

The Natural Step

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The Natural Step is a nonprofit organization founded in Sweden in 1989 by Swedish scientist, Karl-Henrik Robèrt. The Natural Step has pioneered a "Backcasting from Principles" approach to effectively advance society towards sustainability. The Natural Step has developed through a consensus process a systematic principle definition of sustainability.



Following publication of the Brundtland Report in 1987, Robèrt developed *The Natural Step Framework*, setting out the *system conditions* for the sustainability of planet Earth. Robèrt's four system conditions are derived from the laws of thermodynamics.

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Towards sustainability

Sustainability essentially means preserving life on Earth, including human civilization. Meeting human needs is thus vital in creating a sustainable society. It follows that one of The Natural Step's principles of sustainability is to avoid subjecting people to conditions which undermine their capacity to meet their needs.

The other three principles focus on interactions between humans and the planet. They are based in science and supported by the analysis that ecosystem functions and processes are altered in the following ways:

- Society mines and disperses materials faster than they are returned to the Earth's crust (examples include oil, coal and metals such as mercury and lead).
- Society produces substances faster than they can be broken down by natural processes—if they can be broken down at all (examples of such substances include dioxins, DDT and PCBs).

- Society depletes or degrades resources faster than they are regenerated (for example, over-harvesting of trees or fish), or by other forms of ecosystem manipulation (for example, paving over fertile land or causing soil erosion).

The Natural Step Framework

Overview of the science

The First and Second Laws of Thermodynamics set limiting conditions for life on earth: The First Law says that energy is conserved—nothing disappears. Only its form may change. Another way of stating this is: "Energy cannot be created, or destroyed, only modified in form." The implications of the Second Law are that matter and energy tend to disperse over time. This is referred to as "entropy." Putting the two laws together and applying them to our planetary system, the following facts become apparent:

1. All the matter that will ever exist on earth is here now (First Law).
2. Disorder increases in all closed systems and the Earth is a closed system with respect to matter (Second Law). However it is an open system with respect to energy since it receives energy from the sun.
3. Sunlight is responsible for almost all increases in net material quality on the planet through photosynthesis and solar heating effects. Chloroplasts in plant cells take energy from sunlight for plant growth. Plants, in turn, provide energy for other forms of life, such as animals. Evaporation of water from the oceans by solar heating produces most of the earth's fresh water. This flow of energy from the sun creates structure and order from the disorder.

In 1989, Robèrt wrote a paper describing the system conditions for sustainability, given the laws of thermodynamics. He sent it to 50 scientists. He asked that they tell him what was wrong with his paper. On version twenty-two Robèrt had consensus on what was to become *The Natural Step*.

System conditions of sustainability

The Natural Step Framework's definition of sustainability includes four system conditions (scientific principles) that lead to a sustainable society. These conditions, that must be met in order to have a sustainable society, are as follows:

In a sustainable society, nature is not subject to systematically increasing:

1. concentrations of substances extracted from the Earth's crust;

2. concentrations of substances produced by society;
3. degradation by physical means
and, in that society. . .
4. people are not subject to conditions that systematically undermine their capacity to meet their needs.

On making change happen

In an article in *In Context* in 1991, Robèrt described how *The Natural Step Framework* would create change:

I don't believe that the solutions in society will come from the left or the right or the north or the south. They will come from islands within those organizations; islands of people with integrity who want to do something...

This is what a network should do - identify the people who would like to do something good. And they are everywhere. This is how the change will appear - you won't notice the difference. It won't be anyone winning over anyone. It will just spread. One day you don't need any more signs saying "Don't spit on the floor," or "Don't put substances in the lake which can't be processed." It will be so natural. It will be something that the intelligent people do, and nobody will say that it was due to The Natural Step or your magazine. It will just appear.

—Robèrt Karl-Henrik, 1991. "That Was When I Became A Slave." Excerpts from an interview by Robert Gilman and Nikolaus Wyss *In Context*, #28 [1]

Communities such as Whistler, British Columbia, Canada and corporations such as Interface and IKEA have adopted the Natural Step and become more sustainable (hence more profitable) as a result. Both these companies have completely re-thought their business and have examined and changed all their processes including purchase of materials, manufacturing, transportation, construction of facilities, maintenance and waste management. One advantage of adopting the Natural Step is that it provides principles that are grounded in science and thus measurable.

References

- James, S. and T. Lahti, (2004). *The Natural Step for Communities: How Cities and Towns can Change to Sustainable Practices*. Gabriola Island, BC: New Society Publishers
- Natrass, B. and M. Altomare. (2002). *Dancing with the Tiger: Learning Sustainability Step by Natural Step*. Gabriola Island, BC: New Society Publishers.
- Natrass, B. and M. Altomare (1999). *The Natural Step for Business:*

Wealth, Ecology and the Evolutionary Corporation. Gabriola Island, BC: New Society Publishers.

- Robèrt, Karl-Henrik. (2002). *The Natural Step Story: Seeding a Quiet Revolution*. Gabriola Island, BC: New Society Publishers.
- Waage, S. (Ed.) 2003. *Ants, Galileo, and Gandhi: Designing the Future of Business Through Nature, Genius, and Compassion*. Sheffield, UK: Greenleaf Press. Greenleaf Publishing.

See also

- Eco-municipality
- Simple living
- Sustainable design
- Strategic Sustainable Development

External links

- Educating A Nation: The Natural Step
- *The Natural Step*
- Master's programme for Strategic Leadership Towards Sustainability

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