SUSTAINABLE SYSTEMS

What Is Meant by "Sustainability"?

The notion of sustainability is, in essence, living with minimal impact on the environment and natural resources, with a view to maintaining environmental and natural systems for future use and enjoyment. Human activities have resulted in long-lasting damage to air, water and land environments, depletion in natural resources and loss of ecological biodiversity.[1] With ever-increasing global population size, urbanization and consumer demands for both basic needs and modern conveniences, there is an urgent need to reconsider the ways in which human needs are met**.** A commonly quoted definition, based on the 1987 Brundtland Report arising from United Nations commission, describes sustainability as "meeting the needs of the present without compromising the ability of future generations to meet their own needs."[2]

Sustainability in Practice

In practice, sustainability involves finding ways of minimizing pollution, waste production and chemical use, as well as maximizing the efficiency of resource use and reducing dependence on finite resources. There are many ways in which sustainable methods and systems are being implemented in all aspects of our lives.

Green Buildings

Green building is the practice of creating and producing buildings which are better for the health, environment and the economy. In this context, the design of green buildings considers the living and/or working indoor environment of people, impacts on the environment and also reduction of resources and energy costs.[3] Elements of green building methods include:[3]

- Location near existing facilities
- Reducing resource use by using recycled and reused materials for the building
- Improving indoor air quality by reducing the use of odorous paints and chemicals and maximizing natural ventilation
- Reducing energy usage by maximizing natural light and using solar energy
- Including green or vegetated roofs, which filter storm water runoff and provide additional insulation

www.sconnect.org/greenbuilding
www.ecy.wa.gov/programs/swfa/greenbuilding/

Sustainable Food and Agriculture

An important element of bringing food to our tables is the methods by which food is grown, harvested and transported. Sustainable food production systems take into account not only the environmental effects of farming, but also the welfare of animals. Some initiatives for sustainable food production are listed below:[4]

- Minimizing the use of pesticides and chemicals
- Feeding animals with natural foods
- Conserving land and water by improving plant crop growth and breeding techniques
- Reducing the need for long-distance transport and supporting local economies by growing food in local nearby communities

Developed by Michelle Chow, PhD, at the Seattle Biotech Legacy Foundation in conjunction with the Institute for Children's Environmental Health

- Reducing and eliminating overfishing practices to maintain sustainable fish stocks in oceans and fisheries

www.sustainabletable.org/
www.mbayaq.org/cr/seafoodwatch.asp

Energy Fuels

A major contributor to air pollution is the combustion of fossil fuels such as coal and gasoline to meet energy needs. Several technologies and strategies continue to be developed to reduce the use of nonrenewable, polluting fuels, for example:

- Investment in renewable sources for electricity production. Examples of such sources include wind, biofuels, hydroelectricity, solar energy and organic biomass.
- Development of bioethanol and biodiesel as alternative fuels for vehicles
- Advancing transport technologies such as hybrid vehicles to reduce gasoline usage
- Reduction of car usage by investments in teleconferencing resources, encouraging car-pooling, improving public transport and building housing near public facilities

www.nrel.gov/about.html
www.sustainablelivingcenter.com/index.htm

Everyday Sustainability

In addition to advances in science and technology, individual members of the general community can also put into practice everyday habits that will help to reduce pollution and resource use. Such practices include:

- Reducing waste by recycling paper, plastic and glass, and composting food scraps
- Reducing car usage by carpooling and using alternative means whenever possible
- Exercising green consumer power: supporting manufacturers and service providers that produce low-pollutant, low-chemical products and/or use sustainable methods
- Purchasing organic and locally produced food

www.greenerchoices.org/

Further Resources and Information

- Washington State Department of Ecology Sustainability: www.ecy.wa.gov/sustainability/
- Washington State website for sustainable business practices: www.ofm.wa.gov/sustainability/index.htm
- Sustain Lane: www.sustainlane.com/
- One Planet Living: www.oneplanetliving.org/
- Sustainable Seattle: www.sustainableseattle.org/

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[1] Kates RW, Parris TM. Long-term trends and a sustainability transition. *Proceedings of the National Academy of Sciences of the United States of America*. 2003, July 8; 100(14): 8062-8067; Hanski I. Landscape fragmentation, biodiversity loss and the societal response. *EMBO Reports*. 2005; 6:388-392.

[2] UN World Commission on Environment and Development. Report of the World Commission on Environment and Development. 1987.

[3] Washington State Department of Ecology. Green Building. www.ecy.wa.gov/programs/swfa/greenbuilding/, viewed March 12, 2007.

[4] Sustainable Table. www.sustainabletable.org/, viewed March 12, 2007; Cash DW, Clark WC, Alcock B, Dickson NM, Eckley N, Guston DH, Jäger J, Mitchell RB. Knowledge systems for sustainable development. *Proceedings of the National Academy of Sciences of the United State of America*. 2003, July 8; 100:8086-8091.