

Second
GLOBAL SOIL WEEK | LOSING GROUND ?

RAPPORTEURS' REPORTS

GLOBAL SOIL WEEK 2013



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THEMATIC THREAD 1: MATERIAL CYCLES

Humans are increasingly transforming global material and nutrient cycles (e.g. carbon, nitrogen, phosphorus, water) by soil and land-use management practices. Contributions to this thread might address topics such as: What are the effects of these transformations on soil functions and soil-derived ecosystem services? What is the impact of fertilizer policies on soil degradation? How does the trade in virtual land influence nutrient flows and what is the impact of these nutrient flows? We particularly welcome contributions looking at soil and land in relation to other resources, such as the soil-water and land-oceans inter-linkages.

Session title:**1.1 Polluting ground – The neglected issue of diffuse soil pollution**

Date: 28 October 2013
Session representative: Thilo Streck (Uni Hohenheim)
Name of rapporteur: Keerthi Bantru

IN A NUTSHELL

The potential effects of pollutants on soil and the environment are strongly dependent upon policies, current practices as well as soil properties, the properties of the pollutants and also on climatic conditions. The session started with the presentations to review the current knowledge (i) on diffuse soil pollution with different compounds from agricultural and industrial activities, (ii) agrochemicals and the risk for soil, environment and human health, and (iii) global policies on potential pollutants in the environment based on international legal frameworks and conventions addressing soil pollution and environmental implications crossing national borders. The session ended with a stakeholder dialogue on an elaborated plan for action “towards sustainable management of diffuse soil pollutants”.

What was surprising or new?

- » The problems caused by the presence of diffuse pollutants in soils are becoming more and more prominent. Emerging diffuse pollutants are originating mainly from the use of pharmaceuticals and personal care products and agrichemicals. Additionally to that, we are struggling with compounds regulated or even banned such as the “dirty dozens” of the Stockholm convention. Various pollutants were detected in the food chain (e.g. due to bioaccumulation in sea food, meat and animals milk products) and human bodies (e.g., heavy metals or organic pollutants in breast milk).
- » Diffuse soil pollution is a trans-boundary problem and needs similar political attention as water pollution. The incidents of diffuse soil pollution are increasing. As the causes of diffuse pollution are a matter of global cycling processes in the environment the effects are on local and regional level.
- » Threats of diffuse pollution are many fold and reach from direct affects to flora and fauna to subtle contamination of soil eventually causing problems to cultivate plants of grassing animals.
- » The economic loss due to diffuse soil pollution (e.g. when agricultural products are taken from the market) is significant and generally affects small enterprise or farmers directly.
- » Monitoring programs concerning soil pollution with organic chemicals do not exist on national/global scales. Target pollutants to monitor are often not clearly defined because of the short-distance but as well long-distance transport of pollutants entering into the soil.

- » Threshold values with respect to the effects of the high number of pollutants on soil quality have not yet been defined in the scientific community. Effects and behavior of many pollutants also is not known.
- » A selection of target pollutants that are most important for soil pollution is strongly required. Emerging diffuse soil pollutants are a significant challenge for researchers as well as policy makers. Pesticide residue standards in many countries are often not monitored and, thus, not regulated. The problem multiplies with the unavailable technologies to detect pesticide metabolites. Despite the regulation according the Stockholm convention, some POPs continue being produced and used in various countries.

Diverse perspectives

- » In a world-café dialogue session the stakeholders shared on the impacts of POPs to soils. The participants concluded with several statements, but addressed also several questions, which should be discussed and solved in future.
- » (Agro)-industry and urbanization permanently produce new pollutants that are released to the environment and may cause an ecological and human health risk.
- » The soil acts as a sink for pollutants and in turn as a source for pollutants if released to the other environmental compartments (global cycling).
- » Although there is – specifically in the science community – a deep understanding about the impact of persistent organic pollutants on nature and humans and also about the fate of these substances, there is still a regulatory gap.
- » In general more monitoring data are needed to assist decision makers to set-up adapted measures, but the issue needs a preliminary discussion about data and information needed. Figures for gross production volumes are roughly known, but the lack of precise data about inputs into and storage in soils hampers a reliable assessment.
- » There is definitely more research and transfer of scientific knowledge from science to policy needed, to understand the impact of POPs on human and environmental health. Here, basically two main aspects shall be considered: the effects on health are only partially understood and described by very rough models, and the relevant chemical substances should be prioritized.
- » However, the lack of understanding should not hamper to take action, to reduce emissions or to manage environmental pollution in a way that reduces adverse effects.
- » A clear statement from the world-café dialogue was that the administration is responsible for setting up regulations such as threshold values and for controlling their implementation. On the other hand, the industry and the user of chemicals are asked to take more direct responsibility. A global understanding is missing that a globally acting
- » industry needs to take responsibility according to supra-national standards.

- » The participants understand that an effective action against environmental pollutions needs independence of policy and science, which vice versa asks for democratic structures and political transparency. Guidelines for responsible scientific research will even be beneficial to collaboration and dialogue with industry.
- » On a technical level further source control and standards for emission regulation are needed, this is specifically true for pest management. More public awareness specifically regarding the use of potentially harmful substances may reduce their consumption and emissions.
- » Collaboration between public and private sector and science can increase public awareness of the big problem of soil pollution. It will help to establish good monitoring, restoration and management strategies as well as to reduce pollutant inputs and thus decrease the risk for environment and human health.
- » The scientific communities should focus on developing knowledge about the behavior of soil pollutants (transfer, fate, multimedia marketing, methodology for sampling and monitoring), soil-health relationships (exposure risk-assessment, toxicology of single and mixed pollutants, spatial modeling of environmental inequalities), soil decontamination (techniques for soil remediation and soil function restoration) and decision-aid modeling (benchmarks of techniques efficiency, multi-criteria analysis, cost-benefit analysis, life-cycle analysis).
- » The stakeholders discussed the urgency for establishing monitoring programs for the control of diffuse soil pollutants.
- » The industry representatives informed that all products are released to the markets under the radar of government monitoring and followed by standard procedures such as toxicological tests.
- » The lethal tests and other standards procedures are most often conducted in the lab with single diffuse soil pollutants. Because the soil receives more than one diffuse pollutant the combined effect needs to be studied.
- » How to make difference between the definitions of the diffuse soil pollution and point source pollution?
- » It was mentioned that the number of deaths due to poor economic conditions and hunger is certainly much larger than the number of deaths due to diffuse soil pollution.

New pathways

With a four-pillar strategy should be implemented: improving science; improving public understanding; identifying partnership and stewardship opportunities; and Taking regulatory action when appropriate.

- » There were different opinions about who should pay for monitoring and research programs, the public or the private sector? The administration should be responsible to implement the programs. The costs can partly be covered by the industries (business) and consumers. Transparency was considered a problem regarding industry data. Research and policy actions should focus also on bio-pesticides and substitutes of other emerging pollutants.

Session title:**1.2 Soil carbon management for sustaining agricultural productivity****Date:**

28 October

Session representative:

Sandra Naumann (Ecologic Institute)

Name of rapporteurs:

Rebecca Joy Howard, Co-rapporteur: Francesca Bampa

IN A NUTSHELL

This session highlighted the importance of soil carbon stocks and their adequate management to sustain agricultural productivity. It started with a review of current understanding, through a series of presentations on Best Practices for Soil Carbon Management, Soil Productivity and Crop Yield; Socio-economic and behavioural barriers to soil carbon management; Innovative financing instruments and incentives and global and European policies for soil carbon management. This was followed by World Café style discussions on each of these themes, with a view to identifying how soil carbon management can be mainstreamed into crop and soil management and policy formulation.

What was surprising or new?

- » The majority of global carbon stocks are held in the soils of four nations only (US, Canada, Russia and Brazil)¹. This fact led to a surprising suggestion that it may be more effective for these four nations to sit down together and focus on what they can do to protect or enhance their stocks rather than attempting to promote soil carbon in every nation or to come to any global agreement on which soil carbon policy can be rolled out to a global scale.
- » While 'no-tillage' is a commonly cited 'best practice' for enhancing soil carbon, one of the presenters mentioned a recent meta-analysis performed by the SmartSOIL (FP7 project)² literature review showing that this practice leads to a build-up in the topsoil (0-10cm) and not necessarily through the whole soil horizon profile. Nonetheless, the top horizon is where the most benefits for productivity are found. This points to the need to critically explore practices through further research.
- » An example from the Netherlands indicated that it was significantly more financially attractive for farmers to conserve and recycle existing soil organic matter rather than introducing organic matter from external sources. However, within policy there still seems to be some reluctance to promote practices which allow for the former, and in recommendations for best practice, there is generally no distinction between conservation vs introduction of new organic matter.

1 http://eussoils.jrc.ec.europa.eu/ESDB_Archive/octop/octop_download.html

2 <http://smartsoil.eu/>

- » Research into the socio-economic behaviours of farmers in Europe has demonstrated a need to recognize farmer heterogeneity. For example, there may be stark differences in both understanding and willingness of farmers to engage in practices, which promote soil carbon when they are part time, or subsistence as opposed to full time or commercial. Different land tenure models also have an effect.
- » In both, EU and globally, the issue of 'plough-culture' is a significant barrier to conservation agriculture or minimum/ no-tillage as means of improving soil carbon management.
- » Discussions about which information to feed into policy concluded that it may be better to highlight the elements that are already "certain" rather than highlighting the gaps in research and the pervading uncertainties.

Diverse perspectives

- » The suggestion that 'no tillage' practices may not actually be providing overall benefits to Soil Organic Matter was disputed, but there was no time to go further into this debate.
- » The benefit of restoring former peatlands by rewetting was questioned, due to the negative consequences of eutrophication (release of phosphorous) and emissions of methane. Nevertheless, initiatives for restoring peatlands are supported by the voluntary carbon market.
- » There was a variety of opinions on the most appropriate and engaging language for talking about soil organic matter with farmers. For example, using terms such as soil health, soil fertility, or stressing the benefits of soil organic matter for crop productivity rather than talking about soil organic matter as an end in itself.
- » Given the uncertainties and challenges related to the 'measurement' of soil organic carbon, a number of people posited that it might be better to focus instead on monitoring. For example, farmers or land owners may find it easier to monitor what happens when particular management practices are applied and could receive compensation for implementing effective practices. Meanwhile, enhanced soil organic carbon could be considered as a co-benefit rather than being the basis for the payment.

New pathways

Promising approaches

- » Two examples of existing payment schemes for promoting soil carbon appeared to be promising in the contexts where they are being developed. In the Netherlands, dairy company Friesland Campina is implementing the "Sustainability Scheme- Focus Planet"³. The company is considering offering financial benefits e.g. higher prices to farmers for adopting a number of sustainability practices including soil management techniques for

3 <http://www.frieslandcampina.com/english/news-and-press/news/press-releases/~/~/~media/CBCC4EDC18604BOCBA9F2EFB084FBCCCE.aspx> see page 46

maintaining or increasing carbon stocks. In Iceland, the Soil Conservation Service of Iceland is offering payments for ecological restoration, where soil carbon sequestration is a side benefit of such action (see www.land.is).

- » The idea of establishing a Global Carbon Stewardship (supported by international, national and private financing) is potentially a promising way for addressing soil carbon across a variety of scales from global to local.
- » The Global Atlas of Biodiversity, has shown that soils rich in Soil Organic Matter are also rich in biodiversity⁴.

Key points to remember

- » Besides new approaches there are also promising practices and concepts that do not involve new technology (such as nutrient cycling, or not using nitrogen-based fertilizers), and these also need to be given due consideration.
- » Policy needs to be adapted to local and farm-specific conditions (including adjusting incentives and regulation for 'best' management practices which are suited to particular soil types, climate, farming system etc.). Moreover, the contribution of 'best' management practices to different objectives such as efficiency, productivity, or enhanced soil carbon storage needs to be evaluated in different contexts. In other words, there are no golden bullet approaches- the most appropriate approaches depend on the local /farm-level context.
- » Different regulatory changes at EU level (in part. CAP) are proposed to improve soil carbon management: protection of continuous grassland coverage, inclusion of perennial crops as a compulsory part of the crop rotation and stronger engagement of the private sector through certification schemes.
- » Reflecting on the nexus between scientists, policy makers and practitioners, scientists have a new role to play as mediators, filters and amplifiers of knowledge between the former and the latter, rather than simply being 'producers' of knowledge.
- » The main messages in relation to soil carbon management should focus on improvements in yield resilience and sustaining reliable yields along with highlighting side benefits such as climate change mitigation.
- » Positive message framing ('if you do this then this will happen') has been perceived as more successful in promoting the uptake of certain management practices.
- » Soil scientists need simple proxies (such as the 2 degree goal in climate policy) in order to convey a more easily understandable message.

4 <http://www.globalsoilbiodiversity.org/> See also <http://eusoils.jrc.ec.europa.eu/library/themes/biodiversity/>

Session title:**1.4 How to Re-activate Soil Functions in Urban Regions****Date:**

30 October 2013

Session representative:

Katleen De Flander (Institute for Advanced Sustainability Studies)

Name of rapporteurs:

Natalie Cheong, Manuel Rivera

IN A NUTSHELL

Soils are a central component of most resource cycles such as the water, food and nutrient cycle. They are also central to the restoration of those cycles. Urban soils have lost several of their natural functions as a result of practices like soil sealing and contamination. This session asks how these lost soil functions can be reactivated for the purpose of restoring natural resource cycles, and for making cities more resource productive. Location specific case studies from Bogotá, Shanghai and Berlin were reviewed within this session.

What was surprising or new?

Three key case studies were presented at the dialogue, each of these examples provided a unique angle for activating urban soils, and can be regarded as new to the discourse.

Case study 1: District development plan of Bogotá, Colombia. This plan focuses on restoring the water cycle, whilst tackling climate change, fighting inequality and strengthening the public sector. *Considering natural ecosystems:* The approach of ‘Ecological Main Structure’ was used within the planning process. This necessitated the incorporation of protected areas and the connectivity of natural ecosystems into the modified zoning plan.

Considering climate change: Climate change adaptation strategy and concepts of the circular economy, demonstrated in the ‘zero waste economy’ target, are part of the new urban development plan.

Local participation: Development of the new plans considered over 60,000 citizen contributions. In sum, social elements that were considered included the ‘functional service structure and socio-economic spatial structure.

Social inclusion: Emphasis was given to the poorest strata, which had the highest rates of participation. Steps such as the “minimum living water” standards were established to ensure the rights of low-income households to water supply.

Empowering locals: Development of local communities for social control of the adaptation measures; people responsible for ecosystems.

Academic integration: Facilitation of strong links between academia and citizen science (i.e.: Botanical Garden Scholarship Program and community research)

Case study 2: Peri-urban agriculture in the Shanghai-Nanjing region, China. This example showcases the potential for urban and peri-urban areas to become more resilient and resource efficient by using waste, idle land and water bodies in cities as resources to produce food.

Urban and peri-urban agriculture: There are several benefits that are associated with this form of agriculture including its ability to reduce a city's dependence on imports, potential to decrease the urban heat island effect, reduce carbon and GHG fluxes and remove pressure from other areas. The Shanghai-Nanjing region is now 30% self-sufficient in its consumption of vegetables, due to urban and peri-urban agriculture

Initiatives: Examples provided included; 'Efficient City Farming' (ECF) is a company that manages roof-top and container farming for aquaponics, and 'The Algae House' in Hamburg which grows algae that can be used to produce bio-fuel for energy production

Remote sensing technology: Satellite imaging (GIS) is an extremely helpful tool that can be used to estimate and represent information. Some examples of its use include the calculation of surface area available for rooftop farming and solar panels, the tracing of Nitrogen and Phosphorous pollution in river basins and representing the soil types

Regulative support: includes the prohibition of food waste in restaurants

Case study 3: Global urban land consumption and policy-level solutions in Berlin, Germany

Impermeable surface in Berlin: 34.24% (2000) to 35.10% in 2010. This is equivalent to 770 hectares

Land take: Definition extends to green areas in artificial systems and is not exclusive to only sealed surfaces

Berlin Local Agenda 21: In 2006, 16 core indicators was decided by the Berlin House of Representatives, of this, core indicator No. 6 was soil protection

30-hectare-strategy: Is an instrument to reduce land consumption in Germany, a target set by the Federal Government for reducing land consumption. Action plans include management of vacant areas and monitoring of land use, land use planning of green and open spaces, green areas for the city. Studies show the surface potential land use in residential areas to be 1,600 hectares, commercial and industrial areas to be 1,160 hectares, and other public green and open spaces to be 1,175 hectares

De-sealing: Using this method to increase the amount of soil cover is possible, but extremely costly. It is pondered within the Berlin Senate that landowners sealing land could pay a compensation cost for land-take. This figure however has not been calculated yet.

Diverse perspectives

De-sealing: De-sealing is possible, however, high-costs and state properties are barriers. It was suggested that soil coverage of sealed areas could be more cost efficient than de- sealing

New pathways

Holistic re-planning of cities:

- » Consider using in combination the concepts of Ecological Main Structure, connectivity of natural ecosystems, climate change adaptation, socio-economic spatial structure, and functional service structure

Reducing sealed spaces:

- » Implementation of new instrument to materially compensate for the imperviousness of an area by the removal of impervious coverage in another area. For example, the city of Dresden in Germany has introduced a soil compensation account in 2002 to finance the removal of derelict buildings and de-sealing of soil
- » Development of a centrally managed database to promote a unified system for citywide recording of land areas and an overview of potential and present areas available for the removal of impervious coverage. This will maximize the amount of information available for all investors, owners, state authorities, planning agencies and interested parties

Urban and peri-urban agriculture:

- » Promote urban resilience through urban and peri-urban agriculture
- » Use of remote sensing for the estimation of urban soils for agriculture
- » Use integrated tools to analyze the effects on structure and functions of urbanized areas

THEMATIC THREAD 2:

SUSTAINABLE LAND MANAGEMENT AND SOIL ENGINEERING

The ongoing loss of fertile soils urgently requires the broad adoption of sustainable land management. There is already a wealth of knowledge available on sustainable land management practices. However, adoption rates continue to be low. What are feasible strategies to upscale sustainable land management at the landscape level? Further, the various demands on soils – such as urbanization, production of food or energy crops – require a management approach that balances these requests. What are promising examples in this regard? What can be learnt from integrated management approaches? Given the existing high degradation rates, soil engineering approaches might be needed in some areas that improve or artificially substitute certain soil functions. What are pros and cons of soil engineering? Do soil engineering approaches allow for addressing ecosystem functions which are provided by soils with its various interactions between soil organisms and organic and inorganic matter?

Session title: 2.1 Space to sprawl vs. Controlled urbanization – Promoting redevelopment, preventing land uptake!

Date: 28 October 2013

Session representative: Joerg Frauenstein (Federal Environmental Agency)

Name of rapporteur: Komolafe Sunday

IN A NUTSHELL

This session intended to contribute to the current land take debate and presented various viewpoints of stakeholders from different regions from around the world on how to we can all collectively better manage our land resources more sustainably.

Key issues discussed:

- » Prevention as a substantial part within a possible Sustainable Development Goal (SDG) on sustainable cities;
- » Spatial planning and soil protection issues;
- » Brownfield re-use policies and best practices to limit urban sprawl.

Key questions:

- » Brownfield redevelopment as a considerable contribution to prevent further land uptake?
- » What kind of precautionary measures are essential to avoid undesired soil changes in cities?
- » What are the key development goals for soil protection in cities?
- » What are the key development goals to strengthen Brownfield reuse?

What was surprising or new?

- » There are still many barriers between scientists and decision-makers/authorities on knowledge transfer and implementation of scientific solutions/findings.
- » Land planning is not done in proper collaboration with environmentalists -sometimes caused by a knowledge gap due to different understanding and problem prioritization.
- » Weak enforcement of legislation/policies and the absence of suitable interfaces with legal requirements in many countries.
- » Interest of investors might be higher ranked in practical environment protection enforcement than the implementation of land use policies.
- » Moreover, mayors and local administrations are competing with other municipalities in order to convince and bind investors/investments within their territory.

Diverse perspectives

- » Enactment of regulations for Brownfield redevelopment may support sustainable development in cities.
- » There was a debate on:
 - » If compensation for Brownfields redevelopment by government should be adopted. An opinion was raised that the compensation may require more clarification like baseline information and should be more differentiated.
 - » If “Greenfield” or “Brownfield” sites should be used for infrastructure projects or not.
- » Additionally, general public incentives should not be adopted for each Brownfield redevelopment project (cf. classification in line with the CABERNET (A-B-C) approach): Estate market supports some of the specific costs related to brownfield redevelopment.
- » National planning has to address collective needs and therefore is not always opened for discussion to all stakeholders concerned.
- » Cost Benefit Analysis of soil functions (to be protected) is needed; as well as an evaluation of the real soil value for natural and fertile soil. At least it will be a serious basis to prove development scenarios with regard to a sustainable soil management especially in urban and peri-urban areas.
- » There is cooperation among actors in some countries when taking decisions on sustainable land use.
- » Priority should be given to local perspectives.

New pathways

- » Cost Benefit Analysis of soil is needed to evaluate a real soil value. This is essential when comparing the overall costs of using Brownfields vs. Greenfields in terms of the ACTUAL values.
- » For Brownfield remediation; the implementation of site specific Environmental Impacts Assessment (EIA) reports is essential. Brownfield redevelopment provides synergies opportunities to fulfill basic needs of local populations in urban areas (e.g. energy, food supply).
- » A tangible political support, like the inauguration a Memorandum of Understanding on Brownfields redevelopment adopted in Australia, may strengthen a sustainable land use practice.
- » Engaging public awareness, good public transportation, a proper waste management and the use of centralized and decentralized system of urbanization are a useful set of precautionary measures, to stop or mitigate urban sprawl.
- » Existing opportunities and initiatives should be identified and utilized when planning urbanization, such as EU cohesion funds, showcasing good examples, etc..
- » A current EU document highlights the same arguments, as they were discussed during the session. (<http://eca.europa.eu/portal/pls/portal/docs/1/22042779.PDF>)

Session title: 2.2 Undermining our future? The real impacts of extractive industries on soil

Date: 28 October 2013
Session representative: Marine Pienaar (Terra Africa Consult)
Name of rapporteur: Jason Chacon

IN A NUTSHELL

The discussions in this session deepen the understanding of soil in the Nexus of sustainable land use, economic development, food production and resource security. The direct impacts of extraction activities on soil and these impacts on the global scale, including growth trends of these industries, were presented and discussed. Also, the technology, methods, and importance of soil rehabilitation and engineering were discussed.

What was surprising or new?

- » Mining, both large and small scale was seen as a major contributor to the degradation of soils worldwide. The destruction of mining was not only evident in developing countries but also in developed countries as well. Various examples highlighted the magnitude of the destruction; one example was in the United States of America where 40% of the catchment areas are contaminated because of mining.
- » Measures to abate the effects of mining on the environment seem to lack the robust approach needed. Though there is Environmental Impacts Assessments (EIA's) done at most mining project sites, there are still conflicts between resource users that are stemmed from environmental destruction. Weak governance systems were highlighted as the major contributor to these conflicts and not ineffective EIA's.

Diverse perspectives

There was disagreement concerning the approaches used to addressing the issue of soil degradation with reference to governance. There was the assumption by some participants that “mandatory guidelines” are essential to address the issue of soil degradation since this was proven to be effective and addresses, to some extent, the issue of transparency in certain countries. On the other hand the representative from the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) preferred “voluntary guidelines”. However, the decision on the approach may vary depending on several country specific factors.

“Political will” is one of the most important pillars that should be present in order to prevent loss and degradation of soils. However, in some cases policies are lacking or being drafted, while destruction of the soil continues. Therefore, an important question surfaced that seeks to verify if stakeholders, involved in soil resources, should wait on the relevant policies before planning their action, or should action be the first step rather than waiting on the relevant policies?

New pathways

Several promising approaches and examples were presented from both the Private sector and governmental bodies. The Green Mines Green Energy project (GMGE), being done in Canada, was involved in using organic waste to cover tailings, suppress acid generation and creating soils to grow bio-fuel crops. The environmental security initiatives (ENVSEC) involves key public decision makers from Southern and Eastern Europe, and Central Asia to advance, protect peace and motivate action on the environment at the same time through rapid risk reduction, assessment of the environment legacy, etc. Another important area being investigated is Coal seam gas which is a form of natural gas extracted from coal beds. Research is ongoing to assess its viability for the future. Also, rehabilitation of mining sites, as in the case of Richards Bay Minerals, South Africa, produced a forest within fifteen (15) years.

Effective land use planning by strategic environmental assessment coupled with sufficient political intervention was seen as a possible solution to land use conflicts, however, it is difficult to communicate with and involve the people most affected by these environmental issues. The need to combine or balance power between the Districts, Municipalities and Governments was also seen as important, and the process should be linear and not top down or bottom up. Additionally, there are possible opportunities by integrating sustainability into profitability within the context of rehabilitating mined out sites and attaching an economic value to the resulting product.

In essence, there was a strong indication that “political will” is needed, regardless of the scale or level of action, in order to successfully address the issue of soil degradation. It was stressed that politics and scientific information must be integrated in order to create effective policies.

Session title:**2.3 Integrating Knowledge Systems**

Date: 29 October 29 2013

Session representative: Andrew Noble (Consultative Group on International Agricultural Research)

Name of rapporteur: Natalie Cheong, Co-rapporteur: Francesca Bampa

IN A NUTSHELL

Multiple forms of knowledge exist for the sustainable management of land and soil resources. Often, a gap between practice, science and policy is observed, resulting in weak or misdirected drivers on the ground. This session discussed this issue via case studies and reflections from practitioners at different scales of decision-making. Topics covered included examples of indigenous knowledge systems, the integration of science and indigenous knowledge, tools to integrate local knowledge into development plans, regional partnerships to standardize action, synergies between knowledge and culture, as well as questioning of the necessary conditions for excellent policies to be effective at ground-level.

What was surprising or new?

New findings and input emerged from the practitioner level, academic research level as well as the broader policy level. They are presented as follows:

- » *Synergies between modern science and indigenous knowledge systems (IKS) exist:* In IKS, practices with similar rigor as in scientific procedures exist. A practical example is the observation of soil profiles, color and texture to decide crop suitability by locals in Central America on the basis of which precise maps have been produced.
- » *Accelerated loss of IKS:* Serious challenges are faced as IKS is fast disappearing; there is an urgent need to document such knowledge, and have it available in usable formats.
- » *Nexus II?* It was suggested that to bridge the present gaps between policy, practice and science, the nexus of 'water, land, food security and energy' should be complemented with a second nexus of 'policy, institution and knowledge' to increase the success of outcomes at ground-level.
- » *Who feeds the world?* Globally, 500 million small-scale farmers feed 2 billion people, and in Asia and sub-Saharan Africa this percentage increases to 80 percent. Small-scale farmers provide important food systems for the world, and require greater recognition. Many of these production systems are based on indigenous knowledge. An example from Chile was given where local farmers are given the opportunity to sell their products in supermarkets once per week.
- » *Money talks?* "We are preaching to the converted. If you say money moves, then why are politicians not moved by the 400 billion USD of soil loss that occurs on an annual basis worldwide? The problem is that most people would consider such numbers as being of little

relevance to them as there is a general perception that soil loss “doesn’t affect me.” There is a need to attempt to address this impasse.

- » *Are perfect policies the key?* In Malawi, policy and action plans are in place, but the fiscal budget allocations continue to neglect natural resource conservation. “Nothing has changed on the ground”. In sum, there is a wealth of progressive policies, but a lack of implementation, enforcement and appropriate budget allocation.
- » *Common language needed:* Numerous speakers lament the lack of a common language between different actors. They call for a common vision of the future, shared models and frames of references. There is a need for a holistic approach and a language that reflects it, as well as for “take home messages”.
- » *Engaging farmers:* (Some) Farmers are not willing to participate in conferences such as Global Soil Week, as previous experience has shown that “it is only them that have to make the changes,” whilst simultaneously ensuring their livelihoods.

Diverse perspectives

With a host of participants from different backgrounds that included scientists, practitioners, students and communicators, there were several points of divergence and debate that emerged. The first included debate between practitioners who proposed that indigenous knowledge systems (IKS) hold the key to sustainable land management, against scientists who argued that local knowledge should (only) be used at the local level and that scientific knowledge must be the basis of soil and land management. A point of critique on scientific knowledge brought forward by scientists was that scientific knowledge is mainly based on a European context, thus is site-specific and can hardly be extrapolated. Reacting to this, it was claimed not to use and upscale knowledge, but principles. Yet another intermediate view was proposed, where IKS was incorporated into scientific methods. Clearly there are opportunities to bridge this divide and build a more integrative approach to addressing land resource issues where the roles of IKS and scientific innovation are complementary and synergistic.

The second divergent issue involved the communication approach towards raising awareness on the critical role of soil in our entire food system. The question that arose is best encapsulated in the following statement “Would a creation of awareness through fear or rather through positive messages be most effective?” The latter proposed fostering a culture of life-long learning, workshops and festivals that promote the importance of soil. Generally, it is recognized that the “story” on soils and their criticality is not arriving on the ground, so people are not affected by decision makers.

Finally, there was a call for increasing the diversity of views within the dialogue to a broader audience that would include decision-makers, farmers and the general public, as 80 per cent of the audience comprised of researchers and students already interested in the topic of soil.

New pathways

Several calls for alterations in the current practices and ideas for future action were proposed during this dialogue, they are presented as follows:

Correcting distorted investment policies: A paradigm shift in agricultural and development policy was called for: smallholders and family farmers should be seen as a major opportunity as they produce the bulk of global food. More focus should be given to low potential marginal lands, land rehabilitation and water conservation, rain-fed agriculture, water productivity and management, total farm productivity, food crops and local crops.

Policy harmonization and using regional structures: In order to overcome the situation of policies in place which are not implemented and do not receive according budget, it was suggested to enforce policy harmonization and increasingly use regional structures

Standardizing themes & languages for collective change that provide a link to peoples' daily concerns:

1. *Health:* Health is related to biodiversity, ecosystem services and the food we eat
2. *Development and employment:* Agriculture is a sector with a huge potential for the creation of employment
3. *Culture:* People are becoming more aware of what they have lost, their identity, language, traditional customs etc. and are increasingly interested to learn about them and bring (some of) them back
4. *Environment:* Use our living environment, which is interrelated to people's daily concerns to engage them.

Engaging the public – Removing Barriers: To broadly engage and involve the public, it was agreed that academic language should be simplified and communicated through mass media such as radio, TV, press and Internet; the local community should be involved with organizers in campaigns; scientists should work with civil society organizations; and communities should be empowered to identify their own problems through training.

Global Soil Week 2014: Broaden the audience to the public and farmers. "If (a policy maker) does not have the political will or ability to enforce a policy regime, it does not mean anything. What (we) have to do is to change the hearts and minds of individuals, so each of them can take action and responsibly which will then trigger political action as politicians react to the priorities of their constituencies. Maybe we are targeting the wrong community, it is not the government, but the community we need to target. The individual."

Session title: 2.4 Soil engineering – Enhancing the functioning of soils in the critical zone

Date: 29 October 2013
Session representative: Bernd Uwe Schneider (Helmholtz Centre Potsdam, German Research Centre for Geosciences)
Name of rapporteurs: Rebecca Joy Howard, Jason Chacon

IN A NUTSHELL

This session highlighted the broad spectrum of soil technologies and management options which can potentially contribute to the protection, restoration and enhancement of soil functions and, subsequently, to the securement of food and fibre production. These range from traditional technologies and practices, to those which have recently been developed. The aim was to underline what is already tried and tested, what needs further research, and how information and knowledge can be transferred between research, policy levels and regional stakeholders.

What was surprising or new?

- » During the session it was recognized that engineering should not only be about inventing 'new' technologies and practices- many that were listed by the participants as 'state of the art' technologies and promising system approaches are practices that farmers have known and applied for centuries- such as the use of mixed cropping, compost, crop rotation, and agroforestry systems.
- » There was a strong recognition of the importance of restoring and securing regionally specific traditional ecological knowledge and drawing on it in combination with new technologies, highly technical approaches and recent scientific developments. As an example agricultural technologies are beginning to adapt to diverse cropping systems through the flexibility of machinery which can enable mechanized harvesting of mixed crops.
- » It was noted that little research is being done on 'basic' concepts, for example agroforestry systems and perennial crops, particularly with respect to how they can be adapted to and applied in farming systems in the temperate zone.

Diverse perspectives

There were mixed opinions on the question of whether the prediction of 'threats' and 'crises' (such as climate change, soil degradation etc.) will motivate potential stakeholder to introduce new soil and land use technologies or will encourage people to change current land use practices. Generally, participants thought that a positive motivation referring to e.g. higher productivity, improved water and nutrient use efficiency, application of less fertilizer and pesticides, and higher

revenue would affect people's willingness to respond to innovation more effectively.

There was a lot of discussion on whether it can be universally applicable to try to put a price tag on the benefit of ecosystem services such as sustaining soil fertility, using less water, and introducing pricing for products which take this value into account, or regulatory measures such as taxes for products that don't. It was generally agreed that a monetization of ecosystem services is needed but it was doubted that this can be successfully implemented on a global scale.

Finally, there were discussions about who should be doing the communication- should it be only the scientists? They may lack the skills, cultural awareness, or time to engage directly with the people who are farming. Therefore, participants agreed that further changes of current land use can only be obtained by integrated measures comprising training of technical advisors, in place consultancy including NGOs, raising consumer awareness, participatory approaches for guided research of farmers and experts.

New pathways

There should be research programs with a longer timeframe, which can detect changes in the soil and productivity that occur over long periods. Additionally, rather than being shaped mainly by the orientations given by the funders and involving the 'users' of the research only at the end, scientific research needs to involve a wider range of stakeholders from the beginning of the process to increase effectiveness. This will call for new transdisciplinary approaches integrating agricultural and socio-economic research which, however, may conflict with the pressure the scientific community is exposed to with regard to complying with criteria of scientific excellence.

It is necessary to find new formats and media for communicating information and transferring knowledge, such as cartoons for communicating with people about soil, or structuring posts in every program or institute for agents who are responsible for mediating knowledge.

Communication and transfer of knowledge should be facilitated by having a mix of different disciplines of scientists and practitioners working together. We need to talk about bi-directional communication and learning by doing, rather than transfer of knowledge. It is important to know and develop trust with your target group, communicate positive messages, and communicate a range of options rather than singular solutions.

Phosphate recycling, on-site and off-site, including bio-fertilization would be a promising approach to sustainable soil management. Though there is several research being done, it is clear that alternatives phosphorous sources, though it may seem huge, is a finite, non-renewable resource and thus not sustainable. Also, the approach of intensifying the use of closed nutrient cycling systems such as agroforestry, mixed cropping systems, crop pasture rotation, and new rotation systems was highlight as an area that would minimize the loss of fertile soil. Payment for ecosystem services (PES) was seen as promising only to specific situations; however it seems difficult to scale these projects regionally and globally.

Waste water usage technologies such as water purification are of importance to agriculture and soils, especially for irrigation purposes. This was related to why waste water is not used in agriculture for irrigation.

The integration of machineries and technology to new management systems was also seen as key to promoting different land use systems. This initiative coupled with the integrating traditional knowledge into modern approaches to be used at a larger scale was also highlighted as a promising area of approach.

Information on soils, which may assist in management, is either not available or not adequately distributed to stakeholders due to many limiting factors. Therefore, a stakeholder oriented regionally specific, aggregated, real time monitoring information and decision support of soil related data was seen as important and will form a prerequisite for adequate governance of the agricultural sector particularly in developing countries.

Finally, it was pointed out that more research should be dedicated to the development of soil engineering technologies that allow for an improved water and nutrient use efficiency, new rotation systems, processing and recycling of nutrients from organic wastes, real time soil monitoring and forecast systems, alternative land use systems and, most importantly, to positively attributed communication strategies for the preservation of traditional and the transfer of new knowledge and technologies.

Session title: 2.5 Making connections between soil and societal challenges: Transdisciplinary collaboration and strengthening the Science-Policy-Practice linkages

Date: 30 October 2013

Session representative: Richard Thomas (United Nations University)

Name of rapporteur: Komolafe Sunday

IN A NUTSHELL

The ongoing loss of fertile soils urgently requires transdisciplinary collaboration between science, policy and practitioners in order to address challenges leading to land degradation worldwide. Solutions may be both technological and managerial oriented depending on context (rural/urban), scale (local, larger areas) or climate (humid/dry).

This session asked how transdisciplinary research processes can be developed and structured in order to find sustainable solutions for all.

Different projects and initiatives have been presented, aiming at making connections and bridging gaps between stakeholders, different disciplines and scales in order to improve soil and land management. Challenges of transdisciplinary approaches and suggestions for improving collaboration and effectiveness have been exchanged and discussed.

What was surprising or new?

- » Regional existing information can be incorporated in global science research; this will enable us to bridge the gap between different stakeholders
- » Private sectors have some roles to play for the soil in urban area to be managed in sustainable manner
- » Researchers are not always rewarded for trans-disciplinary work, therefore discourage further investigation on vital issues in the society
- » Avoid the difficulties encountered by scientists when communicating their specialized knowledge to policymakers and other stakeholders

Diverse perspectives

- » Many stakeholders are not able to effectively participate in deliberations on issues that affect them. This is especially true of people with lower incomes or poor language speaking skills.
- » Data policy must be opened making it accessible to actors?
- » How do we generate economic benefits from scientific research?
- » Should we fund research or project practitioners? Division of roles will contribute significantly to our society

New pathways

- » For science-policy interface of UNCCD to be successful; there is need for reporting mechanism that can keep the system going in the long-term
- » Communicating scientific findings – value chain integration will bring many actors together
- » Next Global Soil Week should involve more participation of private sectors – Presently, Competition for funds is intensive and their presence will be helpful
- » Our projects especially those tailored to sustainable soil management must be co-design with concerned stakeholders
- » Enhance the links between different stakeholders (scientists/land users /NGOs) will improve the results of decision making process of major policy organisations and the image that public opinion have regarding environmental regulations

Session title:**2.6 Gaining ground: Capacity building for a reclamation and re-valuation of degraded sites**

Date: 30 October 2013

Session representative: Prof. Franz Makeschin (Dresden International University)

Name of rapporteur: Jason Chacon

IN A NUTSHELL

This session dealt with demands and the future role of capacity building for an enhanced and target-group oriented focus on region-specific and targeted capacity building for reclamation and re-valuation of degraded sites and landscapes. Representatives from governmental bodies and international cooperation agencies, and research institutes and organizations discussed the challenges on educating practitioners and instructors for contributing to re-valuate the economic value and ecosystem services of degraded land. Experts from some regions in Latin America, Namibia and India as well as participants of the “UNEP-UNESCO- BMU course on Climate Change Adaptation: The Soil-Water Nexus” at Dresden University of Technology contributed with their experiences.

What was surprising or new?

- » It is essential to manage lands by integrating intensive agricultural systems while at the same maintaining productivity and sustainability. This approach would ultimately limit the burden of land use systems on soils and create opportunities for generating alternative incentives.
- » Additionally, degradation of land must be seen from a holistic approach and not only from the soil perspective.
- » Presentations show the potential of gaining ground rather than losing ground. This was seen in the case of Namibia where government sponsored training programs and parallel support from an agricultural development bank has made significant impacts in building capacity as well as increasing sustainable land-use regionally. The possibility for land reclamation and restoration as an area for investment was discussed. This was seen in the context of adding value to reclaimed lands and also the possibility of directing major investments to degraded lands or land that must be reclaimed initially.
- » It was also highlighted that there is a disconnect in terms of communication, however, policy makers and state institutions (not involved in soil resources) showing a strong interest in restoration, reclamation and sustainable resources management.

Diverse perspectives

Expertise in developing countries is lacking compared to developed countries. This imbalance of skilled human resources regarding soils is a major problem that impedes the acquisition of data on soil degradation in developing countries.

It was noted that soil science, in only a sartorial approach, is not an attractive field of study especially for the younger generation. One possibility mentioned to overcome this barrier, maybe, to adequately compensate scientists working in this area.

There was a strong indication that is important to define what is meant by soil degradation in terms of the sites affected (slight, moderate, strong, extreme) in order to get a clear functional background for future action. A clear understanding of soil degradation would enable scientists and policy makers to understand each other and pursue common goals.

New pathways

Intensive management of livestock was seen to be a promising approach to reduce soil degradation by effective pasture management. This can also optimize the use of pastures by exploring other incentives, such as, terrestrial carbon sinks.

It is vital to create cross-cutting threads and cross disciplinary institutions with the aim of sustainable resources management, especially in developing countries, to increase the efficiency of human resources in soil science. This initiative can also be supported by exchange programmes and by partnering with universities.

Networking and monitoring between institutions, regionally and globally was highlighted as an important approach. Additionally, upscaling of these initiatives is essential.

The need to communicate in an appropriate language by appropriate means, utilizing new media, e.g., television programs is of great importance to communicate with stakeholders of diverse background.

Exploring possible markets for land reclamation and restoration that can create an industry that support capacity building and development was also discussed as a promising solution.

Session title:**2.7 Holding common ground – Developing effective soil communication**

Date: 30 October 2013
Session representative: Birgit Wilhelm (World Wide Fund for Nature)
Name of rapporteurs: Rebecca Joy Howard, Co-rapporteur: Francesca Bampa

IN A NUTSHELL

This session was designed as an attempt to address the communication gaps which exist between scientific or farmer's knowledge on soil, soil policy and the effective action of human societies. It consisted of a theatrical piece on the importance of the earthworm performed by Ms Barbara Geiger (Fräulein Brehms Tierleben gGmbH⁵), followed by a presentation from Dr. Luca Montanarella⁶, a scientist and Action Leader of SOIL Action at the European Commission - Joint research Centre⁷, he gave a presentation on past experiences in soil communication and raising awareness⁸. Dr. Nikola Patzel, a soil scientist and psychologist, gave a presentation and displayed images on the importance of cultural and symbolic imagery as a basis for developing new soil communication patterns. The session concluded with a fish bowl discussion which served as a first step towards the creation of a common transdisciplinary ground for soil communication with society and its stakeholders.

What was surprising or new?

This session attracted a large and diverse crowd, including artists, farmers and urban gardeners, campaigners, academics. It showed that a lot of people are interested in soil and soil communication, not just soil scientists!

- » It is not too common to talk about emotions and inner images with respect to soil, but 'soil emotion' was a central theme in this session.
- » The theatrical piece at the beginning was an innovative form of communication which grabbed the attention of the audience. The earthworm which was used as a focal point for talking about soil, also proved to be popular in the examples given by the other presenter .
- » During this session a jar of soil was passed around which everyone tasted- this was a new way of experiencing the soil for most people!

1 <http://www.brehms-tierleben.com/2>

2 http://eusoils.jrc.ec.europa.eu/esdb_archive/Staff/Montanarella.html

3 <http://ec.europa.eu/dgs/jrc/index.cfm> 4 <http://eusoils.jrc.ec.europa.eu/awareness/>

4 <http://eusoils.jrc.ec.europa.eu/awareness/>

Diverse perspectives

- » Some of the session participants questioned the appropriateness of the term 'soil awareness' and suggested that another term, which taps into human emotions, may be more effective. However, it was questioned whether this could be salient acceptable at the policy level.
- » While the idea of evoking emotions, linked to appropriate patterns of behavior and meaning, to talk about soil appeared to resonate with many people in the room, there was a discussion as to which emotions should be evoked, who should evoke them and what could be the potentially negative consequences of evoking the wrong emotions. For example, the media is renowned for using sensation as a powerful tool so we must be mindful of which messages the media is likely to get hold of and communicate at scale. It is important to elicit emotions and guiding inner images which are likely to lead to action, but it would be unproductive to evoke fear and guilt on people who do not have the capacity for action.
- » While emotion is important one participant stated that it must not be used to trigger action which comes before people have sat down and thought about what would be the best action to take on soil communication.
- » It was clarified that emotion is not an end in itself, but the needed psychic energy for changing attitudes and behavior ("there is no motion without emotion"). To give the human emotions a constructive and not a destructive orientation, it is of crucial importance that they are guided by appropriate patterns of meaning, consciously reflected, and combined with knowledge.

New pathways

There were a number of promising approaches put forward:

- » On the question of *who* to engage, a number of people agreed that rather than just blaming agro-industry for farming practices which deplete soil health and resilience, it is important to address consumers with soil campaign actions, because consumers effectively support different farming practices by buying different products. An example of consumer involvement is the Dutch company EOSTA⁹ selling organic tomatoes in a box with a packet of seeds, encouraging their customers to start guerilla gardening!
- » The participant interactions showed a will to integrate not only science and policy in soil communication, but also drawing on art, literature and psychology.
- » In thinking about who can take on the role of effective communication, there are apparently many artists¹⁰ and communicators who are willing to be involved, and can offer particular strengths and skillsets such as the ability to perform processes with people (actions!), create

5 „Save our soils“ campaign and the SOILMATE project from EOSTA <http://sos.natureandmore.com/>

6 Soil culture http://artsandecology.info/pdf/Soil_culture_info_Oct2013.pdf ; <http://www.decrustate.de/> , <http://www.foodsystemsplanning.com/>

visual results, to be responsive to and draw on different kinds of knowledge and input, and by that encourage participation and inner involvement of stakeholders.

- » There are many examples of promising activities designed for children (incorporating fun soil activities into school curriculums¹¹) or led by young people (such as urban gardening where hundreds of volunteers are being mobilized¹², or the Lumbricus Bus¹³ which is currently touring Germany and doing practical education on soil, water and the environment). Soil communication activities should recruit young people with an innovative view.
- » There is a need to transform some of the types of imagery and narratives which are currently being use (e.g. Africa is often portrayed as the place where the problems are, whereas in this case it may be the continent where people have not yet lost their connection to the soil. On the other hand, it is also a continent experiencing very rapid changes, including stark changes in agricultural systems. So an effective way of communication could be fostering soil preservation and fertility in Africa.)
- » There are many tools, ideas and actions^{14 15} already happening and many people willing to engage on raising soil awareness. It is important to create the conditions for these diverse approaches to proliferate whilst at the same time working to coordinate all the existing networks together and team up whilst realizing deep rooted communication patterns, so that the messages are stronger. One possible forum for this could be the International Year of Soils 2015¹⁶ - United Nations FAO.
- » In conclusion, participants welcomed the impulse promoted in this session: to identify really common grounds and approaches, not least referring to images of living soils, appropriate cultural symbols and narratives which involve emotions, whilst being conscious of cultural and natural differences.

7 Sondar project <http://www.unserboden.at/632-0-Malstand+Scheibbs+Hiabstl+1492013.htm?&goback=51>
8 <http://ifzs.de/> and <http://www.allversity.org/courses/understanding-soil>
9 <http://www.nua.nrw.de/lumbricus-der-umweltbus/>
10 ENSA network <http://www.bodenbuendnis.org/projekte/ensa/>
11 Global Soil Partnership <http://www.fao.org/globalsoilpartnership/the-5-pillars-of-action/2-investments/en/>
12 <http://www.fao.org/globalsoilpartnership/highlights/detail/en/c/175190/>

Session title:

2.8 Soil - A pivotal factor for making agriculture truly sustainable for food security in a changing climate

Date:

30 October 2013

Session representative:

André Leu (International Federation of Organic Agriculture Movements)

Name of rapporteur:

Matthias Ofner

IN A NUTSHELL

The enormity of the challenges being faced by the world's agricultural production systems is highlighted in the just released UNCTAD Trade and Environment Review (TER) 2013. Communicating the pivotal role of soil fertility and various ways of ensuring it for sustainability of agriculture dependent depend highly on policy decision makers at various levels. It is simplistic to think that the serious environmental crisis of agriculture can be overcome by technological fixes. Rather, they require some fundamental changes dealing holistically with the interrelated problems of poverty, gender inequity, poor health, climate change and environmental sustainability. 'Respecting the farmers' knowledge' is seen as a starting point to set a collaborative research agenda. Agroecology and agroforestry are useful approaches for reclamation of "lost ground" where knowledge and practices for sustainable land management are developed jointly with small holder farmers.

What was surprising or new?

- » Scientists seem to agree that traditional agricultural practices, 'back to basics' are the base to build a sustainable agriculture for the future. Ecological and social-friendly practices such as agro-ecology, agroforestry are modern agricultural practices that are rooted in traditional practices. However, none of those practices or success stories, such as the Great Green Wall and the Tigray Project are emphasized sufficiently in conventions such as UNCCD and also by organizations such as GEF.
- » The TER 2013 also shows that 70% of the world population is fed by smallholder farmers but they receive only little recognition and support.
- » The TER 2013 further highlights the enormous potential in agricultural sector to mitigate climate change. The soil carbon sequestration potential by agriculture is not sufficiently acknowledged and utilized by agricultural/environmental policies.
- » One example is the Case Study I from Ethiopia (Hailu Araya Tedla) which has shown that highly valuable research contributions by small holder farmers are mostly 'below the radar'. They lack the attention and the respect they deserve.

- » Case Study II presents the Brazilian experience of small holder Family Farms producing 70 percent of the food consumed in the country receive less than 25 percent of the credits.
- » In both the cases of Brazil and Ethiopia, small holder farmers were found to have developed innovations based on agroecology and agroforestry approaches which maintain the ecological health as well as diversify the incomes of farmers contributing to their economic and social wellbeing.

Diverse perspectives

- » Concern with regards to the sufficiency of organic agriculture alone in feeding the world was discussed. Experiences and evidences proving the sufficiency and importance of organic agriculture in feeding the world, the in/sufficiency of non-synthetic nitrogen sources for large scale conversion to organic agriculture, expansion of agriculture into new areas leading to deforestation were some of the views exchanged in this context. Finally, a counter-question as to ‘whether the conventional/intensive agriculture is (able to) feeding the world now?’ was raised.
- » The definitions of sustainable and modern agriculture need to be revisited in view of newly emerging approaches such as agroecology and agroforestry which are rooted in traditional practices.
- » An emerging consensus from the presentations and discussions was that ‘industrialized agriculture’ was the main reason for agriculture to lose its ground.
- » It was also commonly agreed that the multiple functions of agriculture need to be exploited towards making it sustainable.

New pathways

The proceedings of the session brought out several important aspects to be considered for –

a) Planning and conducting research in agriculture

When dealing with research projects, farmers need often more than one solution to their problems. One ‘best’ solution option doesn’t work for them and they need to be provided with a range of solutions. Second, scientists need to start perceiving farmers’ research as valuable and informative. An approach that supports farmer-led joint research and development rather than considering farmers merely as recipients is required.

b) Structuring the knowledge exchange process

An important consideration with regards to structuring knowledge exchange is that farmers listen differently to farmers than to politicians and researchers. NGOs can sometimes act as a bridge. Develop new channels of communication through new technologies (mobile phones, computers in some cases). Promote communication from farmers to farmers and involve farmers into research projects which will promote local and traditional knowledge.

c) Participatory policy making

Scaling up of innovations by small holders such as the agroecological experiences in Brazil and strategies to overcome adversities in Ethiopia need conducive public policies both on the production and consumption side of agriculture. The planning and implementation of policies must include the participation of all the stakeholders and especially the small holders. There is a need to develop market infrastructure for farming systems preserving the agro- biodiversity and producing a variety of farm products instead of focusing on marketing infrastructure that promote and cater to 'monoculture-like' farming systems. This would require raising awareness both on producers and consumers' sides.

THEMATIC THREAD 3:

INTERNATIONAL SOIL POLICY AND SUSTAINABLE DEVELOPMENT GOALS

Soil ecosystem services are globally relevant. How can we find a global approach for their sustainable management? As an outcome of the Rio+20 Conference, Sustainable Development Goals (SDGs) are currently being discussed and designed on an international level. How can soils be integrated in the SDG debate in order to tackle soil and land degradation? How to integrate local and international issues? How to meaningfully conceptualize “land degradation neutrality”? What potential have international, including voluntary, agreements such as SDGs or an international soil protocol? How to translate an agreement on international goals into national policy action? What is to be learned in this regard from the Millennium Development Goals process?

Session title: 3.1 Economics of Land Degradation

Date: 28 October 2013

Session representatives: Maike Potthast and Mark Schauer (Deutsche Gesellschaft für Internationale Zusammenarbeit)

Name of rapporteur: Natalie Cheong

IN A NUTSHELL

This dialogue session was centered on the Economics of Land Degradation (ELD) initiative, which aims to increase the political and public awareness of the economic costs and benefits of the sustainable management of land-based ecosystems. The session commenced with the introduction of the ELD concept, and was first supported by an ELD case study from Peru, followed by an economics of soil case study concerning the urban context of Brussels and finally on recent reflections concerning ELD in Argentina. The main focus of the discussion was about the barriers and opportunities of integrating ELD into sustainable development policies and the importance to deepen into macroeconomics of ELD.

What was surprising or new?

The discussion was focused on a preliminary level that used recent case studies from Latin America (Peru, Argentina) and Europe to communicate the concept of Economics of Soil and Land Degradation to the audience:

- » *Gap:* A need for macroeconomic assessments. Any movement towards alternative and more sustainable development pathways is constrained by the establishment of fair rules in trade and intellectual property. Macroeconomics of Land Degradation has to be deepened in order to shape policies on Land
- » *Methodology:* Participatory ELD assessments involving key stakeholders such as scientists, public decision makers, businesses and civil society at various scales have proven to make direct impacts contributing directly to decision-making
- » *Private sector:* Researchers of the ELD initiative expressed the advancement of the involvement of the private sector in the ELD-Initiative, the need of major investments from the private sector into SLM, and the significant potential for collaborations with the business sector
- » *Urban soils:* ELD as a concept can be applied to urban soils, for example in the development of green infrastructure and for the specific capacities of soil such as buffering, infiltration and carbon storage
- » *Challenges:* A need for a specific common language (only English is not enough) and frames of reference to engage with different stakeholder groups from different regions

Diverse perspectives

A convergence of perspectives was observed at this dialogue, and there was not a significant amount of disagreement perceived. One suggestion that was raised however was in reference to the inclusiveness of the present ELD initiative. A suggestion of involving small landholders, in addition to large business enterprises was put forth. The significance of including this demographic of small landholders is based on the knowledge that 500 million small-scale farmers feed more than 2 billion people globally.

New pathways

From this discussion about the ELD initiative several ways forward were identified.

They are presented as follows:

- » *Scientific data generation*: There exists a need for robust scientific data that can be used to present cases at the policy level, and to observe broader trends that can be easily communicated to the public
- » *Beyond GDP*: In addition to contributing to GDP indicators, participants from the audience suggested that ELD should be linked with like-minded 'beyond GDP' initiatives that exist and that ELD could contribute to the beyond-GDP discussion
- » *Policy level*: Stronger links should be forged with decision-makers to incorporate sustainable development into present macroeconomic development discourse

Session title: 3.2 Get it, use it, improve it: Global soil information

Date: 28 October 2013
Session representative: Ronald Vargas (Food and Agriculture Organization)
Name of rapporteur: Matthias Ofner

IN A NUTSHELL

A global effort for soil information is needed which takes into account the ongoing developments in data processing (GIS, data assimilation, modelling including digital soil mapping), availability of digital data sets (climate, geology, soils, soil biodiversity), development of local soil information systems, and remote sensing. The Global Soil Partnership recognizes the provision of updated soil data and information as a fundamental pillar serving end users in research, management-related advice, decision making and policies. The Global Soil Biodiversity Initiative recognizes clear ways to inform a GSIS from work on a GSB-Atlas and Assessment.

The session aimed: (1) to introduce the efforts of the Global Soil Partnership (GSP) towards a global soil information system, and (2) to communicate and integrate the work of the Global Soil Biodiversity Initiative (GSBI) to scientifically inform efforts by the GSP, the CBD, IPBES, IPCC and other stakeholders.

What was surprising or new?

- » There was general support for the idea of a global soil information system under the plan of action of pillar 4 of the Global Soil Partnership.
- » It was acknowledged that only very few countries have functioning soil information and monitoring systems and that responsible institutions and stakeholders for data collection and mapping don't work together intensively (e.g. GSP, GSBI, IPRES...)
- » The SDGs and Post-2015 Development Agenda present an opportunity to raise and reinforce the demand for soil information globally

Diverse perspectives

A more technical disagreement was discussed in terms of the choice of a reference system for measuring soil biodiversity, this is important since soil biodiversity requires a standardization process and its inclusion on conventional soil surveys. There were questions about the practical importance of soil biodiversity and how it could be communicated to end users.

The GSP pillar 4 is aiming towards a global soil information system but in the future several questions on the system design have to be answered. What is the degree of integration between global, national, and regional systems? Should it be a distributed or a centralized system and where is the balance when allocating the resources between monitoring and mapping? And one important issue is the agreement of the countries on a basic dataset.

New pathways

It was suggested to bring all the responsible institutions and stakeholders together that are working on soil information in order to speak with one voice. It was recognized that sometimes the same people are involved in several initiatives for soil information. It would be better if one main recognized system and institution would be used and would take the lead and it was suggested that the Global Soil Partnership could play this role.

The first Global Soil Biodiversity Conference should be used to further work on common global soil information system. Furthermore, the SDGs and Post-2015 Development Agenda present an opportunity to raise and reinforce the demand for soil information. The goal is as well to increase awareness globally and speak a language that politicians and people can understand. One way to deal with that issue is to develop a policy plan.

Examples of ongoing global and regional soil information efforts:

- » African Soil Information Service (AFSIS) developed a case study for Ethiopia in order to develop specific fertilizer recommendations and which areas are prone to erosion. It will be inserted where the crops need it most urgently and locate new possible areas for cultivation. Furthermore, they have the idea to involve the farmers during the monitoring program. Very important is that it is provided as an open source program.
- » The Intergovernmental Technical Panel on Soils (ITPS) is working towards developing a World Soil Resources Report by 2015.
- » The Latin-American Soil Information System (SISLAC) is launching several initiatives and conducts trainings in digital soil mapping / database in order to strengthen the cooperation between the member states. Moreover, they try to incorporate more countries, improve the databases, and the generation of applicable maps such as land use planning and yield gaps.
- » Global Soil Biodiversity Initiative (GSBI) has launched the production of the global soil biodiversity atlas. Furthermore, bio-indicators need to be established globally and connect them to soil biodiversity. Their task for the future is to connect soil biodiversity functions with ecosystem services.

The GSP Plan of Action for Pillar 4 on soil information was endorsed by the ITPS and will be submitted for final endorsement by the GSP Plenary Assembly and then implemented at global and regional levels through the facilitation of GSP and partners. Furthermore, the GSP also published a state of the art report on soil information

Session title:**3.3 Towards an EU legislative framework for soils: Arguments from science and policy**

Date: 28 October 2013

Session representative: Martina Mlinaric (European Environmental Bureau) , Antje Mensen (Deutscher Naturschutzring)

Name of rapporteur: Sarah Splettstößer

IN A NUTSHELL

The EU and its Member States need to explore how to deliver on the global level commitment of a 'land-degradation-neutral world'. To provide a more holistic approach to soil protection, the European Commission presented a proposal for a Soil Framework Directive already in 2006. Several Member States, however, remain critical of the proposed Directive and question its added-value in relation to existing acquis and its compliance with the subsidiarity principle. In the current 7th Environment Action Programme Member States and the European Parliament have agreed to reflect on how soil quality issues could be addressed, using a targeted and proportionate risk-based approach within a binding legal framework. However, delivering on that commitment will still very much depend on the engagement and the will of the Member States. In addition, the European Commission recently announced that it will examine carefully whether the objective of the proposal, to which the Commission remains committed, is best served by maintaining the proposal or by withdrawing it (Annex, COM (2013) 685 final). The session on 'EU Legislative Framework for Soils' tried to explore why an EU legal framework would be needed to ensure an adequate protection of European soils and identified crucial hindrances to EU policy going ahead in this field.

What was surprising or new?

- » Despite the fact that the European Commission recently announced that it will consider withdrawing the Soil Framework Directive, there is still a strong will on the side of the European Commission that a legal framework is needed to protect the soils in EU.
- » Most of the other panelists shared the view that some EU action is necessary.
- » The German representative highlighted that even though Germany opposed the EU legal framework since 2007, the current German coalition negotiations are an open process. Therefore, the German position could potentially change.
- » Everyone in the session, including the scientists, agreed that regulating the issue of soil at EU level will need a political will to do so. Science is important but in this case the move towards regulating soil issues at the EU level will depend only on political will.

Diverse perspectives

There was a disagreement regarding the possibility to establish soil related targets at the EU level, in particular with regard to remediation. Germany believes that establishing remediation targets at the EU level might be problematic, because some sites would either not be able to be remediated or it would be dangerous to do so (e.g. military contaminated sites). However, the Commission pointed out that it was never the intention of the proposed legislation to oblige Member States to clean up all contaminated sites. They would need to take measures if those sites pose a significant risk and it is up to Member States to define what constitutes a 'significant risk'.

Furthermore participants disagreed on the application of subsidiarity principle when it comes to ensuring adequate protection of European soils. Whereas Germany would argue that applying subsidiarity principle renders EU action in the case of soil unnecessary, others would strongly disagree, saying that subsidiarity could be taken into account within EU legislation on soil in place.

New pathways

Participants again reaffirmed that an EU legal framework for protection of soil is needed.

The suggested approach in this session was to adopt a regulatory framework in order to address the soil quality issues. Most of the participants agreed that voluntary approaches do not work. Therefore, regulation at EU level is desirable, which could provide sufficient flexibility for Member States with already established systems and support those that do not have any system for protection of soils in place yet. Moreover, the economic costs of inaction would sum up around 38billion per year.

In addition to that, soil is the second largest carbon sink, for that reason it should be mainstreamed in climate policy.

The representative of the German government stated that restarting negotiations of a legal framework on the basis of a compromise presented by the Spanish presidency in 2010 would be a viable option.

Session title: 3.4 International Soil Policy and Sustainable Development Goals

Date: 29 October 2013

Session representative: Alexander Müller (Institute for Advanced Sustainability Studies)

Name of rapporteur: Matthias Ofner

IN A NUTSHELL

This session was born from the momentum created at the Rio+20 sustainable development conference with the decision to launch a process to develop a set of sustainable development goals (SDGs) and the commitment to strive to achieve a Land Degradation Neutral World (LDNW) in the context of sustainable development as stated in the conference's outcome document ("The Future We Want", A/RES/66/288). Current initiatives to put soil and land resources on the global development agenda were presented and discussed to agree on a collaborative process to join forces.

What was surprising or new?

Since the beginning of 2013, several initiatives have addressed the issue of land and soils within the SDGs and the post-2015 Development Agenda and these were presented during the session: The Institute for Advanced Sustainability Studies together with the European Commission, the German Federal Environment Agency and further experts developed a draft proposal with targets and sub-targets to achieve a land degradation neutral world. The Global Soil Partnership set up a specific working group within the newly created Intergovernmental Technical Panel on Soils to address soils in the SDGs from a food security perspective (ITPS first meeting report), UN-Habitat is also working with other partners to advance land and tenure security in the post-2015 Development Agenda, the University of Sydney is introduced the concept of soil security to develop land degradation neutrality, and more recently the COP 11 of the United Nations Convention to Combat Desertification (UNCCD) has decided to establish an intergovernmental working group to operationalize the concept of land degradation-neutral world as agreed upon at Rio+20, and the establishment of a Science-Policy Interface mechanism to harness in the body of knowledge on SLM (ICCD/COP(11)/L.19).

Diverse perspectives

Discussions in the session highlighted the existence of several groups working on the topics of soil and land for the SDGs thanks to the momentum created by the Rio+20 agreement. It was stressed that there is "no progress without process" and the need to identify common ground and agree on targets was stated. The importance of finding inter-linkages between soil, food, water, energy, and biodiversity to make the case for soils was underlined. The importance of a people-centered

approach that takes into account the specific needs of poor people and vulnerable groups who depend on land and soil services was stressed.

Participants then debated on the need to, inter alia: undertake action on targets and indicators for soils, including by developing a single indicator; identify easily understandable and applicable indicators; use internationally agreed language, such as the agreed terminology on ecosystem services as encompassing land productivity and agricultural systems; ensure interaction and co-production of knowledge between scientists, policy makers and farmers; develop science-based definitions; and use mass and social media to bring messages across different audiences.

New pathways

In terms of concrete steps forward, participants supported a proposal to collaborate within the framework of the Global Soil Week and find a common understanding. The urgency for action was made clear as the timeline until the topics for the SDGs are decided is very short.

As a direct follow-up, participants met again on Thursday October 31st for a deepen the debate workshop and based on the proposal developed by a working group for discussion at the GSW 2013 participants discussed the opportunities to include land and soils in the SDGs and Post-2015 Development Agenda and which aspects should be prioritized. Participants agreed, in personal capacity, on the following common results of the discussion and called for their consideration in further discussions:

- » By 2030 we have the same amount of biologically and economically productive land including soil and its ecosystem services as we had in 2000 (GLASOD-Report and Millennium Ecosystem Assessment).
- » To achieve this, we have to reduce land and soil degradation and increase land restoration/ rehabilitation, both through appropriate sustainable management practices.
- » This needs to take place in the context of sustainable development and in support of the implementation of international environmental agreements, such as the Aichi targets and the Ramsar Convention (forests, protected areas, wetlands).

Session title: 3.5 Implementing Rio+20: A new instrument to address soil and land degradation under UNCCD

Date: 30 October 2013

Session representative: Patrick Wegerdt (European Commission)

Name of rapporteur: Sarah Splettstößer

IN A NUTSHELL

In the Session “Implementing Rio+20: A new instrument to address soil and land degradation under UNCCD” participants discussed aspects of how such an instrument could be implemented at the local and national levels and complemented by additional mechanisms (e.g. financial, technical). The overall objective was to provide concrete ideas and proposals with regard to (1) the added value of a new legally binding instrument to assist countries in achieving Land Degradation Neutrality and the sustainable management and use of land and soils, and (2) approaches to overcome the envisaged legal, institutional and political barriers. Moreover the session aimed to raise awareness on these topics and to involve stakeholders and civil society in the discussions on the way forward.

What was surprising or new?

- » The possibility for a voluntary instrument as an alternative to a protocol or an annex under UNCCD was raised, because with a legally binding instrument it will be much more complicated to overcome the existing barriers.
- » In order to attain a new annex under UNCCD to accomplish a land degradation neutral world, the challenge of the limited scope of the UNCCD, which only has a mandate for drylands, would have to be tackled. The fact that an annex to UNCCD would be legally binding is also a challenge.
- » Monitoring, awareness raising and target-setting (indicators and baselines) should be a part of this new annex. And there is a need for two sets of measures, one on reduction of land degradation and one on restoration.
- » The intergovernmental working group created at COP11 UNCCD constitutes a promising avenue to develop and assess options to achieve a land degradation neutral world. Given broader participation in the SDG discussion underway at the UN in New York and the timetable of the SDG discussions, due to finish at the end of 2014 before the IWG concluded its work, there is a significant opportunity for the SDG process to influence the IWG discussions.

Diverse perspectives

Critical voices and opposing views were lacking in the debate.

The issue of a new stand-alone legal instrument was raised but this is still seen as difficult to achieve, as there is generally little appetite to engage in new multilateral agreement discussions.

New pathways

Participants supported the idea of an instrument with global application, covering all lands and soils instead of simply drylands, which the UNCCD is currently limited to. The possibility of voluntary guidelines was raised as an alternative to a legal instrument under the Convention: whilst these would not have the same basis as a protocol or annex under the Convention, they would overcome some of the potentially considerable legal and procedural challenges and allow willing parties to sign up to them.

Consideration could also be given to adopting voluntary guidelines at regional level.

In the context of the SDGs the existing champion countries approach was raised as a potential new strategy to achieve a land degradation neutral world. The idea behind it is that a group of like-minded countries could drive support for an SDG on land degradation neutrality. This approach could also be used to support the development of a new legal instrument.

The role of NGOs, women associations and business sector was highlighted going beyond only national countries deciding on a new instrument. The local level needs to be involved in the process of creating a new instrument, because experiences and practices of communities are important lessons, which need to be included. Furthermore the private sector plays a vital role regarding the issue of how targets could be met.

Session title: 3.6 How can we mobilize societal change to address land degradation and reduce poverty in the developing world: The role for local policy actions?

Date: 30 October 2013

Session representative: Alisher Mirzabaev (Center for Development Research)

Name of rapporteur: Keerthi Bantru

IN A NUTSHELL

The presented cases from Argentina, Senegal, Niger, Eastern Africa Region and Kenya exposed the causes of land degradation and the opportunities for societal changes. The multitude of entry points for social transformations to address land degradation and reduce poverty were identified, such as the decentralization of natural resource management (NRM), secure tenure rights and the active role of civil society organizations.

The second part of the session went a step further by focusing on modeling the pathways for societal changes and their impacts on land degradation with case studies from India, Uzbekistan, Sub-Saharan Africa and Himalayan Region being used to illustrate this. Each section ended with a panel discussion about incorporating these research results into concrete policies.

What was surprising or new?

- » Quite often, policymakers and researchers think that poverty is the main cause of land degradation in developing countries. However, the results from Nepal and Niger illustrated that the intervention and innovations in good governance can help even very poor communities to sustainably manage their soil and land resources. For example, after recognizing the economic benefits of trees and having been empowered by decentralization, the citizens of Niger started protecting trees instead of cutting them, leading to less soil erosion and higher economic benefits from land.
- » The successful case studies from Nepal, India and Niger indicate that the willingness of the Government to act is very important in addressing land degradation.
- » The intersection of the bottom up innovations from communities and top down approaches from Government creates the opportunities for successful implementation of sustainable land management (SLM) options.
- » The case studies also demonstrated through several success stories how societal change has become possible even in very poor communities through collective action, decentralization and the empowerment of local communities.

Diverse perspectives

- » The economic analysis of SLM practices must also include non-market values such as land terrestrial eco-system services.
- » The positive spillover effects of investments in SLM by farmers are much wider at societal level (no negative off-site costs, consumer benefits, social equalizing etc.) than even for individual farmers.

Disagreements:

- » The methods to study the economics of land degradation are not uniform, creating problems for comparability.
- » For this reason, contradictory results were observed from various geographical and institutional settings on the success of the land degradation initiatives.

New pathways

- » The need to implement comparable methodologies with common definitions on Economics of Land degradation.
- » Harmonized methodology for conducting national case studies on economic assessment of the impacts, costs of action vs inaction, and causal drivers and pathways of land degradation were proposed.
- » A promising global land degradation hotspots mapping approach was suggested, accounting for the masking effect of atmospheric fertilization.

THEMATIC THREAD 4

RESPONSIBLE LAND GOVERNANCE

Increasingly scarce soil resources require responsible land governance that emphasizes the needs of those who are already vulnerable. The “Voluntary Guidelines for the Responsible Governance of Tenure of Land, Fisheries and Forests”, for example, set out principles for responsible land governance. Since the reality of land governance often differs from these principles, their implementation would often require fundamental societal change. How can these principles hence be translated into lived social practice? What are the necessary social mechanisms to facilitate this translation? Currently, there is an emphasis on the principle of transparency in responsible land governance. What contributions can efforts to increase transparency make to achieve responsible land governance? Which additional conditions need to apply for transparency to make land governance more responsible?

Session title:

4.1 Money for the Nexus: The state of global and European spending in vulnerable countries, challenges for implementation and contribution to food security

Date:

28 October 2013

Session representative:

Bettina Rudloff (German Institute for International and Security Affairs)

Name of rapporteur:

Daria Dubovitskaya

IN A NUTSHELL

It is often stated that there is an urgent need for more investment in agriculture to feed the global population, with some USD 80 billion per year required additionally in developing countries to enable us to provide for the future generations, according to FAO estimates. This session sought to investigate how much money is spent on the nexus dimensions, how different types of spending affect food security, what are the nexus-related risks and opportunities for investors, and how to better address the challenges of the nexus dimensions, as well as the role of human rights in the debate.

What was surprising or new?

The discussion examined in some depth many topics lamentably familiar to the participants, such as the extent of private foreign ownership of land in some countries with high prevalence of undernourishment (e.g. 75% of agricultural land in Liberia is in foreign hands) and its significant adverse medium-to-long-term implications for all nexus dimensions, and thus food security (e.g. through higher dependence on imports and problems with water access).

Nonetheless, it was somewhat surprising to note that private foreign investment remains minor in relative terms since by far the largest share of investment is private and domestic, i.e. undertaken by the farmers themselves through the purchase of machinery, livestock and land. The second largest financial inflow comes from national public spending on agriculture, followed by FDI (of which an estimate of 3% is spent on agriculture) and ODA.

Moreover, integrative nexus-specific investments still do not play a large role, with the focus remaining on more typical production-increasing measures or the water supply. However, a slight increase in more complex approaches, such as rural development programmes, can be observed for national policies and ODA. This trend may be strengthened in the future, especially in developed countries, as their agricultural policies strongly require legitimization of large budgets (for example, agriculture still represents the bulk of EU spending).

This could potentially influence the way the international community approaches the problem of insufficient investment in agriculture and the adverse effects of foreign land ownership – since farmers themselves are the major investors, perhaps it would be worthwhile for donors to devote more attention to facilitating local investment, for instance by focusing on the development of rural finance networks.

A further surprise was the fact that despite the open acknowledgement of issues arising from agricultural investment that causes more harm than good, the “soft law” international regulatory instruments – the UN Voluntary Guidelines on the Responsible Governance of Tenure, Principles for Responsible Agricultural Investments – still prevail. This means there is still no legally binding regulatory framework for foreign direct investment with mechanisms for monitoring and enforcement that would protect the target countries. Furthermore, the session noted the absence of political space to discuss reducing protection for investors and increasing it for affected actors in target countries. Lastly, while the UN Voluntary Guidelines were heavily featured in the debate on the regulation of agricultural investment, the guidelines set by the African Union in the *Nairobi Action Plan on Large-Scale Land-Based Investment* were not subject to discussion, despite representing action taken by the continent that arguably suffers the most from the adverse effects of Foreign Direct Investment. In general, this action plan should play a much greater role in current discussions.

Diverse perspectives

One of the focal points for disagreement was the extent to which private foreign investment is desirable, as addressed by the debate between Friederike Diaby-Pentzlin (Institute for International and European Economic Law, University for Applied Sciences Wismar) and Michael Brüntrup (German Development Institute). It was argued that, while cases of destructive consequences of FDI abound, there are examples of large-scale land acquisitions having a positive impact on food security in host countries, especially in the context where investment and funds are badly needed for agricultural infrastructure. The counterargument presented was that rather than relying on private channels to deliver meaningful change in terms of growth and food security, the industrialised nations should focus on the key aspects of sustainable development – ecosystems and rural livelihoods – and provide direct financial support for their protection.

A further point where views diverged was the question of who is responsible for establishing accountability structures for agricultural investment, as well as the extent to which the investor countries can and should influence the process. On the one side, it was argued that while investor countries could contribute to the establishment of international standards or attempt to influence the selection of investors, national sovereignty remains inviolate and the final decision (and thus the final responsibility) rests with the target countries.

However, an opposing point of view was expressed in support of the notion that investor countries have a significant role to play in the process. Specifically, it was noted that changing the mindsets in the investor countries by shifting the focus to sustainable development would be the crucial first step towards a lasting solution. Indeed, if the pro-private bias persists and progressive sustainability-focused thinking is lacking in investor countries, how could we expect the host states to lead the way, given the myriad challenges that they face?

Lastly, the issue of the effectiveness and overall impact of “soft” international standards, such as the UN Voluntary Guidelines, was subject to discussion. The process of putting into practice the guidelines for agricultural investment was compared to the adherence to human rights standards – while “soft law” instruments prevail, implementation shall remain at the discretion

of host states. Moreover, in a context of weak governance and high demand for investor funds Voluntary Guidelines could be abused, allowing more private investors to exploit the resources of the host country to the detriment of its people. At the same time, some participants argued that instruments such as these bring international recognition for the crucial issues of food security and land ownership, and provide a way of voicing the rights of local communities that are often denied this opportunity.

New pathways

Despite the lively discussion on the relative merits of the UN Voluntary Guidelines, it was concluded that, looking ahead, the Guidelines provide us with an important basis for improving the governance of investment in the nexus, setting a clear benchmark and reference framework. However, keeping in mind the shortcomings of soft law instruments, the international community has to keep the pressure on for the regulatory system to evolve to a higher level.

The session discussion also covered new approaches to financing the development of the nexus in the shape of innovative mid-sized investment modalities, as presented by Jeanot Pelzer-Melzner, of the German-African Resource and Infrastructure Cooperation. Providing the example of his own investment in Guinea, Mr Pelzer-Melzner put forward the notion that, similar to Germany, where small and medium-sized enterprises form the backbone of the economy, investment projects whereby small private investors closely partner with the local communities have the potential to bring considerable benefits to both sides.

Further conclusions in terms of potential new approaches were derived in the course of the discussion on the balance of responsibility for preventing harmful agricultural investment between investor and host countries. By changing the focus from profit maximisation to sustainable development in the investor countries, it could be argued that concrete measures such as support for climate-smart energy, soil-smart agricultural methods and “slow food”, among others, could lead to a greater global push for more responsible investment in the nexus that would bring lasting benefits to the host communities without causing irreparable damage to local economies and ecosystems.

Session title: 4.2 Integrated governance for energy security and sustainable land use

Date: 29 October 2013

Session representative: Stephanie Wunder (Ecologic Institute)

Name of the rapporteur: Keerthi Bandru

IN A NUTSHELL

The main aim of the session was to exchange knowledge between stakeholders of different disciplines and regions about promising approaches towards sustainable land use in the context of transforming energy systems. The session explored cross-discipline and cross-stakeholder partnership opportunities to operationalize integrated governance of land in the energy nexus. The presentations discussed approaches ranging from models and techniques that contribute to informed policy making (China, Kenya, Mauritius) to different modes of governance (India and Germany). The 'blind spots' and 'windows of opportunities' in the global governance perspective for land use practices were also discussed.

What was surprising or new?

- » Technologies and methods to assess impacts of land use are available but hardly integrated into policy decisions.
- » The lack of reliable and updated data on land use is hampering the stakeholders in some policy discussions.
- » The continued incoherence in the international policies especially between trade and environmental policies is creating problems for the integration of land use measurements into (economic) policies.

Diverse perspectives

- » The unsustainable practices for production of food, energy and timber, as well as mining, industrialization and urbanization are negatively affecting land use changes. Moreover, the liberalization and foreign investments in agricultural land markets are leading to monocultures for food, energy and other commercial plantations. While the energy transition is imperative for sustainability of climate protection policies, the energy security is main challenge for emerging economies and in competition with other goals of sustainable development, food security and sustainable land use. Addressing the tradeoffs and synergies between environmental, social and economic dimensions of sustainability require an "integrated perspective on governance of energy security and land use". The knowledge on comprehensive scientific assessments of impacts of various land uses on sustainable

land productivity, effectiveness of different governance models in different settings, the coherence and incoherence of various international policy frameworks are prerequisites for achieving sustainable land use and energy security goals.

- » Several techniques for assessing sustainability of land use were discussed. The innovative nuclear techniques used to assess the potential of sustainable land management in four locations in China highlighted the drivers of soil erosion. The results indicated that, soil conservation measures reduced soil losses by 77% over a 6 year period and enhanced crop (grain yield) productivity per capita (347 Kg to 570 Kg) and improved farmers' incomes (446 Yuan to 1754 Yuan/farmer). In the drought regions of Kenya, the promising options such as low cost small scale drip irrigation system in addition to the adoption measures for improved soil, water and nutrient management technologies increased food supply as well as land productivity.
- » The framework of Climate-Land use-Energy-Water (CLEW) is simultaneously analyzing (in 10 case studies) the resource systems by assessing physical flows, economics and resource allocation, institutions and governance to understand the trade-offs and synergies. For example in Mauritius the promotion of Ethanol production from sugar solved the problem of loss of potential access to European markets for sugar exports.
- » The findings from the project 'GLOBALANDS-Global Land Use and Sustainability' showed that land use is influenced by high number of (international) policies but that policies to promote sustainable land use tend to be weak and not coordinated. Most address land- use only partially (e.g. climate, development) and many do not directly address land use but have indirect though substantial (rather negative) side effects on sustainability of land use (e.g. trade, investment). Windows of opportunity to strengthen sustainable land use through international policies include the Voluntary Guidelines on the Responsible Governance of Tenure of Land (VGGT), Fisheries and Forests, EU resource efficiency policies, Green development Initiative, REDD+, forest and climate policies, a potential new legal instrument under UNCCD and the inclusion of land aspects in the Sustainable Development Goals
- » On the other hand, the free trade and investment policies are not compatible with international sustainable initiatives and hampering the process. The dietary patterns, food waste, and population growth are some of the blind spots, which are not properly addressed in the international policies. Although, these issues are difficult to address through international policies, they can become potential entry points due to high synergies with policies of health improvement, education and food security. It was also stated that affected communities are not adequately included in the decision making process. This raises the questions of how to strengthen the transparency and stakeholder involvement. Land use is a complex issue involving conflicts/competition between resources, goals and values at various scales.
- » The integrated multi level land governance policy initiatives in the Indian context highlighted the need for vertical integration at various levels (local, national, global) to develop the shared understanding of the problems and goals across different stakeholders and also to ensure their participation. For example, integrated watershed management enhanced the energy production through convergence, collective action, capacity building and by

forming consortium of technical backstopping. The national missions and policies are linked with federal states' policies by establishing new institutional arrangements or with already existing institutions for bio-fuel promotion. The State of Andhra Pradesh successfully implemented the biofuel policy through the collector model, which collectively identified and used the common 'wastelands' with the help of Civil Society Organizations (CSO) and research institutes such as ICRISAT.

- » The new forms of governance modes such as rural-urban energy partnerships were identified in German institutional settings. The energy system is not only matter of administration and does not end with the borders. The decentralized energy systems require integrated and trans-boundary approaches and system solutions, combining energy and land use policies to form a functional governance.
- » Effects of biofuel Policies on biodiversity and other important ecosystem services of land and soils are not well addressed in research groups as well as national Policies.
- » The renewable energy sources such as Solar and Wind must be prioritized in addition to the bio energy sources, particularly in developing countries and need to be made accessible and affordable to the users in the developing countries. But the discussion with the session participants raised the questions of who should invest in the technologies, so that the costs are reduced making them affordable.

New pathways

- » Integrating the goals of development and sustainability of common lands through convergence of different policy measures (eg. watershed management, biofuels, employment guarantee etc.).
- » Integrated assessments techniques such as of Climate, Land-use, Energy and Water (CLEW) model can be used as tools for decision making.
- » Move from 'Territorial governance' to 'Functional governance' will integrate the sustainable land management with value chain improvements. Strengthening the regional value chain networks through changes in Governance will result in increasing food security.
- » State must play a facilitating role in diffusing best practices, fostering networks and alliances of sharing data and knowledge across public, industry and scientific stakeholders.
- » The importance of virtual land imports in the industrialized countries is to be explored.
- » Legitimacy to VGGT and other voluntary agreements through proper implementation guides and local level awareness programs on international agreements and guidelines.
- » The policy integration may be achieved through improved knowledge and evidences in the following areas: life cycle assessment, understanding knowledge discourses, land/water rights baselines and impacts, biophysical properties of resources, resource use efficiency, learnings from best practices, measureable and visible outcomes, capacity building and institutional mapping.

Session title: 4.3 Balancing trade-offs – How to assess “virtual land imports”

Date: 29 October 2013
Session representative: Luca Marmo (European Commission DG Environment)
Name of rapporteurs: Daria Dubovitskaya, Sarah Spletstößer

IN A NUTSHELL

Only a fraction of the total land area of all continents has fertile soils and is suitable for production. Amongst land functions, the productive function remains essential as no plausible alternative exists to producing food and certain other essential products. This function is going to be in increasing demand in the light of current and future global challenges, including a growing population, the need to ensure food security, and climate change. This session gathered experts in land demands and discussed available methodologies for evaluating such land demands, e.g. land foot-printing, life-cycle assessment (LCA) and spatially-explicit trade analyses. In the session the pros and cons of such methodologies, including data availability, costs and degree of complexity have been discussed.

What was surprising or new?

As the session demonstrated, there has been no shortage of studies carried out with the aim of estimating land use and land use change and analyzing their impact, from the perspectives of consumption, production, resource efficiency, the carbon footprint methodology, the Life Cycle Assessment methodology and a spatially explicit pixel-to-consumer model, among others. It was however surprising that the challenges of integrating qualitative aspects in the overall analysis, e.g. political and social effects, still persist.

Diverse perspectives

Participants noted that the analysis of virtual land imports is hindered by the limited reliability and comprehensiveness of the data. The data requirements for so complex a task are significant and the fact that the data being used is ‘certified’ does not necessarily mean that it is accurate. Among other considerations, certain model assumptions could oversimplify the situation, for instance by failing to take into account the difference in quality of the resources in terms of environmental sustainability. Furthermore, qualitative aspects, such as the social impacts, are difficult to evaluate. In effect, participants called attention to the trade-off between data requirements and complexity and ambitiousness of analysis. Nonetheless, some participants felt the quantitative analysis carried out in a number of studies, despite its limitations, was important in providing valuable insights. Moreover, one of the main purposes of some of the studies was to communicate and provide

quantitative underpinning for the idea that land is a finite resource – an ambition of considerable significance in a context where land is sometimes taken for granted. This analytical work therefore has the potential to drive the debate further and contribute to well-informed policy-making. It was also pointed out that since virtual land imports could potentially be reduced through increasing internal efficiency, we must consider the trade-offs between food production and energy production in the importing countries. Therefore the question was raised of how to combine these conflicting aspects, in political terms, and what implications this could have for policy.

New pathways

In terms of new pathways, the session addressed a diverse range of methodologies for descriptive analysis of land use change, linking the producers in countries where the change occurs to the consumers in the importing countries. The methodologies presented were as follows:

- » Land-related resource efficiency analysis, seeking to understand the extent to which greater domestic efficiency of resource use can reduce virtual land imports;
- » Broadening the analysis to encompass the spatial distribution of impacts in the process chain;
- » A descriptive methodology differentiating between marginal and average carbon emissions to isolate the export-driven increase resulting from land use change;
- » An integrated approach, combining well-consolidated disciplines (farming production dynamics, environmental impact assessments, trade analysis and consumption footprinting) to link producers to final consumers.

Each methodology offered new techniques for estimating the extent of land use change and its impact, and together the studies presented a solid foundation for future work on those issues. One of the main conclusions arrived at in the course of the discussion was the need for closer cooperation between different research centers to avoid duplication and enable researchers to take the analysis further and model scenarios in a reliable way. As more aspects and elements become integrated into the analysis, a clearer picture of land use change around the world will potentially emerge, enabling policymakers to make better informed decisions in the interests of environmental sustainability and global food security.

Looking ahead, the session participants agreed that future analysis should consider the beneficial aspects of virtual land imports, as well as the negative ones in order to present a more rounded picture of the situation at hand and provide more insights on how the process of land importing could be improved.

Session title: 4.4 Partnerships for responsible land governance: What role for transparency?

Date: 30 October 2013

Session representative: Joan C. Kagwanja (Africa Land Policy Initiative), Alexander Müller (Institute for Advanced Sustainability Studies)

Name of rapporteur: Daria Dubovitskaya

IN A NUTSHELL

The declaration of the G8 Summit 2013 recognised the importance of responsible land governance and put the principle of transparency in this context. One of the results that emerged from the Summit was the formation of partnerships with African countries to jointly work on increasing the transparency of land-related investments. While transparency is an important part of human rights based land governance, it cannot be the sole solution. This Dialogue Session sought to discuss the contents and deepen the debates on these land transparency country partnerships. International stakeholders from government, civil society and the scientific community gathered to exchange their views and share their insights on transparency initiatives and ways of translating principles of human rights based land governance into practice.

What was surprising or new?

The discussion was held in a context of increasing attention being devoted by the international community to the issue of responsible land governance and the role of transparency in supporting it. It was therefore interesting to note that the session demonstrated the need for a reminder that transparency is not an objective in itself but rather a means to an end. By providing a basis for analysis and monitoring where there is sufficient civil society capacity for constructive advocacy, transparency breeds accountability and thus serves to promote good governance.

However, transparency in its own right does not necessarily lead to positive outcomes and could instead serve to maintain the status quo and even result in regulation that facilitates

The declaration of the G8 Summit 2013 recognised the importance of responsible land governance and put the principle of transparency in this context. One of the results that emerged from the Summit was the formation of partnerships with African countries to jointly work on increasing the transparency of land-related investments. While transparency is an important part of human rights based land governance, it cannot be the sole solution. This Dialogue Session sought to discuss the contents and deepen the debates on these land transparency country partnerships. International stakeholders from government, civil society and the scientific community gathered to exchange their views and share their insights on transparency initiatives and ways of translating principles of human rights based land governance into practice. land grabbing. Therefore, transparency has to be considered in the

context of the specific situation in the relevant countries.

Elaborating on the idea that transparency has to be seen as a complex, multi-faceted issue, the session participants highlighted the fact that the notion of transparency does not merely imply disclosure of data – the questions of how, when and what sort of data is released are vitally important for the outcomes and effectiveness of transparency-based initiatives. The local communities affected by foreign land investment must be able to access the information that they require in order to protect their rights at the right time (i.e. before the land contracts are signed). Furthermore, the approach to disclosure has to be targeted towards those who need it the most, making the access to information as easy and straightforward as possible.

Regarding the format of the debate at this session, a surprising feature noted by the participants was the absence of one major actor – the private sector. While the session brought together stakeholders from different partner country governments (representing diverse perspectives on the implementation of the G8 decision), donor agencies, civil society and NGOs, and the scientific community, making for a lively discussion, the session participants did not have the opportunity, for instance, to learn about the willingness of businesses to disclose information. Multi-stakeholder representation at all levels, including the private sector, would be crucial for achieving a lasting solution to the current problem.

Diverse perspectives

The presence of participants representing a number of sides involved in the global debate on transparency and land governance allowed the session to consider a range of views and experiences and to present different perspectives on the issue of transparency and implementation at multiple levels. While there was broad consensus on the importance of transparency in enabling local communities to defend their rights, some differences in perspectives became apparent. Given the considerable international attention in the wake of the G8 Summit earlier this year to make progress on promoting transparency of data on land investment, the interventions undertaken by the G8 side have a broad focus, seeking to incorporate aspects such as the strengthening of civil society and stakeholder representation in decision-making, clarification of the rights system for investors, building capacity for land administration, donor coordination and support to the implementation of the Voluntary Guidelines.

In the course of the discussion it became evident that the host countries have to maintain a delicate balance – on the one hand, the countries participating in the G8 transparency initiative are undoubtedly committed to promoting the welfare of their citizens, ensuring that local communities are fully informed about the transactions taking place and involved in decision-making processes, and that the benefits from foreign investment projects also accrue to all those affected. On the other hand, those countries are facing considerable pressure from potential investors with interest in land investment on the rise. In a context where the presence of additional investor funding could be decisive, for instance, for large-scale rural infrastructure projects which have the potential to be of benefit to the local communities, this rising interest is a factor to be considered. Emphasis was put on the need for equitable and honest partnerships between the

African countries and the G8 member states.

It is hence important to have a clearly defined purpose which can be achieved by transparency. The session posed the question of whether the approach to transparency in land transactions benefits the marginalised and vulnerable groups which are at the centre of the Voluntary Guidelines on the Responsible Governance of Tenure of Land.

Furthermore, civil society organisations pointed to the extra-territorial obligations of the G8 member states and urge them to accept their responsibility for making the activities of their home investors and companies transparent.

In general, the above may lead to some difficulties in establishing priorities in transparency-orientated international partnerships and close cooperation and communication would be required to resolve them. The session demonstrated the need to follow up on the discussion on transparency and land governance at national and international levels and to carefully analyse the progress made and the problems identified.

New pathways

One example of a new approach (which served as a starting point for the discussion) is the Land Transparency Initiative, formed under the UK presidency of the G8, which aims to provide support on a global scale for responsible, mutually-beneficial investment in land. Under the initiative, partnerships were formed with interested country governments committed to the implementation of the UN Voluntary Guidelines and to greater transparency, inclusiveness and accountability in land management. The Initiative aims to be able to report on the concrete results achieved by the time of Germany's G8 presidency in 2015.

Looking ahead, the session sought to identify the key factors necessary for transparency-orientated initiatives to achieve lasting positive impact in terms of responsible land management. Firstly, it is important to remember that meaningful change can only be achieved if all stakeholders, and in particular the local communities, are involved in the process and can participate in civil society consultations before contracts for land deals are signed. This means that information pertaining to land investment must be made available in a way that is accessible to all, and that transparency initiatives should be combined with capacity building for civil society organisations to ensure that the stakeholders can respond to this information and act accordingly. Secondly, transparency should be considered from the rights-based perspective. More than making information available, we have to ensure that the local communities' right to know about potential land deals, their right to negotiate, their right to review the contracts, their right to complain and their right to prevent investment are all secure and respected.

Lastly, the international community should keep in mind that land is far from being a mere commodity – it is also of immense historical, cultural and social significance to the communities that inhabit it. By promoting transparency in its own right, without considering the multifaceted nature of land, we run the risk of oversimplification. Above all, we must consider at what point and in what context the issue of transparency is to be discussed.

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