

THE  
ROOT  
CAUSES



OF  
BIODIVERSITY  
LOSS



EDITED BY ALEXANDER WOOD,  
PAMELA STEDMAN-EDWARDS & JOHANNA MANG

# The Root Causes of Biodiversity Loss

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# The Root Causes of Biodiversity Loss

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# Acronyms and Abbreviations

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AID	Agency for International Development (US)
APC	Agriculture Production Cooperatives (Vietnam)
CAMPPO	Brazilian Agricultural Extension Agency and Support Centre
CAR	Central African Republic
CBD	Convention on Biological Diversity
CBR	Calakmul Biosphere Reserve
CDA	Chilika Development Authority
CDC	Cameroon Development Corporation
CEDAC	Communauté Economique de l'Afrique Centrale
CFA	Central African franc
CGR	Compound Growth Rate
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CRAX	Consejo Regional de Xpujil (Mexico)
cusec	28 cubic litres per second
DAR	Department of Agrarian Reform (Philippines)
DENR	Department of Environmental and Natural Resources (Philippines)
ECAN	Environmentally Critical Areas Network (Philippines)
EIA	environmental impact assessment
EMATER	Brazilian Agricultural Extension Agency
EMBRAPA	Brazilian Agricultural Research
EPA	Environmental Protection Agency (Pakistan)
ERP	Economic Recovery Programme
ESAP	Economic and Social Action Programme
EU	European Union
FAO	Food and Agriculture Organization (UN)
FEMAGO	Goiás State Environmental Agency
fob	free on board
FOMENTAR	Sociedad de Fomento Mercantil
GATT	General Agreement on Tariffs and Trade
GDP	gross domestic product
GEF	Global Environment Facility
ha	hectare
IBAMA	Brazilian Environmental Agency
IBGE	Brazilian Institute of Geography and Statistics

ICDP	Integrated Conservation and Development Programme
IMF	International Monetary Fund
INCRA	Instituto Nacional de Colonização e Reforma Agrária
INPE	National Institute of Space Research
ISPN	Institute for Society, Population and Nature (Brazil)
ITR	Rural Land Tax (Brazil)
IUCN	International Union for Conservation of Nature and Natural Resources (The World Conservation Union)
LQMS	Logging Quota Management System (China)
MAI	Multilateral Agreement on Investments
MEPZ	Mactan Export Processing Zone
MNRT	Ministry of Natural Resources and Tourism (Tanzania)
MOF	Ministry of Forestry
MP	Macroeconomics for Sustainable Development Program
nd	no date
NAFTA	North American Free Trade Agreement
NCS	National Conservation Strategy (Pakistan)
NEAP	National Environmental Action Plan
NEMC	National Environmental Management Council (Tanzania)
NEQS	National Environmental Quality Standards (Pakistan)
NESP	National Economic Survival Programme (Tanzania)
NGO	non-governmental organization
NNR	National Nature Reserves
NORAD	Norwegian Agency for Development Cooperation
NTFP	non-timber forest product
PEPA	Pakistan Environmental Protection Agency
PEPC	Pakistan Environmental Protection Council
PGPM	Minimum Price Guarantee Policy (Brazil)
PLA	Protected Landscape Area (Slovakia)
PND I	First National Development Plan (Brazil)
PND II	Second National Development Plan (Brazil)
PND III	Third National Development Plan (Brazil)
POLOCENTRO	Cerrado Development Programme
ppm	parts per million
ppt	parts per trillion
PROALCOOL	Programa Nacional do Álcool (Brazil)
PRODECER	Nipo-Brazilian Cooperation Programme for Development of the Cerrado
RUBADA	Rufiji Basin Development Authority
SAP	Structural Adjustment Programme
SEAn	Strategic Environmental Analysis (Danube Basin)
SEP	Strategic Environmental Plan (Philippines)
SFE	State Forest Enterprises (Vietnam)
SNEC	Cameroon State Water Company
SODECAO	Cameroon State Cocoa Development Agency
SONEL	Cameroon State Electric Company

spp	species
SRA	Sugar Regulatory Agency (Philippines)
TCMP	Tanzania Coastal Management Partnership
TLA	Timber Licensure Agreement (Philippines)
Tsh	Tanzanian shilling
TVE	Township and village enterprise (China)
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
WRI	World Resources Institute
WTO	World Trade Organization
WWF	World Wide Fund For Nature
WWF	World Wildlife Fund (in the United States and Canada)



## THE ROOT CAUSES PROJECT

The Root Causes project originated in a dialogue between the World Wide Fund For Nature (WWF) Macroeconomics for Sustainable Development Program Office (MPO) and the Global Environment Facility (GEF). At the heart of this dialogue was our joint conviction that the conservation of biological diversity needed to be based on an understanding of the factors and the dynamics that drive its loss (what we came to call the 'root causes'). Recognizing that there was little in the way of guidance on how to identify and analyse those root causes, and even less on what to do about them, the MPO developed the Root Causes project with the objective of understanding the root causes of biodiversity loss and effecting responses to them.

This project has conducted case studies in ten separate countries, in two separate phases carried out over two and a half years. These case studies were chosen following discussions with WWF offices and are meant to reflect a geographical and thematic diversity. It is also important to note that the project has always had, as one of its objectives, the building of local capacity to understand and address the root causes of biodiversity loss. As a result, even though local WWF offices directed most of the case studies, they usually collaborated with WWF research and project partners. The MPO in Washington DC provided overall guidance and oversight of the project, as well as programme administration. The project was structured to take advantage of the WWF's global reach and expertise on matters of biodiversity loss. This imposed certain constraints on the project, but also provided us with a ready-made constituency to test out the operational implications of the project. Indeed, in its third phase, the project will begin to move from analysis to implementation by helping WWF offices which have been involved in the analytical phase to design operational activities that draw from the conclusions and recommendations of the Root Causes project.

Funding for the project was provided by the Dutch, German, and Danish bilateral aid agencies (Ministerie van Buitenlandse Zaken (DGIS) of the Netherlands, Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (BMZ) of Germany, Danish International Development Agency (Danida) respectively), as well as WWF Sweden. Because these agencies play a key role in the GEF and have large biodiversity portfolios of their own, and because of their early and enthusiastic support, they have always constituted, with the GEF, our most immediate audience for the project.

A Program Advisory Board, composed of leading experts in the social and natural sciences and economics, was created to help provide guidance and oversight for the project's development and implementation. The Board met twice during the course of the project's two phases to review case study reports, to discuss methodological aspects of the project, to reach general conclusions and make recommendations arising out of the project findings.

As mentioned, ten case studies were carried out. Executive summaries for each of these are found in the later chapters of the publication. The case studies are:

- Brazil: Cerrado
- Cameroon: Bushmeat and Wildlife Trade
- China: South-Western Forests
- Danube River Basin: Wetlands and Floodplains
- India: Chilika Lake
- Mexico: Calakmul Biosphere Reserve
- Pakistan: Mangroves
- Philippines: Cebu, Negros and Palawan
- Tanzania: Rufiji, Ruvu and Wami Mangroves
- Vietnam: North and Central Highlands

# Foreword

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How to stem the loss of our natural heritage, and the capital it represents to current and future generations, is one of the great challenges we face at the dawn of the 21st century. While much has already been done to try to address the problem, every indicator of biodiversity loss shows that the situation is getting worse, rather than better.

In this context, the Root Causes project described in this publication is an innovative programme designed and implemented by WWF's Macroeconomics Program Office to analyse and address the root causes of biodiversity loss. It makes two important contributions.

First, it develops an Analytical Approach to help identify, analyse, and organize the many complex factors that drive biodiversity loss. This new approach is based on the straightforward assumption that our success in addressing this problem depends on our ability to understand and act upon the forces driving it. These forces are growing ever more complex, and so the development of tools to understand what these factors are and how they relate to one another is especially important.

The second important contribution this publication makes is in the development of recommendations for how institutions and governments can, and should, address the root causes of biodiversity loss. These recommendations are firmly grounded in the realization that biodiversity loss is occurring because the factors that are acting to deplete it are far stronger than the forces acting to conserve it.

My previous association at the GEF, and my current responsibilities at the World Bank, have convinced me that this dynamic is at the root of the many challenges we face in implementing sustainable development. Difficult trade-offs are at the heart of these challenges, with societies having to find a balance between economic growth, social equity, and the environment, particularly the conservation of biodiversity. As policy-makers, we need to accept that the current set of incentives in the international system facilitates economic growth, often at the cost of accelerating biodiversity loss, and does not favour sustainable development.

Our challenge is therefore twofold: first, to understand what set of incentives needs to be promoted, and disincentives removed, to promote sustainable development and protect biodiversity; and second, to translate such understanding into strategic activities that involve all affected parties, from the highest levels of government to local communities.

This publication goes a long way in helping us define the first part of this equation, and WWF is to be commended for building on a growing consensus to propose this new approach to the conservation of biodiversity. It is now left to us to take up the second challenge and to find ways in which we can all work to bring about solutions.

*Ian Johnson  
Vice-President,  
Environmentally and Socially Sustainable Development  
The World Bank*

# Acknowledgements

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The central part of this project is its ten case studies. We would like to begin our acknowledgments by thanking our project partners, the ten research teams, for their cooperation and professionalism.

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In particular, we want to thank the GEF Secretariat. In addition to being a project funder, the GEF, as described above, has always been one of the key audiences for this project, and its willingness to engage in a dialogue on these issues has been a major motivating factor in our work.

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Even with all of this help, the responsibility for any lapses and errors are the editors' alone.

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