

Introduction

Michael I. Jeffery, Jeremy Firestone,
and Karen Bubna-Litic

The threats to biological diversity are well known, and include overharvesting of flora and fauna, species introductions, habitat loss and fragmentation, pollution, tourism, globalization, and climate change. These factors threaten the sustainability of culture as well. This volume, addressing as it does the conservation of biodiversity and the divide between developed and developing states, appropriately focuses international and comparative environmental law scholars, practitioners, and policy makers on ways to engage cooperatively to meet the broader imperatives of a sustainable biosphere and sustainable cultures. It also usefully ties these concepts together in one volume given the interrelationship between the two. The tension between nature conservation, on the one hand, and sustainable cultures, on the other, is perhaps best reflected in international law by section 8(j) of the 1992 Convention on Biological Diversity (CBD). There states are called on to conserve biological diversity and to “respect, preserve, and maintain” indigenous cultures while at the same time promoting the wider sustainable use of the components of biological diversity. Appropriately, the Convention recognizes that the conservation of biological diversity is a “common concern of humankind.” We would suggest that sustainable cultures should likewise be recognized. It is to these twin goals – rather, obligations – that we now turn.

This book places the issues threatening biological diversity – the variability of life on Earth and their interaction at the level of genes, species, and ecosystems – in a contemporary context. We have moved beyond the debates of the early 1990s at the time of the Rio Conference, which focused primarily on economic development in an environmentally sustainable manner, to where we find ourselves today with an increased awareness that the way forward must necessarily address poverty eradication on a sustainable basis. Any realistic hope of achieving the Millennium Development Goals lies with reducing poverty through the conservation and sustainable use of biodiversity on a truly global scale. This reduction in poverty will be evidenced in five main areas: security of food production; sustainable livelihoods; improvements to health; reduced vulnerability to natural disasters and conflict over shared resources, such as food and water; and, finally, in the area of ecosystem services. This volume, although only an introduction to some of these areas, represents the aspirations of the participants to the colloquium and the Academy to be built on in future fora.

To this end, the World Conservation Union (IUCN) Academy of Environmental Law assembled many of the world’s most distinguished experts in all areas of biodiversity law at its third annual colloquium in July 2005 hosted by Macquarie University’s Centre for Environmental Law in Sydney, Australia. This followed the Academy’s inaugural

colloquium on the Law of Energy for Sustainable Development hosted by Shanghai's Jiao Tong University in 2003 and the second colloquium on Land Use Law for Sustainable Development in 2004 hosted by the University of Nairobi.

The Academy's third colloquium, entitled Biodiversity Conservation, Law + Livelihoods: Bridging the North-South Divide, brought together more than 130 environmental experts from 27 nations representing universities from each continent to consider issues related to the colloquium's theme. The exceptional level of expertise represented by the author/presenters of the papers contained in this book with respect to the myriad of biodiversity issues addressed throughout the five-day colloquium was reflected by the preeminence of two participants in particular: Dr. Françoise Burhenne-Guilmin, the presenter of the colloquium's Keynote Address and a coauthor of the "Guides" to both the CBD and the Cartagena (Biosafety) Protocol, and Professor Joseph L. Sax, who presented the Distinguished Lectures and is recognized as one of the true pioneers responsible for the development of environmental law as a separate and important legal academic discipline. The participation of Australian traditional owners throughout the colloquium was greatly appreciated by all.

The message by then United Nations Secretary-General Kofi Annan, which is presented at the beginning of this book, attests to the gravity of the ecological dangers facing humankind and, indeed, all living organisms, and acknowledges "the role that environmental law can play in bringing about the policy, institutional, and behavioural changes needed to deal with the root causes of environmental degradation."

The level of synergy and positive interaction among the participants was evident throughout the colloquium both in the plenary sessions and the more thematic breakout sessions. Nowhere was this more evident than in the final plenary session, when, after extensive debate, a consensus was reached on a final statement of principles, referred to as the "Macquarie Statement" and reproduced on page xiii.

We decided on a thematic structure to organize the material contained in the various sections as it was felt that the broad spectrum of issues covered by the concept of biodiversity could best be presented in this manner. This in no way is meant to distract from the fact that the presenters represented every major region of the world and that the chapters address many of the same issues from a country-specific or regional perspective. Notwithstanding this thematic structure, it will be readily apparent that the book in its entirety also presents a global perspective on a matter of global concern.

The sections in the book represent seven themes. Part I sets the context in terms of history and the major governance structures in this area. Joseph L. Sax, in, "Environmental Law Forty Years Later: Looking Back and Looking Ahead," sets a challenge to environmental lawyers worldwide. He confronted us with the notion that there has been widespread failure to address the incentive systems that generate environmental degradation and that our legal systems need to reconstitute themselves to tackle the new values and understandings of contemporary environmental issues such as biodiversity. He shows how property law has developed to encourage exploitation of the land for human purposes and points out that even though we now have environmental laws to conserve land and water, the underlying property law has not changed. Environmental values have not been integrated into the basic structure of the law and so the old incentives remain. The theme of challenging the conference was continued with Dr Françoise Burhenne-Guilmin's chapter, "Biodiversity and International Law: Historical Perspectives and Present Challenges – Where Do We Come From, Where Are We Going?"

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Dr Burhenne-Guilmin poses the challenge to lawyers of operationalising the ecosystem approach and promoting sustainable use within the CBD. Brendan Mackey considers the contribution that the Earth Charter plays in building a global moral community and its role in the foundation of new legal instruments, institutions and processes on global governance. Finally, Paul Martin examines how the role of law must change to meet the challenge of ecological sustainability.

Part II encompasses the conservation of biodiversity and is divided into three sections with the first identifying the needs, problems, and prerequisites in relation to biodiversity. Michael Jeffery questions the effectiveness of developing countries' implementation of the CBD's environmental protection and sustainable human development mandates, and, more specifically, he analyzes the CBD's role in poverty eradication and the "poverty-environment paradigm." He advocates improving environmental governance, developing strategies that meet the economic and social needs of people who depend on biodiversity products and the surrounding ecosystem, and resolving intellectual property issues that are inequitable to poorer countries. In his chapter, "Legal and Paralegal Rules for Biodiversity Conservation: A Sequence of Conceptual, Linguistic, and Legal Challenges," Douglas Fisher identifies the legal challenge resulting from the use of language in the field of biodiversity conservation. He questions our perceptions, understandings, and construction of the concept and value of nature and biodiversity and suggests how it should be expressed and treated in the legal system. Abdul Haseeb Ansari examines biodiversity issues from an Islamic, ethical, legal, and policy viewpoint. Implementation of the CBD is considered in "Experience, Mistakes and Challenges: The Implementation of the Convention on Biological Diversity in Brazil," by Jose Rubens Morato-Leite, Helene Sivini Ferreira, and Patryck de Araújo Ayala. The authors conclude that, although implementation of the CBD is crucial in a megadiverse country like Brazil, impediments, such as politics, institutional weakness, little or no access to information, economic issues, limited exchange and collaboration, social factors, and lack of appropriate policies and laws need to be overcome through a multidisciplinary and qualified group working together. Nicholas de Sadeleer looks at the unique position that European community law plays in the protection of biodiversity and concludes that although it may have an advantage over international law in terms of efficacy, there is a danger that the principle of subsidiarity may lead to a race to the bottom in terms of environmental protection. Justin Rose's chapter investigates the legal and institutional aspects of the region-wide promotion of community-based conservation and natural resources management as an environmental governance mechanism in the Pacific Island region.

The theme of Part III is conservation measures, which are divided into area-based and species-based. The Minister for the Environment in New South Wales, the Hon. Robert Debus, sets out his government's new initiatives on land management. These are community conservation areas, which are essentially multi-use reserves that are managed consistent with sustainability principles, where community involvement and input is encouraged. The other two chapters on area-based conservation are case studies from Ethiopia and Japan. Desalegn Wana's chapter, "Local People's Perceptions and Attitudes towards Nech-Sar National Park, Ethiopia," emphasizes the importance of a participatory approach for the conservation of biodiversity in ensuring the local people's involvement in park management. Yasuhiko Kagami examines the processes involved in the nomination of Shiretoko for world heritage status. The species-based approach

is critically examined in Karen Bubna-Litic's chapter, "Ten Years of Threatened Species Legislation in NSW – What Are the Lessons?" She concludes that the approach that has been used in New South Wales has resulted in costly disputes and that an ecosystem approach needs to be taken to ensure a long-term view of biodiversity protection. Ecosystem-based approaches are considered by Ilona Miller and Jessica Simpson in their chapter, "Sanctuaries, Protected Species and Politics: How Effective Is Australia at Protecting Its Marine Biodiversity under the Environment Protection and Biodiversity Conservation Act 1999?" and by Nicholas Robinson's chapter, "Legal Stewardship of Mountain Regions: The Emerging Ecoregime."

Part IV concerns the use of components of biodiversity. Ian Hannam advocates the need for a specific international soil instrument, as soil is an ecological element that needs to be protected against degradation from world population and increased food production. George Sarpong examines the legal regime for forestry in Ghana with emphasis on the role of the political will of, necessary incentives by, and goodwill on behalf of the government. The chapter by Jeremy Firestone and Jonathan Lilley, "Bridging the Dominant-Indigenous People's Cultural Divide: Reflections on Makah Whaling," examines the debate surrounding the resumption of subsistence whaling by the Makah tribe to illustrate how nation-states and indigenous peoples can bridge the divide and work together to achieve a sustainable biosphere and a sustainable culture.

One group of chapters within the "processes affecting biodiversity" theme in Part V begins by considering the issue of global warming. For example, David Hodas, in his chapter, "Do Biodiversity and Climate Change Laws Mix?" asserts that the laws on biodiversity and endangered species, on the one hand, and the laws on climate change, on the other, do not appropriately address and incorporate the other vital issue. He offers the solution that policy approaches be developed to integrate biodiversity and climate change into routine decision making. Bo Miao considers China's potential adoption of an emissions-trading scheme to combat global warming. Another group in this theme considers the role of sustainable land use in protecting ecosystem functions. Arlindo Daibert compares the private land disposal policies in Brazil and the United States, whereas Du Qun discusses how a new instrument in China, ecological function zoning, can achieve its aim of enhancing the ecological functions of the national key river basins and watersheds. Na Li, Liu Yanchun, and Zhang Hui discuss the positive environmental and economic outcomes of the Ecogress Project on land that has been seriously degraded through agricultural overuse and climate change.

The book then moves in Part VI to consider biosecurity issues of both invasive alien species and genetically modified organisms (GMOs). Yuhong Zhao's chapter, "Prevention and Control of Alien Invasive Species – China's Implementation of the CBD," argues that China's legal regime for dealing with alien invasive species is piecemeal and fragmented and offers suggestions for a more effective outcome. Loretta Feris examines liability and redress schemes in the context of the CBD and the Cartagena Protocol on Biosafety in, "The Reality and Effect of 'Advanced Informed Agreement' under the Cartagena Protocol." Rosemary Lyster questions the reality of informed consent in many developing countries and the effect of the protocol in light of trade law.

The final two sections of Part VII look at access and benefit-sharing in two different contexts. Alan D. Hemmings and Michelle Rogan-Finnemore in their chapter, "Access, Obligations and Benefits: Regulating Bioprospecting in the Antarctic," contend that bioprospecting activities in Antarctica exist in somewhat of a legal and regulatory vacuum as a result of unresolved territorial sovereignty claims. They offer potential solutions to

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this complex issue. The last two chapters tackle the issue of indigenous intellectual and cultural property rights. Burton Ong examines the response of the World Intellectual Property Organisation (WIPO) to the exploitation of genetic resources and traditional knowledge and the development of protection of these resources. Finally, Pio Manoa and Isoa Korovulavula, in their chapter, “Sharing All the Benefit: The Challenge of Legal Recognition of Indigenous Intellectual and Cultural Property Rights in the Fiji Islands,” use frameworks from Costa Rica, Brazil, and Peru to show how Fijian national law could recognize indigenous intellectual and cultural property rights.

PART ONE

THE CONTEXT

1 Environmental Law Forty Years Later: Looking Back and Looking Ahead

Joseph L. Sax

Nearly forty years ago, when environmental law was first emerging as a subject, the background was effectively one of legal anarchy. Industrial emissions into the air and water were uncontrolled and unlimited. Waste materials, however toxic, were buried at any convenient site, and records were not even routinely maintained of their location or magnitude, nor was there monitoring of their movement into water courses or aquifers. DDT and other chlorinated hydrocarbon pesticides were liberally applied and the only regulation (in the United States, for example) was whether the labels under which they were sold accurately described their contents. As an example of how different things were then, in one of our earliest environmental cases, in 1967, where an effort was being made to protect a wildlife sanctuary against the expropriation of a right-of-way for a gas transmission line, the judge said in open court, “Before this case started I looked up the meaning of [the word] ecology in the dictionary because I noted it [in the case documents before me]. I was not aware of that word before.”¹

The situation was extreme, and attention was focused, as it should have been, on the sometimes disastrous consequences of then-current and commonplace practices, notably on such tragic matters as the methyl mercury poisoning in Japan that came to be known as Minamata disease; and leading to such catalyzing events as the Tokyo International Conference on Environment organized in March 1970, under the leadership of Professor Shigeto Tsuru.

Although many countries have in the ensuing years have done a great deal to bring such activities under management and control, the nature and magnitude of environmental problems still confronting us – global warming and biodiversity impoverishment, to name only the most familiar – is daunting. Moreover, the positive energy that once impelled us forward to tackle challenges in this realm has at least in some places lost momentum or even become retrograde. The United States, which once offered forward-looking leadership in both the legal and administrative spheres, does not under its current governance, alas, play that role.

My concerns reach beyond the failures of a particular political regime. I see a set of deeper problems that I would like to put forward as the theme of this chapter. My thesis is that there is a widespread failure to address some of the incentive systems that generate our environmental degradation, and as a result there has been a failure of our domestic legal systems to reconstitute themselves to respond to the new values and understandings

¹ Harold W. Helfrich Jr., ed., *The Environmental Crisis* (New Haven, CT: Yale University Press, 1970), 108–109.

that constitute contemporary appreciation of issues such as biodiversity. Insofar as that is the case, environmental protection tends to float at the surface of our legal system, despite a plethora of environmental laws and regulations, and thus, at the profoundest level, the legal system is handicapped in doing the job it needs to do. Because of the limits of my own work and experience, I shall use as examples my own country, the United States, and its domestic law to illustrate my thesis. But I sense that what is true of our domestic law is, at least in the large, true of the domestic law situation in many countries.² And, unless basic domestic law adapts itself to the fundamental needs of environmental protection, all our efforts, including those at the international level, will continue to be severely handicapped. Thus, I want to consider why our efforts seem always to be such an uphill battle, struggling against such intense counterforces.

Let's begin by considering the legal system in general, and with an observation of the greatest generality, so much so as to be platitudinous: Legal systems are functional. That is, a legal system is structured to promote goals that the society desires to advance. That is why we observe the basic rules of law changing as a society moves from a feudal to a preindustrial and then industrial world. Such changes are summed up in phrases like "from status to contract."

Insofar as the physical world is concerned, modern societies generally have been concerned with promoting agriculture, manufacturing, housing, transportation, and the like, and with the transformations of the physical world that facilitate these activities. That is to say, prairies become farms, forests are harvested for lumber, and mountains and streambeds are mined for minerals. In these processes, wildlife is replaced with stock such as cattle and sheep, wetlands are filled and planted with food and forage crops, or with houses, and rivers are stopped up to produce hydropower and used as conduits to carry away wastes.³

This is what we do; it is the essential functioning of the modern economy. One may call it developmental or industrial, or postindustrial, but essentially it is an economy that has devoted itself to modifying or terminating the services the natural world was previously providing, such as species diversity, and substituting in its place things such as monocultural, large-scale agriculture.

Our law has been functional in that it is designed to permit and to reward activities that advance these conversions and to discourage activities that undermine them. Of all our basic legal categories, none is more important in this respect than the law of property, and, in particular, land law. That law, for example, encourages one to fence one's land, which is good for raising cattle and sheep, but does not permit one to tear down fences, which is good for wildlife. Of course, we can point to many enactments that are designed to promote environmental values, among them the establishment of parks and refuges, and the broad panoply of environmental regulatory laws that are now in force. But I want to emphasize strongly a distinction between the basic structural laws of the legal system (such as the property regime) and these regulatory enactments. For it is those foundational laws that essentially drive behavior by creating a deep structure of incentives and disincentives, and that fundamentally describe the directions the society

² There are, of course, notable exceptions, such as the provision in the German Constitution recognizing the social responsibility of the property owner, and the many nations that restrict or deny private ownership in heritage resources such as antiquities.

³ See Joseph L. Sax, "Property Rights and the Economy of Nature: Understanding *Lucas v. South Carolina Coastal Council*," 45 *Stanford L. Rev* (1993), 1442.

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is going. I suggest that we learn more about how people are actually going to behave by looking at the incentive structure of these laws than by looking at expressions of environmental goals or at most environmental regulatory regimes.

This basic point is illustrated in every field of law. During the period when society desired rapid industrialization, tort law reflected that goal and made it functional. We saw rules like assumption of risk and the fellow servant rule, and union organizing characterized as a criminal conspiracy. Similarly, the old property rule of natural flow in water disappeared when it became desirable to allow mills to stop rivers in order to furnish hydropower for burgeoning industries. On the social side, one saw an analogous evolution of basic property rules. Women were desired to be subservient to their husbands, and the property law embodied that desire by putting a married woman's property into the hands of her husband. The true beginning of women's rights came with the Married Women's Property Acts dispossessing husbands of legal power over their wives' property.

In 1850, our Congress enacted a law called the Swamp Lands Grant Act, which authorized the grant of publicly owned wetlands to the states so that they could be transferred to settlers who were encouraged to fill them and to convert them to farmlands.⁴ Similarly, throughout the arid regions of the western United States, where water was scarce, it was the law that the only way one could obtain a legally protected property right in water was to physically remove it from a river or stop it and apply it to irrigation, domestic supply, or the production of hydropower.⁵ No right could be obtained to simply leave water in a river for what today are called instream flows (to maintain fish populations). Leaving water to flow in its natural course was legally considered waste.

The mechanism for promoting the goals of the developmental society was largely the law of private property. And it has been an enormously successful mechanism. You can go just about anywhere in the world today, look around you, and you will see the product of this potent legal tool, the property system. What you see – houses, commercial areas, cultivated farmland, factories, and so forth – is its visible product. The extirpation of the natural services of land and water (what is no longer there) is its invisible product.

Today, some forty years into the era of modern environmental law, we are all intensely aware – as our parents and grandparents were not – of the benefits provided by natural service, of wetlands and free-flowing rivers, and of habitat that maintains diverse ecosystems and populations of plants and animals that are the product of millions of years of evolutionary activity. Today, we have many environmental laws and environmental law courses at our law faculties. But how much has our property law changed so as to create incentives to preserve and restore those natural services that we have learned to value? How much have the basic rules of property that we teach today in the law faculties changed from what we taught forty years ago? The answer is, “not very much at all.” The same engines are still generating the same developmental incentives that we had before the age of what is called modern environmental law.

To be sure, we have a good deal more regulatory law intended to protect environmental values than we did a few decades ago, and that is certainly a positive and important development. But the point I wish to call to your attention, and to emphasize, is how little environmental values have been integrated into the basic structure of the law.

⁴ For example, ch. 84, Act of 28 September 1850, 9 Stat. 519.

⁵ For example, *Empire Water & Power Co. v. Cascade Town Co.*, 205 F. 123 (8th Cir. 1913).

Thus, we still have nothing in the structure of property law that provides inducement to owners and managers to maintain and restore the natural services that land and water provide; on the contrary, we have a system that continues to incentivize the uses I described earlier that terminate those services and convert them to the purposes of the modern developmental economy. Specifically, I am referring to activities such as the diminution of wetlands and the transformation of habitat.

The point is an important and insufficiently noted one, I suggest, precisely because of the observation that is so familiar in economic discourse that the market (that is, the existing property system) functions of its own momentum to generate the goods and services that the society wants. That is exactly the sense in which the law is functional. The existing property system incentivizes the manipulation of land and water to produce precisely those things that promote the displacement of natural services in favor of various kinds of manufactured services, such as housing, corn, and pork. Although regulatory laws operate to moderate the way in which such activities are carried on, and at best to diminish the displacement of natural services, one hardly needs to be a keen observer to note that such regulatory efforts are always a struggle against the unrelenting, autonomic momentum of the property system and the rewards it promotes and encourages. It is an unequal battle.

Of course we need houses, corn, and pork, and no one would or should seriously suggest that the property system be reconceived in a way that would cease to provide adequate means to generate those goods, or that would return us to some version of a pristine natural world full of bears and wolves and no people, or only people who submitted to all the habitat demands of those creatures. The question I wish to raise is what a legal (and in particular, a property) regime for an age of environmental knowledge and sophistication would look like, as contrasted with the regime we have notwithstanding the so-called environmental law revolution.

I start by noting that at least in the Anglo-American legal system we have a highly individualistic conception of property. And although I recognize that a more limited and nuanced view of ownership exists in some other systems, I would suggest that economic globalization is bringing with it a quite strong sense of that individualistic version of ownership to many other places; and that just as ships in world trade carry with them exotic species that found they are able to thrive in foreign environments, the same may be said of the ownership concepts to which I am referring.

Let me begin with a brief description of that system. It consists of the view that almost anything can be owned,⁶ and that ownership embraces the full range of uses that can be made, so long as one does not invade the like rights of others – what might be called the trespassory or nuisance limit on ownership. In this system, there is almost no notion of use entitlements that are withheld because of some interest of the public; nor is there any affirmative obligation to use one's property in a way that is beneficial to the public. The system rests on a fundamental market-driven assumption that ultimately what is good for the owner is good for the public, as public demand will generate private supply of that demand and not of what is not wanted or needed.⁷

⁶ There are a few familiar exceptions: human slavery, trade in children, human organs, and so on (although even these restrictions are not universally observed).

⁷ A recent and usefully documented debate over the importance of modifying property concepts as a means to reshaping environmental protection is found in chapters 6 and 7 of C. A. Arnold, ed., *Wet*