



## SUMMARY OF THE THIRD SPECIAL SESSION OF THE UNCCD COMMITTEE ON SCIENCE AND TECHNOLOGY AND 2ND SCIENTIFIC CONFERENCE: 9-12 APRIL 2012

The third Special Session of the Committee on Science and Technology (CST S-3) of the UN Convention to Combat Desertification (UNCCD), together with the UNCCD 2nd Scientific Conference, convened from 9-12 April 2013, at the World Conference Center in Bonn, Germany. Participants at the UNCCD 2nd Scientific Conference focused on the theme “Economic assessment of desertification, sustainable land management and resilience of arid, semi-arid and dry sub-humid areas” in a series of four plenary and 33 parallel panel sessions and two poster sessions, all of which were organized by Global Risk Forum (GRF) Davos, as the lead institution, under the guidance of the CST Bureau.

The Scientific Conference was embedded within the CST meeting, which held opening and closing sessions prior to and after the Scientific Conference. An open-ended CST contact group met during the four days to draft a decision on its agenda items, which included: the work of the *ad hoc* Advisory Group of Technical Experts (AGTE) in refining the impact indicators; a review of scientific information submitted by affected country parties during the 2012 reporting and review cycle; and preparations for the UNCCD 3rd Scientific Conference, which will consider the theme “Combating desertification, land degradation and drought (DLDD) for poverty reduction and sustainable development: the contribution of science, technology, traditional knowledge and practices.” The CST also took note of a preliminary summary of the UNCCD 2nd Scientific Conference, which was submitted by the President of GRF Davos.

Approximately 350 participants registered for the meetings, almost half of whom were from the scientific community. Participants presented research regarding best practices in the face of DLDD, documenting landowners’ efforts to adapt to change, and proposing methodologies for evaluating the costs and benefits of sustainable land management.

Tarja Halonen, former President of Finland and Chair of the Global Sustainability Panel, in her keynote address reminded

participants that sustainable land management can be one of the most important tools for poverty eradication, and challenged participants to send a strong message that a land degradation neutral world will be possible, with concrete targets and a monitoring system to follow progress. Throughout the week participants also highlighted the need for, and challenged each other to, conduct more targeted research related to the application of the results discussed in Bonn to the questions that local, national, regional and international decision makers face.

The proceedings of the meetings will be transmitted to the eleventh session of the UNCCD Committee for the Review of the Implementation of the Convention (CRIC 11), which opens on 15 April 2013 and to the eleventh meeting of the CST, which will convene later in 2013.

### A BRIEF HISTORY OF THE UNCCD

The UNCCD is the centerpiece in the international community’s efforts to combat desertification and land degradation in the drylands. The UNCCD was adopted on 17 June 1994, and entered into force on 26 December 1996. Currently, it has 194 parties. The UNCCD recognizes the physical, biological and socio-economic aspects of desertification, the importance of redirecting technology transfer so that it is demand-driven, and the involvement of local communities in combating desertification and land degradation. The core of the UNCCD is the development of

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national, subregional and regional action programmes by national governments, in cooperation with UN agencies, donors, local communities and non-governmental organizations (NGOs).

**NEGOTIATION OF THE CONVENTION:** In 1992, the UN General Assembly (UNGA), as requested by the UN Conference on Environment and Development, adopted resolution 47/188 calling for the establishment of an intergovernmental negotiating committee for the elaboration of a convention to combat desertification in those countries experiencing serious drought and/or desertification, particularly in Africa (INCD). The INCD met five times between May 1993 and June 1994 and drafted the UNCCD and four regional implementation annexes for Africa, Asia, Latin America and the Caribbean, and the Northern Mediterranean. A fifth annex, for Central and Eastern Europe, was adopted during the 4th Conference of the Parties (COP 4) in December 2000. Pending the UNCCD's entry into force, the INCD met six times between January 1995 and August 1997 to hear progress reports on urgent actions for Africa and interim measures in other regions, and to prepare for COP 1.

**COPs 1-10:** The first COP met in Rome, Italy, from 29 September-10 October 1997, during which delegates, *inter alia*, selected Bonn, Germany, as the location for the UNCCD's Secretariat and the International Fund for Agricultural Development (IFAD) as the organization to administer the Convention's Global Mechanism (GM).

COP 2, which met in Dakar, Senegal, from 30 November-11 December 1998, invited Central and Eastern European countries to submit to COP 3 a draft regional implementation annex. Parties met for COP 3 in Recife, Brazil, from 15-26 November 1999, and approved a long-negotiated Memorandum of Understanding (MoU) regarding the GM, among other decisions. COP 3 also decided to establish an *ad hoc* working group to review and analyze the reports on national, subregional and regional action programmes and to draw conclusions and propose concrete recommendations on further steps in the implementation of the UNCCD, among other decisions.

COP 4 convened from 11-22 December 2000, in Bonn, Germany, during which delegates, *inter alia*, adopted the fifth regional Annex for Central and Eastern Europe, began the work of the *ad hoc* working group to review UNCCD implementation, initiated the consideration of modalities for the establishment of the CRIC, and adopted a decision on the Global Environment Facility (GEF) Council initiative to explore the best options for GEF support of UNCCD implementation.

COP 5 met from 1-13 October 2001, in Geneva, Switzerland, during which delegates, *inter alia*, established the CRIC and supported a proposal by the GEF to designate land degradation as another focal area for funding.

COP 6 met from 25 August-6 September 2003, in Havana, Cuba. Delegates, *inter alia*, designated the GEF as a financial mechanism of the UNCCD, decided that a comprehensive review of the Secretariat's activities would be undertaken by the UN Joint Inspection Unit (JIU), and requested the Secretariat to facilitate a costed feasibility study on all aspects of regional coordination.

COP 7 took place in Nairobi, Kenya, from 17-28 October 2005. Among their decisions, delegates reviewed the implementation of the Convention, developed an MoU between the UNCCD and the GEF, and reviewed the recommendations in the report of the JIU assessment of the Secretariat's activities. Discussion on regional coordination units ended without the adoption of a decision, and an Intergovernmental Intersessional Working Group was established to review the JIU report and to develop a draft ten-year strategic plan and framework to enhance the implementation of the Convention.

COP 8 convened in Madrid, Spain, from 3-14 September 2007, and, *inter alia*, adopted a decision on the ten-year strategic plan (the Strategy). Delegates also requested the JIU to conduct an assessment of the GM for presentation to COP 9. COP 8 delegates did not reach agreement on the programme and budget, however, and an Extraordinary Session of the COP convened at UN Headquarters in New York on 26 November 2007, to conclude this item.

COP 9 convened in Buenos Aires, Argentina, from 21 September-2 October 2009. Delegates focused on a number of items that were called for by the Strategy and adopted 36 decisions, which addressed topics including: four-year work plans and two-year work programmes of the CRIC, CST, GM and the Secretariat; the JIU assessment of the GM; the terms of reference of the CRIC; arrangements for regional coordination mechanisms (RCMs); the communication strategy; and the programme and budget.

COP 10 convened from 10-21 October 2011, in Changwon City, Republic of Korea. Delegates adopted 40 decisions, addressing, *inter alia*, the governance structure for the GM, by which parties agreed that the accountability and legal representation of the GM shall be transferred from IFAD to the UNCCD Secretariat. A decision related to the UN Conference on Sustainable Development (UNCSD or Rio+20) requested the UNCCD Executive Secretary to actively prepare for and participate in the UNCSD.

**COMMITTEE ON SCIENCE AND TECHNOLOGY (CST):** The CST has convened parallel meetings to each COP, as specified in the Convention. At CST 1's recommendation, the COP established an *ad hoc* panel to oversee the continuation of the process of surveying benchmarks and indicators, and decided that CST 2 should consider linkages between traditional and modern knowledge. CST 3 recommended that the COP appoint *ad hoc* panels on traditional knowledge and on early warning systems. CST 4 submitted proposals to improve the CST's work, and CST 5 adopted modalities to improve the efficiency and effectiveness of the CST, namely through the creation of a Group of Experts. CST 6 continued discussions on improving its efficiency and effectiveness, among other agenda items. CST 7 considered land degradation, vulnerability and rehabilitation, among other issues. And CST 8 decided to convene future sessions in a predominantly scientific and technical conference-style format, which led to the convening of the first UNCCD Scientific Conference at CST 9.

The first Special Session of the CST (CST S-1) convened in Istanbul, Turkey, concurrently with CRIC 7, from 3-14 November 2008. The two-day CST S-1 considered preparations for CST 9, elements of the Strategy related to the CST, the CST's four-year work plan and two-year costed work programme, and advice to the CRIC on measuring progress on the Strategy's Strategic Objectives.

CST 9 met concurrently with COP 9, during which the 1st Scientific Conference convened to consider the theme "Biophysical and socio-economic monitoring and assessment of desertification and land degradation, to support decision-making in land and water management." CST 9 also developed decisions to review the experience of the 1st Scientific Conference and to organize a 2nd Scientific Conference on the theme "Economic assessment of desertification, sustainable land management and resilience of arid, semi-arid and dry subhumid areas." In addition, the CST recommended two indicators—the proportion of the population in affected areas living above the poverty line and land cover status—as the minimum required subset of impact indicators for reporting by affected countries beginning in 2012.

CST S-2 took place from 16-18 February 2011, in Bonn, Germany, and considered the status of work on methodologies and baselines for the effective use of the subset of impact indicators on strategic objectives 1, 2 and 3 of the Strategy, among other matters.

CST 10 took place in parallel with COP 10, and developed decisions to establish two *ad hoc* working groups: one to continue the iterative participatory process on impact-indicator refinement and monitoring and assessment of impacts; and one to further discuss options for the provision of scientific advice to the UNCCD.

### **CST S-3 AND 2ND SCIENTIFIC CONFERENCE REPORT**

#### **OPENING SESSION OF CST S-3**

On Tuesday morning, 9 April 2013, CST Chair Antônio Rocha Magalhães (Brazil) opened the third special session of the Committee on Science and Technology (CST S-3) of the UNCCD, stressing that its work will be important to making the UNCCD a world scientific and technical authority on DLDD issues, especially impact indicators. UNCCD Executive Secretary Luc Gnacadja said the Scientific Conference's evaluation of the socio-economic value of land should help motivate policymakers to make informed decisions towards a zero net land degradation (ZNLDD) world.

CST S-3 adopted the provisional agenda and organization of work (ICCD/CST(S-3)/1/Rev.1) without amendment, and then introduced two agenda items: review and assessment of scientific information from parties and other reporting entities, in particular impact indicators; and reshaping the operation of the CST in line with the 10-year strategic plan and framework to enhance the implementation of the Convention, including the preparation of the UNCCD 2nd Scientific Conference.

On Tuesday morning, the UNCCD Secretariat introduced the review and assessment of scientific information from parties and other reporting entities (ICCD/CRIC/(11)/8-ICCD/CST(S-3)/6 and Corr.1), underlining that only 71 countries, about 42% of all affected countries, provided information, but many had not provided quantitative data and the data quality and comparability is not sufficient to present statistically significant conclusions. To further consider this agenda item, CST Chair Magalhães reported that the 8 April 2013 meeting of the Bureau had proposed the creation of an open-ended contact group. The European Union (EU), US, Jordan, South Africa and Argentina expressed concern about balancing the contact group's work with participation in the Scientific Conference and its side events. South Africa, Eritrea, India and the EU stressed that the contact group needed to focus on why the rate of provision of information was low and how to remedy that. The EU, Switzerland, Argentina and Eritrea noted difficulties in responding to the questionnaire on scientific information. The Committee established the contact group with Amjad Tahir Virk (Pakistan) as its Chair.

Chair Magalhães introduced documents ICCD/CST(S-3)/2 and ICCD/CST(S-3)/3, regarding the preparatory process for the UNCCD 2nd Scientific Conference between June 2011 and October 2012. After outlining the circumstances that led to a change in the conference venue and dates, from February 2013 in Fortaleza, Brazil, to April 2013 in Bonn, Germany, Chair Magalhães provided an oral update of developments since November 2012, given that the document was prepared on a timeline for the original dates. He highlighted efforts made by the Secretariat, GRF Davos and the 46 institutional affiliates of the 2nd Scientific Conference to communicate the change of venue and dates, ensure that scientists resubmitted their registrations, and attract new participants. He noted that a total of 177 scientists had confirmed their participation, with the following regional distribution: 35 from Africa; 29 from Asia; 36 from Latin America and the Caribbean; 69 from Western Europe and Others; and eight from Eastern Europe. He further noted that the format of the conference had not changed and would comprise four plenary sessions along with multiple parallel sessions, poster sessions and workshops, and opening and closing ceremonies. Chair Magalhães then outlined the programme of the 2nd Scientific Conference and the main documents to be discussed, including two white papers, background documents, and fundraising and communication strategies.

In the subsequent discussion, Mexico, supported by South Africa, the EU, Argentina and others, welcomed efforts to create a credible scientific body to support the CST. While taking note of the more balanced regional representation as compared to the 1st Scientific Conference, Argentina queried the selection process for participating on the steering and advisory committees. Following a question from South Africa on how to ensure scientific independence at the Conference, Argentina stressed that scientists' country affiliations should be made explicit as the conference was taking place under the auspices of the CST. India and the Republic of Korea called for a clear



analysis of the problems experienced during the preparatory process in order to ensure improvements in the organization of future conferences.

Several delegates expressed hope that despite the reporting problems experienced, CST-3 would be able to come up with policy-relevant outcomes to help countries and regions in making better use of data. Eritrea, Nepal, Jordan and others called for more support for developing country participants and capacity-building workshops at the sub-regional and regional levels to help countries understand the reporting process. Welcoming the “less politics and more science” focus, the EU supported continuation of the *ad hoc* process to refine the indicators, and called for greater links with the other Rio Conventions, Global Soil Week and other initiatives, in order to strengthen the science-policy interface.

Other contributions highlighted, *inter alia*: the need for more technology transfer; learning from climate change adaptation practices; investing in research capacity building for scientists in developing countries; taking a pilot approach to refine the reporting methodology before scaling it up to the national level; and linking modern and traditional knowledge. Responding to the issues raised, the Secretariat noted that an independent expert had been recruited to review the 2nd Scientific Conference and informed delegates that organization of the next conference would include an open call for scientists.

Walter Ammann, President, GRF Davos, presented the background documentation in his role as the organizer of the UNCCD 2nd Scientific Conference. He noted that two white papers had been prepared for the conference, titled “Economic and social impacts of desertification, land degradation and drought” and “Costs and benefits of policies and practices addressing desertification, land degradation and drought.” An “Overview of working papers prepared for the UNCCD 2nd Scientific Conference” (ICCD/CST(S-3)/3) summarizes the white papers.

During the discussion, CST delegates noted the need to address topics including: impacts on food production of carbon emissions; recovery and stabilization; catastrophic weather events; the pathway from measurement to practical policies; the interface between scientific information and actors such as land owners and users; and links between land, water and vegetation.

CST Chair Magalhães noted that the Bureau had been selected by the tenth meeting of the CST, as follows: Jean Ndembo Longo (Democratic Republic of Congo), Amjad Virk (Pakistan), Yuriy Kolmaz (Ukraine), and Nicholas Hanley (EU). Magalhães noted that Nicholas Hanley had been selected as Rapporteur, but that he was no longer able to serve on the CST Bureau. The CST agreed to replace Hanley with Stefan Sommer, who would also serve as Rapporteur.

### UNCCD 2ND SCIENTIFIC CONFERENCE

CST Chair Magalhães opened the UNCCD 2nd Scientific Conference on Tuesday afternoon, 9 April 2013. UNCCD Executive Secretary Gnacadja stressed the need for scientists to help the world understand that investment in sustainable land management (SLM) is a smart investment. He urged

the conference to provide practical and policy-oriented recommendations for the next COP. GRF Davos President Ammann called for scientists to provide guidance for a proactive risk management approach of prevention, preparedness and response that integrated all stakeholders. He urged out-of-the-box thinking and cross-sectoral, trans-discipline dialogue that produces more integrated solutions.

Delivering the keynote address, Tarja Halonen, former President of Finland and Chair of the Global Sustainability Panel, suggested that SLM can be one of the most important tools for poverty eradication. She urged, *inter alia*: focusing on sustainable agriculture; analyzing how to use sustainable forest management to mitigate land degradation and rehabilitate degraded land; and providing success stories about effectively empowering women through SLM and sustainable agriculture. She said the conference’s papers show that the costs of SLM are lower than the costs of inaction, and prevention is less expensive than rehabilitation. She urged a strong conference message that a land degradation neutral world will be possible, with concrete targets and a monitoring system to follow progress.

**PLENARY SESSIONS: Economic and Social Impacts of Desertification, Land Degradation and Drought:** This plenary was chaired by Anneke Trux, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Germany. In his keynote address on “Better evidence for better policies,” Stefan Schmitz, German Federal Ministry for Economic Cooperation and Development (BMZ), stressed that more effective use of knowledge through nexus approaches at the political and academic level is the single-most important factor in countering vulnerability and increasing resilience.

Edward Barbier, University of Wyoming, US, highlighted the strong links between rural poverty and land degradation, noting that 25% of the world population lives on fragile degraded lands. He stressed that a new policy strategy is needed to tackle the poverty-environment trap faced by the “assetless” rural poor and aimed at: enhancing access to credit, insurance and land; creating opportunities for off-farm employment; and including the poor in payments for ecosystem services. Joachim von Braun, Director, Center for Development Research (ZEF), Germany, outlined an alternative action framework to enhance resilience to the economic and social impacts of DLDD, noting the need to combine risk prevention and management, and social protection and insurance approaches.

Maria Laura Corso, Ministry of Environment and Sustainable Development, Argentina, discussed efforts to conduct socio-economic assessments of desertification at the local level, based on the application of the Land Degradation Assessment in Drylands (LADA) initiative’s methodologies in Argentina. She said a participatory effort was used to assess: natural capital; productive and physical capital; institutions, policies and procedures; social capital; human capital and household composition; and context.

Pak Sum Low, University Kebangsaan, Malaysia, and coordinating author and editor of White Paper I on “Economic and Social Impacts of Desertification, Land Degradation and Drought,” presented the White Paper. He noted that estimates of

costs vary widely and differ from country to country, and even within countries. He said estimates of indirect economic costs are less common, due to lack of data, while estimates for social impacts, such as increases in poverty, are hindered by lack of social and biophysical data as well as synergies between these impacts and the underlying social causes of desertification. Among other suggestions, he proposed adopting a net restoration of degraded land target, as a more positive and proactive concept than zero net land degradation.

Lindsay Stringer, University of Leeds, UK, reviewed research in several African countries to identify adaptations that are used when a population experiences land degradation. She noted that policy support is often positive under average weather and climate conditions, but can lead to enhanced vulnerability in times of drought. She called for interdisciplinary and participatory approaches, working across scales, and looking in new and multiple directions.

Responding to questions from the floor, panelists highlighted the need for: careful targeting of interventions; tackling price volatility to encourage investments in SLM by poor producers; investing in research and development for increased productivity; and strong local institutions to enhance management of communal productive resources.

**Cost and Benefits of Policies and Practices Addressing Land Degradation and Drought in the Drylands:** Lene Poulsen, Karl International Development, Denmark, presented White Paper II, “Costs and benefits of policies and practices addressing desertification, land degradation and drought,” including its recommendations for focusing future research on, *inter alia*: modeling the dynamic relationship between dryland system elements; feedback loops; resilience indicators; identification of potential thresholds; identification of bottlenecks for resilience assessments of dryland systems; the role of socio-economic-political factors shaping economic impact; effective monitoring, organization, and planning of resilience management; the uncertainty cascade; and drought risk management.

Cesar Morales, University of Chile, provided an overview of various studies supported by GIZ and the UN Food and Agriculture Organization (FAO) exploring the costs of action and inaction on DLDD in the Latin America and Caribbean region. Stressing that “it is always possible to find data,” he highlighted how the project had contributed new policy insights by integrating geo-referenced data and econometric analysis with field-level validation.

Hannah Behrendt, World Bank, highlighted the System of Environmental Economic Accounting (SEEA), adopted as an international standard in 2012, as a flexible methodology for integrating economic and environmental accounting and the role of the Wealth Accounting and the Valuation of Ecosystem Services (WAVES) global partnership in piloting SEEA ecosystem accounts to support implementation and scaling up.

Richard Thomas, United Nations University Institute for Water, Environment and Health (UNU-INWEH), presented an analysis of decision making for SLM, and concluded that there is a need for: a harmonized methodology that reduces confusion

over different methods resulting in different values; methods that suit national environmental, political, economic and institutional frameworks and conditions; many more case studies to test methods; and building in decision-making processes.

In the discussion, an NGO representative asked what role NGOs could play in bridging the gap between those with “know how” (local level) and “know why” (scientists). Thomas noted that research groups are working with NGOs, and there is also a need to bring in the private sector through public-private partnerships. Poulsen said that a communication strategy is often confused with an information strategy, and stressed the former.

**Drivers of Change and Resilience Increase:** This plenary was chaired by Michael Stocking, Scientific and Technical Advisory Panel of the GEF (STAP). Elena Maria Abraham, Argentine Institute for Research on Arid Zones (IADIZA), Argentina, emphasized that negative perceptions of drylands as marginal and fragile lands have contributed to a policy focus on irrigated agriculture and called for a new sustainable development paradigm that recognizes the opportunities provided by dryland ecosystems’ strong capabilities for “regeneration and sustenance.”

Dennis Garrity, UNCCD Drylands Ambassador, characterized the interlinkages between drought, environmental degradation, poverty and insecurity as a “perfect storm of challenges” with global implications. He highlighted successful practices of farmer-managed natural regeneration in Africa, including agroforestry, which he said offer entry points for building more productive and drought-resilient livelihood systems at scale.

Mohammed Sessay, United Nations Environment Programme (UNEP), citing the example of dryland wildlife tourism in Kenya, said that drylands should be spoken of in terms of opportunities and resources, not just as problems. He suggested that the challenge was in managing this resource properly and ensuring that revenues generated are used to address the challenges of drylands.

Ephraim Nkonya, International Food Policy Research Institute (IFPRI), discussed the drivers of cropland changes in poor countries of sub-Saharan Africa, examining such factors as land tenure security, agriculture research and development, time to reach urban areas, land suitability and government effectiveness. He pointed out that land tenure security and access to markets favor land use intensification for crops, while land suitability tends to reduce cropland expansion.

Among the points raised in the subsequent discussion were the need to: distinguish between sensitivity of drylands and their fragility; research the correlation between women’s illiteracy and land degradation; and bear in mind the need to space trees properly for using mechanized agricultural systems for agroforestry projects on degraded farmland.

**Strategies and Policies for Local, National, Regional and International Level:** The session was chaired by Jonathan Davies, Global Drylands Initiative, International Union for the Conservation of Nature (IUCN). Debalkew Berhe, Intergovernmental Authority on Development (IGAD), highlighted the work of IGAD’s Drought Disaster Resilience and Sustainability Initiative, which he described as an enhanced

partnership of countries in the Eastern Africa and Horn region that aims to shift the focus from emergency drought relief to resilience, with a focus on: natural resource management, livelihood support and basic social services, pastoral disaster risk reduction, research and knowledge management, technology transfer and conflict prevention.

Chris Reij, Free University Amsterdam, the Netherlands, outlined the ongoing “green revolution” in Africa’s drylands that is driven by natural regeneration of indigenous tree species supported by the widespread adoption of SLM practices by local farmers. Noting that no afforestation programme in the world can match the impact achieved in Niger, where five million hectares of land was re-greened in 20 years, he noted the need to overcome a number of policy and institutional barriers in order to consolidate these achievements. He described such barriers as: policymakers’ perceptions of agroforestry as being “too simple and low cost” to drive agricultural modernization; the lack of an “institutional home” for agroforestry within mainstream government departments and budgets; limited capacity within local institutions to manage the new capital; and insecure land tenure. Concluding, he emphasized that agroforestry is not only the pillar of agriculture in drylands and sub-humid regions, “it’s the only viable option.”

Christina Seeberg-Elverfeldt, BMZ, said DLDD strategies and policies require multi-level approaches. She emphasized economic assessments are vital inputs to SLM policy making, and discussed the role of the Economics of Land Degradation Initiative (ELD). She stressed the need to exploit linkages and synergies between approaches to climate change, biodiversity, desertification, food security and rural development. She outlined German development cooperation support for SLM-related policy making.

François Tapsoba, FAO, discussed the development of the Great Green Wall Initiative in the Sahel-Saharan region, stressing that it is a mosaic of integrated development programmes whereby participating countries put into place an enabling environment consisting of: engaging stakeholders, creating a policy framework and governing mechanism; reforming laws; building capacity and creating sustainable financing not dependent on external support.

Mohammed Bakarr, GEF, stressed the need for adopting spatial and temporal targets for SLM, which even if not wholly achieved have the effect of forcing collaboration and dialogue. He urged adoption of indicators that can be aggregated at multiple scales. He noted UNCCD progress in developing indicators and reporting, calling the latter a benchmark for other major conventions. He outlined GEF support for SLM-related projects.

#### **PAPER SESSIONS: Economics of Land Use Change:**

This session was facilitated by Mark Schauer, GIZ, and Alisher Mirzabaev, ZEF, Germany. Luuk Fleskens, University of Leeds, UK, discussed the importance of considering spatial variation in investment costs of SLM technologies and distances to markets in defining appropriate SLM strategies and policies. He urged institutions and stakeholders engaged in SLM projects at all levels to improve documentation of such costs. Melisa Ljusa,

University of Sarajevo, Bosnia and Herzegovina, discussed land use changes and loss of soil in Bosnia and Herzegovina as consequences of war and socio-economic transition, highlighting how large-scale migration and the lack of reliable, systematized data on land demand and supply has contributed to agricultural land loss there.

**Good Practices in SLM and Lessons Learned (Part 1):** The session was facilitated by Mohamed Bakarr, GEF, and Hanspeter Liniger, University of Berne, Switzerland.

Dieter Nill, GIZ, presented lessons from 20 years of successful watershed management in southern Niger, attributing success to the full involvement of local farmers in applying lost-cost SLM practices, clustering of village-level actions with support for participatory planning and implementation involving up to 100 villages at a time, and gradual handover of responsibilities to local communities.

Karma Dema Dorji, Ministry of Agriculture and Forests, Bhutan, described a national study to gather policy-relevant information on the economic and social implications of land degradation, particularly through landslides and downstream siltation. She noted key lessons learned as the need for focused village approaches to identify context-specific actions, onsite demonstration of technologies and communication both before and after implementation of technologies.

Eli Argaman, Beny Soil Erosion Research Station, Israel, described a water catchment approach in the Harod Valley to reverse creeping land degradation. He attributed success to the combination of science and social science approaches, constructing a mutually agreed workplan among all stakeholders, and providing incentives for farmers’ investments in SLM.

Pashupati Nath Koirala, Department of Forests, Nepal, presented a study on access to benefits from community forest resources and highlighted the need for explicit measures that address “elite capture” and reduce the marginalization of low-caste forest users.

Mario Reinoso Pérez, Centre for Environmental Research and Services, Cuba, discussed the economic, social and environmental benefits of agroforestry practices and stressed the need for multi-stakeholder approaches in scaling up such practices.

**Good Practices in SLM and Lessons Learned (Part 2):** This session was chaired by Anna Tengberg, Gothenburg University, Sweden. German Kust, World Bank, discussed experience and lessons learned in SLM-oriented projects in Tajikistan, such as timely and appropriate training and ensuring stakeholders are fully aware of the level of operating expenses that will be required to maintain the investment. Utkur Djanibekov, ZEF, Germany, presented on the formation of cooperative agreements between farmers to join together and share the benefits and costs of a Clean Development Mechanism (CDM) project to establish tree plantations on farms’ degraded croplands. Noel Maxwell Oettle, Environmental Monitoring Group, South Africa, discussed farmer participatory SLM interventions in western South Africa that enhanced land use practices based on local knowledge, culture and tradition linked to external sources of technology and enabling innovation. Axel



Paulsch, Institute for Biodiversity Network, Germany, outlined Germany's SLM funding programme supporting 12 collaborative regional scientific projects through developing common scenarios and models, providing geo-linked data infrastructure, synthesizing the science, integrating stakeholders and providing outreach and science/policy interface.

**The New World Atlas of Desertification Contributing to Economic Valuation of Land Degradation:** This special session was organized by the European Commission. Michael Cherlet, Joint Research Centre (JRC) European Commission, explained that the initiative to develop a new global atlas of desertification is jointly coordinated by the JRC and UNEP. He recalled that UNEP created the first two issues of the Atlas, in 1992 and 1997, and said the new atlas seeks to: provide a baseline assessment of land degradation and desertification and causal issues; support a holistic and global approach to DLDD; and improve indicator reporting.

Alejandro León, University of Chile, discussed economic causes and consequences of population changes, and said the purpose of the research is to "socialize" the framework of the Atlas, given that changes and transitions in social indicators need to be monitored.

Graham Paul Von Maltitz, Council for Scientific and Industrial Research, South Africa, said the loss of trees is typically a sign of degradation and planting of trees is often a strategy to counter degradation, but increased numbers of trees can also be a sign of degradation and carry an economic cost. He identified invasive alien trees as the biggest threat to biodiversity in southern Africa after direct land use change, adding that densification of natural woody species is also having an impact. He noted that these aspects increase the complexity of mapping efforts.

Pandi Zdruli, CIHEAM Mediterranean Agronomic Institute of Bari, Italy, discussed issues related to agriculture and soil in the atlas. He noted the need to protect the most fertile soils, which cover only 3% of the world's land area but produce more than 40% of global food, and said over 90% are used for cereal production.

**Toward an Analytical Framework to Assess the Value of Action and Inaction Against Land Degradation: New Insights and Policy Challenges:** Nicolas Gerber, University of Bonn, Germany, discussed a ZEF-IFPRI project to develop global standards for assessing the economics of land degradation. Alessandro de Pinto, IFPRI, presented efforts to develop a tool to predict future land degradation. Ephraim Maduhu Nkonya, IFPRI, discussed lessons that may be learned from poor countries and areas where land is used without degrading it, using examples from Africa and Mongolia. Alisher Mirzabaev, ZEF, Germany, said research in Central Asia suggests wider SLM application can yield multiple benefits in terms of addressing land degradation, climate change adaptation, and improvements in crop yields and agricultural incomes.

**Economic and Social Impacts: Assessment of DLDD at a Local Scale:** The session was facilitated by Alan Grainger, University of Leeds, UK, and LianYou Liu, Beijing Normal University, China.

Nisha Varghese, Indira Gandhi National Open University, India, discussed interlinkages between DLDD and human development in the western dry region of Rajasthan. Noting that expansion and intensification of agriculture in marginal lands is reversing successes in combating DLDD, she highlighted key policy priorities, including how to assess the full environmental costs of development interventions, promote sustainable agriculture and livestock production practices, and generate more opportunities for off-farm employment.

Bernadette Dossou, Université d'Abomey-Calavi, Benin, presented a case study exploring the impacts of DLDD on the livelihoods of rural women, noting in particular the depletion of medicinal plants, firewood, and raw materials used in artisanal products and food production as key impacts.

James Gambiza, Rhodes University, South Africa, analyzed biophysical and socio-economic drivers of DLDD, highlighting links between improved access to social grants in the post-apartheid era and abandonment of farming by poor rural producers. Cautioning that viewing non-cultivated land as "empty" could lead to its appropriation for other uses, such as large-scale biofuel production, and exacerbate poverty and food insecurity, he called for policy solutions that recognize the full range of social and environmental benefits derived from land and reward land owners for SLM.

In subsequent discussions, delegates highlighted the need to reform social subsidies to foster community-wide benefits, such as restoration of degraded ecosystems and conduct enhanced biophysical monitoring to inform land use decisions.

**Identification and Valuation of Ecosystem Services:** This panel was co-chaired by Mélanie Requier-Desjardins, Institute Agronomique Méditerranéen de Montpellier (IAMM), France, and Nabil Ben Khatra, Sahara and Sahel Observatory, Tunisia. Souphith Darachanthara, Center for International Forestry Research, Lao People's Democratic Republic, discussed a case study of land uses in Oudomxay Province. He recommended that the expansion of maize and rubber plantations should be accompanied with environmental mitigation measures to prevent degradation of soil and water resources.

Joost Brouwer, Brouwer Environmental and Agriculture Consultancy, the Netherlands, discussed the role of wetlands in drylands. He suggested developing and implementing national programmes for sustainable wetland use and conservation.

Lambert Stijn, ARCADIS Belgium, presented on the development of a framework for cost-benefit analysis of ecosystem based climate change adaptation actions in the Carpathian region, and discussed efforts to establish a database to estimate the economic value of ecosystem services.

**Economic and Social Impacts Assessment of DLDD at a Regional/National Scale:** This session was co-chaired by Niels Dreber, North West University, South Africa, and Leslie Elizabeth Torres, consultant, Denmark. Muyambi Benda Fortunato, IGAD Climate Predictions and Application Centre (ICPAC), Kenya, outlined ICPAC's Land Degradation Index Maps (LDIMs) project covering the IGAD countries of Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan and Uganda. He explained that the LDIMs seek to identify land

degradation “hot spots,” areas of socio-economic importance that require priority attention. Alejandro Leon, University of Chile, discussed a project to estimate the total economic value of water in a river basin in the Atacama Desert. He explained that the project aimed to help local policymakers understand the willingness of farmers, agribusiness and the mining industry to pay to maintain provision of water services under long-term drought conditions.

**Community-Based Approaches for SLM:** This session was facilitated by Patrice Burger, Centre d’Action et de Réalisation Internationales (CARI), France, and Elena Maria Abraham, IADIZA, Argentina.

Charles Nyandiga, GEF, highlighted lessons from community-based interventions supported by the GEF Small Grants Programme and noted that restoration of degraded land requires not only building on indigenous knowledge but promoting mechanisms for community validation and experiential learning.

Duygu Kutluay, Turkish Foundation for Combating Soil Erosion, highlighted the role of NGOs in bridging the science-policy-practice divide including through: using their local knowledge to help scientists define better research questions; helping stakeholders develop an “integrated picture” of the operational complexities in different contexts; and disseminating research results and supporting follow up action.

Luzineide Dourado Carvalho, University of Bahia, and Beatriz Azevedo Araújo, Federal University of Ceará, Brazil, highlighted two public awareness initiatives that aim to combat negative perceptions about the value of dryland ecosystems and livelihood systems in sustainable development. They noted the role of university-NGO partnerships in developing new educational materials that build on local knowledge and enhance the links between schools and their communities.

**Carbon: A Valuable Global Benefit of SLM:** Mohamed Bakarr, GEF, discussed SLM lending in the GEF. He noted that SLM is a “knowledge-based procedure” that integrates issues such as land, water and biodiversity. He highlighted: the benefits from leveraging investments in SLM to manage soils for food security; SLM investments contribute multiple benefits and create opportunities for cross-focal area synergies; soil management options present challenges for managing tradeoffs; and demonstrating environment benefits requires tools for monitoring and measuring carbon benefits.

Gerard Govers, University of Leuven, Belgium, discussed soil organic carbon (SOC) management for global benefits. He suggested that more attention should be given to: developing concepts like SOC saturation; monitoring SOC stocks; and gathering more information on how climate change affects SOC stocks.

Eleanor Milne, Colorado State University, US, presented the Carbon Benefits Project, a new tracking tool for carbon benefits. She said the tool only requires an internet connection and information on land management activities and where they occur, and added that it is suitable for use in projects without many resources for carbon monitoring and reporting.

Annette Cowie, GEF STAP, noted that the science on biochar is relatively new, with most work having been published in the last ten years. She highlighted sustainability issues, such as the need to capture emissions in the production process, and said guidelines are being developed. Michael Anthony Stocking, GEF, moderated the discussion, and noted the need for integrated and multifocal-area approaches, as well as targeted science.

**Sustainable Dryland Management for Multiple Benefits: Opportunities for Linking Carbon Storage, Ecosystem Services and Livelihoods:**

This special session was organized by the University of Leeds, UK. Andrew Dougill, University of Leeds, outlined lessons from environmental management research in African drylands that can contribute to the triple wins from SLM, stressing the critical role of community level institutions and multi-stakeholder partnerships.

Speaking on the “carbon conundrum,” Andrew Thomas, Aberystwyth University, UK, noted that while dryland soils have low organic carbon content, they display unique biological carbon capture systems that can continue to support the livelihoods of millions of pastoralists if they are sustainably managed.

Henri Rueff, University of Oxford, UK, discussed policy insights from a study that explored whether renouncing cropping based on REDD+ principles of avoided emissions can further SLM on fragile alpine pastures in the Hindu Kush Himalaya mountains of northern Pakistan. Noting that despite their popularity, there is no compelling evidence that carbon payments work, he called instead for a focus on valuing the overall contribution of pastoralism to ecosystem services in drylands.

Nicola Favretto, University of Leeds, analyzed the contribution of *jatropha curcas*, a drought resistant tree species, in SLM and poverty reduction in the Sahel region. While highlighting its contribution to food and energy security if grown in small-scale, mixed farming systems, he cautioned that *jatropha* “is not a miracle product” and adequate farmer support is required for sustainable impact at scale.

Nikolaus Kuhn, University of Basel, Switzerland, discussed insights from a study of erodibility of biochar from sandy soil in Denmark that showed increased organic carbon concentration in eroded soil if it is buried deeper in the soil.

**Assessing Actions to Combat Desertification, What Valuations?:**

Le Comité Scientifique Français de la Désertification (CSFD) hosted this special session. Antoine Cornet, Research Institute for Development (IRD)/CSFD, France, said important issues to consider for evaluations include the external, collaborative role of research in the evaluation.

Susana Bautista, University of Alicante, Spain, discussed the PRACTICE Integrated Protocol, an integrated and participatory assessment methodology for management actions in the drylands. She noted the need to use a common set of indicators to ensure comparability across cases, while at the same time including indicators that are relevant to each site.

Cesar Morales, University of Santiago, Chile, presented on the cost of inaction on DLDD in selected Latin American countries in the face of climate change, and noted considerations related to why, what and how measurement takes place.



Mélanie Requier-Desjardins, IAMM, France, presented a tool for evaluating projects to combat desertification, and said when used as an evaluation process it generates some positive local externalities in terms of local capacity building and collective learning, among others.

Maya Leroy, AgroParis Tech, France, presented the guidelines and evaluation framework for an “on-board” approach, and the experience of using it to evaluate an environmental management program in the Senegal Valley. She said effectiveness is related to the use of a very simple set of relative benchmark levels.

**Water and Sustainable Land Management:** This session was facilitated by Joost Brouwer, Brouwer Environmental and Agricultural Consultancy, the Netherlands. Marie Keijzer, WeForest, Belgium, stressed the need to broaden the policy discussion beyond carbon to the role of microbial drivers in the entire hydrological cycle.

Anneke Trux, GIZ, Germany, made the case for landscape approaches in scaling up SLM practices, noting that despite the high initial investment, techniques such as water-spreading weirs, the benefits reach more people and can last for several generations. Maksud Bekchanov, ZEF, Germany, discussed a modeling study to assess water allocation options to improve water use efficiency in the Aral Sea basin. Christoph Kuells, University of Freiburg, Germany, discussed four principles to bear in mind when applying economic models to drylands: dryland ecohydrology is a slow process; scale matters; drylands have strong feedback mechanisms that can be useful in managing ecosystems; and there is need to balance water and solute cycles.

Youssef Sherief, SQU University, Oman, presented a study investigating the best options for sustainable management of flash floods mitigation in the Wadi Al-Khoud basin of Oman that located the best sites for flood retention dams.

Grace Oloukoi, Lead City University, Nigeria, presented an aggregated water vulnerability index for assessing resilience to water scarcity at the micro level in Nigeria. Christian Rumbaur, Bundeswehr University Munich, Germany, outlined a research project exploring sustainable management of river oases along the Tarim River in northwest China.

Harifidy Rakoto Ratsimba, University of Antananarivo, Madagascar, discussed research contributions for understanding human-biophysical interactions in SLM and sustainable forest management in Madagascar.

**Catastrophic Shifts in Drylands: How Can We Prevent Ecosystem Degradation? How to Overcome the Difficulties of Successful Engagement of Non-Scientific Stakeholders:** This special session on the EU’s CASCADE project was organized by the European Commission. Susana Bautista, University of Alicante, Spain, introduced the project, noting its aim is to understand tipping points in dryland ecosystems that may lead to major losses in biodiversity and concomitant ecosystem services. She said the project is being implemented on six degraded sites in the Mediterranean region where scientists aim to mimic natural systems to generate new insights and practical knowledge for better land management.

Luuk Fleskens, University of Leeds, UK, outlined a new cost-benefit analysis methodology being developed by the project that incorporates high resolution GIS-modeling to factor in the environmental dimension when assessing the financial impacts of action or inaction.

Drawing on environmental management research conducted in southern Africa, Andrew Dougill, University of Leeds, noted that research uptake is enhanced when: scientists communicate the “good news” of effective SLM at local level; efforts are made to involve all stakeholders when explaining models of change and policy impacts; and practical guidelines based on research are disseminated widely at national and district level to spur positive change on the ground. On specific insights for the CASCADE project, Dougill encouraged site study teams to proactively engage with policymakers to ensure that local insights go to scale.

During discussion, delegates highlighted the importance of not glorifying local knowledge but explaining the rationale behind good practices in scientific terms. On enhancing the UNCCD’s role in bridging the science-policy-practice gap, one contributor identified the regional level as the “missing link” and called for more focus on strengthening regional groups for improved knowledge sharing and coordinated action on SLM.

**Adapting to Climate Change and Disaster Risk Reduction through SLM:** Hanspeter Liniger, University of Berne, Switzerland, described a pilot project in Tajikistan to adapt to climate change through SLM. He emphasized gathering knowledge from individuals in the affected area, followed by pulling in relevant information from outside experts. He highlighted upscaling local solutions and distinguishing among the solutions necessary for “in-village, near-village and off-village.” Liniger also presented a pilot project to enhance existing World Overview of Conservation Approaches and Technologies (WOCAT) knowledge with video and new media.

Janie Rioux, FAO, discussed adaptation to climate change through sustainable land and water management based on experiences in East Africa. She said the challenge is not a shortage of scientific or local knowledge, but a lack of understanding of farmers’ specific constraints to adaptation.

Jeffrey Herrick, US Department of Agriculture, Agricultural Research Service (USDA ARS), presented a “general approach to resilience-based management” based on work in the US, Argentina and Mongolia. He said resilience-based management recognizes that change is inevitable and tries to nudge trajectories to avoid undesirable changes, especially the loss of options. He recommended separating the landscape into zones, applying different SLM techniques in each zone, and understanding which SLM techniques work in which landscapes, with each approach translated through a socio-economic context first.

**Cost and Benefits Analysis of (in)Action:** Alessandro de Pinto, IFPRI, chaired this session. Gudrun Schwilch, Centre for Development and Environment, Switzerland, presented an analysis of WOCAT data from three continents on the economic benefits and costs of SLM technologies. Alan Grainger, University of Leeds, UK, made the case for comparing the net

benefits/costs of land restoration versus the net benefits/costs of land degradation. Susana Bautista, University of Alicante, Spain, presented the PRACTICE Integrated Protocol, a methodology for assessing management actions in drylands and actions to combat desertification that links evaluation with social learning. Jeffrey Herrick, USDA ARS, presented the Global Land-Potential Knowledge System (LandPKS), which aims to use the internet and mobile phones to globalize access to knowledge and information about land potential for both governments and farmers and link farmers facing similar types of land challenges with each other.

**DLDD and Climate Change:** The session was facilitated by Annette Cowie, STAP. Laura Meza, FAO, Chile, presented preliminary findings from a bibliometric appraisal of scientific papers on agriculture and climate change in Latin America. She highlighted Brazil's dominance in scientific production, which influences the focus on mitigation, and the leadership of US academics in joint publications. She stressed the need to enhance scientific collaboration and capacity building in the area of vulnerability, food insecurity and adaptation.

Sarah Conradt, Swiss Federal Institute of Technology, discussed new integrated methodologies developed in Kazakhstan to enhance the explanatory power of meteorological data for improved productivity in semi-arid regions.

Catherine Gucciardi Garcez, University of Brasilia, Brazil, presented preliminary results from four case studies that demonstrate the gap between local perceptions of vulnerability and scientific studies of climate events. She noted that this highlights the need to engage more intensely with local communities to ensure the relevance of climate projections for SLM.

Utkur Djanibekov, ZEF, Germany, presented the outcomes of a CDM afforestation project in Uzbekistan that explored the role of farmers' agreements in buffering land use risk achieving multiple social, economic and ecosystem benefits.

In discussions, one speaker noted that the rich evidence of productivity improvements from SLM discussed at this UNCCD Scientific Conference could help bridge the identified gaps in the academic literature.

#### **Macroeconomic Policy Drivers of Land Management:**

Marc Stal, GRF Davos, facilitated this session. Elena Maria Abraham, IADIZA, Argentina, discussed the role of macroeconomic policy in Mendoza Province, Argentina, where the department of irrigation "has more power than the local governor," and the situation has developed where all the water is used in an irrigated oasis with the rest of the territory having no access to water. Leslie Torres, consultant, Denmark, discussed the benefits for having an overarching index and described how it could be constructed, including concepts such as food supply, productivity of arable land per hectare, and GDP per capita. Sebastien Subsol, Permanent Inter-State Committee to Combat Drought in the Sahel (CILSS), Burkina Faso, presented work on possible solutions for sustainable food security, based on research in the Sahel, projecting the effect that investment would have on food security.

**Traditional Knowledge Related to DLDD/SLM:** This session was facilitated by Karma Dema Dorji, Ministry of Agriculture and Forests, Bhutan, and Luuk Fleskens, University of Leeds, UK. Mina Esteghamat, Centre for Sustainable Development (CENESTA), Iran, highlighted successful adaptation strategies adopted by pastoralist communities in the Abolhassani tribal confederacy in northeastern Iran. She listed among good practices: improved water storage, reduction of livestock numbers, lengthening the migration path, and increased use of farmland residues and agricultural by-products through communal agreements such as "boundless grazing" in certain periods of the year.

Soo Jin Park, Seoul National University, Republic of Korea, discussed a new study exploring the contribution of Asian geographical philosophies such as Feng Shui (Fung Su in Korea) to inform conceptual frameworks for SLM. He noted that one of the unique contributions of Fung Su is its ability to capture three-dimensional spatial forms, which can help with classifying ecosystems, and designing multi-scale and "self-organizing" landscape management approaches.

In discussions, participants highlighted similar values in other traditional societies and observed that while cultural contexts differ, the underlying principles of holistic and equitable development, such as "giving nature time to rest," are universal.

**Towards a Land-Degradation-Neutral World: From Science to Policy and Law:** UNCCD Executive Secretary Luc Gnacadja introduced the text in the outcome document from the June 2012 UN Conference on Sustainable Development (UNCSD, or Rio+20) calling for a "land degradation neutral world." He said the Rio+20 outcome brings a new understanding that DLDD affects all countries. Jonathan Davis, IUCN, chaired back-to-back sessions on this topic.

Alan Grainger, University of Leeds, UK, discussed challenges to the adoption of a ZNLD target and suggested using a three-phase approach: first, focus on restoring degraded land; second, reduce the desertification rate, beginning with phased targets; and third, agree on a meaningful target year for achieving ZNLD. Lene Poulsen, IUCN Commission on Ecosystem Management, discussed the economics of resilience, which she recalled is a continuous and dynamic process that can be fostered by interventions and policies. Mark Schauer, GIZ, Germany, discussed the economics of ZNLD based on the work of the ELD. He said economic analysis can potentially facilitate communication with public and private decision makers. Irene Heuser, IUCN Commission on Environmental Law, presented options for developing a global agreement on ZNLD, based on IUCN's research on legal and institutional frameworks for sustainable soils. She summarized a draft proposal for a protocol for security and sustainable use of soil and to achieve ZNLD.

CST delegates from three countries were then asked to comment on the proposal. Jones Muleso Kharika, South Africa, pointed out that what we cannot measure, we cannot manage. Ho Joong Youn, Republic of Korea, said, if we can get globally agreed targets, investments can increase, and achieving a land

degradation neutral world will improve the world. Renato Jimenez Zuniga, Costa Rica, said governments need to give soil its proper value, including through a treaty on soils.

Khadija Razavi, CENESTA, Iran, said participatory impact assessments will be needed to achieve ZNLD, and there is a need for capacity building for decision makers as well as those on the ground. Simone Quatrini, Global Mechanism (GM), noted the need to explain and translate the Rio+20 outcome into concrete terms, with metrics and tools to deliver it.

Sergio Zelaya, UNCCD, said the best scenario is to have an international mechanism in place to restore degraded lands, and suggested achieving it through: a sustainable development goal; development of the concept within UNCCD expert groups; incorporating it into National Action Plans; adopting a COP decision to include it programmatically, with a budget; and engaging in the post-2015 development agenda consultation process.

During the discussion, one participant said the COP should call for a protocol. Another participant noted that a ZNLD target would require the international community to distinguish between ongoing degradation and efforts to address it, as well as to identify the state of degraded land.

**Tackling Key Challenges in the Economic Assessment of Desertification, Sustainable Land Management and Resilience of Arid and Semi-Arid and Dry Sub-Humid Areas: Perspectives from DesertNet International's Working Groups:** Elena Abraham, IADIZA, facilitated this session. Richard Thomas, UNU-INWEH, discussed the work of DesertNet International (DNI) Working Group on the Economics of SLM, which seeks to analyze land use decisions and practices with a view to harmonizing approaches and methods for the economic valuation of land degradation and SLM. Lindsay Stringer, University of Leeds, UK, explained the work of DNI's Working Group on Food Security, noting much common ground between the drivers of food insecurity and those of land degradation. Richard Escadafal, Desertification French Scientific Committee, presented work by the DNI Task Force on Land and Soils to use bibliometric methods and publication data mining to map the key actors involved in research on land and soils. Michael Cherlet, JRC, European Commission, discussed the efforts of the DNI Working Group on Baseline Information and Monitoring for Integrated Assessment of Desertification and Land Degradation to analyze the requirements and options to provide baseline information to meet global and regional desertification assessment needs.

**Indicators for DLDD and SLM:** This session was facilitated by Edith van Walsum, Centre for Learning on Sustainable Learning (ILEIA) - AgriCultures Network. Niels Dreber, University of Hamburg, Germany described how the PRACTICE Integrated Protocol indicators were tested with local stakeholders in the Kalahari rangelands, enabling the ranking of alternative restoration and SLM options. He said the methodology offers a useful tool for filling current gaps in the systematic evaluation of land degradation and SLM actions and combining local knowledge with scientific expertise.

Rachid Boukchina, Institute of Arid Lands, Tunisia, discussed the development of integrated indicators to monitor biophysical and socio-economic aspects of DLDD at the local level. He said that the local data had contributed to the first models of the socio-economic functioning of territories in Tunisia's drylands.

Cristina Branquinho, University of Lisbon, Portugal, presented on a project to develop ecological indicators for anticipating possible tipping points in the degradation of biodiversity, ecosystem services and human wellbeing. She noted that case studies in Portugal and Brazil identified vegetation and lichen functional groups as two early warning indicators at global level, which could contribute to the work of all three Rio Conventions. She also highlighted the project's role in reinforcing the capacity of EU and non-EU researchers to form global alliances to enhance outcomes, global reach and policy impacts.

**Methodologies and Tools for Assessing DLDD:** Soo Jim Park, Seoul National University, Republic of Korea, facilitated this session. Hanspeter Liniger, University of Berne, Switzerland, discussed the role of mapping projects, such as WOCAT and the EU's Mitigating Desertification and Remediating Degraded Land project (DESIRE), in planning and scaling up SLM interventions to combat desertification, as well as monitoring land degradation and conservation after project implementation.

Liu LianYou, Beijing Normal University, China, discussed spatiotemporal distribution of desertification, sand and dust storms, blown sand disasters and their influences, and blown sand disaster risk governance, in China. Ashraf Ramadan, Kuwait Institute for Scientific Research, presented on the use of wind tunnel simulations to develop integrated sand control systems. Ismail Muhammad, International Centre for Integrated Mountain Development (ICIMOD), Nepal, discussed the development of an integrated mechanism for combating rangeland desertification in Hindu Kush Himalayan region, stressing the need for clear rangeland entitlements and responsibilities, community participation and adaptive grazing management.

**Integrated Modeling of Climate Impacts on Food and Farming at Regional to Supra-National Scales:** This special session was organized by the Johann Heinrich von Thünen Institute, Germany. Martin Banse introduced the Modeling European Agriculture with Climate Change for Food Security (MACSUR) project, a network of research institutions in 17 European countries involved in crop, livestock and trade modeling activities. He said the project aims to develop integrated global models that can be scaled for use at regional, country and farm-level, and aims to foster knowledge exchange and capacity building in integrative modeling for EU and non-EU researchers.

Gabriele Dono, University of Tuscia, Italy, discussed economic assessments of the impact of uncertainty associated with short-run change in climate variability in Mediterranean farming systems. He said the model helps land users and decision makers to anticipate possible responses under different environmental conditions. Luciano Gutierrez, University of Sassari, Italy, described the use of the modeling methodology for analyzing and quantifying the short and long-run impacts of



climate changes on worldwide wheat prices, noting opportunities to extend the model to other food commodities and world regions.

Aranka Podhora, Leibniz Centre for Agricultural Landscape Research, Germany, presented a case study on application of the integrated model at the local level in Inner Mongolia. She noted that stakeholders in the region had identified environmental, social and some economic land use functions to be most important, in contrast to a focus on natural science aspects in international research. She concluded that this demonstrates the need to harmonize local and global research agendas to meet local needs.

**WORKSHOPS: Practical Tools for Monitoring and Assessment of DLDD for Economic Assessments:** In this workshop organized by USDA ARS, Jeffrey Herrick, USDA ARS, stressed that local monitoring requires locally appropriate methods and shared the US experience with a number of methods to monitor land condition. He noted that the US has done a better job in the last 70-80 years in protecting soil than protecting biotic integrity, due to invasive alien species, some of which have been planted to address soil erosion. He highlighted a number of data entry systems that have been developed to allow individuals in the field to quickly enter standardized data, including through applications for smart phones. He highlighted that the LandPKS can inform land-use planning decisions regarding where a system will work, where it might work, and where it won't work based on the experience of others in similar conditions.

**COST Action ES1104: Arid Lands Restoration and Combat of Desertification: Setting Up a Drylands and Desert Restoration Hub:** This workshop was organized by European Cooperation in Science and Technology (COST) Action ES1104. Benz Kotzen, University of Greenwich, UK, explained that Action ES1104 is a network of researchers aiming to "create a one-stop shop" for information on the restoration of degraded drylands and combating desertification. Pandi Zdruli, Mediterranean Agronomic Institute of Bari, Italy, discussed the Torre Guateco project in Italy's Apulia region, which shows it is possible to merge cultural heritage, nature conservation, environmental protection and agricultural development in one restoration project. Christoph Jan Kuells, Albert Ludwigs University, Germany, explained the application of eco-hydrology perspectives in desert restoration in Namibia. Alice Maria Rodrigues Nunes, University of Lisbon, Portugal, discussed the benefits of a functional approach to restoration of highly degraded drylands in Southern Europe. Cristina Baranquinho, University of Lisbon, discussed the application of a microclimate perspective in the natural regeneration of drylands in Portugal, using models combining key species in specially targeted areas chosen using geo-referenced potential solar radiation data.

**Economics of Land Degradation Initiative – Bridging the Science-Policy-Practice Divide – Making the Case for Tackling Land Degradation Through Valuation of Ecosystem Services:** This workshop was facilitated by Mark Schauer, ELD Coordinator. After a short film by the Initiative, "The Value of Soil," Emmanuelle Quillérou, UNU-INWEH, explained

the rationale, approach and structure of the ELD, its links to complementary initiatives, and the technical, environmental evaluation, policy and institutional gaps it has identified. She said ELD will release three reports in late 2013-early 2014, aimed, respectively, at scientists, decision makers, and the private sector. Stacey Noel, Stockholm Environment Institute, Sweden, discussed the plans of the working group on policy options and pathways. Makiko Yashiro, UNEP, discussed the plans of the working group on the economic valuation of options, which will establish different scenarios of land degradation at the global scale, and then identify a range of interventions and response policies and evaluate both the benefits of action and the cost of inaction.

**Scaling-up SLM: What is the Missing Link? Bridging the Science-Policy-Practice Divide, Making the Case Through Valuation of Ecosystem Services:** This special session was organized by the GM and co-facilitated by Simone Quatrini, GM, and Edward King, Editor of *Responding to Climate Change*. Quatrini said the session would offer applications of the theories and models discussed during the session on ELD.

Lindsay Stringer, University of Leeds, UK, said partnerships need a purpose, possible purposes for partnerships include addressing regulatory gaps, participatory gaps, resource gaps, and learning gaps, and a gap analysis is necessary to identify which partners will best address any gaps. Joanna Schild, Free University Amsterdam, the Netherlands, presented evidence for economic value of drylands based on a meta-analysis of dryland ecosystem services. She said policy implications include the finding that the high value of drylands in low income countries underpins their importance for these countries.

Sakhile Koketso, Convention on Biological Diversity Secretariat, discussed a technical report on assessing the value of biodiversity in dry and sub-humid lands. She said the report presents a step-wise approach based on The Economics of Ecosystems and Biodiversity (TEEB) total economic value approach. Siv Øystese, GM, identified tools to involve the private sector in SLM, and presented a table with 14 incentive and market-based mechanisms grouped into four categories: public payment schemes; open trading under regulatory cap or floor; self-organized private deals; and eco-labeling.

During the discussion that followed, participants highlighted the private sector's focus on risk, impact and return, and the need for public-private partnerships, among other topics.

**Agroecology as a Powerful Tool for the Development of Drylands:** Chris Reij, World Resources Institute, US, facilitated this session. Noel Maxwell Oettle, Environmental Monitoring Group, South Africa, discussed a rooibos cooperative in South Africa as a vehicle for enhancing sustainable production practices and farmer participation in scientific research.

Patrice Burger, CARI, France, discussed his organization's analysis of agroecological practices in Brazil, Burkina Faso, Madagascar, Mali, Morocco, Niger and Senegal. Martial Bernoux, IRD, France, discussed how managing soil carbon through agroecological practices can both help fight climate change and land degradation. Khadija Razavi, CENESTA, Iran, presented a project in participatory plant breeding in Iran

bringing scientists together with farmers in managing barley and wheat varieties. Nathalie van Haren, Both ENDS, Netherlands, discussed policies and obstacles to using agroecology to develop drylands, calling for more efforts by policy makers and donors to engage stakeholders and civil society organizations in developing drylands policies and programmes.

**From Agroecological Practice to Policy: Bridging the Gap in Dryland Management:** This workshop was organized by ILEIA - AgriCultures Network. Edith van Walsum, ILEIA - AgriCultures Network, highlighted principles that underpin agroecology practices, notably the need to: maintain the health of the soil; understand farm units as integral and resilient systems; recycle nutrients, energy and water, using external inputs only as “a last resort”; embrace biodiversity at gene, farm and landscape level; and link farmers, scientists and practitioners as co-producers of knowledge on SLM.

K. Prasad, AME Foundation, India, observed that the missing link in bridging the science-policy-practice divide is an “empathetic and participatory” extension system that is capable of handling smallholders’ multiple needs. He noted this will require a fundamental change in mindsets, which can only happen if change is “experienced in the field” by working directly with farmers, including rural youth, to build their excitement and confidence by offering a basket of options to meet farmers’ multiple needs.

Discussing experiences from West Africa in bridging the policy-practice gap, Bara Guèye, IED Afrique, Senegal, stressed the need to facilitate effective farmer-led communities of practice through, among other strategies: linking up research innovators and farmers; sensitizing the media, especially community radio and other local media channels, through field visits; drawing on scientists’ expertise to “package” evidence for policymakers; and facilitating direct interactions between policymakers, local authorities and farmers. To enhance the overall policy environment he noted the need to pay attention to capacity building for local institutions, ensuring security of tenure, developing effective agroforestry value chains to sustain livelihoods and building multi-stakeholder alliance for long term institutional change.

During the discussion, speakers highlighted key challenges such as high turnover rates of government staff and lack of motivation among extension personnel. Others noted the role of facilitators in demystifying agroecological practices and stressed the need to work closely with local authorities to ensure sufficient “buy in.”

**DLDD and SLM Assessment Tools:** This session was co-chaired by Laura Erika Meza, FAO, and Simone Quatrini, GM. Isabelle Providoli, WOCAT, discussed how WOCAT has developed standardized tools and methods to compile and evaluate available biophysical and socio-economic data and the role of those tools in and assessing SLM impacts on the national, regional and global levels. Carla Ximena Salinas, Water Center for Arid and Semi-Arid Zones in Latin America and the Caribbean, discussed the development of a scenario model to assess the impact of mitigation and land degradation strategies supported by Chile’s agriculture, livestock and forestry agencies.

Maarten de Boever, Ghent University, Belgium, presented on a reforestation project in Tunisia using Acacia plantations to act as “nursing trees,” and the development of a tool to assess the impact of the plantation on soil water balance and evaporative (“green”) water flows. Prem Bindraban, ISRIC – World Soil Information, the Netherlands, discussed his organization’s efforts to elaborate a methodology to integrate knowledge from various disciplines to generate quantitative estimates of global soil degradation and loss of ecosystem functioning. German Kust, Moscow Lomonosov State University, Russian Federation, discussed the desertification assessment and mapping of Russia’s southern semi-arid belt using methodologies based on UNCCD approaches and satellite imagery. Ine Vandecasteele, Institute for Environment and Sustainability, discussed the mapping of current and projected pan-European water withdrawals to 2030 to predict water stress by region and the impact on supply by different sectors.

**Policy Analysis and Good Examples:** Emmanuelle Quillérou, UNU-INWEH, reviewed how ecosystem services derived from land have been economically valued to date, noting that they are traditionally based on direct or indirect use value and non-use value, with these values considered based on their provisioning services, regulating services and cultural services. She proposed two alternative frameworks: one to consider total economic value as a socially weighted sum of individually estimated ecosystem values; and a second to provide a direct estimation of total economic value, using either contingent valuation or choice modeling.

Graham von Maltitz, Council for Scientific and Industrial Research, South Africa, discussed the ten-year process to establish a dryland fund for SLM projects in South Africa. He said lessons learned include: the process is slow; it relies on committed and dedicated individuals; to access money you need to spend money; clean audits, integrity and financial security are critical; the private sector needs to see benefit; and it requires good science.

Marcela Bergo Davanso, Ministry of Environment, Brazil, reviewed the three phases through which Brazil has sought to implement the Convention. She said the current phase, which began in 2011, is seeking to strengthen participatory management and establish an integrated financial strategy to combat land degradation. Elena Abraham, IADIZA, discussed the development and implementation of the National Observatory on Land Degradation and Desertification, which seeks to support decision-making in land management, and bio-physical and socio-economic monitoring and assessment of land degradation, among other objectives.

**CLOSING CEREMONY:** On Friday, the Chair of the Scientific Advisory Committee for the 2nd Scientific Conference, Jonathan Davies, welcomed progress made at the Conference, noting the discussions had underscored that: the extent of the threat posed by DLDD offers both an opportunity to attract more scientific engagement and investment but also real challenges for land users; there is sufficient empirical evidence that the costs of inaction far outweigh the costs of taking action; and interdisciplinary scientific collaboration is contributing to new

integrative measurement tools to capture the complexity of DLDD. Davies further noted that the conference's hybrid format enhanced interactions between scientists and policymakers, and called for upgrading this format into a "permanent" dialogue mechanism to raise the profile of DLDD issues and mobilize more global support for the work of the UNCCD.

Walter Ammann, GRF Davos, outlined the next steps in finalizing the outputs of the conference. He said the draft report would be uploaded to the UNCCD website on 15 April 2013 and will be available for comment until 30 April 2013, when it will be forwarded to the Scientific Advisory Committee for completion. He also invited delegates to complete an independent online survey to contribute to the organization of the 3rd Scientific Conference, which he said would meet in late 2014.

In his closing remarks, UNCCD Executive Secretary Gnacadja welcomed the progress made at the conference, but noted the need for more work to bridge the methodological gaps and build a strong knowledge base on how to combat DLDD for poverty eradication and sustainable development.

CST Chair Magalhães remarked that there is logic to the series of UNCCD Scientific Conferences, noting the 1st Scientific Conference covered conceptual issues around DLDD trends, the second addressed the economics on DLDD, and the third will examine policies to combat DLDD for poverty reduction and sustainable development. He thanked the organizers of the 2nd Scientific Conference for the broad scope and participation of high-level as well as young scientists from different disciplines. He said it had provided an important benchmark for the knowledge process of the UNCCD, deepened the knowledge on the impacts, costs and benefits of policies to combat DLDD, and will contribute to discussions at the next COP. CST Chair Magalhães declared the 2nd Scientific Conference closed at 12:42 pm.

### **CLOSING SESSION OF CST S-3**

On Friday afternoon, the UNCCD Secretariat introduced the progress report on the refinement of the set of impact indicators on strategic objectives 1, 2 and 3 (ICCD/CST(S-3)/5). Gunilla Bjorklund (Sweden), Chair, *Ad Hoc* Advisory Group of Technical Experts (AGTE) on indicator refinement, outlined the Group's terms of reference and work timeframe going forward, including an "internal" peer review that is being conducted through the end of May, consultations during April with national focal points (NFPs) and Science and Technology Correspondents (STCs), finalization by the editorial team in May, and an external peer review during June and July.

AGTE member Geertrui Louwagie (Denmark) outlined the Group's preliminary recommendations to the CST (ICCD/CST(S-3)L.4) which include, *inter alia*:

- using the qualifier "progress" rather than "impact" indicators;
- pursuing harmonization rather than standardization;
- delineating affected areas through a three-layered approach as a precondition to tracking progress in implementing the UNCCD;

- further refining the provisional set of indicators initially proposed in decision 17/COP.9 and refined in decision 19/COP.10 to produce a minimum set outlined in their report; and
- complementing these indicators with regionally, nationally and/or locally relevant information and indicators the Group refers to as "narrative" indicators.

Argentina suggested using an indicator of structural poverty rather than one linked to income levels as one of the minimum indicators, and expressed concern that the proposed name change to "progress" indicators might cause confusion with some of the indicators in the Performance Review and Assessment of Implementation System (PRAIS). AGTE member Juan Puigdefabregas (Spain) responded that reporting on structural poverty may be just as complex as income-linked reporting, but said the Group would consider it. The US suggested narrowing the list of proposed indicators given current limited funding for reporting. China emphasized identifying affected areas or zones. Japan emphasized identifying a way to operationally delineate affected areas. Thailand suggested adding an indicator on global water resources. The US asked if a cost-benefit analysis of the information to be gathered through the indicator process had been considered, and whether it would be more cost effective if the three objectives could be sourced from existing global data sources. Honduras asked if there could be harmonization with reporting for the other Rio Conventions.

CST Chair Magalhães then invited delegates to consider the AGTE's recommendations. He said it would be annexed to the report of CST S-3 and, in addition, it would be issued as an annex to CRIC 11 document ICCD/CRIC(11)/14 and will be presented by the Chair of AGTE to CRIC 11. Delegates agreed.

Chair Magalhães then introduced the progress report on the preparation for the UNCCD 3rd Scientific Conference, "Combating desertification/land degradation and drought for poverty eradication and sustainable development: the contribution of science, technology, traditional knowledge and practices" (ICCD/CST(S-3)/4). Richard Escadafal, speaking on behalf of the Scientific and Traditional Knowledge for Sustainable Development (STK4SD) consortium, thanked the CST Bureau for selecting the Consortium to organize the 3rd Scientific Conference. He explained that STK4SD brought together five major networks and institutions: Agropolicy International, DesertNet International, the CGIAR Consortium, the Sahel and Sahara Observatory, IADIZA, and the Chinese Academy of Forestry. He said other organizations have indicated interest in being part of the 3rd Scientific Conference.

Chair Magalhães then invited GRF Davos to present the preliminary synthesis and recommendations from the UNCCD 2nd Scientific Conference (ICCD/CST(S-3)/L.2). The draft document provides an overview of the background and rationale for enhanced science-policy-practice interaction on DLDD, noting widespread consensus that the impacts of DLDD are inadequately addressed in the political agenda at the global, regional and national levels. It further notes that the evidence base on the economics of DLDD has expanded rapidly in the past three years, but needs to be expanded. The document



sets out some actions to improve scientific and technical knowledge, with specific recommendations for policy and further development of scientific tools, methodologies and outreach.

Responding to the draft outcome document, Algeria and Kyrgyzstan questioned the introduction of terminology that was not in line with language agreed in the Rio+20 outcome document, mentioning the term “Zero Net Land Degradation.” Algeria called for the document to be reviewed by legal experts and adapted to comply with language agreed at Rio. Referring to a paragraph in the draft that indicates the Scientific Conference encouraged the UNCCD to facilitate the establishment of a multi-disciplinary “Platform on land and soil degradation, desertification and sustainable land management,” Norway, the EU and Japan said they were opposed to establishing a separate scientific body for the Convention and proposed efforts to submit knowledge requests to the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), noting it is currently developing its work programme. The EU said the reference did not reflect discussions during the Conference. Ammann said the aim was not to prescribe the form such a body should take, but to avoid a loss of momentum between conferences through the continuation of interdisciplinary collaboration.

The EU welcomed the contribution of the ELD initiative for quantifying the costs and benefits of investing in SLM, but noted that SLM policies must be context specific. He welcomed the theme of the 3rd Scientific Conference, but suggested giving attention to the timing and sequencing of the Scientific Conferences.

Nigeria called for clearer messages for policymakers at national level in the report, while Kyrgyzstan expressed concern that key background documents have not been translated into all UN languages. Brazil, on behalf of Latin America and the Caribbean (LAC), with Japan, called for coordinating the Scientific Conference discussions with questions on the CST’s agenda. The LAC group further stressed the need for equal representation of regional groups on CST bodies and called for organizing scientific conferences at the regional level.

In response to a request for further comments about the draft report, the EU reiterated its opposition to including language about a multidisciplinary “platform” and Algeria repeated its opposition to any reference to “zero” in the text. The CST then took note of ICCD/CST(S-3)/L.2 along with comments made by delegates, and agreed to: issue the document as an annex to the report of third special session of the CST; send out letters to parties transmitting the preliminary outcomes, and following the receipt of responses from parties, prepare a pre-session document for the consideration of the CST at its eleventh session; and request GRF Davos and the Scientific Advisory Committee to prepare a final outcome document to be issued as an informational document for the 11th session of the CST.

The Chair of the open-ended contact group, Ahmed Virk (Pakistan), then introduced the document outlining the outcomes of the contact group’s review of scientific information from parties and other reporting entities (ICCD/CST(S-3)/L.3). He

clarified that the document was a summary compilation of ideas, suggestions and proposals offered by various delegations. The proposed actions include:

- making the PRAIS portal more user-friendly;
- encouraging affected country parties to submit their report and/or amend the responses on strategic objectives 1, 2 and 3 even after the official deadline has passed to broaden the baseline datasets and enable future trend analysis;
- inviting affected country parties to make broader use of data from UN agencies and other international sources;
- inviting development partners and the GEF to consider extending further technical and financial assistance for developing the capacities of affected country parties in reporting impact indicators in order to, *inter alia*, harmonize definitions and methodologies to be used at national level;
- inviting global and regional organizations, institutions and relevant partners with expertise in monitoring and assessing DLDD to support the parties and regions in bridging the knowledge gap for reporting;
- reviewing relevant literature and ongoing efforts such as the New World Atlas of Desertification;
- improving the reporting template and further develop the reporting manual;
- encouraging affected country parties to use a consistent and common approach in delineating affected areas, taking into consideration the findings provided by the AGTE;
- considering further efforts to increase spatially referenced data on poverty in affected areas;
- adopting broad land cover types, based on already established and internationally recognized land cover classification systems, to be used by affected country parties for reporting on land cover status;
- reporting countries considering use of a common methodology for reporting on land productivity based on readily available and internationally recognized datasets;
- identifying appropriate mandatory indicator(s) relating to strategic objective 3 for the next reporting cycle; and
- complementing, systematically, the minimum set of globally harmonized indicators by regionally, nationally and/or locally relevant information and indicators.

Eritrea noted that the report did not contain formal recommendations from the contact group. Virk replied that the group had lengthy debate about which specific recommendations to offer, and while they are not separated out, there are a number of recommendations embedded within the text of the report.

The Committee took note of the contact group’s outcome document, and agreed that it should be issued both as a part of the report of the third special session of the CST and as an annex to CRIC document ICCD/CRIC(11)/9 to be presented to CRIC 11 by the CST Chair.

Rapporteur Stefan Sommer introduced the CST report (ICCD/CST(S-3)/L.1). The EU took note of the contribution of the 2nd Scientific Conference and called for more preparatory work on how to incorporate scientific input more effectively in the implementation of the UNCCD, including through building greater synergies with the Intergovernmental Panel on Climate

Change (IPCC) and IPBES. Welcoming the AGTE's progress in developing impact indicators, he called for more focused recommendations to guide discussions at COP 11 on the reporting process. Delegates then adopted the report.

In his concluding remarks, Executive Secretary Gnacadja indicated the Secretariat would forward the outcomes of this meeting to COP 11 for final consideration and would continue to work with the Bureau to ensure that delegates' input is reflected. Following a statement by civil society organizations (CSOs), supporting a role for the UNCCD in up-scaling field-tested agroecological approaches, together with farmer organizations and other CSOs, Chair Magalhães closed the meeting at 6:35 pm.

## A BRIEF ANALYSIS OF CST S-3 AND THE 2ND SCIENTIFIC CONFERENCE

### *MULTI-STAKEHOLDER SCIENTIFIC INPUT: ADAPTING LESSONS FROM THE DRYLANDS*

Resilience-based management. Integrated approaches and multifocal areas. Research on targeted applications, building on local knowledge and scaling up local-level best practices. Building partnerships and recognizing the role of individual champions of specific projects.

Presentation after presentation at the UNCCD 2nd Scientific Conference revealed the extent of existing research and implementation experience with regenerating degraded land and developing best practices in the drylands. Participants pointed out that it is appropriate that it is evidence coming from work at the grassroots level that could inform the policies of the UNCCD, the "bottom up" convention. As the conference concluded, many noted that the challenge is really a question of how to translate this knowledge into targeted advice for actors at each level.

Some highlighted that this challenge is connected to the problems that the UNCCD is grappling with in terms of bringing more science to bear in the work of the CST and the COP, and looked to the discussions of lessons learned on the ground for advice on how to move forward. Could the lessons for implementation in the drylands presented during the conference also be applied to the conference itself?

Some connected calls for targeted applications of knowledge with advice regarding partnerships. "Partnerships need a purpose," participants at the 2nd Scientific Conference were told. And to find the purpose, an analysis of gaps should be conducted. What missing element can the partnership fill? Participants expressed great interest in both the framework of the "partnership" between scientists and the CST, and how that scientific advice could enhance the work of the COP. This brief analysis explores how the conference's lessons regarding resilience-based management and integrated approaches might apply to questions raised at the CST and the 2nd Scientific Conference.

### **RESILIENCE-BASED MANAGEMENT**

Change is inevitable, participants were reminded by a number of speakers. One presented a proposed strategy to deal with this situation on the ground. Adoption of a resilience-based management approach would focus on "nudging trajectories to avoid undesirable changes, especially the loss of options." In the case of the format for providing scientific advice to UNCCD parties, participants who remembered the CST before its eighth session agreed that change was not only inevitable, but has been embraced. The two scientific conferences have filled the meeting rooms with scientists. Participants at the 2nd Scientific Conference particularly commented on the enthusiasm that the scientists brought to their presentations. And they anticipated that, while participants in Bonn learned from these presentations, a greater benefit from the meeting could be that the scientists may have learned about questions regarding UNCCD implementation and may focus further research on these questions.

The evolving format from scientific conference to scientific conference reflects efforts to do more than "nudge trajectories," although many admitted that the right formula remains elusive. As Walter Ammann, the CEO of Global Risk Forum (GRF) Davos, the organizing partner for the 2nd Scientific Conference, told the closing session, organizing a conference requires resilience in "bouncing forward," and it may take several conferences before the ideal format is developed. The 1st Scientific Conference focused entirely on white papers that scientists had contributed to prior to the event, and convened only in plenary meetings. Participants at the first event made an effort to draw out and agree on policy-relevant recommendations, which the CST "took note" of. Delegates at the CST meeting in which the 1st Scientific Conference was embedded noted that the recommendations from the Scientific Conference were not directly related to the CST's agenda because there was not a clear mandate from the CST or COP regarding the Conference's expected outcome.

The 2nd Scientific Conference was also supported by white papers, but presenters at the parallel sessions discussed their own work on topics that were related to, but not solely focused on, the meeting's thematic topic. At the end of CST S-3, in which the 2nd Scientific Conference was embedded, a number of CST delegates suggested that the discussions at the 3rd Scientific Conference should focus on questions on the CST's agenda. Some participants privately wondered whether the scientific conference needed to be embedded in a CST session, especially if the model of scientists presenting their individual work was to be retained. Others held up the fact that the meeting was embedded in the CST as its distinguishing feature, and suggested that the links between the two events needed further development—the schedule for CST S-3 did not leave time for its Science and Technology Correspondents (STCs) to formally discuss how the proceedings of the Scientific Conference could be applied to the CST's work. Reviews of the conference are already underway, in an effort to inform decisions to "nudge" the format and keep it "bouncing forward." The "partnership" between the CST and the Scientific Conference has not yet created a bridge

between international scientific findings and intergovernmental policy recommendations to the COP, although some in Bonn thought the trajectory was moving in the right direction.

### INTEGRATED AND MULTIFOCAL APPROACHES

Participants in many parallel panels heard about the importance of integrated and multifocal approaches to achieving results. They emphasized the linkages between issues, and the need to recognize and incorporate these linkages into projects. Panelists discussed how land, water and food security affect climate change adaptation efforts, for example. Keynote speaker and former President of Finland and Chair of the Global Sustainability Panel Tarja Halonen emphasized that sustainable land management can be one of the most important tools for poverty eradication.

How can the scientific community develop an integrated view of sustainable land management on a consistent basis and impact decision making at the highest level? This challenge was discussed in the corridors in relation to another type of scientific body. While some have been hoping that a land-focused international scientific panel or platform might be in the cards for the UNCCD soon, the brief exchange in the closing CST S-3 plenary indicated that others are only prepared to focus on ways to incorporate land-related issues into the work programme of the well-established Intergovernmental Panel on Climate Change and the agenda-setting stage of the IPBES. Others considered whether it would be possible to pioneer a new way to bring sound scientific advice to bear in answer to the parties' questions, through a more modular or hybrid approach.

The meetings of the Regional Implementation Annexes, which took place on Friday afternoon and Saturday, 12-13 April, were to be briefed on the ongoing work of the *Ad Hoc* Working Group to further discuss the options for the provision of scientific advice focusing on desertification/land degradation and drought issues (AGSA), which will submit recommendations on this question to the eleventh meeting of the CST, later in 2013. The AGSA's terms of reference note that options considered to this point include: use of existing scientific networks; establishment of a new scientific network focused on specific topics; use of existing intergovernmental scientific advisory mechanisms; and establishment of a new intergovernmental scientific panel on land and soil. A number of speakers in Bonn suggested that a regional component should be considered in the mix. During the Scientific Conference, for example, a contributor identified the regional level as the "missing link" and called for more focus on strengthening regional groups for improved knowledge sharing and coordinated action on sustainable land management. UNCCD delegates will consider questions about the role and gaps that such potential "partnerships" will fill, as they evaluate the next steps for the provision of scientific advice.

### ADDING VALUE TO PARTNERSHIPS

Now that the UNCCD 2nd Scientific Conference is over and participants are digesting the research and evidence from the field, the question remains, has the UNCCD been informed? The Conference provided a window on the work that is being done at all levels—local, national, subregional, regional and, in

some cases, international. Scientific research and best practices are being developed and can help reverse land degradation and rehabilitate degraded lands, and help socio-economic development. In one respect, the Scientific Conference achieved its purpose.

Yet the knowledge shared at the meeting remained disconnected from issues on the CST agenda. The problems that the UNCCD is grappling with in terms of bringing more science to bear on the work of the CST and the COP can be examined in light of research addressing problems on the ground, in the search for a mechanism to translate science and best practices into policy that works, that involves local communities, scientists and others in partnerships and makes a difference on the ground where human lives and livelihoods are at stake. Further evaluations of the gaps that the partnership between the Scientific Conference and CST seeks to fill could also benefit from incorporating concepts from the 2nd Scientific Conference's organizing theme: the economics of land degradation. Actors enter into partnerships based on implicit or explicit cost-benefit analyses—will the benefits from filling the gaps that the partnership seeks to address exceed the costs involved in remaining in the partnership? Some have used this type of argument to advocate for a scientific panel, noting that its costs could be in line with what is being spent on the scientific conferences. The benefits of a scientific conference are not immediately measurable—it will take time to see how researchers' agendas might be influenced by their exposure to the UNCCD's agenda, and the concepts shared will need to be discussed in national, subregional and regional preparations for the COP before they might influence the parties' decisions. The payback periods and discount rates for each actor involved will differ, increasing the urgency and adding to the complexity as 194 UNCCD parties work to incorporate lessons from the drylands into decisions at the intergovernmental level, and to adopt policies that nudge actions in the drylands on a positive trajectory.

## UPCOMING MEETINGS

### 2013 Global Land Forum and Assembly of Members:

Organized every two years by the International Land Coalition (ILC), the 2013 meeting will consider the theme "Inclusive and Sustainable Territorial Governance for Food Security," and will focus on: the future of family farming and the geo-political economy of food; land grabbing and land access; indigenous peoples' territory; effective land institutions; environmental aspects of territorial disputes; open data, monitoring and accountability; and learning and strengthening collective action. **dates:** 23-26 April 2013 **location:** Antigua, Guatemala **contact:** ILC Secretariat **phone:** +39 06 5459 2445 **fax:** +39 06 5459 3445 **email:** [info@landcoalition.org](mailto:info@landcoalition.org) **www:** <http://www.landcoalition.org/events/global-land-forum-and-assembly-members-2013-inclusive-and-sustainable-territorial-governance->

**Soil Carbon Sequestration: A Solution for Climate, Food Security and Ecosystem Services:** This conference will review the state of science and needs for further knowledge and discuss, *inter alia*; land use and land restoration practices; how to verify



carbon sequestration and linkages with the UN Framework Convention on Climate Change and other global goals, agreements and negotiations; and how to increase the flow of climate-linked funding for land and soil restoration. Organizers include the European Commission, the Global Soil Partnership and UN University. **dates:** 26-29 May 2013 **location:** Reykjavik, Iceland **contact:** Organizing Committee **email:** arna@land.is **www:** <http://www.fao.org/globalsoilpartnership/events/detail/en/c/154385/>

**World Day to Combat Desertification 2013:** This day is celebrated on 17 June annually, to mark the conclusion of negotiations on the UN Convention to Combat Desertification. This year's theme of drought and water scarcity, with the slogan "Don't let our future dry up," takes into account that 2013 is also the International Year of Water Cooperation. World Day to Combat Desertification 2013 will seek to create awareness about the risks of drought and water scarcity in the drylands and beyond, and to call attention to the importance of sustaining healthy soils as part of the post-Rio+20 agenda and post-2015 development agenda. **date:** 17 June 2013 **contact:** UNCCD Secretariat **phone:** +49-228 815-2800 **fax:** +49-228 815-2898 **email:** arce@unccd.int **www:** <http://www.unccd.int/en/programmes/Event-and-campaigns/WDCD/WDCD2013/Pages/default.aspx?HighlightID=168>

**Sixth International Ecosystem Services Partnership Conference:** The purpose of this conference is to exchange experiences and learn about the practical application of the "ecosystem services" concept, including the identification of main incentives and obstacles and the suggestion of practical solutions to key problems. The conference is organized with the UNEP World Conservation Monitoring Centre, the Global Mechanism and The Economics of Ecosystems and Biodiversity, among others. **dates:** 26-30 August 2013 **location:** Bali, Indonesia **contact:** Beria Leimona **email:** l.beria@cgiar.org **www:** [http://www.esconference.org/ESP\\_Conference](http://www.esconference.org/ESP_Conference)

**Second Global Soil Week 2013:** This event will convene under the theme "Losing Ground?" It is organized by the Institute for Advanced Sustainability Studies (IASS) in Potsdam, Germany, and will bring together practitioners, policy makers, scientists and representatives from civil society organizations to share knowledge and experience on soil and land-related issues and make plans to advance the global agenda for sustainable development. A call for proposals will be posted soon. **dates:** 27-31 October 2013 **location:** Berlin, Germany **contact:** IASS Potsdam **phone:** +49 331-288223-00 **fax:** +49 331-288223-10 **email:** info@iass-potsdam.de **www:** <http://www.globalsoilweek.org/>

**UNCCD COP 11, CST 11 and CRIC 12:** The eleventh session of the UNCCD COP is expected to convene in the final quarter of 2013. CST 11 and CRIC 12 will convene in parallel with COP 11. **dates:** to be announced **location:** to be announced **contact:** UNCCD Secretariat **phone:** +49-228-815-2800 **fax:** +49-228-815-2898 **email:** secretariat@unccd.int **www:** <http://www.unccd.int/>

## GLOSSARY

AGTE	<i>Ad Hoc</i> Advisory Group of Technical Experts
BMZ	German Federal Ministry for Economic Cooperation and Development
CARI	Centre d'Action et de Réalisation Internationales
CDM	Clean Development Mechanism
CENESTA	Centre for Sustainable Development
COP	Conference of the Parties
CRIC	Committee for the Review of the Implementation of the Convention
CST	Committee on Science and Technology
DLDD	Desertification, land degradation and drought
ELD	Economics of Land Degradation Initiative
FAO	UN Food and Agriculture Organization
GEF	Global Environment Facility
GIZ	German International Cooperation Agency
GM	Global Mechanism
GRF	Global Risk Forum
IADIZA	Argentine Institute for Research on Arid Zones
IAMM	Institute Agronomique Méditerranéen de Montpellier
IPBES	Intergovernmental Platform on Biodiversity and Ecosystem Services
IFPRI	International Food Policy Research Institute
IGAD	Intergovernmental Authority on Development
IRD	Research Institute for Development
IUCN	International Union for the Conservation of Nature
JRC	Joint Research Centre (European Commission)
NGO	Non-Governmental Organization
PRAIS	Performance Review and Assessment of Implementation System
SLM	Sustainable land management
STAP	Scientific and Technical Advisory Panel of the GEF
UNCCD	United Nations Convention to Combat Desertification
UNEP	United Nations Environment Programme
UNU-INWEH	United Nations University Institute for Water, Environment and Health
USDA ARS	US Department of Agriculture, Agricultural Research Services
WOCAT	World Overview of Conservation Approaches and Technologies
ZEF	Center for Development Research
ZNLD	Zero net land degradation