literacy is driven by the sense of wonder, the sheer delight in being alive in a beautiful, mysterious, bountiful world". "In order to become knowledgeable it the environmental movement you will need a background in the basic issues". "All education is environmental education". I like the fact that it is so easy to find eco literacy topics you can check out, such as "State of the World" and "Earth First" . That is not to say that you can't learn a lot from just being out in nature and understanding your place in it.

EcoLogical Literacy, Education and the Transition of Postmodern World by David W. Orr. Embracing the Earth, by D. Mark Harris.

Ecological Design

The branch of design seeking to marry ecological self-sustaining outcomes with the design and production of everything from cities to toothbrushes. Ecological design includes integration of the closed loop system - borrow, use, return. Foremost are issues of energy efficiency, (and use of renewable energy), utilizing local, low impact materials, minimizing environmental impact, and uniting people with the natural environment. Sometimes referred to as eco-design.

Van der Ryn, S. & Cown, S. (1995). *Ecological Design.* Washington: Island Press.

Eco-effectiveness
"The central strategy in the cradle-to-cradle development method and seeks to create industrial systems that emulate healthy natural systems. The central principle of eco-effectiveness is that "waste equals food." The concept was developed in response to some of the perceived limitations of eco-efficiency which critics claim only slow down the rate of environmental depletion and don't reverse the production of unused or non-recycled waste".

http://www.sustainabilitydictionary.com/e/ecoeffectiveness.php

Eco Footprint
Refers to an assessment tool for evaluating long-term imprints made on a land and water area through its resource consumption, plus the assessment of whether or not the land can sustain the demand for those resources and all eliminated waste products. An eco footprint indicates that the

earth has to be allotted time to renew and replenish its resources in order to be sustainable and continue to support those living off that land for not only now but ideally well into the future. (2006). Global footprint network. Advancing the science of sustainability. Ecological footprint: overview. <http://www.footprintnetwork.org/gfn_sub.php?content=footprint_overview> (2008, May 11).

Ecological/Environmental Economics

A field of economics exploring the relationship between human economies and the effect on the ecosystem/biosphere and depletion of natural capital. Seeks to examine the true cost of our current market economy - by reviewing the long-term effects of energy sources, services, or products (for example, exploring the hidden costs of imported, lower-cost goods which often bring about devastating environmental decline and negligent labor policies in the countries of origin). Emphasizes change by investing in local, ecologically-aware companies (who may now or in the future use alternative energy sources to create their products/services) and paying a living wage to workers. The workers are then encouraged to buy locally, creating a model of an ecologically responsible and sustainable local economy.

Brown, L. R. (2001). *Eco-Economy: Building an Economy for the Earth.* New York: W. W. Norton & Company.

Embodied Energy
Refers to the quantity of energy required to acquire raw material, manufacture, and supply to the point of use, a product, material or service.

http://en.wikipedia.org/wiki/Embodied_energy

Equitable distribution of resources

Is a concept that alleviates the evenhanded dispersal of resources to people in any scale of region. The just allocation of wealth within a country, a society, the world, or between classes so as not to deplete resources from one area and not another; a shared responsibility and conscious effort to evenly and equally distribute the resources of an area or place, sustainably for a maximum benefit for all affected by the distribution.

Klare, M. (2002). The new landscape of global conflict. Resource wars. NY: Holt Paperbacks (2008, May 11).

Fair Trade

Is the promotion of sustainability, through an organized social movement that focuses on world market exchange, in order to assure that the equal and full value of goods are traded between countries. Fair trade assumes to be an attempt to alleviate global poverty through fair payment of exported goods. Fair trade is a sustainable approach to importing and exporting goods, which implements environmental and social standards into its marketing practices with in developed and developing countries.

Charlton, A. (2005). Fair trade for all. (p. 1) Oxford, NY: Oxford University Press (2008, May9.)

Food Security

"With food being shipped half way around the world to consumers when the oil begins to run out food is going to be harder to produce, unless we can build an infrastructure to help support the transition". With water disappearing quicker and quicker, growing enough food to support the growing population is going to require some new thinking. This is what worries me the most with so many starving people and so much top soil being ruined every year, how are we going to feed the world? This I believe is a critical challenge to our generation.

Earth Day.com; Just Ecological Integrity, The Ethics of Maintaining Planetary Life, by Peter Miller and Laura Westra.

Full-Cost Accounting

Often used in solid waste management, full-cost accounting is an analysis that identifies and includes the true costs of an operation giving businesses and the public the bigger picture in relation to economical, social and ecological impacts. "FCA goes beyond the limits of cash flow accounting, which is often used by local governments, by considering direct and indirect (overhead) operating costs of MSW services as well as upfront (past) and back-end (future) expenses."

Environmental Protection Agency. (2007). Full Cost Accounting. Retrieved May 14, 2008 from: http://www.epa.gov/epaoswer/non-hw/muncpl/fullcost/whatis.htm#definition

Global Climate Change

"Any long term significant change in the average climate that any region experiences" due to anthropological causes, specifically burning of fossil fuels. "An acknowledged problem since the 1970 its becoming a emergency if we want to save our planet, pollutions the main cause" and through eco responsibility we can save every thing. It sucks to realize that this has been a known problem for so long and so little was done to educate the masses or force more stringent laws to protect the environment.

Just Ecological Integrity, The Ethics of Maintaining Planetary Life, by Peter Miller and Laura Westra. Wikipedia.com.

Green Building

"Buildings are not only part of our habitat. Buildings are ultimately linked to the local, regional, and global environments". "It is the responsibility of our generation to adapt our buildings to ensure that we can stabilize climate change, live without fossil fuels, and that we do not

unsustainably pollute the environment". "Only by doing so can we ensure the survival of our own habitat". USGBC is an excellent website to learn about LEED, education, resources, and news or events. I really like how these quotes discuss our responsibility to change the things and how our habitat is linked to every things habitat.

EcoHouse 2, Sue Roaf. USGBC.com.

Greenhouse Gases

"In deed, many believe that the projected climate changes relate to the greenhouse effect stem solely from the buildup of CO2 caused by our burning of fossil fuels and from our destruction of the tropical rainforest's. As we shall learn, CO2 has shown enormous natural variations over long time scales, its atmospheric concentration is increased exponentially at the present time, and CO2 contributes only about half of the anthropogenic greenhouse effect. Long before the evolution of humans, quantities of CO2 were pumped into the atmosphere from erupting volcanoes and the out gassing from geysers along thermally active geological zones. Luckily the planetary system had a number of ways for CO2 to be withdrawn from the atmosphere thereby stabilizing and then reducing the atmospheric CO2 levels. The six main greenhouse gases recognized by the Kyoto Protocol are:
• Carbon dioxide (CO2);
• Methane (CH4);
• Nitrous oxide (N2O);
• Hydrofluorocarbons (HFCs);
• Perfluorocarbons (PFCs); and
• Sulphur hexafluoride (SF6)

Author: Robert C. Balling, Jr. San Francisco CA. The Heated Debate Copyright 1992 Pacific research Institute

Greenwashing

Is the use of pro environmental views to come across as environmentally conscious and involved; the falsification of environmental claims and efforts in order to reap prophet due to the demand of environmental practices. The term greenwashing refers to the fabrications of environmental practices, in order to benefit an individual's cause and not necessarily to support and promote the environments needs.

(2007). How stuff works. How greenwashing works.
<http://www.howstuffworks.com/greenwashing.htm>(2008, May 6).

High Density Development

This is the idea of building up instead of out. It is one step in creating a sustainable community while working with a large population contributes to a greater range and choice of housing opportunities and afford ability available to all ages and socio-economic groups. It is a very

effective way to create positive community and utilize a cities infrastructure. High density development reduces urban sprawl and leaves room for more agricultural areas.

Official community plan 1979, May 14 2008, The corporation of the town ship of Langley official web site. May 14 Lynch, T. (1996). DS9 trials and tribble-ations review. Retrieved October 8, 1997, from Psi Phi: Bradley's Science Fiction Club Web site: http://www.bradley.edu/campusorg/psiphi/DS9/ep/ 503r.html www.tol.bc.ca/files/web_files/planning/Bylaws_Policies/HighDensity_Bylaw4 553.pdf

Industrial Ecology

(IE) is an interdisciplinary field that focuses on the sustainable combination of environment, economy and technology."

Key Enviromental Problems

Include the following: pollution of all types, global warming, overpopulation, natural resource depletion, overfishing and threatened fisheries, deforestation, mining, urban sprawl, e-waste, invasive species, disappearing species, hazardous wastes, landfills, superfund sites, endangered species, water shortages, pesticides, genetically modified foods, nanotechnology..

Evans, K. (2006) *The Environment: A Revolution in attitudes*. Farmington Hills, MI. Thompson Gale

Local Economy

Is about producing and obtaining the majority of our goods and services from within a one hundred mile radius rather than relying on those things from hundreds or thousands of miles away. It includes food and energy, clothing and shelter that are produced sustainably using materials and natural resources that are mostly obtained locally. It also speaks of being able to provide for living wages, raising families and being accountable to others and the environment so that future generations will also be able to sustain themselves. It does not necessarily exclude outside imports or exports but emphasizes less dependence on them and much more dependence on community.

Shuman, M. 2000. *Going Local: creating self-reliant communities in a global age*. New York. Routeledge

Long-term viability of society

To control a sequence of events and resources towards the successful achievement of a predetermined objective, a balance between finance and environment to achieve long-term societal benefit.

Tim Brooking “Anglia Polytechnic University”(01 January 1996) *Establishing project viability through environmental impact assessment management. Article*

Natural Capital

“The stocks and flows of natural capital are the very foundation of life. Although some people believe that modern technology can now replicate some of the goods and services provided by nature, ecological systems are far too complicated for humans to ever fully understand. Our technologies will never be able to replace the environmental resources and processes provided by nature. In reality our economy and communities are completely dependant on natural capital."

Author: Bob Doppelt
With a foreword by William McDonough
2003 published by Greenleaf Publishing Limited
Aizlewood's Mill
Nursery Street
Sheffield S3 8GG
UK

Organic Food/Farming

The practice of farming without the use of synthetic pesticides or fertilizers. It is intended to reduce the detrimental effects of agriculture on soils, animals, food, and the environment.

Magdoff, F, & Weil, Ray R. (Eds.). (2004). *Soil Organic Matter in Sustainable Agriculture.* New York. CRC Press LLC

Permaculture

Permaculture derives from **perma**nent agri**culture** and from **perma**nent **culture.** It is a term that was coined by David Holmgren and Bill Mollison in the 1970’s. Permaculture typically is derived from grassroots efforts of individuals who recognized that the current environmental crisis will be far more extensive and problematic for society and our planet than what we currently see around us. Permaculture’s aim is to get people to act in sustainable, local ways to keep from harming the environment while considering the effect we have on our children. It is a movement that is going around the world and spreading up from the bottom. Permaculture encompasses not just organic agriculture, but using appropriate technologies, and communities to implement local changes that are less harmful to the environment.

Holmgren, D .(2002) *Permaculture: principles and pathways beyond sustainability.* Hepburn, Victoria, Australia. Holmgren Design Services.

Pluralism

"A state of society in which members of diverse ethnic, racial, religious, or social groups maintain an autonomous participation in and development of their traditional culture or special interest within the confines of a common civilization." This term is also used in reference to the state of one's perception.

pluralism. (2003). Merriam-Webster colligate Dictionary library of congress cataglogue. Eleventh edition,Copyright@2003 Meridith –Webster inc.

Polluter pays principal

"The polluter-pays principle is the principle according to which the polluter should bear the cost of measures to reduce pollution according to the extent of either the damage done to society or the exceeding of an acceptable level (standard) of pollution."

Glossary of Environment Statistics (1997), Studies in Methods, Series F, No. 67, United Nations, New York, .

Renewable Energy

Energy resources such as wind power or solar energy that can keep producing indefinitely without being depleted.

www.ruralresidentialliving.com.au/introduction/glossary.html

<http://www.google.com/url?sa=X&start=1&oi=define&q=http://www.ruralresidentialliving.com.au/introduction/glossary.html&usg=AFQjCNEl1Y-qT7vmH7rAiQRQd4OMNfF_rQ>

Relocalization

"[t]he main goals of Relocalization are to increase community energy security, to strengthen local economies, and to dramatically improve environmental conditions and social equity." It is an effort to return to regional independence, diminish reliance on distant sources, increase local security (energy, foods, and goods), decrease the ecological impacts of outsourcing, and build a better relationship and understanding between humans, their community and the ecosystem of which they are a part.

The Relocalization Network. (2008). What is Relocalization? Retrieved May 14, 2008 from: http://www.relocalize.net/about/relocalization

Social Capital

Refers to the collective value of all "social networks" and the inclinations that arise from these networks to do help one another.

Ostrom, Elinor, & Ahn, T.K. (Eds.). (2003). *Foundations of Social Capital.* Cheltenham, U.K: Edward Elgar Publishing

Sustainability Indicators

"The previously mentioned sustainability scorecard developed by Norm Thompson outfitters is a unique performance evaluation and incentive system aimed at rewarding buyers who purchase sustainable products. The scorecard results from discussions with buyers regarding the best way to encourage them to purchase sustainable products. The scorecard is a user-friendly guide intended to reduce the impacts of each product the company buys. A +3 ranking means that the product meets all the criteria for sustainability, while a -3 means that it fails to meet the criteria. Buyers who purchase higher-rated materials will get higher ratings themselves, with the goal being to improve the scores yearly. The company will slowly increase its purchases from buyers who provide products with higher scores and decrease its purchases from those with lower scores." This term is also used to measure in other ways the sustainability of any one thing.

Author: Bob Doppelt
With a foreword by William McDonough
2003 published by Greenleaf Publishing Limited
Aizlewood's Mill Nursery Street
Sheffield S3 8GG
UK

Z.E.R.I.

The Zero Emissions Research Initiative, established in 1994 by current director Gunter Pauli, is a group dedicated to the eradication of the concept of waste. The initiative engages in small-scale projects using ideas such as closed-looped cycles, cradle-to-cradle production and zero waste. These projects, ranging from recycling waste from breweries in “Namibia, Sweden, Canada and Japan” to reforestation in Colombia, are intended to serve as examples for others to reference. “The common vision… is to view waste as resource and seek solutions using nature's design principles as inspiration.”

Pauli, G. (1998). Upsizing. Sheffield, UK:
Greenleaf Publishing Ltd.

Other Prospective Terms Suggested by Students and Instructor:

Tragedy of the Commons
Systemic Change
Alternative Energy
Planned Obsolescence
Closed Systems

Tax Incentives
Deposit Incentives
HOPS
Throw Away Economy
Social Ecology
Deep Ecology
Neo-Tribalism
Resource Availability
Net-Gain
Synergy – Collaboration of systems
Hydrology – The study of water
CSA – Community Supported Agriculture, upfront investment in a share of produce. This provides capital for farmer and spreads out losses
Fractal Dynamics – Applying patterns of fractals to analyze natural (built) systems to create increased efficiency, longevity and harmony in systems
Environmental Externalities
Externalized Cost