

The Future of Sustainability

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Edited by

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 Springer

A C.I.P. Catalogue record for this book is available from the Library of Congress.

ISBN-10 1-4020-4734-7 (HB)
ISBN-13 978-1-4020-4734-3 (HB)
ISBN-10 1-4020-4908-0 (e-book)
ISBN-13 978-1-4020-4734-3 (e-book)

Published by Springer,
P.O. Box 17, 3300 AA Dordrecht, The Netherlands.

www.springer.com

Printed on acid-free paper

Cover Photo with Courtesy from NASA, Source: NASA Head quarters, Photo Department,
Washington DC, sts 111-321-024.jpg

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Printed in the Netherlands

This book is
dedicated to

Hans-Georg Raidl
Prof. Dr. Eckhardt Jungfer
Dr. Hans Kissling
Prof. Dr. Klaus Giessner

and

Prof. Dr. Willy A. Schmid

They all know why.

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Acknowledgements

The editor would like to thank

– Alexander Likhotal, President, Sabine Arrobbio and Marianne Berner from Green Cross International, Geneva, Switzerland, for permission to use substantial parts of the article “A New Glasnost for the Planet”, first published in *The Optimist Magazine*, Issue 1, April 2004 (www.optimistmag.org)

– David Satterthwaite from the Human Settlements Programme of the International Institute for Environment and Development (IIED), London, U.K. for granting permission to reprint the chapter “Sustainability is not enough” by Peter Marcuse, originally published in *Environment and Urbanization*, Vol. 10, No. 2, Oct 1998, pp. 103–111

– Lynne O’Hara from Chelsea Green Publishing Company, White River Junction, VT, USA, for permission to reprint the chapter “Tools for the Transition to Sustainability” from “Limits to Growth: The 30-Year Update”. Copyright © 2004 Dennis Meadows

– Alice Essenpreis from Springer Science and Business Media, Heidelberg, for granting permission to reprint the revised chapter “Reflections on Sustainability, Population Growth, and the Environment–2006” by Albert Bartlett, originally published in *Population & Environment*, Vol. 16, No. 1, September 1994, pp. 5–35

– Rachel Sykes and Rachel Warrington, International Society for Ecology and Culture, Dartington (UK), Markus Breuer and Karin Schmitt from the Novartis Foundation, Basle, for their fruitful collaboration

– Martina Koll-Schretzenmayr, Anita Schürch, Andreas Gähwiler, Oswald Roth, and especially Arley Kim from the Institute for Spatial and Landscape Planning at ETH Zurich for editorial help, layout and critical proofreading

and

– Prof. Dr. Willy A. Schmid, Head of the Institute for Spatial and Landscape Planning at ETH Zurich, for his encouragement and support over the years

*“Ce qui sauve, c’est de faire un pas. Encore un pas.
C’est toujours le même pas que l’on recommence ...”*

Antoine de Saint-Exupéry, Terre des Hommes

Rethinking Sustainability—Editor’s Introduction

MARCO KEINER

The Ambiguity of ‘Sustainability’

At the end of the last Millennium, when lofty visions were as ubiquitous as talk of what mankind has accomplished and in what direction it is heading, ‘sustainable development’ or ‘sustainability’ became the theoretical basis and an increasingly important societal norm for human development worldwide. For some, sustainability is “*the way to live in harmony with the environment.*” (Glasby 2002) The success of both terms—‘sustainability’ and ‘sustainable development’—stems from underlying reflections on existential problems of mankind: increasing concern over exploitation of natural resources and economic development at the expense of environmental quality (cf Ward and Dubos 1972).

Today, the objective of sustainable development is acclaimed by almost all international organizations, national governments, and also private enterprises. This general consensus seems mainly to rest upon the vague substance of the term ‘sustainability’ itself, which leaves much room for interpretation (Voss 1997). For the definition of ‘sustainable development’ we generally refer to the 1987 Brundtland Report of the World Commission on Environment and Development (WCED 1987):

Sustainable development
meets the needs of the
present generation without
compromising the ability
of future generations to
meet their needs

Gro H. Brundtland

Figure 1. Definition of 'Sustainable Development'
(Autograph of Gro Harlem Brundtland)

Since the release of the Brundtland Report, this definition has been subject to several modifications and reformulated according to different points of view. Apparently, sustainable development can be easily interpreted by various groups of society according to their different interests (cf Fritsch, Schmidheiny and Seifritz 1994).

As a result, the term 'sustainable development' becomes broadly acceptable on the one hand, but on the other hand it has little specificity and loses its integrity as a political concept. The question arises whether 'sustainable development' truly represents the contemporary 'general interest'. Can one concept really form the overall framework for all policies and human activities? Isn't it only a pleonasm and politically correct selling point, since every kind of development can be more or less considered or proclaimed to be 'sustainable'? (Brunel 2004).

Today—more than ever—disagreement exists as to the precise meaning of the term. At least, 'sustainability' is 'in'. For example, the WWW search engine Google listed on July 12, 2005 the enormous number of 19.6 million hits for this term. For 'sustainable development', in turn, 17.6 million entries were found. And that only in the English language, not to mention the wealth of information to be found under 'nachhaltige Entwicklung' (German), 'desarrollo sostenible' (Spanish), 'développement durable' (French), 'desenvolvimento sustentável' (Portuguese) to name just a few translations.

Already in 1996, there were three hundred documented definitions for 'sustainability' and 'sustainable development' (Dobson 1996). Most refer to the viability of natural resources and ecosystems over time and to the maintenance of human living standards and economic growth, but even

after working for two decades on coming to a common understanding of the term, its meaning remains unclear. To make matters worse, some claim that the likelihood of achieving a common understanding of 'sustainable development' is even more remote than ever (Jickling 2000).

The many definitions of 'sustainability', often general and vague, lead one to question how this norm can be of any practical value (Gremmen and Jacobs 1997). 'Sustainability' and 'sustainable development' are often misused terms; either attributed to lofty goals without a clear relationship to means or action or reduced to a catchword for business-as-usual. Today, private enterprises try to occupy the term 'sustainable development' because of its mainstream attractivity, posing an opportunity that shouldn't be missed. 'Sustainability' and 'sustainable development' are popularly used to describe a wide variety of activities which are generally ecologically laudable but which may not necessarily be sustainable in the long-term.

We should not delude ourselves into believing that we live in a sustainable world. Many ecological processes are not sustained: a broad range of species is threatened by extinction, whole ecosystems are at risk, and furthermore, climate change is becoming the most challenging threat to human life. The stability of the world as an ecosystem has been more disrupted by human activity in the last hundred years than in all of the centuries before (Gremmen and Jacobs 1997). Today, the term 'sustainable development' is not only ill defined but also misleading, because we actually live in a markedly unsustainable world, where reality is quite divorced from the vision of sustainable living, a condition that only promises to worsen in the future. There is, for example, no guarantee that our successors will survive to the year 3000 or even 2100 without some major environmental catastrophe obliterating them (Glasby 2002). By 2025 to 2030, the generation of 'baby boomers' will have retired. In the next decades, when our descendants will rule over the world, the pressure for change will unavoidably grow. And, as Jickling (2000) points out, tensions between competing interests and divergent value systems will also grow in parallel.

To survive seems to be the basic task for mankind, but going beyond sheer survivability, sustainability not only wants us to be able to survive in a hostile environment—destroyed by ourselves—but to improve living conditions for future generations (Serageldin 1996). At present, the debate on sustainable development is divided in two main opposing groups: those who argue that in order to stop self-destruction, a U-turn in human behavior and the way of our use of planet Earth needs to be implemented immediately (see, for example, Ehrlich and Ehrlich 1996); and those who believe that with new technological means human life and the condition of our planet will improve (cf Simon 1996). Perhaps, as is so often the case,

the truth lies somewhere in between the two poles. At least both camps agree that some kind of transition toward more sustainability is crucial to the future of mankind.

Glasby (2002) argues that only a massive decrease in world population and resource usage phased over a century or more would permit attaining a new equilibrium that is more appropriate to a long-term occupation of planet Earth. Yet a global population even of the current size cannot adopt European and American lifestyles without destroying the environmental systems of the planet. Thus, Hughes and Johnston (2005) state, “economic growth is now increasing the world’s environmental burdens much faster than population growth.”

The U.S. National Research Council (1999) defines the ‘sustainability transition’ as a process that is possible over the next two generations, in which a stabilizing global population meets its needs, reduces hunger and poverty, and maintains Earth’s life-support systems and living resources. Indeed, what is limited is the ability of deteriorating living systems to sustain a growing human population (Lovins and Lovins 2001) and also a better accessibility of the World’s poor to the property mechanisms that would allow them to produce and secure greater value. It is the lack of legal property or the fact that they have no property to lose, which explains why citizens in developing and former communist states cannot conclude contracts or get credit, insurance, or utilities services (De Soto 2001).

Today, we are living through a period of rapid change and deep disturbance, having little idea in which direction we are moving, no reliable roadmap to follow, little belief in progress, and much anxiety about the dangers that lie ahead (Cowley 2003). Or, as Hales and Prescott (2002) express it:

“Making progress toward sustainability is like going to a destination we have never visited before, equipped with a sense of geography and the principles of navigation, but without a map or compass.”

In conclusion, the future is more open and undetermined than our fantasy, which is conditioned by our past experiences and selective perception, can imagine (cf Dürr 1994). We are free to decide what to do with our life resources, but this freedom is always linked to a responsibility for the next generations. This is called ‘intergenerational responsibility’. Moreover, as the preconditions for future development vary considerably between states as well as within states and cities, additional attention also has to be given to ‘intragenerational responsibility’.

The challenge lies now in the operationalization of ‘sustainable development’, i.e., “the implementation of initiatives that do not merely pay lip-

service to the words but actively do justice to the original concept.” (Campbell 2000) Or, as Parris (2003) points out,

“... defining sustainability requires a clearly articulated consensus on what to develop, what to sustain, and for how long. It also requires thought about how to make a transition from behaviors that trend toward the unsustainable to ones that are more likely to be sustainable.”

If we can use this term without responsibility, if ‘sustainable’ just means ‘lasting’, does this mean that ‘sustainable development’ is an obsolete concept? Of course not. Jickling (2000) believes that ‘sustainability’ is a stepping-stone in the evolution of our thinking. But to this end, mankind must evolve from *Homo sapiens* to *Homo sustinens* (cf Siebenhüner 2000) instead of the ‘consume society type’ of *Homo stupidus*.

The Need to Rethink ‘Sustainability’

This book takes a critical look at ‘sustainable development’, its history and misuse, as well as potential for future application in society. It shows logical, philosophical, and ethical reasons for reemphasizing a substantial part of this principle and reveals several possible approaches on the levels of political policy, economics and planning.

In a first part, the understanding and the use of ‘sustainable’ and ‘sustainability’ and their connection to ‘Development’ are reflected on. An examination of major reports, carried out by **Albert A. Bartlett**, reveals contradictory uses of the terms. In *Reflections on Sustainability, Population Growth and the Environment—2006*, Bartlett makes an attempt to give a firm and unambiguous definition of the concept of sustainability and to translate this definition into a series of laws, which clarify the logical implications of the term. The laws should enable one to read the many publications on sustainability and help decide whether the publications are seeking to illuminate or to obfuscate. ‘Sustainable development’, however, cannot take place if it is understood as ‘sustainable growth’, which is an oxymoron that by definition cannot exist.

If the basic goal of development is reducing poverty, says **Herman E. Daly** in his chapter *Sustainable Development—Definitions, Principles, Policies*, it cannot be attained by current means (GDP growth led by global economic integration). The obvious solution of restraining uneconomic growth for rich countries to give opportunity for further economic growth in poor countries is ruled out by the ideology of globalization, which can

only advocate global growth and the utility-based definition of ‘sustainability’. Daly argues that we would need to promote national and international policies that charge adequately for resource rents, in order to limit the scale of the macroeconomy relative to the ecosystem and provide revenues for public purposes. These policies should be grounded in an economic theory that includes throughput among its most basic concepts. These efficient national policies would also need protection from the cost-externalizing, standards-lowering competition that is currently driving globalization.

In his chapter *Sustainability is Not Enough*, **Peter Marcuse** critically reviews the concept of sustainability, especially as it has come to be applied outside of environmental goals. It suggests ‘sustainability’ should not be considered as the goal of a programme—since many programmes are not sustainable—but as a constraint whose absence may limit the usefulness of a good programme. Marcuse also discusses how the promotion of ‘Sustainability’ may simply encourage the sustaining of the unjust status quo, i.e., the gap in wealth between post-industrialized and developing countries. He also stresses how the attempt to suggest that everyone has common interests in sustainable development masks very real conflicts of interest. One would have to consider that the costs of moving towards environmental sustainability are not borne equally by everyone, and that the definition of a ‘better environment’ can vary greatly. A critical analysis of how we use the term ‘Sustainability’ and also recognition of its limitations would be needed in order to initiate any real reform. In order to develop survivable structures, processes aiming to achieve this goal need to be flexible and adaptable to changing general conditions. Flexibility, in turn, is greatest when the number of possible options is maximized (cf Dürr 1994).

The present mainstream discourse distinguishes three basic dimensions of sustainability: economic, social and ecological, making its graphic visualization, the triple bottom line, its mantra as well as a reality for political decision-making. However, trying to direct each of the three dimensions, ecology, economy and society toward sustainable futures often results in the dilemma that the proposed solutions are incompatible with each other, e.g., that a sustainability-oriented solution for one dimension is not sustainable for another (cf Gremmen and Jacobs 1997). It has to be repeated that the concept of ‘weak sustainability’, in which produced assets can be substituted for natural assets, cannot lead to sustainability in a comprehensive sense. The main objectives of the three pillar model, i.e., produce more, distribute more justly, and preserve the future are hardly compatible. Thus, a solution for one dimension is only really sustainable if its effects are sustainable for the other two. However, it can be doubted that such

'ideal' solutions are achievable in a closed system like our planet as, according to the Second Law of Thermodynamics (entropy); each increase of value is at the same time accompanied by a decrease of value.

Sustainable Urban Development, Economy and Human Rights

In a second part, the book focuses on the current challenges to sustainable development, namely the phenomenon of global urbanization, economic globalization, and the role of private enterprises in regard to human rights.

The world of tomorrow will be urban. Thus, as **Marios Camhis** highlights in his chapter, *Sustainable Development and Urbanization* are closely linked issues. Until today, urbanization rates in the post-industrialized world and Latin America have passed the 75% mark and will continue to grow. Until 2030, the UN Population Division (2001) expects that up to 81% of Europeans and 85% of North Americans will live in urban areas. And, despite slower growth rates, this tendency will probably continue past 2030. On the other hand, the levels of urbanization were relatively low at the beginning of the new Millennium in less developed regions. This means, in turn, that the potential for future urban growth in developing nations is high. In Africa, the share of population living in cities will rise from 37% in 2000 to an estimated 53% in 2030, and in Asia, the same figures will mount from 48% to 54% during the same period of time. Thus in 2030, 3.8 billion people will live in urban areas in developing countries, compared to 1.4 billion in 1990 (UN Population Division 2001). This means that 80% of global growth of the urban population will take place in the poorer countries of the tropics and subtropics, and from 2000 to 2030, the urban population in developing countries will grow by 60 million people a year, effectively doubling in the period from 2000 to 2030. Until 2015, current projections foresee 27 so-called 'Mega-Cities', urban monsters with more than 10 million inhabitants.

Due to the huge scale and the multitude and complexity of problems involved, achieving sustainable development in the big cities of the developing part of the world seems to be a Sisyphean task. Focus must be laid upon the carrying capacity of planet Earth and its highly urbanized regions. In 1985, for the first time in history, the World's 'Ecological Footprint' (see Wackernagel in this book) passed the Earth's biological capacity and since then, has mounted steeply. In other terms, in 1998 the global population exceeded the Earth's carrying capacity, which is defined as the largest

number of any given species (in this case, humankind) that a habitat can support indefinitely (cf Keiner 2005).

Economic globalization, a process based in the unequal and imbalanced concentration of power and distribution of resources, is responsible for the mounting environmental and social crises of the world today. **Helena Norberg-Hodge**, in her chapter *Sustainable Economies—Local or Global?*, stresses that the ostensible goal of globalization, to increase efficiency and liberalize trade, does not take into account the real costs of increased trade, which are externalized to the public through tax paid subsidies or the environment. Virtually every sphere of life is affected, from enormous investment in unsustainable infrastructures, such as transport, information and energy networks, to the loss of viability of small local businesses and diversity. Uncontrolled urbanization, environmental breakdown, economic destabilization, the erosion of democracy and government autonomy, and increased ethnic and racial conflict are only some of the true costs. Sustainable development requires a shift in direction: from globalizing economic activity towards localizing it. This does not mean that everyone must go ‘back to the land’, but that the forces now causing rapid urbanization should cease, reducing the unnecessary transport of goods and encouraging changes to strengthen and diversify local economies. A gradual shift towards smaller scale and more localized production would benefit both North and South and would facilitate meaningful work and more employment everywhere. Entire communities and regions would become more self-sustaining, political and economic power would be more equally distributed, and cities could regain their regional character and become more ‘liveable’ and less burdensome to the environment.

Public pressure has shown to be effective in bringing about changes in government policy, including resisting globalizing processes on many fronts and spawning spontaneous efforts to reweave the social and economic fabric in ways that mesh with the needs of nature. Countless numbers of such small, diverse, and local initiatives to support our local economies and communities can, if supported by policy changes over time, foster a return to long-term sustainability.

In this context, transnational corporations play a crucial role. Anderson and Cavanagh (2000) point out, that of the 100 largest economies in the world, 51 are now transnational or global corporations; only 49 are countries. The combined sales of the world’s Top 200 corporations are far greater than a quarter of the world’s economic activity. The Top 200 corporations’ combined sales are bigger than the combined economies of all countries minus the biggest 9; that is, they surpass the combined economies of 182 countries. In other words, the Top 200 corporations have almost twice the economic clout of the poorest four-fifths of humanity.

However, these big enterprises have been net job destroyers in recent years. Their combined global employment is only 18.8 million, which is less than a third of one one-hundredth of one percent of the world's people. Not only are the world's largest corporations cutting employees, their CEOs often benefit financially from the job cuts. Big enterprises have to bear responsibility for their employees. However, very often working conditions are poor, salaries low and even the exploitation of children through child labour happens every single day. Thus, the issue of human rights in global corporations has to be addressed.

Klaus M. Leisinger, in his chapter on *Business and Human Rights*, investigates the question whether human rights are a duty for business. He firstly asks how a fair societal distribution of labour would look like. For this, he points out that modern society is differentiated into subsystems, of which he highlights the economic one. The author then discusses the societal responsibility of business firms: what they 'must', 'ought to', and 'can' do for society. Their corporate social responsibility obliges big enterprises to respect human rights, such as equal opportunity and non-discriminatory treatment, security, and appropriate working conditions. From the point of view of the corporations, he then shows the entrepreneurial options regarding these matters. In order to measure how human rights are respected in enterprises, Leisinger proposes indicators for general human rights performance to enable workers a life in dignity, justice, equality of opportunity, and fairness.

New Approaches: Global Governance, Energy Efficiency, Accounting, Evolutionability, and Transformability

Private business is one aspect; politics is another. To carry on any discussion on the future of sustainability, further questions must be asked: What has to change politically? Where are the instruments and means to implement sustainable development in everyday life and in the visioning and planning of living spaces for the coming generations?

All big institutions, like the organizations of the UN, individual States, and others are mandated and politically oriented more toward one of the objectives than to the others. For example, the International Labour Organization (ILO) or the United Nations Conference on Trade and Development (UNCTAD) do not only not collaborate with the International Monetary Fund (IMF) or The World Bank, they even denounce each other's policies. On the other side, the UNEP continues to run its environ-

ment-oriented programs following its mission to protect the environment. This sectoral splitting leads inevitably to contradictory approaches and even antagonism, resulting in confrontation and never-ending negotiations (Brunel 2004). Obviously, there is a lack of institutionalized coordination and regulation of international organizations and also a lack of comprehensive global governance (cf Stiglitz 2004). The only existing global governance today is provided by commercial and financial institutions: only the WTO, through its Dispute Settlement Body (DSB) has the mandate and the power of enforcing the rules for resolving trade quarrels, whereas for financial issues, the IMF can oblige states to modify their policies by suspending access to international financing. However, for the enforcement of norms concerning the world's 'public goods' (Samuelson 1954) health, environment, drinking water, and food, comparable global instruments or institutions do not exist. This calls for new global governance that should be devoted to the issues of long-term survival of planet Earth. The goal of achieving the sustainable use of our planet's resources will, according to Glasby (2002), take at least a century. It will require the skill, dedication and intellectual input of many people, groups of society, local and national governments, and international institutions.

Sustainable development can be seen as a simple interpretation of the general interest, an overall framework for all human activities, that guarantees everyone, anywhere and anytime, the full exercise of his rights. Thus, sustainable development cannot exist without security and liberty, and it can only be achieved if every person can satisfy its basic needs in terms of food, health, and access to education (Brunel 2004).

Despite all past disasters and doom predictions for the future for humankind and planet Earth, **Mikhail Gorbachev** claims to still be an optimist. In his chapter *A New Glasnost for Global Sustainability* he points on three principles and interlinked challenges of sustainable development: peace and security, poverty and deprivation, and the environment. They are linked in terms of origin, repercussions, and the imperatives they dictate to humankind. Market-driven globalization tends to enforce the notion that economic growth determined by GNP/GDP indicators is the only way to measure national wealth and progress, and capital accumulation and individual consumption are given a higher status than social and spiritual values or cultural heritage. This kind of ideology and the policies associated with it, initiated by the countries that have benefited most from globalization, makes this trend that much stronger. The idea of 'Glasnost', or 'openness', could counteract the destructive practices associated with this kind of thinking, invigorating, informing and inspiring the citizens of the world to use our resources and knowledge for the benefit of all.

In order to change current trends, the structural factors inhibiting the transition to sustainable development need to be scrutinized. Currently prevalent behavioral patterns would need to be reversed and our value system reprioritized, adequately taking into account the relations between people and the human-nature interrelationship. A greater analysis of global issues and corresponding recommendations to politics would be needed, hence enhancing the role of science and education in our society. In addition, the media would have to act more responsibly in order to build a 'society of knowledge', collaborating with scientists to pass on important information in a credible manner.

Politics, says Gorbachev, currently lags behind the pace of change. Contemporary world politics has to grow beyond the conventional principle of balance of powers, establishing global governance based on the balance of interests that can only emerge in dialogue between cultures and civilizations and internationally recognized moral precepts.

After undergoing the dramatic and evolutionary upheaval of the Agricultural and Industrial Revolutions, society is presently heading towards the third period of profound change, the 'sustainability revolution', writes **Dennis L. Meadows** in *Tools for the Transition to Sustainability*. Our society based on material excess and consumption has reached its limits, and man's ecological footprint has once again exceeded what is sustainable, requiring the necessity for another revolution. This revolution will be organic and unplanned, arising from the visions, insights, experiments, and actions of billions of people. The key will be relevant, compelling, select information flowing in new ways to new recipients, carrying new content, and suggesting new rules and goals. This simple changing of information flows would restructure the system in a turbulent and unpredictable but inevitable way. Innovators could make the changes that transform systems, with five tools or characteristics playing an essential role: visioning, networking, truth telling, learning, and loving. Together, they will guide and motivate, joining people together to support change—innovations essential for the survival of humankind.

In '*Factor Four*' and *Sustainable Development in the Age of Globalization*, **Ernst Ulrich von Weizsäcker** points out that two defining milestones in global environmental awareness, the 'Limits to Growth Report' to the Club of Rome and the Earth Summit 1992 in Rio, already acknowledged the impact of high resource and energy consumption: the continuing loss of biodiversity and uncertain climate change. Current rates of development and ongoing expectations of economic growth cannot continue without technological breakthroughs. However, eco-efficiency, or slowing down the increase of labour productivity while speeding up resource productivity, could be increased by a minimum of a factor of four. In order to

do so, efficiency should be made profitable through technical advances and by de-subsidizing resource use worldwide. In addition, international policy development would have to actively move towards new, more favourable framework conditions for action. Ultimately, a new technological revolution could sustain long-term profitability and sustainability only if both public and private actors played important roles in accelerating the transition.

Sustainable development is a commitment to human well-being, recognizing the reality of one diverse but ultimately finite planet. How to provide for increasing human demand while operating within the means of nature is becoming the primary challenge to make sustainable development operational. This requires both the effective management of human demand and maintenance of natural capital, including its ability to renew itself. For this task, reliable measurement tools comparing the supply of natural capital with human demand on it are indispensable. They help track progress, set targets, and drive policies for sustainability. As Hales and Prescott-Allen (2002) argue,

“For development to be sustainable, it must combine a robust economy, rich and resilient natural systems, and flourishing human communities. Rational pursuit of these goals demands that we have clear policy targets, operationalize them in terms of actions and results, devise analytical tools for deciding priority actions, and monitor and evaluate our progress.”

At present, an international discussion about how indicators are able to measure the state of achievement of sustainable development is under way. If sustainability-oriented concepts are to be successful, it is essential to define measurable objectives. Thus, instruments are needed that show us whether we are making genuine progress toward or away from the context-defined targets of sustainability. The international institutions UNCSD, OECD, and the World Bank have established various frameworks for economic, social, environmental, and institutional indicators, partly differentiated into sectoral views (e.g., urban, agriculture, and so forth). An important change arising from the discussions outlined above, has been that GDP is no longer regarded as the universal measure of welfare. As GDP neither takes into account the state of the environment, natural resources and biodiversity, nor social welfare, integrated indicator sets needed to be worked out. One example is the ‘Index for Sustainable Economic Welfare’ (ISEW; Daly and Cobb 1989), in which consumer expenditure is balanced by such factors as income distribution and cost associated with pollution. A second example is the life cycle and product chain oriented ‘Materials Intensity per Service Unit’ (MIPS; Wuppertal-Institut 1993), a unit of eco-efficiency that examines the sustainability of production by quantifying the

material intensity of a product or service by adding up the overall material input which humans move or extract to make that product or provide that service. Other leading assessment initiatives are, for example, the 'Human Development Report' (UNDP), 'Environmental Sustainability Index' (World Economic Forum), 'Living Planet Index' (WWF), 'Compass of Sustainability' (AtKisson & Associates), 'Dashboard of Sustainability' (Consultative Group on Sustainable Development Indicators), and the 'Barometer of Sustainability' (Prescott-Allen). In his chapter *Ecological Footprint Accounting*, **Mathis Wackernagel** describes another very popular resource measurement tool: the 'Ecological Footprint'. After explaining the assumptions involved and describing some representative findings, he provides examples of how this resource accounting tool could assist governments in managing their ecological assets and support their efforts for advancing sustainability.

Finally, one has to ask: if sustainable development is too abstract as a concept to be successfully put into practice, are there better alternatives or more appropriate models, tools or means to reemphasize the importance of the environmental, resource related aspects and establish a more workable mainstream view of sustainability? For Ignacy Sachs (1974), the concept of 'eco-development' implies establishing a hierarchy of objectives where social issues come first, secondly the environment, and only thirdly the case for economic viability without which no growth and development is possible.

In his chapter *Advancing Sustainable Development and its Implementation through Spatial Planning*, **Marco Keiner** turns to a philosophical and ethical approach on inter- and intragenerational equity and welfare to propose the 'Principle of Good Heritage', where present generations strive to create more opportunities for the future generations and leave less burdens. Reemphasizing the original purpose of 'sustainable development'—to ensure the long-term function of the world as an ecosystem and human habitat—the author then proposes the concept of 'evolutionable development' as an alternative approach. Coming back to the question on how sustainable development could be most effectively implemented, he states that the discipline of spatial planning has the mandate and the enforcement tools to do so, such as indicator based monitoring and controlling of sustainable development on the regional level. However, planning alone is not enough. Decentralization and multilevel cooperation is indispensable, as are a clear orientation of society's future visions and spatial development strategies on sustainable development, and the participation of civil society.

In *Sustainability is Dead—Long Live Sustainability*, an engaged manifesto, **Alan AtKisson** points out that human civilization is now faced with a paradox of gargantuan proportions: industrial and technological growth, the same forces that are endangering our future, should be accelerated in

order to ensure it. Our technical capacities and cultural stability should be greatly enhanced while simultaneously changing almost every technological system on which we now depend so that they neither harm people nor the natural world, now or in the future. Unfortunately, denial and avoidance, and overwhelming powerlessness have been civilization's predominant responses to the warning signals coming from science and nature.

What is needed to avoid civilization's ultimate convulsion and collapse is a common sense of high purpose, bringing a critical mass of people from all walks of life and religious and cultural backgrounds together. If we cultivated a vision of ourselves as powerful and wise stewards of our planetary home, global transformation would become possible. In this sense, 'globalization' should not be viewed as the enemy as it is often portrayed, but a force to be steered, the energy harnessed, to accelerate innovations that realize a balance between the needs of people, nature's other species, and future generations of both.

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Reflections on Sustainability, Population Growth, and the Environment—2006¹

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In the 1980s, it became apparent to thoughtful individuals that populations, poverty, environmental degradation, and resource shortages were increasing at a rate that could not long be continued. Perhaps most prominent among the publications that identified these problems in hard quantitative terms and then provided extrapolations into the future, was the book *Limits to Growth* (Meadows et al. 1972), which simultaneously evoked admiration and consternation. The consternation came from traditional ‘Growth is Good’ groups all over the world. Their rush to rebuttal was immediate and urgent, prompted perhaps by the thought that the message of Limits was too terrible to be true (Cole et al. 1973). As the message of Limits faded, the concept of limits became an increasing reality with which people had to deal. Perhaps, as an attempt to offset or deflect the message of Limits, the word ‘sustainable’ began to appear as an adjective that modified common terms. It was drawn from the concept of ‘sustained yield,’ which is used to describe agriculture and forestry when these enterprises are conducted in such a way that they could be continued indefinitely, i.e., their yield could be sustained. The use of the new term ‘sustainable’ provided comfort and reassurance to those who may momentarily have wondered if possibly there were limits. The word was soon applied in many areas, and with less precise meaning, so that for example, with little visible change, ‘development’ became ‘sustainable development,’ etc. One would see political leaders using the term ‘sustainable’ to describe their goals as they worked hard to create more jobs, to increase population, and to increase rates of consumption of energy and resources. In the manner of *Alice in Wonderland*, and without regard for accuracy or consistency, ‘sustainability’ seems to have been redefined flexibly to suit a variety of wishes and conveniences.

The Meaning of Sustainability

First, we must accept the idea that 'sustainable' has to mean 'for an unspecified long period of time'.

Second, we must acknowledge the mathematical fact that steady growth (a fixed percent per year) gives very large numbers in modest periods of time. For example, a population of 10,000 people growing at 7% per year will become a population of 10,000,000 people in just 100 years (Bartlett 1978).

From these two statements we can see that the term 'sustainable growth' implies 'increasing endlessly'. This means that the growing quantity will tend to become infinite in size. The finite size of resources, ecosystems, the environment, and the Earth, lead to the most fundamental truth of sustainability:

"When applied to material things, the term 'sustainable growth' is an oxymoron."

(It is possible, on the other hand, to have sustainable growth of non-material things such as inflation.)

Daly has pointed out that 'sustainable development' may be possible if materials are recycled to the maximum degree possible and if one does not have growth in the annual material throughput of the economy (Daly 1994).

The Use of the Term 'Sustainable'

A sincere concern for the future is certainly the factor that motivates many who make frequent use of the word 'sustainable'. But there are cases where one suspects that the word is used carelessly, perhaps as though the belief exists that the frequent use of the adjective 'sustainable' is sufficient to create a sustainable society. 'Sustainability' has become big-time. University centers and professional organizations have sprung up using the word 'sustainable' as a prominent part of their names. In some cases, these big-time operations may be illustrative of what might be called the 'Willie Sutton² School of Research Management'.

For many years, studies had been conducted on ways of improving the efficiency with which energy is used in our society. These studies have been given new luster by referring to them now as studies in the 'sustainable use of energy.'

The term ‘sustainable growth’ is used by our political leaders even though the term is clearly an oxymoron. In a recent report from the Environmental Protection Agency we read that President Clinton and Vice President Gore wrote in *Putting People First*,

“We will renew America’s commitment to leave our children a better nation—a nation whose air, water, and land are unspoiled, whose natural beauty is undimmed, and whose leadership for sustainable global growth is unsurpassed.” (EPA 1993)

We even find a scientist writing about ‘sustainable growth’:

“... the discussions have centered around the factors that will determine [a] level of sustainable growth of agricultural production.” (Abelson 1990)

And so we have a spectrum of uses of the term ‘sustainable’. At one end of the spectrum, the term is used with precision by people who are introducing new concepts as a consequence of thinking profoundly about the long-term future of the human race. In the middle of the spectrum, the term is simply added as a modifier to the names and titles of very beneficial studies in efficiency, etc. that have been in progress for years. Near the other end of the spectrum, the term is used as a placebo. In some cases the term may be used mindlessly (or possibly with the intent to deceive) in order to try to shed a favorable light on continuing activities that may or may not be capable of continuing for long periods of time. At the very far end of the spectrum, we see the term used in a way that is oxymoronic.

Let us examine the use of the term ‘sustainable’ in some major environmental reports.

Sustainability

The terms ‘sustainable’ and ‘sustainability’ burst into the global lexicon in the 1980s as the electronic news media made people increasingly aware of the growing global problems of overpopulation, drought, famine, and environmental degradation that had been the subject of *Limits to Growth* in the early 1970s (Meadows et al. 1972). A great increase of awareness came with the publication of the report of the United Nations World Commission on Environment and Development, the Brundtland Report, which is available in bookstores under the title *Our Common Future* (Brundtland 1987).