

GREEN BREAKTHROUGHS

Solving Environmental Problems Through
Innovative Policies and Law

*"Two roads diverged in a wood and I,
I took the one less traveled by, And
that has made all the difference."*

Robert Frost



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Message from the Executive Director of UNEP

The environmental crisis is not an inevitable path. Sustainable Development is possible if based on sound policies and carefully crafted laws to intervene effectively at strategic points to change public policy economic signals and entrenched behavior and advance towards a brighter future. Green Breakthroughs introduces Ministers, their advisors and public policy makers to policies and laws around the world that have worked to respond to mounting environmental challenges. The booklet is written in a form that gives leaders the facts and a concise explanation of why the policies and laws depicted in this booklet have been successful.

The American poet and naturalist Robert Frost once wrote "Two roads diverged in a wood and I, I took the one less traveled by, And that has made all the difference." Many environmental leaders who have pioneered along the "roads less-traveled" are those that have had the foresight and courage to adopt far-reaching policies supported by effective laws and regulations, based on sound environmental judgment.

Green Breakthroughs shows that there are no silver bullets for each and every environmental problem, but there are a number of fundamental norms and principles that can form a basis for success. Some problems as UNEP's GEO4 assessment argues, are easier to solve where the point source of the pollution is localized and there are many solutions that are known to work. But there are problems that are persistent and pervasive like climate change, loss of biodiversity and desertification where the solutions require a commitment to the long-term future and the dedication to cohesive cooperation and raw determination from policy makers.

No matter the type of environmental problem, the breakthroughs in this booklet demonstrate that policies that are adaptive to uncertainty and change and recognize that science is not, and perhaps never will be, complete—that problems are complex and therefore responses must be flexible and collaborative, and that decision makers must learn and change with new knowledge or as new threats arise—have the best chance of success.

Policy mixes that use a combination of carrots and sticks and which are embedded in sound laws that are transparent and reflect the social and cultural values and which are enforced are more likely to be effective. Green Breakthroughs also confirms that policies and laws that are inclusive of the interest of all stakeholders, from the poorest and the most marginal, to the wealthiest and most powerful, and the knowledge holdings and values of them all—from the most ancient traditional experience or

insight to the most modern innovation or invention – will conform more readily to societal acceptance.

It is also evident from these green breakthroughs that market mechanisms can work because human values are oriented towards profit, but in the longer term, education and awareness of our children can shift the value of the market towards reflecting the values of prevention and custodianship.

These opportunities include the following. For growth in renewable energy, national grids need to accept electricity from renewable sources, at guaranteed prices that are high and stable enough to reward investment. For proper management of wastes, tough targets and financial incentives can reduce waste volumes and promote re-use, reclamation and recycling, ideally in a 'circular economy' in which one sector's wastes become another sector's raw materials. For sustainable use of forests and other ecosystems, as well as fisheries, long-term tenure is needed, along with financial rewards for precautionary management of the services and harvests they yield, and the biodiversity they contain.

Biodiversity itself can be conserved if it is recognised for what it is – a limitless resource that can generate wealth indefinitely – and if some of that wealth is used to support conservation. Finally, in adapting to climate change, countries are carefully analyzing their own vulnerabilities and needs, identifying opportunities to restore their own environmental resilience and security while cooperating with other countries to find global solutions. In all these cases, success comes from the creative use of sound knowledge and an approach that is in harmony with fundamental human motivations.

I invite Ministers and indeed everyone in a position to catalyze change to read this booklet and see where there is resonance, and then inspire to replicate it or adapt the lessons in these pages to make their own breakthroughs and move the world away from a path of depriving future generations from what we used to take for granted – a world in which nature's ingenuity provides us with the renewable resources to sustain the development aspirations of all our nations. We can change the destination of the path we are on ; all we require is political determination and a willingness to share successes, opportunities and burdens.



Achim Steiner

Foreword

Global environmental decline and rapid depletion of the planet's natural resources is universally evident. The state of the world's natural environment is increasingly fragile and is faced with massive, and in some cases, irreversible environmental degradation and habitat and species loss. The causes of this decline range from extreme poverty to unsustainable production and consumption patterns; to poor governance and inadequate policy and institutional responses to meet the environmental challenges faced by current and future generations.

Through assessments like those produced by the Intergovernmental Panel on Climate Change (IPCC), the Millennium Ecosystem Assessment (MA), and the Global Environment Outlook (GEO), we now possess greater awareness of how human activities are impacting the environment. At the same time, we are beginning to understand the kinds of policies and laws that are effective in solving the environmental problems that we are confronted by. The global consensus that has been forged to address these pervasive and imminent threats—through United Nations sponsored Global Summits, the network of Multilateral Environmental Conventions, and other global and regional initiatives—provides a strong foundation upon which developed and developing nations around the world can adopt and implement bold and innovative policies and laws to slow down and ultimately reverse environmental degradation and realise the goals of sustainable development. The focus today is on revitalising this consensus and converting it into collective action. In the words of the United Nations Millennium Declaration, “We must spare no effort to free all of humanity, and above all our children and grandchildren, from the threat of living on a planet irredeemably spoilt by human activities, and whose resources would no longer be sufficient for their needs.”

Climate change is perhaps the most pervasive of all global environmental challenges, impacting all aspects of human lifestyles and livelihoods in terms of human health and well-being, food security, mobility, energy, water, vegetation, biodiversity, land and other natural resources, and ultimately the very foundations of peace and security. Earlier this year, the first of four new IPCC reports compiled by over 2,000 scientists concluded with 90 percent certainty that humans are altering the climate. Other threats to the environment include unsustainable lifestyles and heavy reliance on non-renewable energy use, increasing waste production and pollution, rapid urbanisation, habitat destruction and biodiversity loss, land degradation, and over harvesting of forest, marine and freshwater systems. The impacts and long term consequences of these threats are widespread and wholly unsustainable.

There are, however, some encouraging signs that the investment in human capital, financial resources, technology and partnerships over the past two decades by the United Nations system, and both industrialised and developing countries is beginning to show early signs of producing a change of direction towards a more sustainable future. There is a growing focus on, and investment in, renewable energy as a substitute for fossil fuels, increasing energy efficiency in industry, transport, construction and other sectors that has the potential to significantly reduce greenhouse gas emissions. Other areas in which major policy shifts towards more enlightened environmental and natural resource management have become evident in recent times include, integrated fresh water and marine resource management, forest conservation and sustainable use of forest products, ecosystems management, enhanced efficiency in chemicals and waste management, preservation of cultural diversity and the applications of a wide range

of new tools for environmental management such as market based instruments, strategic environmental impact assessment and multi-stakeholder partnerships.

The driving force behind these developments is innovative policies and their implementation mechanisms that have been enunciated by enlightened national leaders and policy makers, acting on the conviction that environment is the foundation of prosperity and have had the foresight and courage to eschew business-as-usual approaches to economic growth and development.

Central to UNEP's programme of work is the recognition that policy formulations that internalise the economic costs and opportunities of sustainability across governments, business, and at the individual level are called for to achieve better management of our natural resources. To this end, UNEP has strengthened its relationship with sister organisations like the UN Development Programme, the UN Industrial Development Organisation, the World Trade Organisation, and the UN World Tourism Organisation.

The current UNEP initiative, Green Breakthroughs, is designed to highlight and bring to the attention of a wider global audience of policy-makers some of the ground-breaking national policies that have signaled change towards improved and sustainable management of natural resources for the benefit of present and future generations. This booklet offers a brief outline of the some of the policy initiatives and their implementing mechanisms that have been taken recently by leaders and policy-makers in both developed and developing countries to address several major global environmental challenges. Its purpose is to provide a sense of the crucial importance of these policies and laws for the environment and sustainable development and to promote their wide dissemination and use. Close cooperation and the sharing of knowledge and creative ideas are essential for solving the current environmental problems and securing a sustainable future.

Bakary Kante
Director
Division of Environmental Conventions and Law

Executive Summary

This booklet is called Green Breakthroughs because it describes policies and laws that have been used effectively to solve environmental problems. Success stories are drawn from 45 individual countries, as well as from regional groupings such as those in Africa, the Caribbean and Europe, while others involve countries that share major rivers and lakes, or that are joined in common global endeavours. The successes relate to major environmental themes, the issues and challenges of each being explained. They include energy and climate change, the management of various kinds of wastes, the preservation and restoration of ecosystems, and the sustainable use of biodiversity and fisheries. The approach is always to show how policies and laws, whether singly or in mixtures, can reduce damage, increase efficiency and sustainability, and ensure that environmental, social and financial benefits reward those who use the world wisely and well.

By reviewing the evidence, conclusions have been reached that can help policymakers adapt past successes into new initiatives in new places. A switch from fossil to renewable sources of energy is urgently needed, for example, in order to reduce greenhouse gas emissions, improve local air quality, and reduce fuel costs. But such a switch need not be a burden if national power

repeatedly demonstrated. The challenge is the explosive growth in urban, industrial and electronic wastes, some toxic but all of them potentially reducible, reclaimable, recyclable or manageable with greater care and attention. Tough targets and financial incentives can be used to encourage these outcomes, while also creating new businesses and jobs as each type of waste becomes seen as a raw material for others to use. In this, we are rediscovering two of the truths of nature: that nothing can truly be thrown away, and that everything is useful. Systems based on such principles are capable of absorbing and processing all wastes safely, productively and without exporting the problem to other locations or future generations.

Again, it has emerged that sustainable use and regeneration of ecosystems such as forests is much easier if long-term security of tenure is given to the people responsible for them, so that they can invest in the future. This effect is made stronger if the owners and managers of ecosystems are rewarded according to the harvests and environmental services they yield, whether they take the form of plant and animal products, or water catchment payments, carbon credits, or ecotourism and bioprospecting revenues. Creating ownership and equity arrangements that allow these things to

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