
Book Review

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**Late Lessons from Early Warnings: Science, Precaution, Innovation
by: European Environment Agency
Published 2013
by Publications Office of the European Union
2, rue Mercier L-2985, Luxembourg, 28 chapters, 3 annexes, 760pp
ISBN: 978-92-9213-356-6**

Why did it take over 100 years between demonstrating the adverse health effects of asbestos exposure and the EU ban of asbestos in 1998? Why is the product still in massive use in developing countries under conditions which directly threaten the health of the workers and the quality of the environment? Why did it take from 1892, when the first report of poisoning from old lead paint in children was published till 1985 when the European Directive was passed requiring the member states to make unleaded petrol available? Why do serious indications that some pesticides influence honeybee behaviour and reproduction since 1994 not affect the current assessment protocols of pesticides and biocides? Why, more in general, do we not learn more lessons in reducing environmental health risks from experiences of the past? And why did decision makers in the past not more frequently use the precautionary principle to base their decisions on?

These were core questions in the first volume of ‘Late lessons from early warnings’ (EEA, 2001), which discussed case studies. Similar questions are echoed in the most recent EEA report. This second volume of ‘Late lessons’ goes beyond the case study approach. The report entails five sections:

- 1 In the 11 chapters of ‘Lessons from health hazards’ the strategies and mechanisms are discussed causing the inertia in policy decisions on environmental health. Of particular interest is the first chapter of this section, which discusses 88 false positive cases of regulation (where government has undertaken regulation based on precaution, which later on turned out being unnecessary). The analysis shows that fear for false positives is misplaced and should not be a rationale for avoiding precautionary policy actions. Equally enlightening is the chapter on ‘Tobacco industry manipulation of research’ in which the strategies are discussed this stakeholder used delaying anti-tobacco measures and influencing more fundamental policy decisions (e.g., on shaping risk assessment methods) to serve their own interests.

- 2 Section two is on 'Emerging lessons from ecosystems'. It offers six cases ranging from anti-foulants, over climate change effects, to the effects of pesticides on honeybees, showing how changes in the natural environment provide information on threats to public health. The chapters also show how an advanced policy on environment and nature protection is advantageous for human health.
- 3 In the 'Emerging issues' section five cases including, e.g., mobile phones and nanotechnology, are discussed. The section illustrates new technologies which potentially offer benefits to society, but also potentially much harm to people and ecosystems. Over all the section advocates taking precautionary measures in limiting the exposure of the population to these 'new' pollutants.
- 4 Part D is on 'Costs, justice and innovation'. The three chapters in this section illustrate how a combination of irresponsible corporations and delayed policy and legal decisions cause harm, e.g., in compensating victims.
- 5 The policy implications of the four previous sections provide the basis for the three chapters in this concluding section. Here, the governance implications for science, public policy and public engagement are discussed. The delicate balance between the societal advantages of technical improvements and minimising health and environmental harms is discussed.

This is an impressive report not only because of its 760 information and references rich pages. It is impressive because it deals with a wide variety of sensitive issues in the environmental health area. It is impressive in its analytical aspects which go beyond a historical description of the cases (most case chapters entail a handily time table listing the early warnings and actions up to the recent policy intervention). It is impressive because of its wide perspective: the analysis not only deals with the toxicological, epidemiological and eco-toxicity aspects, but also the wider socio-economic context is integrated using interdisciplinary frameworks. Moreover, the chapters entail a wealth of box texts which do not only provide information on the 'petite histoires' (the small but interesting, often behind the scenes histories) on science and policy comments, but also contribute to a more in depth understanding of the evolution of the subject. Of critical importance is the design of the report which contributes to an improved understanding of the ways scientific knowledge is financed, created and assessed. The report is impressive because its 81 authors, guided by a 15 people advisory board, contributed to the chapters from different perspectives. This provides each of the cases a kaleidoscopic character. Part of the information is based on panel discussions of which the reports are appended as annexes to the report. Furthermore, recognised experts in the different areas covered peer-reviewed the case studies.

The report also shows limitations. The most important one is that for sensitive, scientifically only partially cleared out issues, the authors chose invariably the 'safe' WHO side of the discussion. On the carcinogenicity of electromagnetic fields, e.g., one might find the IARC position, but not the glioma cancer evidence as presented by the Bioinitiative review.

This report deserves a wide audience. Contributions have been written in a most accessible way. It is not necessary to be a senior environmental health expert to catch the messages of the chapters. Policy makers are the target group of the first line. To many scientists, the history of the scientific/toxicological/medical/environmental evolution of the cases is only partially known. This report completes their fragments of knowledge.

Those interested in interdisciplinary approaches to environmental health problems will find most interesting examples linking the bio-physical evidence with health aspects in their socio-economic and policy context.

This second volume of 'Late lessons learned from early warnings' is a great publication which will significantly contribute to moving the difficult application of the precautionary principle on urgent environmental health matters ahead. The report is available free of charge and an ebook version can be found on the website of the EEA (<http://www.eea.europa.eu/publications/late-lessons-2>).

References

European Environmental Agency (EEA) (2001) *Late Lessons from Early Warnings: The Precautionary Principle 1896–2000*, Environmental Issue Report No 22, Office for Official Publications of the European Communities, Luxembourg.

Book Review

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Energy Efficiency

by: Steven Fawkers

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by Gover Publishing Limited

Wey Court East, Union Road, Farnham,

Surrey, GU9 7PT, England, UK, 13 chapters, 342pp

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ISBN: 978147208020 (ebk-ePub)

The 342 pages of this textbook are illustrated with a limited number of tables and figures. Nevertheless the book is clear, accessible and convincingly documented.

This book covers aspects of the management, financing, technology and policy of energy efficiency. The 13 chapters describe the issues most clearly and structure them very logically. Each chapter entails 25 to over 70 references. As a result, it is easy appreciating the author's views on the topics at stake. The author based his information on a significant amount of personal experience and knowledge with energy efficiency projects in the EU, the USA, China and Japan. His opinion is critical in demonstrating the weaknesses of the EU policies and measures in comparison with the other industrialised countries. The data show that the EU is overregulated and there is a need for smarter regulations to competitiveness at the global level.

The publication is warmly recommended to the decision makers of the EU Commission, the members of EU Parliament and their advisers. This book should be offered to them at an official occasion. Moreover, the chapters offer most interesting reading materials to the state authorities, dealing with energy efficiency. Financial institutions acting on investment in energy projects will equally find useful information in the book.

Issues which are missing in this book include considerations on the leading technologies under development, such as those related to hydrogen, e-beams and high temperature nuclear technologies, which offer new approaches to energy efficiency and the protection of the environment.

Book Review

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The Future is not what it used to be. Climate Change and Energy Scarcity

by: Jörg Friedrichs

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by MIT Press

55 Hayward Street, Cambridge, MA 02142, USA, 7 chapters, 223pp

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Suppose a discussion on climate change and philosophy. It must go wrong, you think. This book shows the opposite.

The world faces important transitions. The post Second World War paradigm of economic growth, increasing welfare and development does not longer hold. It does not hold because of fair criticisms on this paradigm, but also because of an increasing list of new concerns (such as biodiversity loss, water scarcity, and financial meltdowns). This resulted among others in the originally political concept 'sustainable development' (SD). An essential element of SD is climate change, which is closely interlinked with the way energy is used. Climate change, more efficient energy use, and energy scarcity as emerging facts of life are the subject of this philosophical and reflective book.

The book is organised in seven chapters of which the first one describes and analyses 'The transitory nature of the industrial society'. The chapter provides a critical discussion on the limits to resource use and consequently those to growth as discussed by Malthus, Meadows and the Ecological Footprint Atlas. It concludes that the twin challenges of climate change and energy scarcity are most important constraints today, and therefore they are the focus of the book.

The second chapter analyses the link between climate changes and energy. It reviews selected effects of climate changes and aspects of energy scarcity. Their co-action has the potential plugging civilisation into agony.

To which extent can 'society change climate and climate change society' are the questions driving the third chapter. Of particular interest is the historical overview of periods which showed changes of the climate. The conclusion is that the complexity of the industrialised civilisation has been a strength and an important element of resilience at least during the last two centuries.

The undisputed premise of chapter four is that industrial society runs on energy and that a fuel shortage can cause serious problems. The chapter analyses what should happen if oil leads to massive energy scarcity. The effects of fare going fuel starvation in Japan, North Korea and Cuba during the 20th century are addressed. The results show that it would be imprudent insufficiently considering the social, economic and political implications of energy shortage.

Chapter 5 is about the nature of the knowledge on climate change and energy scarcity. Three types of scientific approaches are reviewed: normal (ranging between conservative and reformist approaches), abnormal (ranging between moderate and radical scientists), and post-normal (dealing explicitly with uncertainty in a context of long-term and large-scale phenomena) energy and environment science. The chapter points to a dilemma for energy and climate scientists: on the one hand, they should engage in post-normal science; on the other hand, it is likely that the awareness they raise is temporary as over time post-normal science undermines the fiction of the value free and absolutely objective character of science.

Chapter 6 takes off from the finding that denial (of the climate change-energy nexus) has a rationale: minimising pain often resulting in tragic outcomes. Because of these harmful consequences, the possibility of social intervention is discussed. The conclusion is rather pessimistic: during history we were used looking at local scale problems. Therefore, it is hardly surprising that people have no time and are not equipped for planetary risks such as climate changes and energy scarcity.

In view of the diagnosis in the previous chapters, the concluding chapter asks 'Where to go from here?' It advocates adapting an attitude of living 'in the truth', of intellectual honesty. Part of that honesty is recognising that our incapability of managing the climate change-energy consumption issue refers to failed civilisations in history, sometimes followed by dark ages. Is this an indicator for a failing eco-technic future?

As a whole this is one of the rare books offering a distant, bird view perspective analysis of the climate change-energy consumption interlink in the industrial civilisation. The reader should not expect being informed about the smallest detail of the most recent climate change or energy consumption research. The author draws rough lines of a complex universe. He offers them in a most logical framework. This allows unravelling mechanisms underlying the climate change discussion. At the practical end, the book advocates the urgency of taking action on our industrial way of life and its 'consumption driving production' paradigm. This book elicits and stimulates discussion on climate change and peak oil. It is very well written, and offers clearly developed arguments. This makes the complex, interdisciplinary interwoven matter most accessible.

This book deserves a wide reading audience. Today, only few of us did not research one or more, fundamental or applied aspect of climate changes. I do not hesitate recommending this book to all of us, scientists, consultants, or policy makers who are in a close or distant way involved in the climate change debate, going through this revealing analysis of the subject matter.

Book Review

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The Year in Ecology and Conservation Biology

by: Richard S. Ostfeld and William H. Schlessinger (Eds.)

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The 'Annals of the New York Academy of Sciences' (<http://www.nyas.org>) is published 30 times a year. Volume 1249 is a thematic issue on 'The year in ecology and conservation biology'. The publication entails 16 review papers on a wide array of topics in conservation biology, which matter these days. Taken together, they provide a most interesting overview on the ecological effects of pollution and resource use.

The first paper in the volume is a review on 'Eco-evolutionary dynamics in a changing world'. The paper discusses the effects of fast evolutionary changes on species in marginal habitats and on mega-populations in heterogeneous environments. It shows that eco-evolutionary dynamics may only partially compensate for the effects of adverse environmental changes.

Three reviews deal explicitly with the effects of climate changes on species interactions, on Arctic vertebrates and on malaria mosquitoes. The authors advocate a more in depth understanding of the complex mechanisms triggered by climate changes and conclude on the threatening conditions in particular on the higher trophic levels.

Of particular interest is the paper on the Orangutans in Indonesia and Malaysia. The animals are threatened mainly by deforestation and hunting (poaching, and conflict killing). DNA studies and habitat loss research allows estimating a 95% decline of the populations during the past few centuries in important habitats such as Sabak. The paper reviews what worked and did not work in the conservation of these primates. Based on these experiences, conservationists should 'think outside the box'. A strong instrument remains however establishing and enlarging ecologically connected networks. As a side remark, the authors point to the undercooled attention of local researchers for the orangutans.

The paper on the effects of organic farming is about ecosystem services of pollination, biological control, seed predation and decomposition. It shows how landscapes enhance or reduce the positive effects of organic farming and how the landscape affects biodiversity and ecosystem services differently in organic and conventional farms.

This yearbook addresses theoretical (drivers of evolution, species interactions, and impacts of rapidly changing environments), methodological (with a focus on modelling, but also on DNA analysis and field work), and practical (plants and animal) aspects of conservation biology. It is about species (orangutans, deers, Arctic vertebrates, and vultures), their DNA and their ecosystems in a diversity of biomes (boreal forest, Arctic, tropical forest, sub-tropical zones). It is about the sectors involved: agriculture (industrial, conventional, and organic), forestry, and rockweed industry. It shows the interdisciplinary nature of contemporary ecology and its relationships with ethics, environmental health, landscape studies, and culture. But above all this volume offers a series of in depth overviews of the issues which matter in conservation biology today: desertification and REDD+, effects of climate changes and how to understand their mitigation, biodiversity management and its limitations.

This special volume deserves a wider reading audience than ecologists and conservation researchers (for whom it is primarily intended). It should be read by all of us in environmental, pollution, and human ecology research. It offers most useful material to be discussed in classes on the interdisciplinary nature of environmental sciences.