

The Economics of Ecosystems and Biodiversity

in Business and Enterprise



Edited by
Joshua Bishop

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The Economics of Ecosystems and Biodiversity in Business and Enterprise

This book is a product of the TEEB study (The Economics of Ecosystems and Biodiversity). It provides important evidence of growing corporate concern about biodiversity loss, and offers examples of how leading companies are taking action to conserve biodiversity and to restore ecosystems.

This book reviews indicators and drivers of biodiversity loss and ecosystem decline, and shows how these present both risks and opportunities to all businesses. It examines the changing preferences of consumers for nature-friendly products and services, and offers examples of how companies are responding. The book also describes recent initiatives to enable businesses to measure, value and report their impacts and dependencies on biodiversity and ecosystem services.

The authors review a range of practical tools to manage biodiversity risks in business, with examples of how companies are using these tools to reduce costs, protect their brands and deliver real business value. The book also explores the emergence of new business models that deliver biodiversity benefits and ecosystem services on a commercial basis, the policy enabling frameworks needed to stimulate investment and entrepreneurship to realize such opportunities, and the obstacles that must be overcome.

The book further examines how businesses can align their actions in relation to biodiversity and ecosystem services with other corporate responsibility initiatives, including community engagement and poverty reduction. Finally, the book concludes with a summary and recommendations for action.

The Economics of Ecosystems and Biodiversity in Business and Enterprise

Edited by Joshua Bishop

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CLARENCE HOUSE

I have, for many years, been increasingly concerned that we are damaging and over-consuming the planet's natural capital, on which we all depend for our prosperity and, indeed, survival. Experts tell me that even with over a billion people with no access to drinkable water and living on less than a dollar a day, we are consuming, every year, fifty per cent more of the planet's natural resources than it can renew. And, remarkably, we are depleting and destroying this wonderful asset with little idea of the economic consequences. This is, in no small part, due to the economic invisibility of Nature and the fact that the value of the planet's ecosystems and biodiversity has not been taken into account, fully and consistently, in our economic, accounting and decision-making systems.

We need to remember that the ultimate source of all economic capital is natural capital and that the world economy is a subsidiary of Nature, and not the other way round.

This is why I am so full of admiration for the tireless efforts made by Pavan Sukhdev and his team to produce the T.E.E.B. study and to publish this book. I hope that it will be an important step in raising awareness of the serious risks faced by business in not responding to biodiversity loss and ecosystem degradation – but also of the opportunities to be gained through an enlightened and far-sighted response. The fact that the Earth's irreplaceable natural capital has not, for the most part, been valued and priced is a critical gap in our ability to understand the true underlying structure of our economic systems. Indeed this is synonymous with having not adequately priced the costs of climate change, which is perhaps the world's greatest ever market failure, as Lord Stern pointed out in his seminal 2006 report. I am, as a result, delighted that this vital work is being taken forward by the T.E.E.B. For Business Coalition, supported by my Accounting for Sustainability Project.

I am sure that readers of this book will be inspired to see the opportunities for business that can be secured if the urgently needed mechanisms to value Nature's ecosystems and biodiversity are developed in time. These valuation mechanisms are vital if we are to meet the challenges of the twenty-first century.

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To all those not listed above who gave no less of their valuable time and energy to ensure the success of TEEB and the completion of this book, we can only offer our most humble apologies and sincere thanks.

Preface

Pavan Sukhdev, Study Leader, TEEB
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The idea of placing monetary values on biological diversity ('biodiversity') and of using economic incentives to encourage the delivery of ecosystem services is controversial. Some people question whether it is meaningful or indeed ethical to translate life on Earth into the language of economics and business. How can we evaluate ecosystem costs and benefits when there are no realistic substitutes for the living fabric of this planet? Do we know enough about how nature functions to support economic analysis or to design effective responses? Even more controversially, can or should we entrust the management of nature to business and markets? Even if the ethical and scientific questions about biodiversity valuation can be resolved, what could possibly persuade governments, businesses and society in general to 'internalize' such values, especially given that the costs incurred are often in the form of public goods and services, with no markets, prices or property rights?

Such questions are valid, but the fact remains that non-economic arguments for, and approaches to, biodiversity conservation have shown themselves to be insufficient. The 'status quo' is unethical, unsustainable and in need of urgent corrective action, while most current conservation practice is simply ineffective in the face of rapid economic change.

The premise of TEEB, a global study of the economics of ecosystems and biodiversity, may be compared with recent studies of the economics of climate change (e.g. Stern 2006). The starting point for TEEB is the fact that the fundamental drivers of environmental decline are to be found in the realm of economics. Moreover, like recent studies of the economics of climate change, TEEB highlights the key role of economic institutions, policies and actors – notably markets, economic incentives and the business community – in delivering effective solutions to biodiversity loss.

One of the main reasons for the widespread losses of biodiversity and degradation of ecosystems that we observe today is the economic invisibility of nature. While we measure economic gains in market assets and income, the decline in environmental quality remains largely unrecorded on the balance sheets of business entities, governments and even households. To entrust our future to a decision making framework in which trade-offs are made without recognizing losses on one side of the ledger cannot be a sound strategy for human progress.

For example, the decision to convert natural ecosystems to agriculture or residential development cannot be considered economically efficient if it is based (implicitly or explicitly) on the idea that there is no price (and hence no value) for the ecosystem services lost due to land-use change. And yet this is exactly what we observe in most cases of forest clearance to create more cattle pasture or to grow more palm oil.

Externalizing environmental costs while internalizing profits – destroying *public wealth* while creating *private wealth* – cannot be the basis of sustainable growth for business or of prosperity for society as a whole. A report by the UN-backed Principles for Responsible Investment (based on research by Trucost) indicates that the 3,000 largest publicly listed companies in the world imposed almost US\$2.15 trillion of environmental damages to society in 2008, mostly in the form of greenhouse gas emissions, unsustainable use of fresh

water, pollution, etc. This was equivalent to 7 per cent of the combined revenues of these same corporations in the same year.

While some sectors bear more responsibility than others, all businesses are implicated and vulnerable to the effects of biodiversity loss and ecosystem decline. As with climate change, we can anticipate major changes ahead, whether by design – through deliberate efforts to address the problem – or by default, as society is forced to adapt to the impacts of environmental change.

A proactive approach to biodiversity loss requires much closer attention to the status of and trends in natural capital. It also entails increased investment in ecosystem conservation and restoration, expanding the reach of markets through payments for ecosystem services and economic incentives that encourage resource-efficient production and consumption, and a shift in the burden of taxation from what we *make* (i.e. profits and jobs from producing goods and services) to what we *take* from nature (i.e. natural resource degradation and pollution), among other changes.

The dominant economic model today appears to promote *more* rather than *better* consumption, the creation of *private* over *public* wealth, and building *man-made* capital instead of *natural* capital. This ‘triple-whammy’ of self-reinforcing biases leads to an economy in which we extract resources without fear of natural limits, consume without awareness of environmental consequences, and produce without responsibility for external costs. This is the exact antithesis of a ‘green economy’, which would improve human well-being and reduce inequalities while also reducing environmental risks and ecological scarcities.

The challenge, as always, is managing change, including its unintended consequences. The TEEB approach favours pragmatism over perfectionism, planned changes over reaction, common sense and attention to social equity over ‘free market fundamentalism’. The instruments proposed by TEEB include reforms to existing economic policies and environmental regulations, as well as the introduction of new financing mechanisms and ecosystem markets, where appropriate. A common theme in all TEEB reports is the need for greater recognition and more explicit valuation of nature’s benefits to society. Economic valuation is needed to communicate the value of nature to decision makers in their own language, which is dominated by economic concepts and paradigms.

This volume focuses on decision makers in the world of business. It is accompanied by a separate volume on the ecological and economic foundations of TEEB (TEEB Foundations 2010), which synthesizes the ‘state of the art’ in the economic valuation of nature, as well as two other volumes, for national and international policy makers (TEEB in Policy Making 2011), and for local and regional policy makers and resource managers (TEEB in Local Policy 2011). In addition, TEEB has developed a dedicated website and other resources for individuals (<http://bankofnaturalcapital.com/>).

This volume argues that there are both serious risks to business, as well as significant opportunities, related to biodiversity loss and ecosystem degradation. There is a need for all businesses to quantify and value their impacts on biodiversity and ecosystems, in order to avoid or mitigate risks and maximize positive opportunities. Evaluations of any kind are a powerful ‘feedback mechanism’ for a society that has distanced itself from the biosphere, upon which its very health and survival depends. Economic valuations, in particular, communicate the value of ecosystems and biodiversity and their largely unpriced flows of public goods and services in the language of the world’s dominant economic and political model. Mainstreaming this thinking and bringing it to the attention of policy makers,

administrators, businesses and citizens, is the central purpose of TEEB. This volume on TEEB in Business and Enterprise is a contribution towards that objective.

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List of Acronyms and Abbreviations

ABS	access and benefit sharing
ACC	Aquaculture Certification Council
AFOLU	Agriculture, Forestry and Other Land Use
ARIES	Artificial Intelligence for Ecosystem Services
BAP	biodiversity action plan
BBOP	Business and Biodiversity Offsets Program
BDP	biodiversity damage potential
BES	biodiversity and ecosystem services
BMS	Biodiversity Management System
CBD	Convention on Biological Diversity
CCBS	Climate, Community and Biodiversity Standard
CDM	Clean Development Mechanism
CDP	Carbon Disclosure Project
CDSB	Climate Disclosure Standards Board
CEO	chief executive officer
CESR	Corporate Ecosystem Services Review
CI	Conservation International
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CNFCM	Center for Natural Forest Conservation Management
CSR	corporate social responsibility
DEFRA	Department for Environment, Food and Rural Affairs (UK)
DFID	Department for International Development (UK)
EBI	Energy and Biodiversity Initiative
EEA	European Environment Agency
EIA	environmental impact assessment
EJF	Environmental Justice Foundation
ELD	Environmental Liability Directive (EU)
EMA	Environmental Management Accounting
ESB	Ecosystem Services Benchmark
ESDP	ecosystem services damage potential
ESHIA	environmental, social and health impact assessment
FAO	Food and Agriculture Organization of the United Nations
FEEM	Fondazione Eni Enrico Mattei
FFI	Fauna & Flora International
FLO	Fairtrade Labelling Organizations International
FMCG	fast-moving consumer goods
FPP	Forest, Paper & Packaging
FSC	Forest Stewardship Council
GAA	Global Aquaculture Alliance
GACP	Good Agricultural and Collection Practices
GDI	Green Development Initiative
GHG	greenhouse gas
GMO	genetically modified organism

GRI	Global Reporting Initiative
GWT	Global Water Tool
HCV	High Conservation Value
IBAT	Integrated Biodiversity Assessment Tool
ICMM	International Council on Mining and Metals
IEA	International Energy Agency
IEEP	Institute for European Environmental Policy
IFAW	International Fund for Animal Welfare
IFC	International Finance Corporation
IFOAM	International Federation of Organic Agriculture Movements
ILCD	International Reference Life Cycle Data System
IOAS	International Organic Accreditation Service
IPCC	Intergovernmental Panel on Climate Change
IPIECA	International Petroleum Industry Environmental Conservation Association
ISEAL	International Social and Environmental Accreditation and Labelling Alliance
ISO	International Organization for Standardization
ISRP	Independent Scientific Review Panel
IUCN	International Union for Conservation of Nature
JBIB	Japan Business Initiative for Conservation and Sustainable Use of Biodiversity
JISL	Jain Irrigation Systems Ltd
LCA	life cycle assessment
LCI	life cycle inventory
LCIA	life cycle impact assessment
LCM	life cycle management
LOHAS	lifestyles of health and sustainability
MA	Millennium Ecosystem Assessment
MAC	Marine Aquarium Council
MIS	micro-irrigation systems
MSC	Marine Stewardship Council
NBSAP	National Biodiversity Strategy and Action Plan
NFCP	Natural Forest Conservation Program
NGO	non-governmental organization
NNL	no net loss
NPI	net positive impact
NVI	Natural Value Initiative
OECD	Organisation for Economic Co-operation and Development
PDCA	plan–do–check–act
PEFC	Programme for the Endorsement of Forest Certification
PES	payments for ecosystem services
PRI	Principles for Responsible Investment
PwC	PricewaterhouseCoopers
RA	Rainforest Alliance
REDD+	Reducing Emissions from Deforestation and Forest Degradation (including the conservation of forest carbon stocks, sustainable management of forests and enhancement of forest carbon stocks)
RSB	Roundtable on Sustainable Biofuels
RSPO	Roundtable on Sustainable Palm Oil
SAI	Sustainable Agriculture Initiative

SCBD	Secretariat of the Convention on Biological Diversity
SIA	social impact assessment
SMART	specific, measurable, achievable, relevant and time-bound
SME	small and medium-sized enterprise
SRI	socially responsible investing
STPR	Social Time Preference Rate
TEEB	The Economics of Ecosystems and Biodiversity
TIES	The International Ecotourism Society
TNC	The Nature Conservancy
UEBT	Union for Ethical BioTrade
UFZ	Helmholtz Centre for Environmental Research
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNEP FI	United Nations Environment Programme Finance Initiative
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Voluntary Carbon Standard
WACC	weighted average cost of capital
WBCSD	World Business Council for Sustainable Development
WCMC	World Conservation Monitoring Centre
WDBA	World Database of Protected Areas
WEF	World Economic Forum
WFTO	World Fair Trade Organization
WRI	World Resources Institute
WSSD	World Summit on Sustainable Development
WTP	willingness to pay
WTTC	World Travel and Tourism Council
XBRL	eXtensible Business Reporting Language

Chapter 1

Introduction to Biodiversity and Ecosystems for Business

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Key messages

The world is changing in ways that affect the value of biodiversity and ecosystem services to business. The value of biodiversity and ecosystem services (BES) is a function of population growth and urbanization, economic growth and ecosystem decline, changing politics and environmental policy, and developments in information and technology.

Biodiversity loss and ecosystem decline cannot be considered in isolation from other trends. The continuing loss of biodiversity and associated decline in ecosystem services is driven by growing and shifting markets, resource exploitation and climate change, among other factors. Equally, the loss of BES contributes to many of these other trends, implying the need for an integrated business response.

Business risks and opportunities associated with biodiversity and ecosystem services are growing. Given the ongoing decline of BES and the interaction between biodiversity loss, decline in ecosystem services and other major trends, business can expect both the associated risks and opportunities to increase over time.

There will be increasing pressure on (and more restricted access to) natural resources. Growing market demand for natural resources combined with increasing public concerns about environmental quality point towards increasing competition and more restricted access to natural resources on both land and sea.

Consumers increasingly consider biodiversity and ecosystems in their purchasing decisions. Consumer understanding and expectations of how products and companies relate to BES are becoming more sophisticated. Consumer-facing businesses, in particular, but also their suppliers, may need to re-examine how they manage BES and how their actions are communicated to customers.

Business is beginning to notice the threat posed by biodiversity loss. 27 per cent of global CEOs surveyed by PricewaterhouseCoopers (PwC) during the second half of 2009 expressed concern about the impacts of biodiversity loss on their business growth prospects. Interestingly, 53 per cent of CEOs in Latin America and 45 per cent in Africa expressed concern about biodiversity loss, compared with just 11 per cent in central and eastern Europe.