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## Book Reviews

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### **1 Sustainability Science and Technology: An Introduction**

**by: Alejandro De Las Heras**

**Published 2014**

**by CRC Press, Taylor & Francis Group**

**6000 Broken Sound Parkway NW,**

**Suite 300 Boca Raton, FL 33487-2742, USA, 348pp**

**ISBN-13: 978-1-4665-1808-7 (hardback)**

Sustainability has many aspects. The Brundtland Report (WCED, 1982) pointed to a wide range of (mainly environmental) areas showing long-term, broad scale issues. Agenda 21 (UN, 1992) widened the number of issues. The Johannesburg Plan of Implementation focused on the pressing water issue and added the importance of local knowledge (UN, 2002). Rio+20 put particular emphasis on the economic dimension of sustainable development (UN, 2012).

This book addresses the science and the technology of sustainability. It adopts a traditional structure, taking off with water as a core point on freshwater uses and misuses; by 2030, the global demand for fresh water is expected to exceed supply. Chapters on bioremediation and water treatment technology explain how nature should be assisted in dealing with the water pollution load.

The next four chapters are on soil. They deal with the essentials of biochemistry, quality, pollution reclamation and decontamination, land use and its extremes, such as land grabbing and leakage, landscapes and ecosystems, and soil sustainability.

A third group of three chapters deals with the (unavoidable) energy issues. The section is introduced by defining the energy transition, and how it is driven. The 'solar solution' and the big-energy technologies (methane and hydrogen aspects receive particular attention) are discussed in a separate chapters. This section is concluded with three chapters on air pollution, including greenhouse gases and ozone depletion.

The five concluding chapters are the most revealing ones. They deal with the drivers of (current) unsustainability: war, technology, irregularity, population, food security, consumption and poverty. Of particular interest is the chapter on 'The built environment'. This deals not only deal with the compulsory aspects of 'environmentally low impacting materials' but also with the wider picture of urban transport, eco-cities and a new synthesis architecture. The chapter on 'Sustainable science and technology' opens windows towards 'Green chemistry and nanotechnology', 'Green information technology', and 'Green IT-applications and intelligence'.

The book as a whole introduces an impressive number of concepts and strategies in the wide and diverse field covered by the scope of sustainable development. The complementary, non-overlapping chapters are kept short and synoptic, describing both

the problem and the technology to alleviate the issues at stake. This makes the book useful as complementary reading material and discussions in class. It provides an interesting overview of the subjects that matter today in the international sustainability literature.

The authors of the chapters take a balanced approach, which is neither too technical nor too focused on a particular field. This results in limited in-depth analyses but most accessible texts. The book is about the fundamentals and the essence of interdisciplinary sustainability aspects today. As an introductory textbook, one should not expect in-depth criticism or limitation of sustainable development.

The book does not entail exercises, nor are the chapters introduced by an abstract. As such, it is not only targeted to, but also extremely useful in, interdisciplinary environmental science, human ecology and engineering classes. It is an excellent introduction to sustainable development today, addressing environmental consultants, policy makers, and students in a wide variety of disciplines linked to sustainable development. It really deserves a wide audience.

Most handily and adding to the pedagogical character of the book is the overview of the structure of each chapter at the beginning. An extended reference list is appended to each of the 17 chapters.

## References

- United Nations (UN) (1992) *Agenda 21: The United Nations Programme for Action from Rio*, United Nations, New York [online] [http://www.un.org/esa/dsd/agenda\\_21/res\\_agenda21\\_00.shtml](http://www.un.org/esa/dsd/agenda_21/res_agenda21_00.shtml).
- United Nations (UN) (2002) *Johannesburg Plan of Implementation*, United Nations, New York [online] [http://www.un.org/esa/sustdev/documnts/WSSD\\_POI\\_PD/English/POIToc.htm](http://www.un.org/esa/sustdev/documnts/WSSD_POI_PD/English/POIToc.htm).
- United Nations (UN) (2012) *The Future We Want*, United Nations, New York [online] <https://sustainabledevelopment.un.org/futurewewant.html>.
- World Commission on Environment and Development (WCED) (1982) *Our Common Future*, Oxford University Press

## 2 EU Climate Policy Explained

by: Jos Delbeke and Peter Vis

Published 2015

by Routledge

2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN, UK, 136pp

ISBN: 978-92-79-48263-2 (hbk)

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Although the EU as an organisation did not play a major role within the G7/8/20, some of its member state leaders did. Moreover, the EU is the region in the world where the most climate policies have been implemented, and where an interesting set of policy experiments on climate change were setup during the last 25 years.

This book explains the EU's climate policies. It demonstrates not only the step-by-step learning-by-doing approach that has been used to develop these policies, but also the ways they have been tested and further improved based on experience. It does so in six chapters.

The first chapter describes the EU's climate policy in a rapidly changing world. It shows how the EU succeeded in decoupling its emissions from economic growth. It ends with the proposal for a climate and energy policy for 2030, based on cost-effectiveness and market instruments.

Chapter 2 is about the EU's Emission Trading System (EU ECTS) for greenhouse gas (GHG) emissions, which covers half of the CO<sub>2</sub> emissions in the area. It concludes on opportunities establishing over time a global carbon price through a truly international market.

Chapter 3 summarises how the EU's energy-related policies not only improve energy security but also contribute to reducing the GHG emissions. An interesting aspect concerns new cars for which the emissions were reduced through setting mandatory standards which triggered both innovation in the car construction sector (but also the development of fraudulent software). Unfortunately, this regulation was recalled in 2016.

Chapter 4 describes a range of EU policies that help member states to reduce GHG emissions in sectors not covered by the EU ECTS as in agriculture and other types of land use. Also, the 'Covenants of the Mayor's initiative' is discussed.

Chapter 5 addresses the international developments from the signing of the Kyoto Protocol (1997), over the failed Parties meeting in Copenhagen (2009), to the recent COP21 (2015). It points to the changing economic picture of the developing countries. The original dichotomy between industrialised and developing countries, which is fundamental in the UN process, does not hold longer. Slowly but deliberately, the UN is moving to a synthesis of options in which economic instruments will prove important in the transition towards a low-carbon economy. Moreover, the importance of regular accounting and transparency is a condition sine qua non. In contrast to the previous book, the chapter does not pay attention to the role of the G7/8/20.

The short concluding chapter focuses on the experience of the EU in particular on cost-effectiveness aspects.

Overall, the book shows that the decarbonisation of Europe requires time to realise that to reduce GHG no simple solution exists, and that no single instrument will realise the targets. On the contrary, a complex set of well integrated instruments is necessary to realise the emission reduction targets.

Among this instrument set, economic instruments are of (increasing) importance. Determining the price of pollution is critical.

The book does not provide a detailed, in-depth analysis of the EU's climate policy. Rather, it overviews the main background, drivers, and realisations. The rather limited number of pages and the concluding boxes of most sections contribute to this 'bird's eye', 'at a glance' approach.

The book also reads to some extent as the heritage of Jos Delbeke, the main editor of this book, who recently retired as Director-General of the EU's Directorate-General for Climate Action. He was in charge of the Directorate since its establishment in 2010. He was one of the main architects of the EU climate policy and a first-hand witness of the international climate change policy scene.

- 3 Wildlife Ecology, Conservation, and Management, 3rd edition**  
**by: John M. Fryxell, Anthony R.E. Sinclair and Graeme Caughley**  
**Published 2014**  
**by John Wiley & Sons, Ltd.**  
**The Atrium, Southern Gate, Chichester,**  
**West Sussex, PO19 8SQ, UK, 509pp**  
**ISBN: 978-1-118-29106-1 (cloth)**  
**ISBN: 978-1-118-29107-8 (pbk)**

Wildlife management is evolving rapidly in its content (concepts, methods) and its professionalisation. The area requires complex knowledge and skills in, among others, basic ecology, environmental issues in a socio-economic and sustainability context, cases, goals, ethology and policy. The subject area faces rapidly evolving methods on, e.g., experimental management, conservation genetics, and wildlife monitoring and control.

This book offers an integrated vision on these diverse and diverging items in a comprehensive, experience driven, coherent overview. It is structured in two parts, of which the first one provides an overview of the key ecological concepts on which this field of applied ecology is based. Ten chapters detail issues including food and nutrition, habitats, population growth and regulation, competition, parasites and pathogens, and the ecology of behaviour. Of particular interest is the chapter on 'climate change and wildlife'. It describes how wildlife has been responding to fundamental changes in the ecosystems and reviews the mechanisms that produce these responses. Among them are colonisation, adaptation, and population decline. For conservation, predicting future changes in both the local climate and on the availability of suitable new sites is important. To this end, wildlife managers have access now to models.

The second section deals with wildlife conservation and management. The 11 chapters cover census techniques; explain how to test wildlife management hypotheses experimentally, and how to evaluate alternative models as tools for conservation and management, sustainable yield and control as tools in wildlife management. The concluding chapter 22 places problems of wildlife management in an ecosystem context. It shows how managing populations has to take into account that they are embedded in a matrix of competitors, (meso- and hyper-)predators, and prey. It is a chapter about long-term and slow trends in environmental change, ecosystem regulation and stability, special scales, and natural versus human-induced changes. It advocates collecting data to obtain more insight in the mechanisms governing these essentials of wildlife in their ecosystems.

Books that target their subject that specifically and in-depth are rare. All over the publication general subjects in ecology are most convincingly tailored to wildlife management. It provides applicable information on new (sometimes developing) methods. It illustrates the theory with a wealth of graphs, figures, and examples from the literature. This third edition entails new chapters on climate changes, wildlife response to rapidly changing conditions, habitat selection, and corridors in increasingly fragmented landscapes.

Each chapter offers a most didactical outline and a clear rationale. An introduction and a core part are systematically concluded with a summary. A glossary and an impressive 36-page reference list enhance the documentary and didactical value of this

book, which is excellent for senior undergraduate and graduate students in ecology, biology, and environmental sciences. However, it is equally valuable for professional wildlife managers, park rangers, and those working in ecotourism. The book has a most useful accompanying website where additional resources, power points and PDFs of all tables can be found.

The whole atmosphere of the book combines academic diligence with wildlife management practice. This marks also the professional life of the two Canadian authors.

A great book of applied ecology in a most useful sector of increasing specialisation and professionalism.

#### **4 Designing for HOPE: Pathways to Regenerative Sustainability**

**by: Dominique Hes and Chrisna Du Plessis**

**Published 2015**

**by Routledge**

**2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN, UK, 245pp**

**ISBN: 978-1-138-80061-8 (hbk)**

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One of the most striking findings about sustainability is that even almost 30 years after the popular Brundtland Report (WCED, 1987), we have made little progress towards a sustainable world. A fundamental reason for this almost depressing fact is, according to the authors of this book, that sustainable development continues to advocate a development model based on economic growth through resource consumption, even if this is done more efficiently using new technology and frameworks such as cleaner production. This book is about a different path: it moves the discussion away from doing less, but aims to make a positive contribution to adding to the ecological capital.

The book is structured in five sections discussing how a way of living which is more ecological and nature-based can provide hope for a sustainable world (-view). The introductory section explains how humans can not only act as consumers of natural resources, but also be producers of resources (or even ecosystem services). Key elements in this rationale entail: the boundaries of the planetary systems, the centrality of science and technology in the current view of sustainable development (which claims that sustainability can be measured and therefore managed), and the role of sustainable building.

Section 2 provides the conceptual ethical underpinnings of the ecological worldview. It advocates a worldview which moves away from the currently dominant mechanistic one. It culminates in ten values that provide a basis for a 'new interpretation' of sustainability. It advocates that reconnecting with nature should be based on the 'biophilia hypothesis' (the innate need to affiliate with life and with lifelike processes). The concept is abundantly illustrated with 'green building' examples.

Section 3 discusses how it is possible to move from scarcity thinking to abundance thinking through design processes based on a contextual understanding of 'place' and 'partnerships' with nature that integrate natural and social systems. The core concept of 'regenerative design' is developed in chapter 6. It is about the role of humans in the human-nature relationship and in particular in the relationship with the land and the communities they inhabit.

Section 4 discusses a number of frameworks that can be used to guide the design process and to assess its contribution. It is about examples of modelling complex systems, networks, and integral thinking and design. It culminates in defining ‘the living building challenges’ (car-free, carbon neutral resources, independent and zero waste communities).

Section 5 brings the theory and practical examples home to the individual. It shows what it means to be a reflective practitioner and discusses the opportunities for each of us contributing to a better, more hopeful world for the generations to come. These include the emergence and increasing impact of, e.g., recycling activities, slow food and free hinges campaigns.

The epilogue is based on the idea that “the future belongs to those who give the next generation hope”. It concludes with the quote that “hope is like a road in the country: there was never a road, but when many people walk on it, the road comes to existence”.

This book stimulates thinking ‘beyond the box’. It is far from a collection of expert papers. It is provocative, provides hope and shows ways to curb current patterns dealing with sustainable development. It provides both philosophical and an action-targeted approaches. The latter is explicitly addressing architectural aspects of urban environments (in coherence with the architectural backgrounds of both authors).

This architectural background also reflects the format: this is a beautiful, excellently illustrated book. Abundant box texts explain key concepts and provide examples illustrating the theory. The rationale is developed not only in the text, but also by the multiple quotes in the margin of the main manuscript.

This is a book not only for architects and city planners dealing with green cities and blue economies. It is outstanding background material for all of us who reflect on the edges and limitations of sustainable development. It is a wonderful book both for its content and its presentation.

## References

World Commission on Environment and Development (WCED) (1987) *Our Common Future*, Oxford University Press, Oxford, UK.

## 5 The Global Governance of Climate Change: G7, G20, and UN Leadership

by: John J. Kirton and Ella Kokotsis

Published 2015

by Ashgate Publishing Limited

Wey court East Union Road, Farnham,

Surrey, GU9 7PT, England, 401pp

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The COP 21 (Paris, 30 November to 11 December 2015) offered a context of a renewed attention window for international governance of climate change. Two books attract particular attention: the first one on the history of the G7/G8/G20 in the debate; the

second one on the EU as a main actor in the international debate and its climate change policy. Both publications, dealing with different levels of governance show an interesting complementarity. That explains why they are reviewed together.

*The Global Governance of Climate Change* describes and analyses how the G7 (after 1998 broadened with Russia and called G8; and since 2008 the G20) has dealt with climate change governance since 1979, and addresses the interactions of this group with other pluri-lateral summit institutions such as the United Nations (UN), the North Atlantic Treaty Organization (NATO), the International Energy Agency (IEA), and the Organization for Economic Cooperation and Development (OECD).

The book takes off from ten schools of thought on the G7/8/20 activities and what their proper role should be. The book argues that the group created, retreated from, and returned to lead global change governance. This results in recognising three periods of action, which at the same time structure the book:

- Creation, 1979 to 1988: Three chapters describe how the group (with ups and downs) invented during this pre-Rio, pre-UNFCCC period an effective, inclusive, ambitious, environment-first control regime through its own direct, informal, and voluntary action.
- Retreat, 1989 to 2004: After 1989, the group stepped back from global climate leadership in favour of shaping and then supporting the emerging UN-centred regime. Three chapters of the book describe as many phases during this period. First came the 'reinvention', starting at the Paris Summit in 1989, where environmental issues were prominent on the agenda. During the 'reinforcement' from 1993 on the group reduced its attention to climate change to support the UN Climate Change Convention and the follow-up COPs, including Kyoto and its Protocol. The best part of this retreat period was characterised by a will for an inclusive policy in which all carbon producers and thus polluters, controlled their carbon.
- Return, 2005 to 2014: During this period, the group shifted from supporting the increasingly ineffective UN regime toward an enhanced version of its initial G8-led regime. *Pioneering the inclusive global Regime* entails four chapters, discussing periods of restoration, reaching out, realisation, and replacement of the updated ideas of the first period. The concluding chapter 12 summarises the key arguments of the analysis and connects the three main phases to six issues of the revised concert equality model. It quantifies changes in the causes. It suggests the prospects and the possibilities for global climate governance in the years ahead. The authors consider the G7/G20 as the future leader in effective climate change governance, rather than the 'failing' UN-led climate control regime. Maybe the COP 21 in Paris might provide results and arguments counteracting this statement.

The book provides an excellent, well documented and informed overview of the G7/8/20 activities and actions on climate changes. It situates them in an enlightening theoretical framework. It provides fact-based insight in the options, tensions and agendas of international climate change diplomacy. On such a wide theme, the book cannot be complete. Rather, it provides a selection of data and contexts logically resulting in the informed opinion and conclusion of the authors.

The book is very well documented. Hard climate data relevant for policy are included in 52 pages of appendices. An impressive reference list completes the work.

The content, the rationale, the methodological approach, and the factual material, make this book most interesting for students in environmental sciences and international policy, researchers, and decision makers interested in the dynamics behind governance processes at the international scene.