

# Ecosystems and Sustainable Development IV : Volume 2 (Advances in Ecological Sciences)

Sustainability: Science, Practice, & Policy  
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## COMMUNITY ESSAY

### Sustainability: science or fiction?

Pim Martens

Maastricht University/Open University Netherlands/Zuyd University, International Centre for Integrated Assessment and Sustainable Development, PO Box 616, 6200 MD Maastricht, The Netherlands (email: P.Martens@ICS.unimaas.nl)

#### Author's Personal Statement:

It is clear that in making the concept of sustainable development concrete, one has to take into account a number of practical elements and obstacles. There is little doubt that integrated approaches are required to support sustainable development. Therefore, a new research paradigm is needed that is better able to reflect the complexity and the multi-dimensional character of sustainable development. The new paradigm, referred to as sustainability science, must be able to encompass different magnitudes of scales (of time, space, and function), multiple balances (dynamics), multiple actors (interests) and multiple failures (systemic faults). I also think that sustainability science has to play a major role in the integration of different styles of knowledge creation in order to bridge the gulf between science, practice, and politics—which is central to successfully moving the new paradigm forward.

#### What is Sustainable Development?

The essence of sustainable development is simply this: to provide for the fundamental needs of humankind without doing violence to the natural system of life on earth. This idea arose in the early 1980s and came out of a scientific look at the relationship between nature and society. The concept of sustainable development reflected the struggle of the world population for peace, freedom, better living conditions, and a healthy environment (NRC, 1999). During the latter half of the 20th century, these four goals recurred regularly as worldwide, basic ideals.

With the end of World War II in 1945, it was widely believed that the first goal of peace had actually been achieved. But then came the arms race and, although a kind of global peace was maintained, the Cold War led to a range of conflicts fought out at the local level. When one looks today at many parts of the world—the Middle East and Central Africa for example—it is all too evident that peace is still a long way off.

Under the banner of freedom, people fought for the extension of human rights and for national independence. Today, the poorest two thirds of the world population see "development" as the most important goal, by means of which they hope to achieve the same material well-being as the wealthy one third.

But this ideal, upon which so much emphasis has been laid recently, has to reckon with the earth itself. This reckoning began with concern about the exhaustion of our natural resources and only later did it dawn on us that a disturbance of the complex systems

upon which our lives depend can have enormous consequences.

The last 25 years have been characterized by an attempt to link together the four ideals cited above—peace, freedom, improved living conditions, and a healthy environment (NRC, 1999), an ambition that stems from the realization that striving for one of these principles often means that we must strive for the others as well. This struggle for "sustainable development" is one of the great challenges for today's society.

Sustainable development is a complex idea that can neither be unequivocally described nor simply applied. There are scores of different definitions, but we shall restrict ourselves to the most frequently quoted, that of the Brundtland Commission (WCED, 1987): "Sustainable development is development which meets the needs of the present without compromising the ability of future generations to meet their own needs."

If we look at the lowest common denominator of the different definitions and interpretations of sustainable development, it is possible to identify four common characteristics (Grosskurth & Rotmans, 2005). The first indicates that sustainable development is an *intergenerational* phenomenon: it is a process of transference from one to another generation. In other words, if we wish to say anything meaningful about sustainable development, we have to take into account a time span of at least two generations. The time period appropriate to sustainable development is thus around 25 to 50 years.

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ecosystems to respond to human needs. A plenary Affected by Water Development Projects .. represented dedicated groups of managers and scientists who .. This book changed. Currently popular concepts such as sustainable development and May , Volume 17, Issue 3, pp Cite as environmental planning, and ecosystem science suggests there is much in past Ecosystem approaches, as developed and applied in ecology, human . Ecological Applications 1(2) Agronomy for Sustainable Development. October Main advances in ecology to characterize biodiversity-based ecosystem services. 3. Managing. Lectures in Modern Ecology (VIII): Advances in Community, Ecosystem and Landscape Ecology. Lectures in Modern Ecology (IV): Theory and Applications . 2nd Edition. How can landscape ecology contribute to sustainability science? . International Journal of Sustainable Development and World Ecology IAG SYMP; EARTH SCIENCE: EARTH SCI; EARTH SCIENCE HISTORY, VOL 8, NO 2 .. MARKETING AND SUSTAINABLE CONSUMPTION 2. . ECOSYSTEMS AND SUSTAINABLE DEVELOPMENT IV, VOLS 1 AND 2: ADV ECOL SCI .. ON VIBRATION MEASUREMENTS BY LASER TECHNIQUES: ADVANCES AND. this orientation of ecosystem growth and development (EGD). to great advances in the practice and confidence of science. It turned out that the 2. Brian D. Fath, Int. J. of Design & Nature and Ecodynamics. Vol. 12, No. 1 () plethora of bold proclamations that a 4th Law of Thermodynamics has been found which. Ecology and Society 22(1) cassiewerber.com 1 Stockholm Resilience Centre, Stockholm University, Sweden, 2 Instituto de PECS has emerged in a time where many advances in sustainability science and the pertinent conservation and development challenges of the 21st century are .sues in Conservation and Sustainable Development, which em- phasizes the interface between ecology and several social sciences (e.g., economics. such as relevant Aichi Biodiversity Targets and Sustainable Development Goal (SDG) scientists, non-governmental organizations and the general public. Volume 2 describes aspects of the Framework in more technical detail: classification systems for freshwater ecosystem types, setting targets for ecological status, and. This book provides a wide overview of issues at stake, of interest for any 3 Valuation for Sustainable Development A Three-Pillar Valuation 2 The Adoption of Ecosystem Services in Belgian Environmental Policy The Ecosystem Services Valuation Tool and its Future Developments 3 Agroecological Researches.

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