



A global initiative for sustainable land management on the rise

# Measuring the value of land

The Economics of Desertification, Land Degradation and Drought

This publication contains the discussions of the Partnership Meeting on the Assessment of the »Economics of Desertification, Land Degradation and Drought«, held December 14–15, 2010 in Bonn, Germany.

53 representatives from 31 different intergovernmental agencies, government ministries, donor organisations and the private sector from countries and regional groupings in Africa, Asia, Latin America and Europe participated in this meeting.

The views expressed in these pages do not necessarily represent the official positions or policies of any of the organisations that were represented at the meeting or involved in its planning, hosting and funding.

## Participating Organisations

Algerian Ministry of Agriculture and Rural Development  
Argentinian Ministry of Environment and Sustainable Development  
Asian Development Bank (ADB)  
BioEconomy Research and Technology Council, Germany  
Center for Development Research (ZEF)  
Center for Management and Strategic Studies (CGEE), Brazil  
Centro Agronómico Tropical de Investigación y Enseñanza (CATIE), Costa Rica  
Committee on Science and Technology (CST) of the United Nations Convention to Combat Desertification (UNCCD)  
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH  
Economic Commission for Latin America and the Caribbean (ECLAC)  
European Commission  
Food and Agriculture Organisation (FAO)  
French Ministry of Foreign Affairs  
German Federal Ministry for Economic Cooperation and Development (BMZ)  
Global Risk Forum (GRF) Davos  
Hungarian Ministry of Rural Development  
International Food Policy Research Institute (IFPRI)  
International Union for the Conservation of Nature (IUCN)  
Institute for Environmental Protection and Research (ISPRA), Italy  
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Secretariat of the United Nations Convention to Combat Desertification (UNCCD)  
The Global Mechanism (GM) of the United Nations Convention to Combat Desertification  
United Nations Development Programme (UNDP)  
United Nations Environment Programme (UNEP) –  
The Economics of Ecosystems and Biodiversity (TEEB)  
UNEP World Conservation Monitoring Centre (UNEP-WCMC)  
Uruguayan Ministry of Environment  
United Nations University – International Human Dimensions Programme on Global Environmental Change (UNU-IHDP)  
United Nations University – International Network on Water, Environment & Health (UNU-INWEH)

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## The economic dimension of desertification, land degradation and drought (DLDD) is increasingly gaining importance.

For this reason, the UNCCD has launched an initiative to help make the economic side of desertification, land degradation and drought (DLDD) an integral part of policy strategies and decision-making. An important step in this direction was the Partnership meeting on the Assessment of the »Economics of Desertification, Land Degradation and Drought« (EDLDD), held December 14–15, 2010.

This publication contains a summary of the discussions and recommendations from the meeting that took place in Bonn, Germany. It is part of an effort to raise awareness of the economic aspects of desertification, land degradation and drought, and of the costs and benefits of sustainable land management (SLM).

### Science for sustainable land use

By 2050, there will be about 9 billion people on the planet – one-third more than today. Where will we grow tomorrow's agricultural commodities, or produce fuelwood? Fertile land is a rapidly-depleting resource in countries both rich and poor. On a global scale, the an-

nual loss of 75 billion tons of soil is estimated to cost the world about USD 400 billion per year. Land degradation is also closely linked to loss of biodiversity and climate change. But there is good news, as well.

### Action now

A new opportunity is at hand. Governments, investors and farmers alike are approaching land, its degradation and its potential benefits, in positive new ways. Food security is at the top of the global development agenda. The need for reliable data to support an assessment of the economics of desertification, land degradation and drought (EDLDD) is urgent. Clarity on the costs and benefits of SLM has never been more important.

The 14–15 December 2010 inaugural Bonn Partnership Meeting took the first steps towards the creation of a global alliance to provide a more robust scientific basis for good policy on land use, to secure food supplies for all and to raise public awareness of the importance of productive land systems. *A strong alliance is needed to bring this initiative forward.*





Luc Gnacadja

## A »comprehensive assessment« is within reach

Land degradation is taking place in both dry and humid regions. The number of people and ecosystems at risk of drought and desertification is increasing significantly. Unchecked, these trends spell rising food prices, worsening food shortages and human suffering on a massive scale.

The United Nation Convention to Combat Desertification (UNCCD) and its 10-Year Strategic Plan and Framework (2008–2018) are in place to combat this global threat. But, until now, the lack of a comprehensive assessment of the economics of desertification, land degradation and drought (EDLDD) has hampered the implementation of many of the Convention's National Action Programmes (NAPs).

### First step now completed

In July 2009 I discussed this matter with the Ministry for Economic Cooperation and Development of the Federal Republic of Germany. The Ministry, as a first step, commissioned the International Food Policy Research Institute (IFPRI) and the Center for Development Research (ZEF) to prepare a scene-setting policy paper, and the Bonn Partnership Meeting last December marked the culmination of this initial phase of work.

I thank the German government for its unfailing support to the UNCCD. I salute the pioneering work that IFPRI and ZEF have started, and urge other members of the international scientific community to help them broaden and deepen it. As the global environment and development communities advance together towards a comprehensive assessment of EDLDD, they can count on the full support of the UNCCD Secretariat.

Luc Gnacadja, Executive Secretary  
United Nations Convention to Combat Desertification  
(UNCCD)

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### Some precedents

A number of cooperative, cross-sectoral environmental investigation and publishing are now already positively influencing international policy-making:

- The Millennium Ecosystem Assessment, published in 2005, considered the consequences of ecosystem change for human well-being and the scientific basis for action needed to enhance the conservation and sustainable use of those systems.
- The Stern Review on the Economics of Climate Change by British economist Nicholas Stern, released in 2006, argues that the benefits of strong, early action on climate change considerably outweigh the costs.
- The Economics of Ecosystems and Biodiversity (TEEB), launched in 2008, is an international initiative to draw attention to the global economic benefits of biodiversity and to highlight the growing costs of biodiversity loss and ecosystem degradation.

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### Needed: Better numbers for better policies

The international community is calling ever more urgently for better land-use science and policies to support achievement of the Millennium Development Goals (MDGs), the implementation of the G20 commitments of 2009, the ongoing climate change negotiations, global advances in biodiversity preservation and success at the upcoming Rio+20 Earth Summit in May 2012.

The Bonn initiative aims to provide much of what's still needed. We seek to evaluate the socioeconomic costs

of land degradation and the added value of better land management. Another aim is to scientifically assess the benefits of restoring soil to productive use and help guide policies that permit the world to manage land in sustainable ways. This calls for a programme of pioneering multidisciplinary study between economists, biophysical scientists and experts from national and international arenas together with governments, investors, farmers and civil society organisations.

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## Strengthening the case for rural development and food security

Manfred Konukiewitz

Degradation and desertification are causing the loss of fertile soils all over the world, depriving more and more people of arable land. Land, climate and biodiversity are inseparably linked. Developed and developing countries together must sustainably manage them as an indivisible whole.

The Partnership Meeting of December 14–15 in Bonn was only the first step in a long-term initiative to develop a system of defining land degradation challenges, identifying necessary investments and measuring success. The initiative aims to produce and refine an economic cost-benefit analysis of land degradation that will enable decision-makers to adequately strengthen rural development and global food security.

The Stern report on climate change and the TEEB project on biodiversity are two good examples of cooperative, cross-sectoral environmental investigation and publishing that are now positively influencing international processes and contributing to regional, national and local policy-making. My hope is that this initiative will develop into a system of cooperative, multi-partner scientific research that should serve both policy-makers and the private sector with well-informed risk-assessment strategies, a long-term, proactive view of environ-

mental change processes and well-designed policy advice, both for combating DLDD and investing fruitfully in SLM.

### Better knowledge means credibility

The expectations are high: this initiative will both raise SLM to a higher level of priority on global and national agendas and reinforce the role of the UNCCD itself. A strong alliance for its implementation is needed, backed by broad-based scientific cooperation, a key factor for the future quality and credibility of this process. We need the partnership and active participation of relevant actors from politics, science, civil society, the private sector and international organisations. Countries, institutions and individuals together must now provide the necessary impetus.

Manfred Konukiewitz,

Deputy Director General, Global and Sectoral Policies and Commissioner for Climate Policy, German Federal Ministry of Economic Cooperation and Development (BMZ)

# What we know

## Our growing appetite

World demand for protein-rich foods is surging along with population growth. Mankind's current consumption of eggs is five times higher than it was in 1961. Meat consumption has also more than tripled since then, and milk consumption almost doubled. Health is improving, yet other trends are cause for serious worry. The UN Food and Agriculture Organization (FAO) estimates that, by 2050, world food production must rise by 40% from current levels. Already, agricultural productivity in the developing world is not keeping pace with our growing appetites.

## A net loss of primary production in fertile areas

According to the Food and Agriculture Organization (FAO), net primary production loss is heaviest in South-East Asia, tropical and sub-tropical Africa, Central America and the northern regions of South America. Overall, humid areas today account for about 78% of

worldwide land degradation. At the same time, the drylands are especially vulnerable, due to their importance for world grain production and high poverty levels. The fact that fertile land is an indispensable prerequisite to satisfy the rising demand for fuelwood or other ecosystem services often goes unnoticed.

## The human impact

Land degradation takes place in all agro-ecological zones, threatening some 1.5 billion people, including 42% of the world's poor, who are dependent on resources produced in the very lands hit by the spread of global land degradation. Beyond food scarcity, DLDD can spell unemployment, economic deterioration, social tensions, involuntary migration and armed conflict. The incidence of worldwide food riots and related civil disturbances in the first half of 2008 correlates closely to spiking prices of rice, wheat and maize over the same period.

## L'Aquila declaration

We are deeply concerned about desertification and land degradation in drylands, as both causes and consequences of climate change. Acknowledging the substantial impacts of these phenomena on human well-being, poverty, food security and the environment, we recognize the efforts of the UN Convention to Combat Desertification (UNCCD) and call upon the Parties and existing funding mechanisms to strengthen synergies among the Rio Conventions in the implementation of selected projects. Furthermore, we will work with developing country partners to integrate effective Sustainable Land Management (SLM) into relevant cooperation programmes and assist them in integrating SLM into national development plans and policies and national climate change mitigation and adaptation strategies."

Paragraph 79, final declaration, 2009 G8 Summit, L'Aquila, Italy



»About a year ago, ECLAC and the Global Mechanism (GM) launched a project to study the economics of land degradation and climate change in 14 countries in South and Central America as well as the Dominican Republic. We have found that exposing desertification's social and economic costs is a good way to make it more visible and thus to combat it more effectively.«

César Morales, Coordinator of Regional Project on Economic Valuation of Land Degradation and Climate Change in Latin American Countries, Global Mechanism and Economic Commission for Latin America and the Caribbean (ECLAC)



»We should aim for a broad partnership, political as well as financial. The nature of the partnership should be time-bound, not a marriage forever. It should be an operational, project-based enterprise, with very concrete outcomes. DLDD cuts across many areas: it's about environment and development, and the emphatic links to food security.«

Stefan Schmitz, Head of Unit, Rural Development and Global Food Security, Federal Ministry for Economic Cooperation and Development (BMZ), Germany

# What we must research and clarify

## The need for a better picture

Land degradation is taking place in practically all agro-ecological zones of the earth today, not just in the drylands. However, most maps do not necessarily convey an accurate picture of this global problem. Many scientists and experts are dissatisfied with current data quality and availability. Better mapping demands the concerted collaboration of soil scientists, agronomists, sociologists, statisticians and remote sensing experts, among others.

## Triggering action on land degradation

Land is a public good, but we still lack the tools with which to value properly its many services. 2009 and 2010 saw a headline-grabbing trend of farmland acquisitions in both developed and developing countries, undertaken by national wealth funds and other investors. This is a positive market signal, yet under-investment in SLM by national governments and others remains a fact.

## What to measure, and for whom?

There is no one-size-fits-all solution: each affected government, community and interest group demands proper research and data tailored to their particular role and situation. There are many stakeholders: the rural and urban folk directly affected by DLDD as well as central and local governments, international organisations as well as social entrepreneurs, private investors as well as NGOs, the media as well as the general public. Proper economic assessment of the costs of DLDD and the preventative advantages of SLM demands a long-term effort of collaborative research and advocacy.

## The value of productive land

A number of case studies (e.g. in Peru, Niger, Kenya, India and Uzbekistan) suggest that the input cost of preventing land degradation through SLM methods is in most cases measurably lower than the cost of land degradation and post-facto rehabilitation. We propose to scale up this evidence and make it more robust to show that prevention is better than cure. Therefore we must assess the value of productive land.



»Increased foreign acquisitions of land are also increasing the commercial pressure on farmland. Without sound property rights, this is a threat for smallholder farmers' assets and can increase the risks of land degradation. Productive smallholder farmers are vital to a more effective global effort to tackle the root causes of poverty and ensure food security.«

Joachim von Braun, Director,  
Center for Economic Research (ZEF)

## Stock taking analysis

The draft **IFPRI/ZEF study** first discussed at the Bonn meeting in December 2010 reviews current literature on the causes and impact of DLDD and offers ideas for a general theoretical framework to compare the costs of action against DLDD with the costs of inaction. It calls for a thorough economic valuation of the various terrestrial ecosystem services – the cost of their upkeep as well as their global benefits – to alleviate poverty and help promote sustainable land management.

## Both global and local

The Bonn Partnership Meeting agreed that an assessment of the economics of sustainable land management needed concerted action at local, national and global levels, an institutional framework, deeper knowledge of strategies to mitigate land degradation, stronger incentives to invest in land productivity and greater investment capacity.

### Voices from the debate



»We need a sound, evidence-based economic approach to address DLDD. Politically-motivated approaches have zero credibility.«

Joachim von Braun  
Director, Center for Development Research (ZEF)



»Systemic risk is confronting us, and this should galvanize us to action. We are reaching tipping points, beyond which costs of land degradation will increase in an exponential manner, while at the same time benefits obtained from the exploitation of land resources will progressively decrease. If nothing is done, the cost efficiency of land management is likely to drop dramatically, and put at risk human livelihoods and security in many land-use systems of the world.«

Dominique Lantieri  
Senior Environment Officer, Land and Water Division, Food and Agriculture Organization (FAO)



»The Asian Development Bank considers this initiative to be timely and very important. We have undertaken similar studies limited to South-East Asia, for example, and would do our best to contribute to this global study and be part of it. The delineation and securing of property rights, for example, have to be part of an economic calculation.«

Antonio Andrea Monari  
Resident Director General,  
European Representative Office,  
Asian Development Bank (ADB)



»Land degradation is an underestimated challenge to our common future. Investing in productive land therefore represents a trigger to make efforts towards food security, biodiversity and climate protection more effective.«

Anneke Trux  
Head of Convention Project to Combat Desertification (CCD Project), GIZ



»Good information flows from good research. Empirical information is powerful, and less likely to be misused or manipulated.«

Ephraim Nkonya  
Senior Research Fellow, IFPRI



»I think a focus on SLM might be more positive and would attract more support than a focus primarily on land degradation. It's perhaps better to ask, »What is the added economic value of better land management?«. «

Richard Thomas  
Assistant Director (Drylands),  
UNU-INWEH, Ontario, Canada



## Building a partnership for science and advocacy

A clear and agreed organisational roadmap, a professional communications effort and adequate funding are needed to support the key mission of researching, generating and analysing data. These elements would provide the foundation for the development of credible policy recommendations.

### Scope, scale and next steps

Initial findings and consensus from Bonn Partnership Meeting

## Methodology


The proposed programme of study should look at the economics of drought, desertification and land degradation (EDLDD) in a holistic manner, linking it to sustainable land management, climate change, food security and disaster risk management, among others. Some of the information is already there – much of the work will involve compiling it and providing an over-arching framework. The scientific analysis must be undertaken and published by an independent body, so to ensure credible data. In the first instance, the target audience should be political and financial decision-makers.

## Governance

The vision should be global, with a mandate that includes but also goes beyond the world's drylands. The governance system must ensure output to support policy decision-making and practical tools for use on the ground, to turn insights into actions. A Steering Group should procure the necessary funding, set the objectives and provide guidance and counsel. A core team should drive the process, supported by a secretariat and topical and regional working groups, complemented by technical and advisory streams to add credibility, improve the quality of results and channel the views and needs of civil society, private business and farmers.

## Communications

Raising awareness will not only be about how to generate funding, but also about attracting scientific participation and endorsement as well as political and public support. The communications effort should first be directed at the scientific community: we need to refine the key scientific messages and information for use by politicians. We must also ensure communications with a broad spectrum of target-groups, from agriculture ministers through scientific and general-interest media to the World Economic Forum.




»Sometimes the people who must make a living from the land have no choice but to misuse their land resources. What alternative livelihoods can be created for these people? What incentives can we offer in order to decrease the pressure on the land? We must encourage more cooperation between the three UN multilateral environmental agreements – the UNCCD, the United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on Biodiversity – to find ways to meet these challenges.«

Klaus Kellner, Chair, Committee for Science and Technology (CST), UNCCD



»The private sector is increasingly engaged on sustainable development issues, and more companies are making sustainability the core of their business. Sustainability has climbed onto the agenda of many CEOs, CFOs and other top executives. The private sector can make valuable contribution to initiatives like this one – with facts, expertise, and views.«

Marcel Normann  
Principal, McKinsey & Co., Inc., Hamburg



»The search should reach out to partners among foundations, relevant NGOs and the private sector, even PR agencies and movie-makers. Business consultancies could be interested in contributing services. A clear communications strategy is also essential for communicating results. The UN system affords a lot of credibility: it helped TEEB to engage many biodiversity-rich countries. But a fast-moving process like this also needs a measure of informality.«

Mark Schauer,  
Head of Central Office, TEEB – The Economics of Ecosystems and Biodiversity

## Land is benefiting from a new wave of global investment.

To sustain it, we need more and better science to guide policy makers, governments and investors.

Calls are growing for good land-use science in the achievement of the Millennium Development Goals (MDGs) on poverty. Better science and policy that address the interdependence of land, climate and biodiversity are needed for implementation of the G20 food summit commitments of 2009 and the ongoing climate change negotiations. Deeper understanding of the economics of sustainable land management will spur global advances in biodiversity preservation and enrich the outcome of the upcoming Rio+20 Earth Summit in 2012. The time is right for an integrated global assessment of the economics of desertification, land degradation and drought (DLDD), and of the material costs and benefits of preventive sustainable land management (SLM).

The participants of the December 14–15 2010 Inaugural Partnership Meeting in Bonn are resolved to start building an international economic research and policy-making alliance. However, a core group of dedicated institutions, which provide political support and a solid

financial foundation, are needed as well. These shall involve a broad range of stakeholders. Finally, it is now time to launch an initiative beyond the boundaries of the UNCCD governance. A strong alliance, accompanied by broad-based scientific support, is a key factor for its success.

We call on other organisations and individuals to join in this vital undertaking. Our alliance is open to the material, technical, scientific and political support of governments, multilateral and bilateral donor and development agencies. We seek cooperation with NGOs, multinational companies, financial institutions, farmers and farmers associations, universities and research bodies. We need the participation of soil scientists, agronomists, sociologists, economists and, just as importantly, experts from the world of business.

## Join this partnership and harvest the benefits for all.



»The 2 billion people affected by DLDD are our main raison d'être. They are the reason we have come together here today.«

Mohamadou-Mansour N'Diaye  
Chef de Cabinet  
UNCCD Secretariat

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