Sustainable Development in a Dynamic World

Transforming Institutions, Growth, and Quality of Life



About the cover:

A montage of two satellite sensor products, the cover image shows the lights of human settlements and (on May 14, 2002) variation in sea surface temperatures. The image illustrates several *World Development Report 2003* themes: the link between growth and environment (higher income correlated with greater energy use), the continuing socioeconomic challenge of inequality and poverty reduction (vast disparity in the energy use of industrial countries and that of developing countries), the interconnectedness and impact of human activity (fossil fuel-based energy use raising sea surface temperatures), and the need to gather information (such as that provided by satellite sensors) to anticipate and monitor problems if the world is to shift to a more sustainable development.

For more information on the concepts in this report, please visit http://econ.worldbank.org/wdr/wdr2003/

City lights image courtesy of the Defense Meteorological Satellite Program Digital Archive, National Geographic Data Center, U.S. National Oceanic and Aeronautics Administration

Sea surface temperatures image courtesy of U.S. National Climatic Data Center

Inside art and typesetting by Barton Matheson Willse & Worthington, Baltimore

© 2003 The International Bank for Reconstruction and Development / The World Bank 1818 H Street, NW Washington, DC 20433

All rights reserved.

1 2 3 4 04 03 02

A copublication of the World Bank and Oxford University Press.

Oxford University Press 198 Madison Avenue New York, NY 10016

The World Bank cannot guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply on the part of the World Bank any judgment of the legal status of any territory or the endorsement or acceptance of such boundaries.

Rights and Permissions

The material in this work is copyrighted. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or inclusion in any information storage and retrieval system, without the prior written permission of the World Bank. The World Bank encourages dissemination of its work and will normally grant permission promptly.

For permission to photocopy or reprint, please send a request with complete information to the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923, USA, telephone 978-750-8400, fax 978-750-4470, www.copyright.com.

All other queries on rights and licenses, including subsidiary rights, should be addressed to the Office of the Publisher, World Bank, 1818 H Street NW, Washington, DC 20433, fax 202-522-2422, e-mail pubrights@worldbank.org.

ISBN 0-8213-5151-6 (clothbound) ISBN 0-8213-5150-8 (paperback) ISSN 0163-5085

Contents

	Acknowledgments	
	Foreword	xi
1	Achievements and Challenges	
	The core development challenge	
	Act now—for long-term problems	9
2	Managing a Broader Portfolio of Assets	13
	Sustainability—an evolving framework	
	Measuring sustainability	
	The importance of a range of assets	
	Why the need to manage a broader portfolio of assets?	
	Tradeoffs and sustainable development	
	Some assets are overused or underprovided—why?	
	Correcting the overuse or underprovision of important assets	
3	Institutions for Sustainable Development	37
•	Institutions coordinating human behavior	
	Institutions protecting assets	
	Picking up signals, balancing interests, and implementing decisions	
	Overcoming barriers to coordination	47
	Promoting inclusiveness	
	Catalysts for change	
_		
4	Improving Livelihoods on Fragile Lands	
	Inclusion, innovation, and migration	
	Managing fragile land to improve livelihoods	
	Living on the edge—the arid plains	
	Living on a precipice—the mountains	
	Nurturing assets by listening—and by enabling communities to act	
	Nurturing women's human capital	71

	Building on traditional social capital
5	Transforming Institutions on Agricultural Land
	Land and water constraints
	Eliminating rural poverty and preparing outmigrants
	Intensifying the use of land
	Intensifying the use of water
	Getting ahead of the frontier
	Conclusion
6	Getting the Best from Cities
	City lights: beacons of hope and warning flares
	Building informed constituencies to address spillovers and anticipate risks
	Balancing interests to provide urban public goods
	Inclusion and access to assets—challenging the institutional roots of urban slums
	Institutions for sustainable urban development
	Conclusion
7	Strengthening National Coordination
,	Promoting inclusiveness
	Creating a sound investment climate
	Managing the environment
	Managing natural resources and using aid effectively
	Averting violent conflict
	Conclusion
8	Global Problems and Local Concerns
	Designing institutions to solve global problems
	Conserving biodiversity: maintaining current services and future options
	Mitigating and adapting to risks of climate change
	Conclusion
9	Pathways to a Sustainable Future
3	Acting today
	Ongoing dialogue: a global vision and accord
	Ongoing dialogue: some open questions
	DULE 11 1N .
	Bibliographical Note
	Selected World Development Indicators

Roxe		
2.1	Not yet able to fully duplicate natural processes	
2.2	Indicators for measuring sustainability—a subset	
2.3	The Aral Sea—the cost of ignoring the role of an environmental asset	
2.4	How keeping the option value of assets can make a serious difference	
2.5	Catastrophic ecoshifts	
2.6	Replacing natural assets with human-made assets can be costly	
2.7	Perverse subsidies in India	
2.8	World Development Report 1992: Development and the Environment	. 34
3.1	The market as a coordination mechanism.	. 39
3.2	Assets, threats, and protection	. 42
3.3	Natural assets decline when protective institutions are weak	
3.4	Democracy and environmental policy: picking up signals, shifting the balance	. 46
3.5	Local negotiations balance interests and commit parties to clean up Colombia's rivers	
3.6	Policy accountability and accountable rulemaking.	
3.7	When protective institutions fail: the collapse of Enron and Newfoundland's cod fisheries	
3.8	Fostering inclusiveness: South Africa's new democracy.	
3.9	Mutual reinforcement: environmental movements and democracy	
3.10	Inequality: its long tails in the Americas	. 54
4.1	From degrading soils to degrading water—managing natural assets on the Southern Plains	. 64
4.2	Traditional knowledge and voice: sustaining livelihoods on the grasslands of the Sahel	. 66
4.3	Balancing public and private goods: biodiversity and coffee production in Chiapas	. 70
4.4	What worked then (Europe, 1900) is much harder now (developing countries, 2000)	. 72
4.5	Addressing risks, changing institutions, and reaching subsistence families in Tunisia	
4.6	"Cultural translators" as catalysts to upgrade livelihoods in Ait Iktel, Morocco	
4.7	Learning to balance interests: two big mines in the Andes	. 79
5.1	More food, greater intensity of land use, fewer farmers per urban resident	. 84
5.2	Poverty, equitable growth, and path dependency	
5.3	Land distribution and path dependency	
5.4	Breaking out through zais and tassas—low-input traditional technologies	
5.5	Breaking out through fertilizer: the next green revolution?	. 91
5.6	Science, technology, and institutions to solve the challenge of nature:	
	obsolete pesticide stockpiles in Africa	
5.7	The precautionary principle.	
5.8	Institutional commitment and African agriculture: lessons from Asia and South America	
5.9	Weakening the interest of landholders in unproductive land	
5.10	The race for water—and land—and the displacement of the poor	
5.11	Water parliaments in France	
5.12	The Amazon rancher's decision to deforest	
5.13	Brazil: getting ahead of the frontier	104
6.1	The focus of "urban" in this chapter	108
6.2	How social networks help the urban poor manage risks and get ahead	
6.3	Political reform and stakeholder alliances overturning pollution	
6.4	Meeting environmental, social, and economic objectives through urban transport strategy in Bogotá	
6.5	Regularizing favelas in Brazil	
6.6	How railway dwellers in Mumbai managed their own resettlement	
6.7	Mexico City's search for metropolitan management arrangements	
6.8	Leading the advance on urban settlement growth in Lima	130
7.1	Democracy, leadership, and decentralization in Latin America	135
7.2	Brazil: changing the rules of the game for better public services	

7.3	Civil society and governance	138
7.4	National policy can generate excessive urban concentration	
7.5	Perverse sugar subsidies in the United States	
7.6	Perverse energy subsidies in the Islamic Republic of Iran	
7.7	Aid and compensation to address obstacles to reform in the Russian Federation's coal sector	
7.8	Cameroon: the path to improved forest governance	
7.9	Partnership for sustainable fisheries	
7.10	Malaysia: ethnic diversity, conflict resolution, and development	
7.11	Improving the process: the Chad-Cameroon Pipeline Project	154
8.1	An adaptive, learning institution	160
8.2	"Coupling institutions" and policy entrepreneurs in Costa Rica and Bolivia	
8.3	Poverty and biodiversity in Madagascar	
8.4	The Nile Basin Initiative	
8.5	Costa Rica's program of payment for environmental services	
8.6	Municipal incentives for conservation	
8.7	Tradable forest obligations efficiently meeting conservation goals	
8.8	The Prototype Carbon Fund and the carbon market	178
9.1	Think spatially	186
9.2	Problem solving by think-and-do tanks	189
9.3	A big push—to address spillovers and seize opportunities	
9.4	Millennium Development Goals (1990–2015)	
9.5	Outcome of the International Conference on Financing for Development, Monterrey, Mexico	193
_		
Figu		,
1.1	Global population approaching stability	4
1.2	Some regions growing fast, others stable	
1.3	•	
2.1	Adjusted net savings rates by per capita GDP level, 1999	
2.2	How society's assets enhance human well-being	
2.3	Very different environmental outcomes with the same growth rates	
2.4	Reducing emissions in Mexico City	
2.5	Mechanisms to address market and policy failures	33
3.1	Social norms, rules, and organizations for coordinating human behavior	38
3.2	Growing participation in civil society organizations, 1981–97	40
3.3	The relationship between institutional quality and national income	43
3.4	Concentration of dust particles	
3.5	More mayors in Latin America are elected locally—by citizens or by elected city councils	56
4.1	Rural population growth rate relative to share of total population on fragile land	61
4.2	Arid lands of the world	
4.3	Rainfall in the Sahel, 1950–2000.	
4.4	Mountainous areas of the world.	69
5.1	Regional variations in land scarcity	06
5.2	Regional variations in water scarcity	
	,	66
6.1	Many developing countries are undergoing urban transition with relatively high urban	
	population growth rates	
6.2	Poverty in Cali, Colombia: 1999 headcount rates	
6.3	High inequality in health outcomes in urban areas	122

7.1 7.2 7.3	Lead in gasoline and in blood in the United States, 1975–90
8.1 8.2	Current land use in closed canopy forest deforested in 1990–2000
Table	s
2.1 2.2 2.3	Toward adjusted net savings, 1999
4.1 4.2 4.3	Environmental fragility in developing countries
5.1	The capacity of institutions to sense problems, balance interests, and implement solutions
6.1 6.2	Urban environmental issues and status by level of city development
7.1	Civil conflict and reported homicides

ACKNOWLEDGMENTS

This Report has been prepared by a team led by Zmarak Shalizi and comprising Kenneth Chomitz, Christian Eigen-Zucchi, Gunnar Eskeland, Swati Ghosh, Christine Kessides, Linda Likar, and Robert Schneider. The team was assisted by Leena Datwani, Claudio E. Montenegro, and B. Bulent Ozbilgin. Valuable contributions were made by Matthew Stilwell and Paul Steinberg. Bruce Ross-Larson was the principal editor. The work was carried out under the general direction of Nicholas H. Stern.

The Report received useful advice from a three-person steering committee consisting of Nicholas Stern, Ian Johnson, and Vinod Thomas, and a six-person internal consultative group consisting of Michele DeNevers, Ian Goldin, Kristalina Georgieva, Steen Jorgensen, Odin Knudsen, and John Shilling.

Many others inside and outside the World Bank provided helpful comments, wrote background papers, and made other contributions, and participated in consultation meetings. These contributors and participants are listed in the Bibliographical Note.

The team undertook a wide range of consultations for this Report, from the initial outline to the final draft. These consultations included workshops in Berlin, Oslo, Paris, Washington,

and San Jose (Costa Rica) and a series of video conferences with East Asia, Africa, and Europe. The participants in these workshops and video conferences included policymakers, academics, and nongovernmental organizations. The team participated in the United Nations' WSSD-related prepcoms in New York. In addition, it organized e-conferences with the help of the World Bank Institute. The Development Data Group contributed to the data appendix and was responsible for the Selected World Development Indicators. Much of the background research and external consultations were supported by a generous grant from the Norwegian government.

Rebecca Sugui served as executive assistant to the team; Leila Search, as program assistant and technical support; and Endy Shri Djonokusomo, Shannon Hendrickson, Joanna Kata-Blackman, Olivia Kurtz, and Ofelia Valladolid, as team assistants. Evangeline Santo Domingo served as resource management assistant.

Book design, editing, and production were coordinated by the Production Services Unit of the World Bank's Office of the Publisher, under the supervision of Susan Graham, Melissa Edeburn, and Ilma Kramer.

Foreword

his year's Report, the twenty-fifth, is about the growth in income and productivity required in developing countries to eliminate poverty in a way that is environmentally and socially sustainable. The core development challenge is to ensure productive work and a much better quality of life for the almost 3 billion poor people today earning less than \$2 per day and for the 2–3 billion people to be added to the world's population over the next 30–50 years. To achieve this goal, while taking better care of our environmental and social assets, will require a global development process that does better than the one followed in the past.

Even though the world's population increased by 2 billion people in the last 30 years, there have been significant gains in human welfare in developing countries as measured by average human development indicators. But the development path has left a legacy of accumulated environmental and social problems that cannot be repeated. There are many drivers of today's socioeconomic and cultural transformations. Some are ongoing and continuous (such as technological innovation and income growth). Others are onetime and transitional, such as the demographic and urban transitions, which should be completed within this century—largely within the next 50 years. These historic transitions define the temporal and spatial context for managing sustainability. How it will be managed is critical.

Environmental and social assets matter greatly for well-being and productivity, but they are often neglected. That is why we need to think about managing a broader portfolio of assets. The 1992 World Development Report identified many policies to deal with environmental problems, but it underestimated the capacity of institutions to implement even policies that seemed on the surface to be win-win options. The failure to implement them is most often due to the social and political problems associated with distributing costs and benefits within and between groups and generations.

This Report integrates the findings of the last few WDRs into a broader and longer term framework to identify some elements of a process that might do better:

- The interaction between economic, social, and environmental problems and opportunities are manifested spatially—where people live. For this reason, the report takes a spatial perspective on the social transformations and the opportunities for growth and poverty reduction—in fragile lands, in more favored agricultural lands, in urban areas. Some of the local problems can be handled locally—but others must be dealt with nationally or globally.
- Problems that require lasting solutions often are not susceptible to quick fixes. Everyone could be better off if cooperative solutions were agreed on and implemented. But often the rules and organizations to coordinate human behavior do not yet exist, are undeveloped, faulty, or weak—especially for problems with high transaction costs and longer time horizons. To be able to coordinate well requires institutions that:
 - Pick up signals about needs and problems, especially from the fringes.
 - Balance competing interests.

- Ensure credible commitments and accountability in executing agreed decisions.
- Institutions need to be improved at many levels—from the local to the global—to promote growth in ways that protect environmental and social assets. The institutions to manage and protect environmental and social assets are not emerging rapidly enough to address the consequences of the growing scale and interconnectedness of human activity. Action is required now-even for problems that will unfold over a longer period. Societies need to ensure an enabling environment for creativity, initiative, and learning. These initiatives can come from the public sector, the private sector, or civil society. Partnerships among these various actors are needed within and across countries. Many innovative institutions are emerging which need to be strengthened. The key is to find ways to scale up these initiatives.

■ Strengthening the foundations for better institutions requires overcoming the inequitable access to assets and the pervasive barriers to inclusion. The needed institutions (and the solutions to tough problems) do not emerge when some interests are dispersed or when some groups in society are poor or in other ways disenfranchised. This affects the evolution and quality of institutions and their ability to solve problems over the longer term. The reciprocal relationship between the quality of institutions and the distribution of assets can get countries locked into vicious cycles that require a special effort to break out.

Inclusive societies, within and across countries, ensure that signals of emerging economic, social, or environmental problems are picked up from all groups, and that they can cooperate to solve tough problems. Put another way, empowering poor people and the disenfranchised—the people "at the fringes"—and giving them a real stake in society is the key to building the stronger institutions required for longer term sustainable development.

Iames D. Wolfensohn

ACRONYMS AND ABBREVIATIONS

	ANC	African National Congress	IUCN	Global Conservation Union
]	BRAC	Bangladesh Rural Advancement	IWMI	The International Water Management
		Committee		Institute
]	BSE	Bovine spongiform encephalopathy	MDG	Millennium Development Goals
		("mad cow disease")	MSC	Marine Stewardship Council
(CCAMLR	Convention on the Conservation of	NEP	New Economic Policy
		Antarctic Marine Living Resources	NEPAD	New Partnership for Africa's Development
(CCD	Convention to Combat Desertification	NGOs	Nongovernmental organizations
(CDF	Comprehensive Development Framework	NIC	Newly industrializing country
	CGIAR	Consultative Group on International	NOAA	U.S. National Oceanic and Atmospheric
		Agricultural Research		Administration
(CIDA	Canadian International Development	NSDF	National Slum Dwellers Federation (India)
	01211	Agency	ODESYPANO	Sylvo-Pastoral Development Authority
(CIESIN	Center for International Earth Science		(Tunisia)
		Information Network	OECD	Organisation for Economic Co-operation
(CITES	Convention on International Trade in		and Development
	01120	Endangered Species	ORNL	Oak Ridge National Lab
(CLRTAP	Convention on Long-Range	PAN	Pesticides Action Network
	021(1112	Transboundary Air Pollution	PPP	Purchasing power parity
	CSOs	Civil society organizations	PRSP	Poverty Reduction Strategy Paper
	EDUCO	El Salvador's Community-Managed	RSDF	Railway Slum Dwellers Federation (India)
		Schools Program	SINAMOS	National System for Social Mobilization
1	EPA	U.S. Environmental Protection Agency		(Peru)
	EROS	Earth Resources Observation System	SPARC	Society for the Promotion of Area
	EU	European Union		Resource Centers (India)
	EWG	Environmental Working Group	TI	Transparency International
	FAO	Food and Agriculture Organization of the	TRIPs	Trade-Related Aspects of Intellectual
	1110	United Nations		Property Rights
1	FDA	U.S. Food and Drug Administration	UCCI	Union of Capital Cities of Ibero-America
	FONAFIFO	National forestry fund (Costa Rica)	UNDP/GEF	United Nations Development
	FRA	Forest Resources Assessment		Programme/Global Environment Facility
	GEF	Global Environment Facility	UNEP	United Nations Environment Programme
	GHG	Greenhouse gas	UNFCCC	United Nations Framework Convention
	GIS	Geographic information system		on Climate Change
	GMO	Genetically modified organism	UNSO	United Nations Statistical Office
	HIPC	Heavily Indebted Poor Countries	USDA	U.S. Department of Agriculture
	ICRG	International Country Risk Guide	USGS	U.S. Geological Survey
	IIED	International Institute for Environment	WCD	World Commission on Dams
-		and Development	WHO	World Health Organization
1	IISA	International Institute of Applied Systems	WRI	World Resources Institute
		Analysis	WTO	World Trade Organization
1	IPCC	Intergovernmental Panel on Climate	WWF	World Wildlife Fund
		Change	ZIES	Special residential zones of social interest
1	IRRI	International Rice Research Institute		1
		memurona race research monetic		