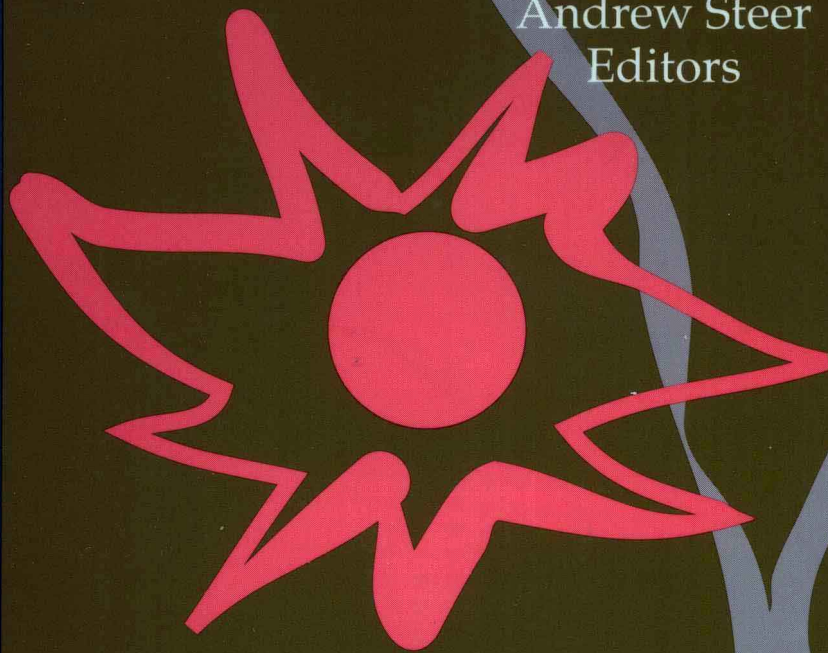


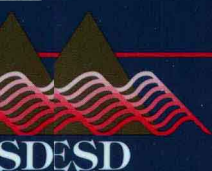
Valuing the Environment

Ismail Serageldin
Andrew Steer
Editors



Proceedings of the First Annual International Conference on Environmentally Sustainable Development

held at
The World Bank
Washington, D.C.
September 30–October 1, 1993



Environmentally Sustainable Development Proceedings Series No. 2

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Alicia Hetzner
Editorial Consultant

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Foreword

The First Annual International Conference on Environmentally Sustainable Development (ESD) was held at the World Bank on September 30 and October 1, 1993. This annual conference series was inaugurated a year after the 1992 Rio Earth Summit and a few months after the establishment of a new Vice Presidency for ESD within the World Bank. The purpose of the annual conference is to bring together experts and leaders from around the world to address how development might be made more sustainable in practice. Making development sustainable requires progress at several levels. First, in a number of areas the conceptual framework remains weak. Second, much needs to be learned with regard to the effectiveness of alternative policy packages to change behavior and improve living conditions. Third, capacity to implement a change in direction remains weak in many countries and needs to be strengthened. Finally, citizens and political leaders need to be persuaded that a better way of doing things is available, and

is worth the costs. This annual series of conferences is intended to make a contribution at all of these levels.

Some of the papers in this volume are technical and detailed. Others are broader in scope, assessing where we are heading a year after the Earth Summit. We hope all of the papers convey a sense of urgency that changes are necessary. The overarching theme of the volume is "valuing the environment"—in recognition that it is the failure to appreciate the importance of the environment that has led to such costly impacts on human health, ecological integrity, and economic productivity. Water is chosen as a special topic as an important illustration of this theme.

The editors wish to record their appreciation to Alicia Hetzner for her invaluable assistance in bringing this volume to publication.

Ismail Serageldin
Andrew Steer

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Overview

Ismail Serageldin and Andrew Steer

The value of the environment has been underestimated for too long, resulting in damage to human health, reduced productivity, broken social structures, and the undermining of long-term development. This is now recognized, at least in principle, by analysts and policymakers worldwide. But how can development be made more sustainable in practice? Some elements of the needed shifts in policy are clear, and were laid out and agreed by the world's leaders at the Rio Earth Summit in 1992. Of course, finding the political and social will to implement such policies is a different matter. Other elements of the needed shift are less clear and are not yet agreed, even in principle, by all policymakers. And in some areas, a good deal more research and evidence will be required before behavior and policies are changed. The papers in this volume—all presented at the First Annual International Conference on Environmentally Sustainable Development at the World Bank in September 1993—attempt to take stock of where we are in the journey toward sustainable development. They are divided into four sections.

The Road from Rio

The first group of papers is broad in scope. Authors were invited to assess how much progress is being made toward sustainability and to describe what kind of new development paradigm is required. In his opening remarks Sven Sandström notes the particular challenge for development institutions such as the World Bank. Despite substantial progress in main-

streaming environmental concerns into the Bank's activity, clearly we are still on the steep incline of the learning curve. Picking up this theme, Ismail Serageldin outlines the World Bank's fourfold agenda in seeking its role in making development environmentally sustainable:

1. Assisting our borrower countries to promote environmental stewardship, through lending and policy advice
2. Assessing and mitigating any adverse impacts associated with Bank-financed projects
3. Building on the positive synergies between development and the environment
4. Addressing global environmental challenges, primarily through the Global Environment Facility.

But he argues for more than this. The way we approach and address development problems needs to change if we are to complete the transition from a "development versus the environment" world to an "environmentally sustainable development" world. Our measurement of progress needs to be enriched by recent research on environmental accounting. We need to go deeper in implementing a "people-first" approach to development, in which the empowerment of the powerless is central to our activities. And we need to take issues of civic society and governance more seriously.

Nitin Desai, Undersecretary General at the United Nations responsible for overseeing follow-up to the Rio conference, provides an assessment of progress a year later. He notes that the intellectual contribution of Rio lay not in its coverage of the "classical" environmental agenda

(important though that is), but in injecting development into the environmental debate. Rio was essentially a political process, he notes. Agenda 21 did not attempt to explore intellectual frontiers but to push the political limits. At that level, progress since Rio is not so disappointing as some have suggested. In three of the four fragile ecosystems for which activity programs were identified, there has been movement, as there has in the global conventions. The prospects for increased financial flows remain bleak, of course, and there are a number of research topics that need urgent remedial attention.

In the keynote address, Jacques-Yves Cousteau weaves the context of the current environmental crisis and suggests the kind of change in mindset that will be required to halt the damage. As a start, we need to understand the great “divorce” that has occurred between humankind and nature. “Man the victim,” a part of nature, has become a manipulator of nature, with associated privileges and responsibilities. The burden for human beings now is to “invent from scratch a behavior that at the same time is biologically acceptable and morally satisfying.” While progress is being made, our moral codes do not yet penetrate our free-market economic system. We urgently need to recognize that the real goal of production is not the product but—as Georgescu-Roegen describes it—an immaterial “fluid,” the joy of living. We also need to recognize in our actions the value of diversity. Recent research in biology has taught us clearly the importance of species and genetic diversity for healthy ecosystems. The same principles apply to cultural and ethnic diversity in promoting the health of our society.

Wangari Maathai, founder of Kenya’s Green Belt Movement, describes the lessons that have emerged from the Movement over the past two decades, which may help guide other initiatives designed to make development more sustainable. The Green Belt Movement, a people-driven organization that supports tree planting and education, especially among women, has succeeded first and foremost because it addresses the *felt needs* of the participating communities: jobs, fuelwood, and an end to environmental degradation of the land. Afforestation programs, done correctly, can meet all of these needs simultaneously, and thus can engender remarkable support and

ownership at the community level. Although not aligned to any political party, an organization like this can, by empowering communities to improve their own futures, raise political activism for greater democracy and accountability in government. Industrial countries and international agencies have potentially important roles to play in supporting such initiatives and ensuring that aid programs involve true partnerships with local communities.

How Valuable Is the Environment?

Two major papers addressed the principles and practice of economic valuation of the environment. How does economic theory inform the environmental debate? How advanced are techniques for calculating environmental values? And how useful are they in the real world? Partha Dasgupta argues that economic theory has not received the respect or practice it deserves in environmental literature. Too often the presumption is made that conventional economics has little to offer in analyzing issues of sustainability. In fact, for some time modern economic analysis has offered a precise language for discussing the private and social management of environmental assets. He shows that the concept of sustainable development, as commonly used, is too loose to have practical application and, because of its static assumptions, can often confuse rather than enlighten practical policymaking. In contrast, the theory of “optimal development” offers a flexible, disciplined ethical framework for analyzing resource management issues over time, in a manner that takes the welfare of future generations fully into account. He shows that from this framework can emerge appropriate discount rates (which will differ according to circumstance), shadow prices of environmental assets, and required adjustments to the national accounts. To the extent that we are confused as to what policies to adopt, it is the fault of poor data, lack of knowledge of ecological process and of our own values—not of a lack of a consistent framework of analysis.

The paper by David Pearce takes stock of current practice, primarily in developing countries, in calculating the value of environmental assets. Beginning with a survey of well-tested techniques for capturing the “willingness-to-pay” for

water and sanitation services, Pearce shows how valuation techniques routinely influence investment decisions to improve services provided. Newer approaches whereby the value of assets—such as forests—that have both local and global value are measured are also surveyed. Using the example of forest conservation in West Africa, the paper shows that protection is socially desirable only when global benefits are taken into account, and when transfers are made from those who benefit to those who have to forego benefits from alternative land uses. Specifically, calculations of the valuation of global benefits of carbon sequestration in forests may well have a significant impact on international transfers in the years to come. Finally, the paper discusses how valuation techniques increasingly are being used to adjust national accounts to reflect natural capital in a manner analogous to humanmade capital. While good progress has been made in recent years on national income adjustment, there is not much evidence that such exercises are yet influencing national-level policymaking. This will require resolving a number of technical disputes among practitioners and developing simpler “short-cut” methods of adjustment. An appendix to this volume (by Peter Bartelmus, Ernst Lutz, and Jan van Tongeren) draws upon recent World Bank–United Nations work to provide a practical guide to adjusting national income accounts for the environment.

Managing Water

Water resource management was selected as a special topic to illustrate the importance and difficulty of recognizing environmental, health, and productivity values in making decisions about allocation and use. No natural resource is more vital for life than water, yet current use practices are not sustainable from either an economic or an environmental perspective. Michel Petit begins the section by describing the World Bank’s efforts to improve water management through its new Water Resources Management policy. Based on the Bank’s experience of having lent more than \$34 billion for water development over the years, the new policy seeks to balance two considerations: the need for a holistic management approach that gives due weight to longer term factors and to protecting ecosystems; and the

advantages of relying more on markets and pricing to allocate water among competing uses. Under its new policy the Bank is assisting countries in managing water at the river basin level, establishing strong legal and regulatory frameworks for pricing and environmental protection, decentralizing implementation to local authorities and autonomous entities, leveraging the initiative and skills of the private sector, involving local users in decisionmaking, and adapting and adopting low-cost and efficient technologies.

The summary of the Bank’s new water policy is followed by presentations of the experience of managing water in two countries known for their leadership in this field: France and Pakistan. Ivan Chéret’s paper on the French experience traces the evolution of water management over the past three decades. The 1964 Water Act was a milestone in French water policy. Spurred by the sharply growing demand for water, coupled with rapid urbanization and industrialization, the 1964 Act introduced the concept of water quality objectives and established the *river basin* as the central unit of decisionmaking. Basin Committees (or water “parliaments”), which represent all public and private stakeholders, set policy on both quality and quantity issues. Policy is implemented by Water Boards, also corresponding to the six major river basins of the country. Three instruments are available to the water parliaments in ensuring appropriate allocation and use: regulation, incentives, and dialogue. Economic instruments are widely used to combat waste and pollution, with carefully calibrated effluent and user charges supplemented by financial assistance for investment in water saving and pollution reduction. Management of the water system is often delegated to private operators, while the community or government retains ownership of equipment and assets. The basic law was strengthened in 1992 to enhance the powers of local communities, establish a unified legal structure, and take into account new pollutants, especially from agriculture.

How applicable is the French system to other countries’ circumstances? This question is addressed in brief papers by Janusz Kindler for Poland and Roberto Franco for Brazil. Both of these papers argue that the French model, with its emphases on stakeholder participation in decisionmaking, public-private partnerships,

river basin focus, and the use of a heterogeneous package of regulations and incentives for quality and quantity control, is potentially strongly applicable to their countries, although both papers note the political obstacles to introducing such systems.

A paper by Shams ul Mulk describes the evolution of water management in Pakistan. As in France a major change in water policy occurred in the early 1960s, although for different reasons. In Pakistan it is the growing demand from irrigated agriculture that has dominated water policy. Beginning in the 1960s, green revolution technologies, combined with increased irrigation and chemical inputs, offered fourfold increases in wheat and rice yields. The Water and Power Development Authority (WAPDA) had the task of preparing comprehensive water plans and undertaking a massive series of investments in irrigation and power generation. While this system has been remarkably successful in enabling dramatic increases in food production, weaknesses—including weak financial sustainability, inadequate participation of beneficiaries in project design and maintenance, poor inter-provincial water allocation mechanisms, and inadequate attention to the ecological functions of water—have needed to be addressed in subsequent laws and policies.

Two brief papers assess the relevance of the Pakistan experience to Egypt (Mahmoud Abu-Zeid) and to Mexico (Fernando Villarreal). Both note a good deal of similarity in the piecemeal development of policymaking in Pakistan, whereby the early push for investments in agricultural growth is followed by a recognition that it could have been done better, and a growing awareness of the importance of financial, environmental, and social sustainability of water management. A final “round-up” paper by David Kinnersley notes that a common thread to the papers on water might be titled “towards a new coherence,” whereby technical expertise in the design of water systems is supplemented by environmental and social expertise. He identifies the two factors that most seem to separate the newer, more sustainable approaches from the older crisis-ridden approaches as involvement of local stakeholders and a pricing system that reflects water’s true scarcity.

The Road Ahead

The volume ends with a series of statements made during the roundtable that concluded the conference. Participants were asked to assess the prospects for real progress in the coming years and to identify key issues requiring remedial action. The participants, all recognized leaders in the field of sustainable development, included Elizabeth Dowdeswell, Kamal Nath, Kamla Chowdhry, Herman Daly, Saad Ibrahim, James MacNeill, and Mohamed El-Ashry. Ismail Serageldin then made closing remarks. Among the many insights shared, a number of common themes emerged:

- First, while further progress is urgently needed in applying valuation and other techniques, we know enough to take action today. While we need to refine our understanding of sustainable development, we must not allow the intellectual stimulation of the exercise to divert us from the action needed now. As the Zen proverb says, “After enlightenment, the laundry.” In this regard the action stemming from the Rio Earth Summit has been disappointing.
- Second, among the changes needed is the forceful introduction of environmental values into the everyday incentives facing citizens, corporations, and policymakers. Charges, taxes, and national income accounting need to reflect scarcity values of environmental and natural resources. As we strive to refine our estimates of these values, the perfect should not be the enemy of the good.
- Third, while Rio brought the North and South together in an agreement of potentially historic consequence, it is clear that real progress will require much more “active listening” between and among nations. The agendas of rich and poor nations are not identical, and the trade-offs as well as the complementarities between economic growth and environmental protection need to be carefully weighed. A recognition of the disproportionate share of the global atmospheric commons enjoyed by industrial countries, and a willingness to pay for it, could be a crucial way of financing investments in developing countries.

- Fourth, progress will require that what may to some seem obstacles to sustainable development be turned into opportunities. For example, the globalization of the world economy, although carrying the prospect of social and environmental damage, also carries prospects for benign technology transfer and the opportunity for introducing principles and policies for environmentally responsible economic development. So, too, even the current shortages of financial resources can be used to lend force to the argument for a new approach.
- Fifth, the social dimension of ESD requires much greater attention. Listening to people is essential for ascertaining their valuation of priorities and for designing solutions that will work. A recognition of the role of societies in managing natural resources and motivating changed behavior is also vital.
- Finally, changing hearts and minds is as important as changing policies. Indeed, it is only through a much deeper appreciation of the urgency of the needs of today's poor and the potential threats facing the citizens of tomorrow that the required policy changes will be formulated, sustained, and enforced. Economic values can help direct the needed change in course, but ethical and moral values must provide the motivation.

Part One

The Road from Rio

Introductory Remarks

Sven Sandström

We all know that environmental issues are complex and that we still have much to learn. At the World Bank we are very aware of the steepness of the learning curve and the importance of listening to and learning from our partners in the field. We hope to make this First International Conference on Environmentally Sustainable Development an annual event and thus benefit from bringing together people from all over the world for an exchange of views. The scheduling of the conference immediately after the World Bank/International Monetary Fund Annual Meetings is quite deliberate. Our hope is that many of the economic and finance officials attending the meetings will be tempted to stay on and participate in the important topics that will be debated here.

The World Bank is first and foremost a development institution, but experience has taught us that development that does not safeguard the environment will surely fail over the longer term. Equally, programs for environmental protection that exclude development also will fail.

The main message of *World Development Report 1992* was that promoting development and protecting the environment are mutually reinforcing—with many “win-win” links between the two. This was also the main message of the Earth Summit.

Working with our partners, the Bank has been following up on the consensus reached in Rio and moving from words to action. For example: environmental assessment is now integral to the preparation and the implementation of all the projects that we finance; lending for environmental purposes is the fastest growing segment of our portfolio, amounting to \$2 billion during

our 1993 fiscal year; we are assisting all our poorest member countries with the design and implementation of national environmental action plans (NEAPs); and we are working with the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP) to address international issues through our strong support for the Global Environment Facility (GEF). In short, environmentally sustainable development is being mainstreamed into the Bank’s overall work on poverty reduction.

Our newly created Vice Presidency for Environmentally Sustainable Development is building up our stock of skills and expertise, and at the same time ensuring two-way communication with our colleagues outside the Bank. This conference is an important part of the dialogue. Its main objectives are to:

- Provide a forum for a candid exchange of ideas among environmentalists, economists, social scientists, policymakers, and others on environmental strategies
- Take stock of where we stand a year after Rio
- Raise awareness and focus on priorities in line with Agenda 21
- Enable Bank staff to interact and listen to our colleagues in other organizations and to share lessons of experience and best practice.

The bottom line is not only to identify ways in which the Bank’s work can more effectively promote sustainability but also to improve understanding among the groups who make up the environmental community. Given the magnitude and complexity of the environmental challenge, *partnership* is the key to progress—and this conference is an important step in that direction.

The Rio Earth Summit: A Year Beyond

Nitin Desai

Let me try to place Rio in perspective. Many of us share the concern that the drive and dynamism that was shown in Rio seems to be dissipating, that actions to implement what was agreed in Rio have not materialized. This may partially be a natural reaction to the fact that we are switching modes from focusing on policy development to focusing on policy implementation. Reviewing policy implementation can never be quite as exciting and attention-getting as developing agreements among diverse nations.

But there is more to it. First, we should understand what the Rio process was because, in my view, process is as important as product. Rio was, above all, a *consensus-building process*. Consensus-building among *governments* was the most important element, and getting that consensus—on a program of action for sustainable development, Agenda 21; the Rio Declaration; the Climate Change and Biodiversity Conventions, which were signed at Rio—was the centerpiece of that process.

However, Rio was much more than that, which is why it attracted attention. It also involved the process of consensus-building in the *scientific community*. We would not have had the climate change treaty without the parallel process of consensus-building through the Intergovernmental Panel on Climate Change (IPCC) process. A similar process operated for the Biodiversity Convention and Agenda 21.

Rio was also a consensus-building exercise among the *non-state actors* important in determining production and consumption decisions: business groups, trade unions, local authorities,

and farmers. A variety of processes led not just to a statement of demands from such interest groups and governments but to what is much more interesting: commitments by these groups on what they need to do to pursue sustainable development: a business charter, the trade unions' statement, and the statement that came from the Farmers' Association in Reykjavik, the local authorities, and others.

Finally, Rio was a consensus-building process among *nongovernmental organizations (NGOs)* and *activist groups*. It is essentially because of the activities of NGOs, who represent the common interest at the field, national, and international levels, that this issue is on the political and decisionmaking agenda. These groups saw the Rio process as a vehicle to push the ideas and agendas that they had been pursuing, sometimes in the wilderness, for many years. One of the most interesting and exciting things about the NGO process in Rio was how soon even the activist NGO groups switched from focusing attention only on what they wanted others to do to what they themselves ought to be doing.

The end product of this process, Agenda 21, is a vast sprawling program of action with 40 chapters, 115 program areas, and 2,500 activities. We can group what governments talked about and agreed around a few major themes.

1. One set of themes came from the classical environmental agenda: management of toxic chemicals, hazardous wastes, and pollution management. This set was understandable as an extension of an agenda that had been started much earlier in Stockholm and pur-