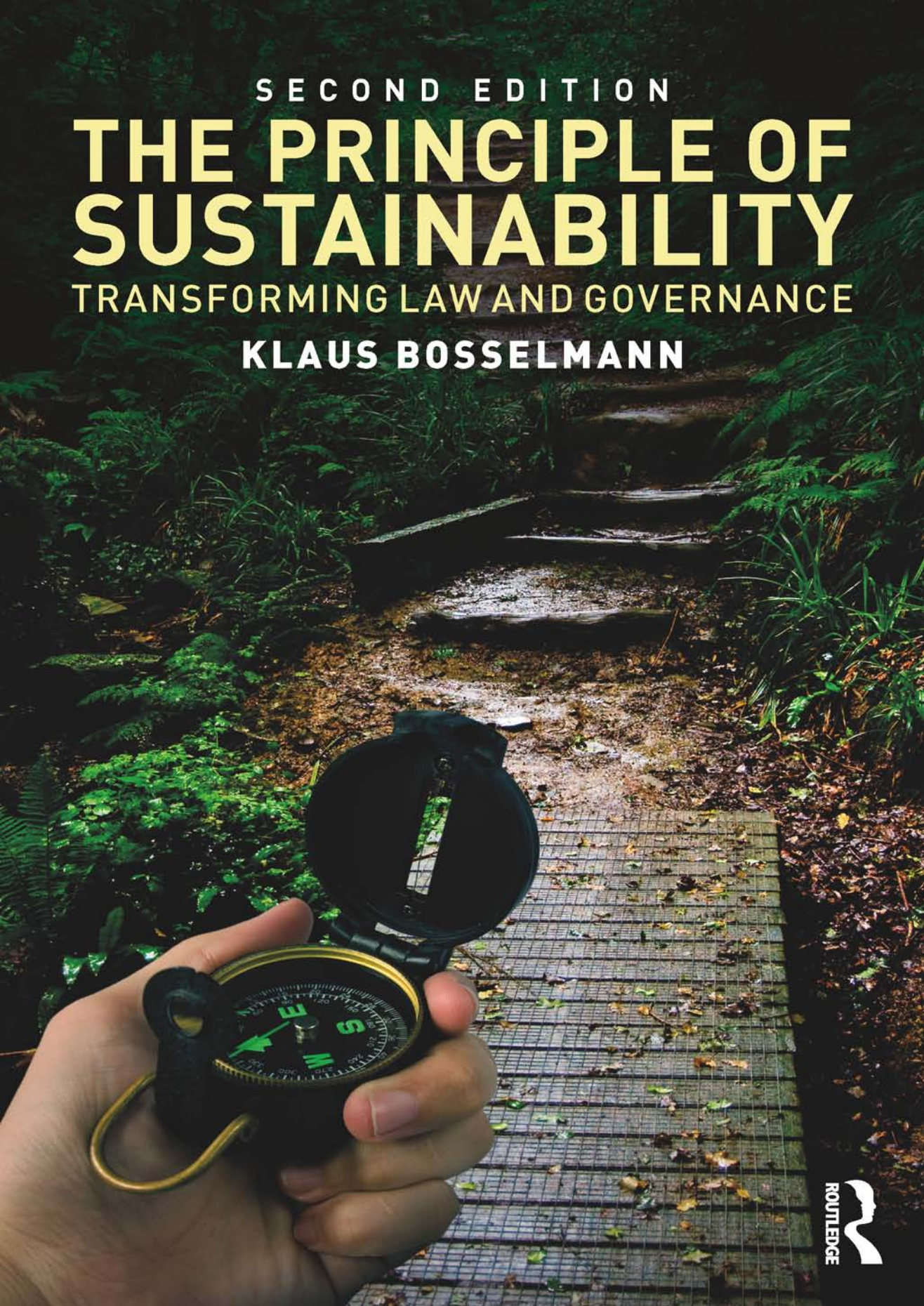


SECOND EDITION

THE PRINCIPLE OF SUSTAINABILITY

TRANSFORMING LAW AND GOVERNANCE

KLAUS BOSSELMANN



THE PRINCIPLE OF SUSTAINABILITY

This book investigates how sustainability informs key principles and concepts of domestic and international law. It calls for the recognition of ecological sustainability as a fundamental principle to guide the entire legal system rather than just environmental legislation. To this end, the book makes a contribution to global environmental constitutionalism, a rapidly growing area within comparative and international environmental law and constitutional law. This 2nd edition has been fully revised and updated to take account of recent developments and new case law. The book will be a valuable resource for students, researchers and policy makers working in the areas of environmental law and governance.

Klaus Bosselmann is Professor of Law and Director of the New Zealand Centre for Environmental Law, University of Auckland, New Zealand. He is Chair of the IUCN World Commission on Environmental Law Ethics Specialist Group and Co-Chair of the Global Ecological Integrity Group. For his pioneering work on ecological approaches to law, policy and governance he received numerous awards including the Inaugural Senior Scholarship Prize of the IUCN Academy of Environmental Law, the global professional organization of environmental law scholars.

An absolutely essential reading for all who are interested in understanding the historical, conceptual and ethical roots of the principle of sustainability, with a view to promote its correct and meaningful application in contemporary international environmental law and governance. It sheds a clear light on the true nature of sustainability and its paramount role to respect and maintain the Earth's ecological integrity.

Professor Massimiliano Montini, *University of Siena (Italy)*

Klaus Bosselmann continues his tradition of excellent scholarship in probing the origins and contemporary relevance of sustainability by comprehensive reference to international law and policy, and national implementing regimes. The new edition reveals why sustainability remains a core value to guide law and governance in its pursuit of ethics and justice, and how the principle may be aligned to resilience, integration, human rights and environmental constitutionalism. It provides a compelling account of an important dimension to the ecological condition of humanity.

Professor Lee Godden (PhD, MA, B.Leg S, BA Hons), *Director, Centre for Resources, Energy and Environmental Law, Melbourne Law School (Australia)*

THE PRINCIPLE OF SUSTAINABILITY

Transforming law and governance

Second edition

Klaus Bosselmann

Second edition published 2017

by Routledge

2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

and by Routledge

711 Third Avenue, New York, NY 10017

Routledge is an imprint of the Taylor & Francis Group, an informa business

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First edition published by Routledge 2008

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

Library of Congress Cataloging in Publication Data

Names: Bosselmann, Klaus, author.

Title: The principle of sustainability : transforming law and governance / Klaus Bosselmann.

Description: Second edition. | New York, NY : Routledge, 2016. | Includes bibliographical references and index.

Identifiers: LCCN 2016027948 | ISBN 9781472481283 (hardback) |

ISBN 9781472481313 (pbk.) | ISBN 9781317019176 (epub) |

ISBN 9781317019169 (mobipocket)

Subjects: LCSH: Sustainable development—Law and legislation. | Environmental law. | Environmental ethics.

Classification: LCC K3478 .B67 2016 | DDC 344.04/6—dc23

LC record available at <https://lcn.loc.gov/2016027948>

ISBN: 978-1-4724-8128-3 (hbk)

ISBN: 978-1-4724-8131-3 (pbk)

ISBN: 978-1-315-55395-5 (ebk)

Typeset in Bembo

by Werset Ltd, Boldon, Tyne and Wear

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FOREWORD TO THE FIRST EDITION

In an age in which we are denuding the resources of the planet as never before and endangering the very future of humanity, sustainability is the key to human survival.

It is a concept which needs to be nourished from every discipline, every culture and every tradition. Unfortunately these have not been adequately used in strengthening and developing this concept. Professor Bosselmann's book provides a many-faceted approach to the concept which will give some idea of its conceptual richness and practical potential.

The concept is traced to its historical and philosophical foundations and is approached from a multi-cultural and interdisciplinary perspective. It is examined from the standpoint of international law, of which it is now an integral part and, at the same time, an attempt is made to stir an interest in the minds of average citizens on whom, in the last resort, its effectiveness depends. Indeed the book has a richness of historical, jurisprudential, anthropological, sociological, political, scientific and philosophical perspectives which make it rewarding reading.

The entire concept is permeated by the notion of ecological justice and this requires a balancing of the interests involved. Development is important, but not at the expense of sustainability. We owe an obligation to future generations who, under current legal systems, are unable to assert their rights and consequently remain voiceless when their rightful inheritance is being plundered by the present generation. All who permit this to happen must share in the blame. This inertness of the general public, while their children and their children's children are so inequitably treated, is due to lack of communication of the perspectives so eminently dealt with in this book. It deserves to reach as wide an audience as possible.

The important area of the linkage between human rights and ecology is exhaustively dealt with. Human rights doctrine is intensely relevant to environmental protection though not often perceived and this volume does much to bring home its practical importance in this field.

The concept of trusteeship, as opposed to the traditional belief of dominance over our environment, needs also to be widely publicized and this book is an important vehicle for doing so.

The duties of states to promote the concept of sustainability are another greatly neglected area, for decision makers pursuing short-term objectives tend to neglect the long-term

perspectives. This is a principle that needs to be firmly embedded into the structure of contemporary international law, and this volume is a valuable contribution to this end.

All who read it will be the wiser for the experience. It has a message for everyone in terms within the reach of everyone. It is an important contribution towards achieving the more caring world we all desire to see established.

Judge C.G. Weeramantry
Former Vice President of the International Court of Justice
Emeritus Professor of Law, Monash University

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INTRODUCTION

In the field of environmental law and governance, the landscape is constantly shifting and developing. This is particularly true for the response of governments and societies to the greatest challenge of our time, i.e. preserving the integrity of the Earth's ecological systems. Overall the response has been weak and ineffectual, yet many areas of environmental law aim for making societies more sustainable. The fundamental importance of sustainability is in no dispute and no-one denies the need for more effective laws. What seems to be missing is a sense of urgency and the capacity for integrating social, economic and environmental laws and policies.

This book makes the case for sustainability as a fundamental principle of law and governance, so that policy areas such as economics, finance, health, education and the environment are all informed and shaped by the same principle.

Sustainability remains a most popular idea. It is so popular today that all sectors of society have embraced it. People in business and politics promise sustainability at every possible occasion. Living sustainably is an idea whose time has come. Or has it?

All good ideas take time and often they are misunderstood. In the case of sustainability, there has been a period of incubation followed by expert debate and eventual popularization through international politics. This has done more harm than good. The concept of 'sustainable development' lost its core meaning somewhere between the 1980s and today.

The idea and terminology of 'sustainable development' goes back to Robert Prescott-Allen, World Conservation Union (IUCN) staff writer and principal author of the 1980 World Conservation Strategy. Section 13.1. reads:

Ultimately the behavior of entire societies towards the biosphere must be transformed if the achievement of conservation objectives is to be assured. A new ethic, embracing plants and animals as well as people, which will enable human societies to live in harmony with the natural world on which they depend for survival and well-being.

The key words are 'ultimately ... transformed' and 'a new ethic'. A few years later, the World Commission on Environment and Development ('Brundtland Commission') also called for

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transformation and a new ethic. However, the popular notion became: ‘Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.’ This vagueness opened up the possibility of downplaying sustainability. Hence, governments spread the message that we can have it all at the same time, i.e. economic growth, prospering societies and a healthy environment. No new ethic required.

This so-called weak version of sustainability is popular among governments and business, but profoundly wrong and not even weak, as there is no alternative to preserving the Earth’s ecological integrity. We can accept or dispute this insight, but should not confuse mere integration of economic, social and environmental policies with *sustainable* development. Integrating policies is an important step towards it, but only the first step.

The search for sustainable development is foremost an investigation into the truth of sustainability, and I mean ‘truth’. As a university professor it is my job to seek truth while allowing others to test how truthful my ideas may or may not be. I am convinced that there is truth behind the idea of sustainability that can be discovered in the same way as we have discovered the truth of evolution. It may well be that, in the future, we will have different explanations for living processes; I suggest, however, that Charles Darwin’s theory of evolution has been one of humanity’s greatest discoveries. I also believe that we can build sound ethics, law and governance around this discovery.

One of Darwin’s most fervent supporters was Thomas H. Huxley who famously said: ‘Irrationally held truths may be more harmful than reasoned errors’ (*Science and Culture*, 1881). That human population and economy can continue to grow without threatening the sustainability of human life is an irrationally held truth. And while it may turn out to be an error, it stands to reason that our survival depends on the ability to respect and maintain the Earth’s ecological integrity. This is the core idea of the principle of sustainability.

On the day when the world’s oldest and largest environmental organization, the World Conservation Union (IUCN), was founded in 1948, T.H. Huxley’s grandson, the famous writer Aldous Huxley, wrote to his brother Julian Huxley, then Director General of UNESCO and one of the founders of IUCN:

I come to feel more and more that no system of morals is adequate that does not include within the sphere of moral relationships, not only other human beings, but animals, plants and even things. . . . If we don’t do something about it pretty soon we shall find that, even if we escape atomic warfare, we shall destroy our civilization by destroying the cosmic capital on which we live. Our relationship with earth is not that of mutual beneficial symbiosis; we have become the kind of parasite that kills its host, even at risk of killing itself.

This letter, written nearly seventy years ago, is quoted at the beginning of the IUCN Programme 2009–2012 ‘Shaping a Sustainable Future’. The IUCN has more than 1000 membership organizations, including states, governmental agencies, environmental organizations working together towards sustainability. The Programme’s message is that ‘environmental health underpins human well-being’. It expressly rejects ‘the conventional three-pillar model of sustainable development – environmental sustainability, economic sustainability’, as it ‘fails to acknowledge the environmental constraints within which our economies and societies must operate’ and advocates ‘a stronger model of sustainability’ with the environment at its centre.

At its World Conservation Congress in 2004, the IUCN had adopted the Earth Charter to guide its programme and policy development. The Earth Charter is the ‘universal declaration’ and ‘new charter’ that the Brundtland Report over twenty years ago had called for. During the preparations for the 1992 Earth Summit in Rio, states had contemplated an Earth Charter but, as mentioned, stayed away from the new ethic. It was, therefore, left to global civil society to develop an Earth Charter as an ethical framework for a just, sustainable and peaceful future. By defining respect and care for the community of life and ecological integrity as its two main principles the Charter gives shape and meaning to the principle of sustainability. Adopted in 2000, i.e. twenty years after the World Conservation Strategy, the Earth Charter has brought the concept of sustainable development back to its original meaning.

Has the international community finally discovered the truth of sustainability that had been lost in the sustainable development debate? The fact that the Earth Charter has been endorsed by UNESCO, IUCN and a number of states and is recognized as the guiding document for the current United Nations Decade of Education for Sustainable Development (2005–2014) is significant. Quite obviously, the world is in search of sustainability. After all, we experience the impacts of unsustainable development on a daily basis and everywhere with climate change and rapid biodiversity loss as its most powerful expressions.

If every good idea needs its time and opportunity to mature, now is the time. Sustainability can be defined as a fundamental principle of law and governance. It has reached a degree of maturity that allows for an examination of its meaning and legal status. This can be done in a similar way as other fundamental principles such as justice or freedom have been examined and promoted.

My own work in this area was greatly encouraged by efforts of the New Zealand government to shape legislation around the concept of sustainability. When I joined the Law Faculty of the University of Auckland in 1989, I found this intriguing statement of the Ministry for the Environment: ‘Sustainability is a general concept and should be applied in law in much the same way as other general concepts such as liberty, equality and justice.’ Is there a greater challenge for a legal scholar than exploring how it could be applied? If sustainability is likened to the foundational pillars of Western civilization what does that say about today’s civilization? How civilized can a society be if it is not even capable of sustaining itself?

The former Vice President of the International Court of Justice, Christopher Weeramantry, has been widely recognized as the leader of this important debate. In his Separate Opinion to the International Court of Justice’s (ICJ) 1997 Case Concerning the Gabčíkovo-Nagymaros Project (*Hungary v. Slovakia*), for example, he described ecologically sustainable development as ‘not merely a principle of modern international law. It is also one of the most ancient ideas in the human heritage’. In his judgement, Weeramantry traversed the ancient wisdom of irrigation and attendant legal systems of Sri Lanka, Africa, Iran, China, and of the Inca civilization. Reference was also made to the value systems of various cultures which reveal a universal love of nature, a desire for its preservation, and the ‘need for human activity to respect the requisites for its maintenance and continuance’. One gets the distinct impression that modern legal systems are, in some important respect, more primitive than ancient civilizations. Perhaps there is wisdom in the fact that we acknowledge ‘general principles of law *recognised by civilised nations*’ as a source of international law, but no nation dared to recognize sustainability as a general principle. Civility has to be aspired to, earned and maintained. Anthropologists such as Oswald Spengler, Arnold Toynbee and Jared Diamond remind us how fragile civilizations have been.

If sustainability is foundational for the project of civilization, it deserves the full attention of everyone interested in continuing this project. Disturbingly, governments have not been forthcoming to take leadership or encourage research into much needed new strategies for policy development, law and governance. And as sustainability lies squarely across individual disciplines it easily slips through the gaps. There is neither a discipline focusing on sustainability issues nor an ethos of interdisciplinary research surrounding them. Obsessed with economy-related outcomes, most research institutions, including universities, are blind in this regard.

It largely falls upon civil society to develop the sustainability agenda, but that is perhaps the appropriate level. Civility – the central virtue of civilization – requires courage and constructive confrontation. And citizenship is the vehicle for political change. It is probably true that we are now experiencing what some have called a ‘new green movement’, an outburst of creativity in society, business and technology towards a low-carbon economy. There is a certain optimism of endlessly creative solutions and a quality of life that is both comfortable and energy saving. However, it does take a strong sense of citizenship to turn this new optimism into a catalyst for a change of institutions and governance.

The required changes involve all levels of society, but foremost a change in how the environmental problems are being dealt with politically. Environmental governance is still the poor cousin of economic governance rendering the concept of sustainable development an unfulfilled promise. For sustainable development to become the overarching paradigm in law and governance, its conceptual core, i.e. the principle of sustainability, needs to be (re)discovered, explained, defined and applied.

The thesis of this book is that sustainability has the historical, conceptual and ethical quality typical for a fundamental principle of law. Like the ideals of justice and human rights, sustainability can be seen as an ideal for civilization both at national and international level. When accepted as a recognized legal principle, sustainability informs the entire legal system, not just environmental laws and not just at domestic level. While certain legal developments in individual countries such as New Zealand, North America, South America, Germany and the European Union are of particular interest and will be discussed, the book does not take a comparative approach. This is not a study of comparative environmental law. Nor is international environmental law as such the subject of investigation. Rather the book investigates how sustainability informs the principles used in domestic law as well as international law.

Taking a global perspective the book aims to overcome the dichotomy between international law and municipal law. In the age of globalization, the separation between both spheres is withering somewhat, but the great divide between them, the concept of state sovereignty, remains the cornerstone of the world’s legal heritage. Overcoming the dichotomy has certainly been the goal of international human rights law and, perhaps even more so, international environmental law. Human rights are universal in character and ought to be followed regardless of the world’s cultural diversity. However, this is in dispute. Given the diversity of cultural traditions and sometimes rivalries between them, the principle of universally accepted human rights is, at best, only emerging. The environment, on the other hand, is global by nature and the functions of the Earth’s ecological systems are felt everywhere beyond any cultural identity. The environment is the great unifier of humanity, at least, in the sense of a shared concern. Environmental protection and, in fact, the principle of sustainability is a truly global challenge. To this end, the book makes a contribution to a theory of global law.

One other way to describe the book’s methodology is a study into the ‘greening’ of the fundamental principles of law and governance. If sustainability is a fundamental principle, as

will be argued here, then it needs to inform other fundamental principles. The idea(s) of justice, for example, inform the concept of human rights. Likewise, human rights keep informing interpretations of distributive justice. The State is constrained by the guarantees of human rights and justice, but is also their guarantor. Mutual reinforcement of fundamental concepts has created the modern state as it functions today. It is reasonable, therefore, to ask how the challenge of protecting the global environment impacts on the modern state with its traditional functions and how the ‘greening’ of its governance, institutions and law can be articulated.

The first chapter traces the meaning of sustainability both as an idea and as a term. Going back into times preceding the modern debate on sustainable development we can discern certain characteristics not only in ancient cultures that Christopher Weeramantry referred to, but also in European history. The idea and even the term sustainability (German *Nachhaltigkeit*) have been understood and practised long before the modern debate of the 1980s. The fact that sustainability was a legal term with a defined content and used in legislation is important for the interpretation of the modern composite term ‘sustainable development’. It would be wrong to assume that this construct only emerged following the Brundtland report and could only be interpreted accordingly. Moreover, sustainability has continued to evolve as a fundamental idea, not least through scientific and ethical reasoning. The Earth Charter, in particular, has been helpful to defining this idea with clear contours and meaning. Essentially, sustainability means maintenance of the integrity of the Earth’s ecological systems.

The second chapter examines the legal status of sustainability. There is no commonly agreed typology of legal norms, but using the fairly well-established typology of international law we can describe sustainability as a legal principle. As such it creates meaning and legal status for the concept of sustainable development. The fact that there is a wide range of opinions on the legal quality of sustainable development is largely owed to its vagueness. The new Sustainable Development Goals are no exception; while specific and ambitious, they lack coherence and direction. The lack of definable content has long hampered, even hindered the political and legal acceptance of sustainable development. The principle of sustainability gives this concept more exact contours allowing its qualification as a principle of international law. However, the principle of sustainability reaches further. It is broad and fundamental like some other pillars of modern society, i.e. justice, equality and freedom. With its wider spatial and temporal dimension it impacts on the meaning of justice, equality and freedom.

The third chapter then explores the relationship between sustainability and justice. If humans are to be concerned with maintaining the integrity of the Earth’s ecological systems they need to accept responsibility for non-human aspects of nature. This raises the issue of environmental ethics. There are various theories how environmental ethics could inform the idea of justice. Liberal concepts aim for reconciling care for non-humans and justice in a different manner than ecological concepts. Essentially, the contemporary debate surrounds John Rawls’ theory of justice. Can his liberal theory be sustained by adding a ‘green twist’ (Wissenburg) or do we need a genuine ecological theory of justice? The concept of ecological justice, it will be argued, is not only compatible with the principle of sustainability, its three elements (of intragenerational, intergenerational and interspecies justice) provide clear guidance for the interpretation of existing and the design of future laws.

Chapter 4 examines the relationship between sustainability, human rights and constitutions. That human rights have an environmental dimension is well established in human rights theory and practice. Courts have for some time now acknowledged that environmental

degradation threatens the enjoyment of rights to life and well-being, privacy, property and others. There is also wide recognition of new environmental rights, from procedural rights (to information, public participation, judicial review) to a distinct human right to a healthy environment. While these developments indicate a certain greening of human rights and better enforcement of environmental laws, they also tend to foster anthropocentric reductionism. From a sustainability perspective, human rights have to be complemented by responsibilities for the environment. This has been largely overlooked by the environmental rights discourse. Environmental responsibilities cannot be understood as mere moral duties, or merely expressed in environmental laws. The fundamental character of human rights requires that they themselves need to incorporate such duties either through 'ecological limitations' or rights of nature. In most countries such new duties have yet to be constitutionalized, yet we are seeing trends towards global environmental constitutionalism based on a universally shared concern for sustainability.

The fifth chapter deals with the legal concept of the State. Given the pivotal role that the State has for protecting its citizens and natural environment, we need to ask whether it can, in fact, fulfil this role. To a degree, threats to citizens and their environment are global and not necessarily 'home-made'. While people, institutions and corporations are culprits, they are also victims in need of protection. The principle of sustainability, therefore, redefines the role and functions of the State by adding a fiduciary role. Internally, the constitution can provide for a state obligation to protect the environment (as a number of states have done). Externally, territorial sovereignty can be understood to include a stewardship or trusteeship function. As the State's territory is simultaneously national environment and part of the global environment, there is a need to complement the recognized permanent sovereignty over own natural resources with a trusteeship role with respect to the global environment. The jurisprudential debate surrounding state sovereignty has made good progress in recent times with some commentators advocating the idea of the State as environmental trustee. Its practical consequences include an obligation to protect the global environment as a general principle of international law and the establishment of global institutions of trusteeship, but also vastly increased political and legal pressures on treaty negotiations, for example, with respect to climate change.

The final chapter is devoted to governance in an attempt to describe governance for sustainability. Here we first examine the current system of global environmental governance and efforts for its reform. The UN reform, for example, is a much publicized process with proposals for a revitalized Trusteeship Council, a global environmental agency, an international environmental court and other institutions to promote and review sustainable development. Outside the UN system, but often in cooperation with it, are international environmental organizations such as the IUCN representing the voice of civil society. The emergence of global civil society is among the most significant events in recent times. Hardly any activity or non-activity of states gets unnoticed by a critical international audience. Moreover, global networks of citizens and civil society groups reflect the advent of a new kind of citizenship. The concept of global citizenship, while purely ethical and not legal in nature, is of great political relevance. The traditional elements of national citizenship – identity and loyalty – are increasingly undermined (or enriched?) by global identity and loyalty. Constitutional law already recognizes multinational and supranational forms of citizenship, but what does it mean for governance when people define themselves as global and ecological citizens

in addition to their national citizenship? State-centred governance models have yet to accommodate this new consciousness and confidence of citizens.

For this second edition of *The Principle of Sustainability* the text has been comprehensively revised, updated and in some areas rewritten responding to developments since the book's first publication in 2008.

I am grateful to Samuel Johnston for assistance with researching and drafting relevant parts of the revised second edition and to Ryan Chao and Danyela van der Sande for editorial help. My sincere thanks to Alison Kirk from Routledge, who accompanied the publication of the original hard cover book, for initiating and supporting this second edition.

1

THE MEANING OF SUSTAINABILITY

In this chapter I will argue that sustainability is a meaningful and powerful idea. The only reason why we may think otherwise would be that the term has been used in such a variety of meanings that it has become meaningless. Such criticism I suggest confuses the idea with the term. While the term may have been misused, the idea remains and continues to influence our thinking about the future.

What is sustainability?

Sustainability is both simple and complex. Herein it is similar to the idea of justice. Most of us intuitively know when something is not ‘just’ or ‘fair’. Similarly, most of us are fully aware of unsustainable things: waste, fossil fuels, polluting cars, unhealthy food and so on. We can also assume that many people have a clear sense of justice and sustainability. For example, they feel that a just, sustainable world is desperately needed no matter how distant an ideal it may be.

In its most elementary form sustainability reflects pure necessity. The air that we breathe, the water that we drink, the soils where our food comes from are essential to our survival. The basic rule of human existence is to sustain the conditions life depends on. To this end, the idea of sustainability is simple.

But sustainability is also complex, again like justice. It is difficult to categorically say what justice is. There is no uniformly accepted definition. Justice cannot be defined without further reflection on its guiding criteria, values and principles. Such reflection is subjective by nature and open to debate. The same is true for sustainability. It cannot be defined without further reflection on values and principles. Thus, any discourse about sustainability is essentially an ethical discourse.

The term sustainability triggers a similar response as the term justice. Everybody agrees with it, but nobody seems to know much about it. We have only a vague idea what sustainability involves or how it could be achieved. We may be able to *imagine* a sustainable society, but probably not to how to get there. On the other hand, a ‘just society’ reflects an ideal which may never be fully achieved. Ideals such as justice, peace and sustainability are fundamental to any society. We cannot do without them.

Sustainability and justice evoke similar sentiments. In some ways, however, sustainability appears more distant than justice. There are several reasons for that. First, many of today's societies can be described as just, at least, in a sense of providing the means for peaceful conflict resolution. By contrast, none of today's societies are sustainable. They are too deeply enmeshed in wasteful production and consumption to realize their unsustainable character. Second, the absence of justice is harder to bear than the absence of sustainability. Persisting unjust treatment of people by political regimes, for example, will not be tolerated for long. Either internal or external forces will revolt against it. Unsustainable treatment of the environment, on the other hand, is more likely to be tolerated. The reason is that people are less immediately affected by its impacts. The distance in space (global environment) and time (future generations) prevent us from acting with urgency.

Yet, perceiving sustainability with a similar immediacy as we perceive justice is entirely appropriate, precisely because the distances are vanishing. The world has become a small place and the future is already here. Climate change is an example in case. For a long time, the impacts of climate change appeared as distant possibilities. This is no longer the case. Now, climate change makes headlines on a daily basis. Since Al Gore's 'Inconvenient Truth', Nicholas Stern's report on the economic costs of global warming and George Bush's acceptance of climate change as a 'serious problem', the media have firmly embraced climate change as the most pressing issue of our time.

As we realize the impacts of climate change, we begin to feel its morality as possibly the biggest challenge. How can we justify the fact that our actions today will almost certainly threaten the planet's future? We are failing to meet the most basic obligation of each generation, i.e. to provide for the future of our children. This raises a moral question typical for sustainability *and* justice. How can we organize a fair distribution of goods and burdens throughout the generations?

It is hard to avoid the conclusion that sustainability fundamentally poses a challenge to the idea of justice. If a person lives at the expense of others, we consider this to be 'unfair'. If rich societies live at the expense of poor societies, we consider this also to be 'unfair'. Why then should it be acceptable to live at the expense of future generations and the natural environment? Whether or not sustainability requires, in fact, a rethinking of the idea of justice needs further consideration.¹ However, realizing the linkages between the two concepts also helps us to access the meaning of sustainability. It is an idea that refers to the continuity of human societies and nature.

Going back into history, we find that continuity of cultures and societies could only be ensured if ecological systems were sustained. Jared Diamond identified five factors contributing to the collapse of civilizations: climate change, hostile neighbours, trade partners, environmental problems and, finally, society's response to its environmental problems.² The first four may or may not prove crucial for the demise of society, Diamond claims, but the fifth always does. The salient point, of course, is that a society's response to environmental problems is completely within its control, which is not always true of the other factors. In other words, as his subtitle puts it, a society can 'choose to fail'. The fact that choice is at the

1 See Chapter 3.

2 Diamond, J. (2005), *Collapse: How Societies Choose to Fail or Succeed* (New York, Viking Books). See also McEvoy, A.F. (2013), 'Environmental Law and the Collapse of New Deal Constitutionalism', *Akron Law Review* 46(4), 881, www.uakron.edu/dotAsset/375d586e-271b-401a-92c4-36573b8148bf.pdf, accessed 8 May 2016.

heart of continuity makes sustainability a matter of ethics. A society can choose to incorporate or to ignore the need to live within the boundaries of ecological sustainability.

It is at the level of basic values, therefore, where sustainability – like justice – needs to be conceived in the first place. For this reason, the vision of a ‘just and sustainable society’³ is not a distant dream, but conditional to any civilized society.

History gives us a clue why sustainability has always been a concern of society. The modern sustainability debate is by no means new, it only adopted the new focus on ‘sustainable development’. Whether or not this focus has helped to understand the principle of sustainability or deviate from it is the big question.

The answer that will be offered in this chapter is that the concept of sustainable development is only meaningful if related to the core idea of ecological sustainability. We will see that sustainable development needs to be understood as an application of the principle of sustainability, not the other way round. The vision of a ‘sustainable society’ is another, broader application of the same idea. Other applications can be seen in the terms ‘sustainable growth’, ‘sustainable economy’, ‘sustainable production’, ‘sustainable trade’ and so on. No matter how clear or confusing such terminological combinations are, they all employ a basic idea of sustainability.

With respect to ‘sustainable development’, the crucial question is how the concern for ecological sustainability is related to development, more precisely, the concern for prosperous development of people living today (intragenerational equity) and in the future (intergenerational justice). As will be shown, the sustainability debate since the Brundtland Report of 1987⁴ has, to a large extent, overlooked the importance of defining these relationships. Sustainable development does not call for a balancing act between the needs of people living today and the needs of people living in the future, nor for a balancing act between economic, social and environmental needs. The notion of sustainable development, if words and their history have any meaning, is quite clear. It calls for development based on ecological sustainability in order to meet the needs of people living today and in the future. Understood in this way, the concept provides content and direction. It can be used in society and enforced through law. The legal quality of the concept of sustainable development firms up once its core idea is being realized.

A short history of sustainability

The meaning of sustainability can best be understood when we ask whether there has ever been a sustainable society. If we interpret the Brundtland definition in a way that attributes equal importance to ecological, social and economic considerations, the benchmark for a sustainable society is extremely high. Was there ever equity between rich and poor, between sexes and ages, between countries and cultures and, at the same time, ecological sustainability

3 As for example, expressed in the Earth Charter, www.earthcharter.org, accessed 12 June 2016. See also Bosselmann, K. and Engel, R. (2010) ‘Introduction: History and Key Features of the Earth Charter’, in Bosselmann, K. and Engel, R. (eds), *The Earth Charter: A Framework for Global Governance* (Amsterdam, KIT Publishers), 1–12.

4 World Commission on Environment and Development (1987), *Our Common Future*, ‘Brundtland Report’ (Oxford/New York, Oxford University Press), 65. Defines sustainable development as ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’.

and economic prosperity? Clearly, the answer is no. Pre-agricultural societies of hunters and gatherers have endured for a long time, the Australian Aboriginals, for example, for 60,000 years. Agricultural civilizations, like Ancient Egypt or the Indus valley, lasted for more than 5000 years; however, from what we know they were also shaped by inequity, oppression, violence and imbalances of all forms. If the characteristics of social and economic justice are part of the meaning of sustainability, then no society or civilization has ever been sustainable. Sustainability, in this sense, would remain a utopian idea, a distant goal that can never be achieved.

If, on the other hand, sustainability is brought back to its basics, the term becomes operable and meaningful. Before Brundtland, the term referred to a physical balance between human society and the natural environment. If the physical exchange processes between society and environment are upheld for a long period of time, a situation of sustainability can be observed. The question, whether societies have ever been sustainable, can be answered quite clearly and independently of whether they also have been 'just' or peaceful. So, what are the historical roots of sustainability and why should this matter to us today?

The basic idea

The idea of sustainability has its roots in the history of humankind. The Prince of Wales linked it even to the essence of humanity: 'deep within our human spirit there is an innate ability to live sustainably with nature'.⁵ The 'innate ability' may refer to unfulfilled desires rather than actual abilities, however, the notion reminds us of our co-evolution with life as a whole. The desire for living in harmony with nature is undoubtedly part of our evolutionary heritage. But is the opposite not true as well? Considering the destructive forces of global corporatism and consumerism, we may think of harmonic relationships as a distant dream of the past. Yet, we can equally ask whether total global consumerism is any more 'innate' to human conditioning than wanting to live sustainably. Human existence has always been embedded in natural cycles and whether we realize it at the present time or not this will not change.

Christopher Weeramantry made some revealing observations in his Separate Opinion in the ICJ *Gabčíkovo-Nagymaros* case 1997.⁶ Referring to ancient agricultural and legal systems in the Americas, Africa, the Middle East and Asia, he recalls the long tradition of living in harmony with nature. Ancient civilizations were grounded in value systems that did not separate the human sphere from the natural sphere. It was inconceivable, for example, for North American Indians or Maya and Inca civilizations to seek economic prosperity at the cost of ecological sustainability. Exploitation and preservation were held together by the 'need for human activity to respect the requisites for its maintenance and continuance'.⁷ Considering today's ecological crisis, Weeramantry suggests that the 'formalism' of modern legal systems, deprived of such values and principles, must be overcome: 'The time has come when [modern legal systems] must once more be integrated into the corpus of the living law.'⁸

5 Foreword by HRH the Prince of Wales in Pye-Smith, C. and Feyerabend, G.B. (1994), *The Wealth of Communities: Stories of Success in Environment Management* (London, Earthscan), VII.

6 Case Concerning the Gabčíkovo-Nagymaros Project (*Hungary v. Slovakia*), 1997 ICJ, 37 ILM 162 (1998), Separate Opinion of Vice-President Weeramantry.

7 Ibid. 18.

8 Ibid.

Modern legal systems have their origins in European civilization. Their ‘formalism’ is due to the increasing separation between morality and law since the eighteenth century and the dominance of positivism.⁹ By the 1960s, when the first modern environmental laws were drafted, the separation was complete. Existing laws of unfettered resource use and exploitation – expressed in property rights, civil codes and public statutes – were complemented by conservation laws, but not in an integrated manner. They were not intended to alter unsustainable development.¹⁰ The very existence of environmental law as a distinct subject area is proof of the fact that sustainability values have not found their way into the legal system. Both domestic and international environmental law are characterized by the absence of integration and ecological sustainability. Moreover, with their anthropocentric, resource-oriented and non-integrative approach they tend to foster modern industrialism rather than change it.¹¹

The ‘ecological ignorance’¹² of modern environmental law is widely recognized in the literature and needs no further description. What is important in our context, however, is the other tradition of European legal culture. The history of environmental law did not begin in the 1960s, but is as old as European legal history. There is a tradition of sustainability concepts that has, in fact, influenced the development of laws in European countries.

To this end, the history of sustainability is linked with the history of environmental law. Sustainability concepts were not invented at the end of the twentieth century, but some 600 years earlier when continental Europe suffered a major ecological crisis.¹³ Between 1300 and 1350 agricultural development and timber use reached a peak that led to an almost complete deforestation.¹⁴ The loss of ecological carrying-capacity had a number of severe consequences. Without forests there was no timber for heating, cooking, house building and tool making. At the same time, an important nutritional basis for deer, pigs and cattle vanished and with it the prospect for animal fertilizers necessary for growing crops. Erosions, flooding and lowering of water-table levels were further effects. The resulting great starvations between 1309 and 1321 followed by the plague (the ‘Black Death’) between 1348 and 1351 reduced the population in Middle Europe by one-third.¹⁵ In some regions half of the townships disappeared, altogether 40,000 settlements.¹⁶ Compared to the collapse of other cultures, such as the Maya, the European collapse was less dramatic, but marked a significant ‘cultural standstill’.¹⁷

In response to the crisis, local principalities and townships took measures of large-scale reforestation and enacted laws based on sustainability. The idea was to clear no more wood than will grow again and plant new trees so that future generations will benefit. From the end

9 Bosselmann, K. (1995), *When Two Worlds Collide: Society and Ecology* (Auckland, RSVP), 227.

10 Ibid. 58–62, 80–87.

11 The fundamental critique of environmental legal theory has been developed in Bosselmann, K. (1985), ‘Wendezeit im Umweltrecht’, *Kritische Justiz* 18(4), 345–361; Bosselmann, K. (1986), ‘Eigene Rechte für die Natur?’, *Kritische Justiz* 19(1), 1–22; further Bosselmann, K. (1992), *Im Namen der Natur. Der Weg zum ökologischen Rechtsstaat* (Munich, Scherz).

12 Bosselmann 1995 (n. 9 above), 226.

13 Hughes, J.D. (2001), *An Environmental History of the World* (London, Routledge).

14 Abel, W. (1976), *Die Wüstungen des ausgehenden Mittelalters*, 3rd edn. (Stuttgart, Fischer); Küster, H. (1998), *Geschichte des Waldes: Von der Urzeit bis zur Gegenwart* (Munich, Beck).

15 Herlihy, D. (1998), *Der Schwarze Tod und die Verwandlung Europas* (Berlin, Wagenbach).

16 Abel 1976 (n. 14 above).

17 See Diamond 2005 and McEvoy 2012 (n. 2 above).

of the fourteenth century, local laws in Middle Europe were guided by sustainability concerns.¹⁸

The approach to sustainability laws centred around a land use system known as ‘*Allmende*’ in German and ‘Commons’ in English. Essentially, the land was seen as a public good setting limitations to individual land use rights. The *Allmende* system of German principalities defined the difference between the public and the private: the functioning and integrity of ecosystems was of public concern, the use of resources could be private. The rule was public ownership, the exception private use. This rule was eventually reversed in the nineteenth century when the model of private ownership became the rule. Ever since, public restrictions have only been possible in exceptional cases.

Under the *Allmende* system, land use rights were typically restricted in three ways. First, an important ecological limitation was the relational context of land use rights. They were regarded as heritage from the past and obligation for the future. Notions of heritage (*Erbschaft*) or ancestors (*Ahnen*), on the one hand, and heirs (*Erben*) and descendants (*Nachkommen*), on the other, commonly defined the extent of individual land use rights. Second, forests, pastures and arable land were organized as *Allmenden* in a narrow sense, i.e. as an undivided common area of the local community. Actual crop fields were allocated to individual households in terms of harvesting and possession, however, the decision on the kind of use remained with the local community. To this end, crop fields remained part of the *Allmenden*. It is important to note that local common ownership is different from private property as it can only be exercised through collective decision-making. Gary Hardin’s famous ‘tragedy of the commons’¹⁹ is misleading, therefore, in so far as it refers to historical categories. Neither the German *Allmende* nor the English Commons system allowed for excessive land use. It is more correct to speak of the ‘tragedy of free access’ typical for our time, i.e. since 1800.²⁰ The third restriction of land use rights came from the fact that they could not be sold or passed on without approval of the principal or local landlord (representing the collective). There was also the possibility of prohibiting changed or excessive use.

The concerns underpinning the *Allmende* system may include property protection and political power. Importantly, however, they were also informed by ethics different from the ethics of modern property rights. The human–nature relationship was seen as one of stewardship. Land was respected as an essential ingredient of life in general with humans being mere users. Moreover, while land could be owned it could only be owned within the limits of ecological sustainability.

Sustainability law of this kind was typically administered by the local principal and usually twelve judges forming the local court, but always within small communities. People were familiar with the social and natural environment they lived in. This had some major advantages. First, land use was highly decentralized and fully controlled by local communities. Second, intimate knowledge of local ecosystems allowed for informed decision-making. Third, form and extent of land use could easily be adjusted to changing ecological conditions. Fourth, common interests have preference over individual interests. And fifth, the aim of – often rotational – land use was not maximization, but optimization.

18 Marquardt, B. (2003), *Umwelt und Recht in Mitteleuropa: Von den großen Rodungen des Hochmittelalters bis ins 21. Jahrhundert* (Zürich, Schulthess).

19 Hardin, G. (1968), ‘The Tragedy of the Commons’, *Science* 162, 1243–1248.

20 Sieferle, R.P. (1998), ‘Wie tragisch war die Allmende?’, *GAIÁ* 7(4), 304–307.

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Judging by the success of sustainable forest and pasture management, environmental law had been rather effective until 1800. Around this time another major food and environmental crisis hit the now faster growing population in Europe. Simultaneously, traditional agricultural civilization gave way to modern industrial civilization. Only comparable to the Neolithic revolution, the industrial revolution led to a profound transformation of land and natural resource use.

This transformation had three different aspects:

- 1 The environmental aspect: the pressures of the demographic-ecological crisis caused the agricultural system to 'expand' its natural boundaries;
- 2 The philosophical aspect: Newton's model of physics coupled with the mechanistic-atomistic image of nature favoured 'natural resource' exploitation over ecological sustainability;
- 3 The energy aspect: renewable energy sources such as wood and wind by replaced by fossil energy, i.e. coal and later oil.

Together, these aspects became a catalyst for the modern economy with its resource-intensive and short-term orientation. The law mirrored this shift. It left its sustainability-oriented, localized and public character more and more behind, adopting a 'private free enterprise' approach. At the beginning of the nineteenth century public environmental law virtually disappeared. The emerging system of private law and absolute property rights was largely ignorant of environmental protection, let alone sustainability. The Prussian Land Law of 1811, for example, granted individuals complete dispositional powers over their crops, land and ecosystems.²¹

The new property model subjected nature to exclusive private control. The relationship of humans to the land was no longer perceived as embedded in broader natural cycles, but as a relationship of individual power over the land. Now, the land user stood separate from, and above, nature. Consequently, any limitations of land and property rights are no longer set by ecological necessities, but by competing rights of neighbours. It took governments until the second half of the twentieth century to realize that some environmental safeguards may, in fact, be needed. But even the new public environmental law of the 1960s and 1970s added only certain environmental duties to otherwise unrestricted private property rights. Until today, environmental law has remained the poor cousin of property and commercial law only able to promote 'insufficient measures at the periphery'.²²

The idea of sustainability may have vanished with the emergence of industrialism, but it has never died. Dormant until its global debut in the 1980s, the idea of sustainability has been alive for many hundred years in European civilization. Even the term 'sustainability' had been in use for several hundred years, when the Brundtland Commission in 1987 employed it for its own definition of sustainable development.

21 Marquardt, B. (2005), 'Zeitenwende für die Nachhaltigkeit: Zur umwelthistorischen Zäsur um 1800', *GAIÄ* 14(3), 243–252.

22 Bosselmann 1995 (n. 9 above), 10.

The term

We will now turn to the history of the term ‘sustainability’. Even more clearly than the underlying idea, the term sustainability reveals its message for today: if you want long-term economic prosperity, look after the environment first!

The term sustainability was invented during the Age of Enlightenment. The enlightenment brought two important developments of thought:

- 1 The scientific revolution based on rational thinking and empirical observations. It revolutionized not only the way the physical world (nature) was perceived, but also the way the cultural world (society) was perceived. All aspects of human life could now be explained without regard to metaphysical levels of human existence (religion).
- 2 The secular approach to law and governance. Social norms (whether moral or legal) had to be ‘reasoned’, i.e. tested against rationality and scientific evidence. Tradition and religion ceased to be sources of public morality.

The dark side of such enlightened thought is the difficulty to reflect on its own assumptions. If the rise of enlightened thought has brought unprecedented economic success, it has also brought unprecedented ecological failure. Finding ways out of this failure requires rethinking. It is doubtful that pure rationality provides sufficient guidance. The emergence of the sustainability concept in the eighteenth century, however, is a strong indication that modern rationality can be coupled with ancient wisdom.

The backdrop against which the term sustainability was coined was again the experience of an ecological crisis. Like the ecological crisis in the late Middle Ages, this new crisis was one of deforestation, this time caused by rapidly increased economic demands. Wood was needed for mining, shipyards, construction, manufacturing and household consumption. By 1650 widespread shortages of wood began to cripple the economies in European countries.²³ At the same time, the new discipline of forest science and management emerged. Its focus was on studying the conditions for sustained forestry and sustainable yield.

Since 1662 the British Royal Society had worked for the Navy to investigate sustained supply of timber for the development of a mighty maritime fleet. When, in 1666/1667, England suffered a defeat of its naval fleet against the Netherlands, the Royal Society commissioned a report by one of its members that should summarize the debates within the Society. This member was the garden planner, biologist and historian John Evelyn. His report was published in 1664 under the title *Sylva, or a Discourse of Forest Trees and the Propagation of Timber in His Majesties Dominions*. It made an instant impact and went to many subsequent editions.

In his analysis, Evelyn blamed the British glass and iron industry for excessive use of charcoal and the agricultural industry for ‘disproportionate spreading of tilling’ from forests to farmland. He saw the epidemic loss of forests as threatening to the ‘magazines of timber’ for the ‘wooden walls’ of the nation, i.e. the Royal Navy. He asked the gentry and land owners to show a ‘new spirit of industry’ by planting trees wherever possible: ‘Let us arise then and plant!’²⁴

23 Radkau, J. (2000), *Natur und Macht. Eine Weltgeschichte der Umwelt* (Munich, Beck), 245.

24 Quoted here from the 1776 edition of Evelyn, J. (1664), *Sylva, or a Discourse of Forest-Trees and the Propagation of Timber in His Majesty's Dominions* (London, Jo. Martyn and Ja. Allestry), 279.

The book details methods of planting, gardening, designing parks and managing forests. Citing the Bible, classic philosophers like Plato and recent writers like Shakespeare, Evelyn argues the case for radical reforms, including such ambitious ideas as shifting the entire iron industry from 'Old England' to 'New England', i.e. North America. The core of his argument is concern for 'posterity'. Each generation is '*non sibi soli natus*' (not just born for itself), but 'born for posterity'.²⁵ In this context, Evelyn formulates his ethics of sustainability:

men should perpetually be planting, so that posterity might have trees fit for their service ... which it is impossible they should have, if we thus continue to destroy our woods, without this provisional planting in their stead, and felling what we do cut down with great discretion, and regard to the future.²⁶

At the same time in France, the powerful minister of Louis XIV, Colbert, promoted his '*grande reformation des forêts*'. As in England, the French king sought to expand his naval fleet and was hit by the loss of timber through overuse by farmers and private households. Colbert's '*grande ordonnance*' limited the rate of tree felling, restricted cattle farming and provided for tree planting programmes. The strategy was '*bon usage de la nature*' as the essence of sustainable forest management.

German engineer and forest scientist Hans Carl von Carlowitz can be seen as the actual creator of the term 'sustainability', *Nachhaltigkeit*. Born in 1645 in Freiberg, Saxony, he traversed Europe between 1665 and 1669 to gain insights into the resource crisis. He worked with John Evelyn in London where he also studied the British and French literature. For the following forty years Carlowitz was responsible for administering the silver mining industry in Saxony. During this time he learned about the dependence of mining on its natural resource base. A year before his death (1714) he published a book that summarized his professional and lifetime experiences. The book's title is *Sylvicultura oeconomica oder Naturmässige Anweisung zur Wilden Baum-Zucht* [Forest Economy or Guide to Tree Cultivation Conforming with Nature]. Its subject is an investigation on 'how such conservation and growing of timber can be managed in order to provide continued, durable and sustained use'.²⁷

This was the first appearance of the term sustainability/*Nachhaltigkeit*. The preceding chapters contain a critique of short-term gain-oriented forestry²⁸ and of blind cultivation of natural landscapes.²⁹ Carlowitz argues that ignorance and greed will 'ruin' forestry and lead to 'irreparable damage'.³⁰ He, therefore, demands sustainability as an 'indispensable thing' to ensure the continued 'existence of the country'.³¹ Among his recommendations are 'the arts of saving

25 Ibid. 273.

26 Ibid. 205.

27 Carlowitz, H.C. von (1713), *Sylvicultura Œconomica. Anweisung zur wilden Baum-Zucht* (Leipzig; repr. Freiberg, TU Bergakademie Freiberg und Akademische Buchhandlung, 2000). For the following, see Grober, U. (2002), 'Tiefe Wurzeln: Eine kleine Begriffsgeschichte von "sustainable development" – Nachhaltigkeit', *Natur und Kultur* 3(1), 116–128; Grober, U. (2007), *Deep Roots – A Conceptual History of 'Sustainable Development' (Nachhaltigkeit)* (Berlin, Wissenschaftszentrum Berlin für Sozialforschung).

28 Carlowitz 2000 (n. 27 above), Foreword, 43–98.

29 Ibid. Foreword and 79–94.

30 Ibid. 87.

31 Ibid. 106–107.

wood³² through energy conservation, insulation etc., systematic regrowing planting of 'wild trees',³³ and the search for 'surrogates'³⁴ for wood such as peat and brown coal.

Fundamentally, Carlowitz builds his argument upon his perceptions of nature. In the first part of the book, he describes nature as 'mild'³⁵ and 'kind'³⁶ with a 'living spirit'³⁷ and the 'live instigating power of suns' to cause the 'miracle of vegetation'.³⁸ Nature can 'never be fully understood',³⁹ we can only observe 'how nature plays' and 'contemplate the amazing wonders of nature'.⁴⁰ Carlowitz rejects Descartes' view of nature as mere '*res extensa*' and mere storage of resources. To him nature is alive, even 'inspired' like a conscious single organism. Such a holistic view does not hinder him from drawing his conclusions logically and rationally with a strong sense of practicality.

In his economic perspective, Carlowitz accepts that humanity has lost paradise and cannot simply rely on nature delivering in abundance. Despite, or because of, the need of human intervention, the approach must be one of supporting nature and 'working with her',⁴¹ not one of exploitation and 'acting against nature'.⁴² The mistake to be avoided during economic progress is any wasteful, overusing and exploiting use of resources.

Carlowitz sees ecological conditions as determining for all human activities. In today's terminology, ecological integrity has to be respected and must not be compromised. Everything is to be measured against this rule. Carlowitz not only measures economic concerns against ecological sustainability, but also social concerns. His ethical beliefs are firmly grounded in social justice as part of ecological sustainability. The book's dedication expresses concern for 'poor subjects'⁴³ and 'dear posterity';⁴⁴ in fact, the entire book is a plea for responsibility towards future generations with many variations of the same theme. Remarkably, nowhere does Carlowitz assume any tension between social and intergenerational justice, on the one hand, and ecological sustainability, on the other. His definition for long-term sustainability of the 'common sphere'⁴⁵ is to preserve the natural stock, which alone determines what humans can use now and in the future.

The *Sylvicultura Oeconomica* considerably influenced forest management and cameralist theory in most German principalities. In 1757, the Württemberg cameralist Wilhelm Gottfried Moser published his two volumes of *Grundsätze der Forst-Ökonomie* (Principles of Forest Economy). Modifying Carlowitz's term '*nachhaltend*' (sustained) to '*nachhaltig*' (sustainable),⁴⁶ Moser defines forest management on the basis of three principles:

32 Ibid. 43–44 ('Holzsparkünste').

33 Ibid. 49.

34 Ibid. 425–430 ('Surrogate').

35 Ibid. 91.

36 Ibid. 113 ('gütig').

37 Ibid. 22 ('Lebens-Geist').

38 Ibid. 24.

39 Ibid. 31.

40 Ibid. 39.

41 Ibid. 31 ('mit ihr agiren').

42 Ibid. 39 ('wider die Natur handeln').

43 Ibid. Widmung ('armen Untertanen').

44 Ibid. ('lieben Posterität').

45 Ibid. ('des gemeinen Wesens').

46 An earlier use of this term can be traced back to the author of the 1729 *Forstlagerbuch*, von Göchhausen, who uses *nachhaltig* ('sustainable') as the advanced form of *pfleglich* ('appropriate' or 'considerate'); Schwarz, E. (1960), 'Oberlandjägermeister v. Göchhausen', *Archiv für Forstwesen* 9(7), 579–594.

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- 1 'sustainable economy with our forests';⁴⁷
- 2 'arts of wood saving';⁴⁸ and
- 3 'regrowing planting and new wood growing'.⁴⁹

He demands that these principles be applied with 'our children and posterity in mind' adding that this is 'so reasonable, just, prudent and social, the more it is understood that no person lives only for themselves, but also for others and those to come'.⁵⁰ Interestingly, the author is the son of Johann Jacob Moser (1701–1785), one of Germany's most famous pioneers of civil rights and liberalism.

At the beginning of the nineteenth century sustainability was commonly accepted as synonymous with good forestry practice. The standard text on forestry by Heinrich Cotta (1763–1844), for example, refers to rich sustainability literature and mentions widespread sustainable forestry practice.⁵¹ Georg Ludwig Hartig (1764–1837) describes the task of forest management as follows:

No long-term forestry can be thought of and expected if harvest of timber is not calculated with respect to sustainability. Every wise forest manager must appraise state forests without losing focus, that is at a highest possible yield level, but in a way that posterity benefits, at least, as much as the living generation using it now.⁵²

Cotta, Hartig and other classics of forest sciences had close affiliations with German idealism and holism (Leibniz, Schelling, Goethe, Herder, Hegel).⁵³ Cotta's first essay of 1792 outlines his organic worldview:

In the whole world there is no thing without relationship to something else.... The world constitutes an indivisible whole; if we isolate something from the conditions in which it is embedded, we will disturb the order of nature and hinder its effects.⁵⁴

Philosopher Johann Gottfried Herder (1744–1803) takes the Earth as the most suitable starting-point for thinking about existence: 'Our Earth is a star among stars. Our philosophy of the history of the human species must begin from taking a view from the skies.'⁵⁵ Herder

47 Moser, W.G. (1757), *Grundsätze der Forst-Ökonomie* (Frankfurt, Leipzig), 31 ('nachhaltige Wirtschaft mit unseren Wäldern').

48 Ibid. ('Holzsparkünste').

49 Ibid. ('Nachpflanzen und neuer Holz-Anbau').

50 Ibid.

51 Cotta, H. (1817), *Anweisung zum Waldbau*, 2nd edn. (Dresden, Arnold). See Grober 2002 (n. 27 above), 123–124.

52 Hartig, G.L. (1795), *Anweisung zur Taxation der Forste oder zur Bestimmung des Holzertrags der Wälder* (Gießen), Foreword, quoted from Grober 2002 (n. 27 above), 124: '[E]s lässt sich keine dauerhafte Forstwirtschaft denken und erwarten, wenn die Holzabgabe aus den Wäldern nicht auf Nachhaltigkeit berechnet ist. Jede weise Forstdirection muss die Waldungen des Staates, ohne Zielverlust, taxieren lassen, und sie zwar so hoch als möglich, doch zu benutzen suchen, dass die Nachkommenschaft wenigstens ebenso viel Vortheil daraus ziehen kann, als sich die jetzt lebende Generation zueignet.'

53 Bosselmann (n. 11 above), 12.

54 Grober 2002 (n. 27 above), 124.

55 Herder, J.G. (1784–1791), *Ideen zur Philosophie der Geschichte der Menschheit*, ed. Martin Bollacher (Frankfurt, Deutscher Klassiker, 1989), 21.

refers to the Earth as our ‘*Wohnplatz*’ (living space, home) and to humans’ role in this house as ‘*haushalten*’ (housekeeping). This reference to the Greek term ‘*oikos*’ (house, household) reflects European ancient wisdom and, at the same time, anticipates the terminology that is so familiar to us today. When Ernst Haeckel introduced the term ‘*Oecologie*’, in 1866, he used Herder’s image of housekeeping: the Earth’s living organisms relate to each other like inhabitants of a common house. ‘Ecology’ with its components *oikos* and *logos* describes the fundamental discipline of housekeeping against which ‘economy’ appears as a mere subdiscipline of efficient housekeeping.

Like Herder, Haeckel associated himself with both Darwin and Goethe. He saw no contrast between Darwin’s mechanistic interpretation of evolution as survival of the fittest and Goethe’s organic view of co-evolution as a collective process. Other natural scientists like Johann-Heinrich Jung-Stilling, Alexander von Humboldt and Georg Forster contributed to the eventual emergence of ecology as science.⁵⁶ They all shared the idea of sustainability as the appropriate way for humans to adapt to natural processes. Goethe influenced them all with his organic worldview. In a letter to Eckermann (11 April 1827) Goethe wrote: ‘I think of the Earth as an enormous living being constantly breathing in and out.’ One other metaphor captures the idea of sustainable economics: ‘Baked bread is delicious and nurturing for one day, but flour cannot be sown and seeds should not be used up through processing.’⁵⁷ Or, more bluntly, you may harvest the crop, but not the natural capital.

Sustaining life as a whole to provide for human life was a commonly shared view among nineteenth century theorists of forest management. This view was, by no means, confined to scholars and forest academies in Germany. Forest academies in Austria-Hungary, Switzerland, France, Russia, Scandinavia, the United Kingdom with its colonies and eventually the United States followed the same ecological concept. While the German word *Nachhaltigkeit* was understood abroad, it needed proper translation. The director of the French Forest Academy in Nancy, Professor Adolphe Parade, translated, in 1837, *Nachhaltigkeit* with ‘*production soutenu*’. The French word ‘*soutenir*’ clearly shows its Latin roots. ‘*Sustinere*’ (from ‘*tenere*’ to keep) includes meanings such as endure, last, keep up, maintain, carry on, continue, sustain. The English word ‘sustainable’, too, captures these meanings and is equivalent to the French word.⁵⁸

In his analysis of the terminological history, Ulrich Grober concludes that during the nineteenth century sustainability had emerged as the central term within forest sciences. It was now so broadly applied that the entire spectrum of the ecosystem ‘forest’ was included: location, fertility of soils, diversity of organisms, habitat for wildlife, water reservoir, protection against erosion, ‘lung’ function and recreational space. All these aspects were to be ‘sustained’ to capture the meaning of sustainability.

The sustainability principle was fundamental in forest legislation of the nineteenth century. Article 2 of the Bavarian Forest Act of 28 March 1852, for example, read: ‘The management

56 Grober 2002 (n. 27 above), 125.

57 Goethe, J.W. von (1795), *Wilhelm Meisters Lehrjahre*, ‘Lehrbrief’, in Buch 7, Kapitel 9: ‘Gebackenes Brot [ist] schmackhaft und sättigend für einen Tag; aber Mehl kann man nicht säen, und Saatfrüchte sollten nicht vermahlen werden.’

58 Ironically, it took German authorities a long time to find a German equivalent for ‘sustainable development’. Commonly used expressions include *dauerhaft*, *zukunftsfähig* or *tragfähig*, before, in the late 1990s, the traditional term *nachhaltig* (re)emerged as the most widely accepted attribute of *Entwicklung*.