Reviewed by Luc Hens

E-mail: luchens51@gmail.com

 Reconstructing Earth's Climate History. Inquiry-based Exercises for Lab and Class
by: Kirsten St. John, R. Mark Leckie, Kate Pound, Megan Jones and Lawrence Krissek
Published 2012
by John Willey & Sons, Ltd.
The Atrium, Southern Gate, Chichester,
West Sussex, PO19 8QS, UK, 485pp
ISBN: 978-0-470-65805-5 (hardback), ISBN: 978-1-118-23294-1 (paper)

Developing new laboratory experiments and exercises for students is a laborious task. It necessitates offering the core materials of a subject in a way that makes them accessible, deepens knowledge, develops skills and is appealing. Establishing these exercises is traditionally the result of long discussions at the laboratory coffee table and of monitoring the results in class.

This book is a major help to this process. It focuses on palaeoclimatology, which is important in providing the baseline of natural climate variability against which human-induced climate change must be assessed. It offers an interdisciplinary approach to the climate history beyond the limited instrumental record and during climate states that the Earth may very well experience in the future. In short, palaeoclimatology is a most essential component of the current climate change debate.

The 14 chapters of the book are organised to explore:

- 1 The fundamental aspects of palaeoclimate research and the 'tools' used to conduct this research. They include obtaining sediments and ice-records, and determining their age.
- 2 Aspects of palaeoclimate reconstruction: trends, events, patterns of change in the past, and models to provide insight in the future.
- 3 The last ten chapters are case studies: they deal with a geo-chronological set of examples, starting with the Phanerozoic CO₂ record, up to the onset of the northern hemisphere glaciation.

The chapters are organised in a varying number of sub-chapters. Each of them entails a short (one-page) introduction, but mainly offers exercises for students. A reference list is provided, and, if necessary, appended materials such as photos are added. The materials for the exercises are based upon real data, the results of major international research programmes as the Integrated Ocean Drilling Programme.

Although the book is about palaeoclimatology, it is of particular interest that the exercises have wider targets: they show how scientific knowledge can stepwise be deepened using multi-part modules, which are designed to provide opportunities to develop and practise scientific skills. This provides the book with the aura of an inspirational source to establish this type of approach in related domains of environmental sciences.

I used an exercise on literature analysis (Part 14.3) during a course on interdisciplinary research for a class of MSc and PhD students in Human Ecology at Lisbon University. Although the analysis started from seven abstracts about northern hemisphere glaciation (a rather narrow subject for my audience), the exercise offered a general framework to dissect the important elements of the published papers: the hypothesis, the mechanisms, the methods, and the keywords. The students appreciated this as a support to the more theoretical lectures and as an opportunity for an interactive contribution to the course. This application also showed that the book is more than a haphazard collection of laboratory notes and exercises: it offers a well-structured, systematic and applied approach to palaeoclimatology in particular, and to scientific research and its interpretation in general.

This beautifully presented book focuses as much on *how* we know the history of the world's climate, as on *what* we know about it. It is, first of all, a support for undergraduate courses in palaeoclimatology or global change. However, the select use of specific exercises can also support topics in oceanography, quaternary science or environmental sciences. This selective use of the materials makes the book also useful for more generic courses, such as research methods.

This publication has added value for and warmly recommend to support not only courses in palaeoclimatology, but also courses in a wider array of interdisciplinary environmental sciences.

2 Sediment Dredging at Superfund Megasites. Assessing the Effectiveness by: the National Research Council of the National Academies Published 2011 by The National Academies Press, 500 Fifth Street, NW, Washington, DC 20001, USA, 294pp ISBN: 978-0-309-10977-2

Contaminated sediments in aquatic environments can pose risks to human health and to other organisms. The chemicals of primary concern are often heavy metals, polycyclic aromatic hydrocarbons, PCBs, tributyltin, persistent pesticides, or furans. In the sediments they vary in concentrations and occur in a variety of contexts. Techniques to remediate the situation include removing the sediments from the water bottom (e.g., by dredging), capping or covering contaminated sediments with clean material, and relying on natural processes while monitoring the sediments to ensure that contaminant exposures decrease, or at least are not increasing.

These report overviews the results of dredging the sediments in 26 major contaminated sites (Superfund Megasites), including rivers, estuaries, bays and lakes. The report equally builds on the information and opinion of stakeholders. The general aim is to evaluate the effectiveness of dredging as a remedial option at contaminated sediment sites.

The book interestingly combines general aspects with specialised technical issues of dredging intensively polluted areas. It is organised in six chapters. The introduction sets the scene. Chapter 2 provides background on sediment management at Superfund Megasites: it is about reducing risks and the available techniques to do so, particularly dredging. Chapter 3 discusses the methodology that was adopted for this assessment of dredging. Chapter 4 evaluates the remedy performance and risk reduction. The most important Chapter 5 looks at current practices for monitoring effectiveness at sediment remediation sites and considers opportunities to improve monitoring. The last chapter considers the implications of the assessment. It provides conclusions and recommendations. It looks into the issue of how to improve the management of these contaminated sites in the future.

The conclusions and recommendations are the core of this report. Noticeable elements include:

- Sediment dredging can be effectively implemented to remove contaminants from aquatic systems.
- However, one has to take technical limitations into account. These resulted in constraints in achieving specified clean-up levels. Consequently, there is a high degree of uncertainty about the effectiveness of dredging.
- Moreover, monitoring to evaluate the long-term success is generally lacking.
- Contaminants can be released into the water during dredging.
- Environmental monitoring is the only way to evaluate remedial success. Although some current monitoring techniques proved useful, further development of monitoring strategies is needed.
- Further research is also most indicated to examine the relationship between the remedial actions, site conditions, and risk reduction.

It is remarkable how these recommendations coincide with common environmental hygiene sense.

This book is a report of the Committee on Sediment Dredging at Superfund Megasites of the US National Research Council of the National Academies, to EPA(s) and consultancy companies. It shows all the strengths and weaknesses of a meta-analysis. The first ones are related to the broad panel of experts who the committee consulted, as contributors of presentations, discussants or reviewers, who have to agree on a wide scientific and technical consensus; the most systematic approach of the report both on methodology and presentation of the results; and the impact that such an in-depth elaborated advice has on policy. On the other hand, the report does not show the dynamics and the drive behind the subject.

No doubt, this book is compulsory background reading and documentation for most of us.

International Regimes and Norway's Environmental Policy. Crossfire and Coherence
by: Jon Birger Skjaerseth (Editor)
Published 2004
by Ashgate Publishing Limited
Gower House, Croft Road, Aldershot,
Hampshire GU11 3HR, UK, 240pp
ISBN: 0-7546-4226-7

With the advent of Rio+20, the supreme event of international environmental policy and diplomacy, this book, which was published nine years ago, deserves renewed interest. It analyses aspects of Norway's foreign environmental policy. The loosely populated Scandinavian country is one of the richest and happiest in the world and shows an interesting number of characteristics that determine its foreign environmental policy:

- Norway is a net importer of both sea-borne and air-borne pollution: 80% to 90% of sulphurous and nitrogenous precipitation in the country originates from abroad.
- Norway is negatively affected by its own emissions.
- Norway is the home country of Gro Harlem Brundtland, the chair of the WCED Commission. The report of this commission in 1987 made sustainable development a main point of reference for environmental policy worldwide.

All this means that it is often in Norway's direct economic interest to push for stringent joint international agreements. Today, there are more than 200 such major environmental regimes. Norway is party in over 70 of these agreements, which may affect Norway's environmental policy.

This is what the book is all about: how one state became engaged in international regimes in order to pursue its own national goals. Apart from an introduction and a chapter describing the analytical framework the authors use, the book presents six case studies on the most influential environmental conventions: whaling, ozone, air pollution, marine pollution, climate change and biodiversity. Each chapter discusses the (sometimes ambivalent, see e.g., the Norwegian position on hunting minke whales) position of the country, the main characteristics of the convention, and the articulation between national and international policy goals. The concluding chapter compares the results of the cases. It describes the conditions for goal attainment, both internationally and nationally.

Although, in the strict sense, this book is about the (international) environmental policy in Norway, the subject is definitely of wider importance for the international community. It provides insight into the mechanisms that pull and push international environmental diplomacy. It explores the complex links between institutions at various levels of international environmental governance. It is about the benefits from multilateral regimes, even for states with a coherent internal environmental policy. It is about how multilateralism on environmental policy is driven and functions.

The book is in no way a complete guideline to international environmental policy and diplomacy. Therefore, it is too much case study driven. Moreover, also in the selection of the cases it shows bias: e.g., the question of how the Norwegian environmental policy influences its (industrial and development) activities abroad remains out of focus. However, this book is a most necessary companion to those who prepare and will

participate in Rio+20. It offers excellent cases and background to all (master and postgraduate degree) students taking a course in (international) environmental law. It is an eminent work on environmental policy and practice.

Reviewed by John Hodges

E-mail: hodges.chalet@gmail.com

Organic Production and Food Quality: A Down to Earth Analysis by: Robert Blair Published 2012 by Wiley-Blackwell 2121 State Ave., Ames, Iowa, 540014-830, USA The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, UK, 282pp ISBN-13: 978-0-8138-1217-5 (Hbk); ISBN-10: 0-8138-1217-8

This is a remarkable book that uniquely provides an objective, thorough and comprehensible view of an issue of first-rank importance in health, nutrition, food quality, the environment and food production systems. Today, the topic of organic food is confused by prejudice, opinion and ignorance that are fed by the hitherto lack of such a book as this, in which the author examines all the published evidence with a dispassionate thoroughness that has no flavour of a preformed opinion. Organic food is of widespread interest among consumers, shoppers, farmers and specialists in nutrition, medicine, the environment and businesses in the food chain. The public has been poorly served to date with reliable guidance, and this book brings clarity, factual analysis and rationality. The author writes with skill, objectivity and authority, making a significant contribution to transparency on organic food in the public arena.

Organic food is a confused battleground. To appreciate this book, one needs to understand the background to this conflict. To date, anyone seeking an independent assessment of the merits and disadvantages of organic food is faced by a barrage of assertions and a lack of organised data. It is difficult to form a satisfactory position. On one side, economic interests dominate the agenda and are often supported by scientists whose worldview has been nurtured, even dazzled, by the spectacular increases in food production arising from conventional, intensive large-scale farming, which has an impressive track record. Their argument is simple. We have a proven system - let us keep using it even though it involves massive inputs of chemicals and fossil energy. On the other hand are those who question the perfection of science in food production, suspect that chemical farming has negative long-term side-effects for human nutrition and health, for the soil, plants and animals used in farming, for the environment and for the overall quality of life. They feel their questions are not seriously addressed by the big, the powerful and the wealthy in the business and scientific communities; for many years, their views were perceived by some governments and scientists as marginal, unscientific, irrational, heretical and even prejudicial to feeding the world. Publicly funded scientific research into potentials, problems, benefits and methods of organic food was seriously neglected until recently. Consequently, for many years, data on organic food production

Copyright © 2013 Inderscience Enterprises Ltd.

were scanty, unreplicated and suspect, thus fuelling derision. Partly owing to consumer demand for organic foods, this situation has changed, as shown by the many authentic publications marshalled by the author that enable him in the final chapter to highlight areas of apparent similarity and difference between organic and conventional foods.

However, the aura of battle still lingers. At worst, it has resulted in emotional reactions and unsubstantiated assumptions about the other side. Those interested in organic production have been portrayed as ignorant and foolish, while mainstream scientists and business interests have been characterised as driven only by profit and as uninterested in the quality of life issues that surround agriculture and food. The polemics are sometimes vicious and uncompromising. How is this impasse to be broken? How can each hear the other? How can facts take centre stage over prejudice?

For those who want to listen, learn and understand, this book is an excellent introduction. The author has been careful to search for all the authentic published experience. Significantly, in this endeavour he has not been sponsored, paid or supported by any interests. His goal has been to find and document the published facts. It has not been an easy task and doubtless some may chide him for failing to take sides. He is wise in remaining an independent observer. The serious and thoughtful reader can find herein a comprehensive statement on the current knowledge on any of the major issues associated with organic food production, nutrition and food quality.

The book has major sections on the food types: vegetables, fruit, cereals, meat and fish, milk and milk products and eggs. In each section, evidence is presented on pesticide and chemical residues and contaminants, other toxic and antinutritional compounds, hormones, microbial contamination problems, mycotoxins and antibiotic use and residues. Other topics relevant to certain types of food are covered, including the processing of products, raw milk, gene-modified crops, cloning, mad-cow disease, cholesterol and food poisoning. Each of these major food sections also presents the evidence on nutrient concentrations, organoleptic quality, preserves, appearance and consumer findings. Each of these major sections on food types concludes with a comprehensive list of the references.

An important feature of this book is the extent to which the author presents actual research results from published papers in tables and diagrams that facilitate comparisons between conventional and organic foods. The reader can thus compare, for example, nutrient contents, amounts of residues and toxins, numbers of samples exceeding statutory limits, bacterial and cell counts, polyunsaturated fatty acids, and many other measures. Further, the origins and circumstances of the research figures are given – whether independent or government or business, together with references and maximum or minimum levels stated by government regulations. The reader can thus judge the seriousness of differences between organic and conventional products.

In addition to food types, there are major sections on the thorny issues of 'Is organic food safe?' and 'Is organic food more nutritious and tasty?' Here, the author does not offer opinions but documents the reliable published evidence on each class of food product for residues, frequency of food poisoning, health studies, nutritional analyses, consumer views, health of farmers and farm workers, etc. The book also examines relevant food regulations affecting production and marketing of organic products.

In the final chapter, the author states the current view of many scientists and government agencies worldwide that organic and conventional foods are fairly similar in nutritional quality and freedom from harmful chemical residues. He notes the inability to

define 'fairly similar' more precisely. By this point in his study, the author is well placed to summarise the main differences shown by the evidence examined in the book – differences that probably lead some consumers to prefer organic products despite the price often being higher. These include, for example, taste and longer storage life of some fruit and vegetables, leaner but less tender beef with less marbling, lower nitrate and higher antioxidants, higher contents of polyunsaturated fatty acids, pig and poultry meat slightly tougher with enhanced flavour and some slight differences in milk and eggs. He concludes that the main differences between organic and conventional foods appear to be in the area of taste, freshness and the issue of nitrates and phenolic contents. He urges more research in these areas and also, on the basis of limited evidence to date, on the production of meat, milk and eggs from animals and birds raised on organic feed or forage.

The author concludes by posing one serious unanswered question. Do people eating organic foods live longer? The author says there is no evidence yet available to support this hypothesis. But as he, and everyone, knows, data to address that question are not likely to be available from planned experiments and it may also be difficult to answer using large-scale population data. The author asks speculatively whether the areas in which organic foods show differences that he has listed help to explain the higher life expectancy found in some Asiatic countries.

Everyone with a serious interest in the differences between organic and conventional food should have this book on their coffee table or bookshelf, because it is the most comprehensive and objective library of present evidence. The rhetoric should be quieted by this book, but the meta-narrative is far from complete and more research is urgently required. A new edition of this book will undoubtedly be needed in a few years.

Reviewed by Luc Hens* and Bernhard Glaeser

E-mail: luchens51@gmail.com E-mail: bernhardglaeser@googlemail.com *Corresponding author

Radical Human Ecology: Intercultural and Indigenous Approaches by: Lewis Williams, Rose Roberts and Alastair McIntosh (Editors) Published 2012 by Ashgate Publishing Ltd. Wey Court East, Union Road, Farnham, Surrey, GU9 7PT, UK, 433pp ISBN: 978-0-7546-7769-0 (hardback) ISBN: 978-0-7546-9516-5 (ebook)

Human ecology is traditionally understood as an academic discipline that deals with the relationships between humans and their natural, social and created environments. Thus, human ecology has faced a remarkable counter diction for a long time: while hardly anyone doubts that major environmental problems necessitate trans-disciplinary approaches that combine evidence and insights from fundamental, human and applied sciences, none of the human ecological research teams of last century contributed in a significant way to the analysis, prediction and problem-solving of major environmental problems that emerged during that period. This resulted in a continuous introspection about 'who are we, human ecologists?' and 'what is the core and the scope of our field?'

This book is the most recent and original addition to this discussion. It is about what indigenous and traditional peoples' epistemologies contribute to insights from modern and post-modern human ecology. It is about inter-culturality on environmental questions, indigenous approaches to fundamental questions on life and the Earth, and shows a sincere concern about the future of humanity. The book is organised in three parts.

Part 1, 'Theories of human ecology', opens with a lucid and erudite description of the background and the main characteristics of human ecology. It further analyses how ethno-ecological contributions anchor in this field.

Part 2, 'Radical epistemologies of relationships', invites the reader to integrate indigenous ontologies into ecological praxis from a range of cultural and philosophical perspectives. It entails seven chapters, with contributions on Ngai Te Rangi cosmology, indigenous knowledge, transcending identity, orthodox Christianity and sustainable development, environmental thinking by North American Indians, and the Canadian Woodland Cree culture in Northern Saskatchewan.

Part 3 collects nine chapters under the heading 'Human ecology in practice'. It is about a wide variety of subjects ranging from teaching human ecology, over the contribution of rural family labour in China to the development of the country, to human ecology as militant practice in the Brazilian Amazon region.

Copyright © 2013 Inderscience Enterprises Ltd.

The postscript by the editors points to a main driver behind this book: it has arisen out of criticisms of mainstream human ecology.

The 21 authors of this book constitute an international mix of academics and environmental activists of four continents. They are guided by colleagues from the University of Saskatchewan and the Scottish Centre for Human Ecology in Edinburgh. This latter was for many years driven by Ulrich Loening. Ulrich is a brilliant academic, professor and builder of violins, who was restlessly looking for defining new paradigms that could embrace the complexity of current environmental problems faced by humanity. This book is part of his intellectual heritage.

There can be no doubt about the academic value of this book: formulating criticisms to mainstream human ecology is part of the dialectic process in which science is rooted; the multiple philosophical, epistemological and intercultural considerations of this book contribute to the human ecological paradigm; the discussion on traditional indigenous approaches to environmental problems opens new pathways of thinking. However, the reader should not expect traditional quantitative research results organised in a 'problem' formulation, materials and methods, results and discussion' format. The approach of the chapters is merely narrative, with many text citations, and the conclusions are often too engaged in activism, and consequently far from the objectivity that science attempts. This alienation of the scientific approach becomes uncomfortable when the vast literature on traditional (environmental) knowledge is largely overlooked by the authors. It becomes disturbing once the publications that belong to the human ecological literature on the subject are not mentioned. This applies, for example, to the published papers of the workshop on local and traditional knowledge that was part of the International Conference of the Society of Human Ecology held in Rio de Janeiro, Brazil (Hens and Begossi, 2008).

Once the reader is prepared for this alienation from the Western-scientific and techno-rationality approach, this book becomes an interesting contribution to thinking about environmental problems. It looks over the edge, and ventures outside established lines.

Reference

Hens, L. and Begossi, A. (Eds.) (2008) 'Diversity and management of extractive farming systems', *Environment, Development and Sustainability*, Vol. 10, No. 5, pp.559–695.