

TST Issues Brief: Desertification, Land Degradation and Drought¹

I. Stocktaking

Understanding Desertification, Land Degradation and Drought (DLDD)

Land is a vital resource for producing food and other ecosystem goods and services including conserving biodiversity, regulating hydrological regimes, cycling soil nutrients, and storing carbon, among others. Indeed, the most significant geo-resource or natural capital asset is productive land and fertile soil. For those communities that rely heavily on land as their main asset, especially the rural poor, human well-being and sustainable livelihoods are completely dependent upon and intricately linked to the health and productivity of the land.

Between 1985 and 2005, the world's croplands and pastures expanded by 154 million hectares. In the last two centuries, humans have cleared or converted 70% of the grassland, 50% of the savannah, 45% of the temperate deciduous forest, and 27% of the tropical forest biome for agriculture². Agriculture is estimated to be the proximate driver for around 80% of deforestation worldwide³. Productive land is becoming scarce. Population growth, climate change, unsustainable land use, land degradation and growing urban areas increase the pressure on productive land and water resources. At the same time, competition for productive land increases due to growing demand for food, fodder and agricultural raw materials for industrial and energy use.

Land degradation refers to any diminishment of biodiversity and ecosystem functioning that negatively impacts the provisioning of ecosystem services and ultimately impedes poverty eradication and sustainable development. Land degradation is caused by human activities and natural processes and is being exacerbated by the adverse impacts of climate change. In addition to unsustainable agricultural and livestock management practices, other sectoral activities contribute to land degradation thereby reducing socio-ecological resilience and food/water security. When degradation occurs in arid, semi-arid and dry sub-humid areas where productivity is constrained by water availability, it is called desertification.

Ecological and economic systems are also disrupted by drought. Drought, like land degradation, occurs in most parts of the world, including humid regions. From the 1970s to the early 2000s, the percentage of the Earth's land area afflicted by serious drought has more than doubled. While the world's drylands continue to be the most vulnerable and threatened by desertification, land degradation and drought (DLDD), land degradation is a global phenomenon with 78% of total degraded land located in terrestrial ecosystems other than drylands⁴.

DLDD processes have accelerated in the last century. Global assessments indicate that the percentage of total land area that is already degraded or being degraded has increased from 15% in 1991 to 24% in 2008: with more than 20% of all cultivated areas, 30% of natural forests, and 25% of grasslands

¹ The Technical Support Team (TST) is co-chaired by the Department of Economic and Social Affairs and the United Nations Development Programme. The preparation of this issues brief has been led by UNCCD. Contributors to this brief include: FAO, UNFPA, WMO, ESCAP, World Bank, UN Women, UNEP, UNDP, CBD, UNOOSA, ITU

² FAO, 2011. The state of the world's land and water resources for food and agriculture (SOLAW) - Managing systems at risk. Food and Agriculture Organization of the United Nations, Rome and Earthscan, London.

³ Kissinger, G., M. Herold, V. De Sy., 2012. Drivers of Deforestation and Forest Degradation: A Synthesis Report for REDD+ Policymakers. Lexeme Consulting, Vancouver Canada.

⁴ UN General Assembly, 2012. High-level meeting on addressing desertification, land degradation and drought in the context of sustainable development and poverty eradication. A/65/861

undergoing some degree of degradation⁵. Each year an estimated 24 billion tons of fertile soil are lost due to erosion in the world's croplands. DLDD directly affects 1.5 billion people around the world (by 2008 estimate) and has a disproportionate impact on women and children. Women bear the burden of land degradation but can also be part of the solutions. In this respect, gender sensitive investments in addressing the conditions of degraded land will not only contribute to achieving food security, poverty alleviation and sustainability but also contribute to improving the living conditions of women in ecosystems affected by DLDD.

DLDD necessitates a coordinated and coherent approach at national and international levels based on international norms.

DLDD and Linkages to Other Global Issues

Land is central to the “nexus” that links energy, food, water, and environmental health in an interdependent loop. Continued land degradation over the next 25 years could reduce global food production when population growth, rising incomes and changing consumption patterns are expected to increase food demand significantly. By 2030, the demand for food, energy, and water is expected to increase by at least 50%, 45% and 30%, respectively. These needs will not be met sustainably unless we preserve and restore the productivity of our land⁶. Business as usual will lead to more deforestation.

If hunger and food insecurity are to be overcome, an estimated 60% increase in agricultural productivity, including a 100% in developing countries, will be necessary by 2050⁷. However, the world's ecosystems, biodiversity and associated goods and services are also under increasing pressure from the loss of crop diversity, the overexploitation of fish stocks, deforestation, degradation and losses of arable land, growing competition for increasingly scarce water and the adverse impact of climate change.

Worldwide, large areas of all continents are experiencing land degradation, with particularly high incidence along the west coast of the Americas, across the Mediterranean region of Southern Europe and North Africa, in the Sahel and the Horn of Africa and throughout Asia. Although land degradation is a generalized risk, some 40% of the world's degraded lands are found in areas with the highest incidence of poverty, which remains overwhelmingly rural.

Another compelling reason to view DLDD in its global context stems from the links between land degradation and two other major issues of global environmental change: climate change and biodiversity loss. Land is intimately related to climate change adaptation and mitigation, and its sustainable management provides a tool for addressing both. Maintaining and enhancing the condition of land contributes to biodiversity conservation and its sustainable management and provides a viable alternative to deforestation and the degradation of other ecosystems. Recent analysis suggests that increased global warming could lead to extreme events occurring more frequently and with greater severity in a globally synchronized way. This could significantly reduce our resilience to drought and disruptions to food systems at a global scale.

⁵ Bai ZG, Dent DL, Olsson L, Schaepman ME., 2008. Global assessment of land degradation and improvement. 1. Identification by remote sensing. Report 2008/01, ISRIC – World Soil Information: Wageningen.

⁶ International Food Policy Research Institute, 2012. 2011 Global Food Policy Report. International Food Policy Research Institute. Washington, DC.

⁷ FAO, 2011. The state of the world's land and water resources for food and agriculture (SOLAW) - Managing systems at risk. Food and Agriculture Organization of the United Nations, Rome and Earthscan, London.

Sustainable Land Management (SLM) with its focus on soil structure and land cover improvements has the potential to make significant progress towards three critical global sustainability goals related to DLDD, namely food security, energy access, and water availability, SLM practices significantly enhance soil water retention capacity and improve water availability, as well as replenish and elevate the groundwater table. By addressing the nexus of food, energy and water in an integrated manner, rural poverty can be significantly alleviated with SLM and other ecosystem-based tools, such as drought risk management (DRM).

The Socio-Economic Impacts of DLDD

According to a recent study titled, *The Economics of Desertification, Land Degradation and Drought: Methodologies and Analysis for Decision-Making*, the global community is losing up to 5% of total agricultural gross domestic product (GDP) due to land degradation, costing some USD490 billion per year. The direct economic costs of land degradation at country level vary widely, with some countries experiencing even higher losses.

To tackle DLDD effectively, its drivers need to be addressed and instruments designed to incentivize SLM. Embedded in the understanding of the economics of DLDD is a set of methodologies for assessing the true societal impacts of land degradation, which includes issues such as migration pressures and conflicts over scarce natural resources. These form the foundation for determining how best to allocate financial, technical, and human resources to effectively tackle DLDD.

Recent Policy Developments Addressing DLDD

The issues of land degradation, desertification and drought and their adverse impact on sustainable development have long been a blind spot for the international community. The entry into force of UNCCD in 1996 constituted a policy response to this challenge. Nevertheless, at the time when MDGs were adopted in 2000, the challenge was still overlooked. In 2007, Parties to the UNCCD, in the Ten-Year Strategy, recognized that addressing DLDD would serve to improve livelihoods of affected populations, restore degraded ecosystems and generate global benefits through effective implementation of the Convention. The UN General Assembly high-level meeting in 2011 on DLDD was another landmark, which served to draw attention to the urgent need for the international community to prioritise DLDD. At the Rio+20 Conference, world leaders recognized that desertification, land degradation and drought, were challenges of a global dimension that affected the sustainable development of all countries and undertook to strive to achieve a land degradation neutral world and committed to monitor, globally, the status of land degradation and to reclaim degraded lands in arid, semi-arid and dry-sub-humid areas.

The recently held High-Level Meeting on National Drought Policy encouraged Governments around the world to develop and implement National Drought Management Policies, consistent with their national development laws, conditions, capabilities and objectives, guided, inter alia, by the following salient points: to develop proactive drought impact mitigation, preventive and planning measures, risk management, fostering of science, appropriate technology and innovation, public outreach and resource management, as key elements of effective national drought policy.

II. Overview of proposals

In the outcome document of the Rio+20 Conference (The Future We Want, paragraph 206), the Member States recognized the need for urgent action to reverse land degradation and agreed to strive to achieve a land-degradation neutral world in the context of sustainable development. If scientific predictions are correct with regard to the reduction of productive agricultural land caused by DLDD, it is likely that poverty rates would increase and food security would decline in many countries. In the worst case scenarios, famine and widespread starvation would result. Long-term inappropriate forestry practices,

especially in tropical countries, will lower the productivity of forests on which the livelihoods of its users depend, and hence further aggravate poverty.

Goals and targets in the SDG framework for addressing the adverse impacts of climate change and biodiversity loss, including on poverty, would need to address DLDD since DLDD contributes substantially to biodiversity loss, exacerbates climate change impacts, and diminishes sustainable livelihoods and socio-economic development. A DLDD focused goal can help shape expectations and create the conditions for all stakeholders to monitor progress and take appropriate actions in addressing DLDD. Translating this aspirational goal into achievable results will require a concerted global shift to the sustainable management of land and water resources. A Land Degradation Neutral World (LDNW) is simply a world where we (1) prevent or avoid the degradation of healthy and productive lands through sustainable land management (SLM) and sustainable forestry management (SFM) practices, including agroforestry, sustainable agriculture and livestock practices, water management, and soil conservation, and (2) where feasible, regenerate land that is already degraded. As we welcome another two billion people to our planet over the next 30 years, it is clear that we must restore more land than we degrade.

One possible approach, proposed by the UNCCD secretariat, would be to define an overarching LDNW SDG as “sustainable land use for all and by all” (for agriculture, forestry, energy and urbanization) and make it operational with three concrete targets: (1) Zero net land degradation by 2030, or achieving net restoration of degraded lands by 2030; (2) Zero net forest degradation by 2030; and (3) Drought policies and drought preparedness measures put in place in all drought-prone regions/countries by 2020.

SLM and SFM along with conservation and restoration will protect and enhance biodiversity and ecosystem services. This will lead to improved rain infiltration, increased water storage and availability, more biomass, and greater food security which in turn will reduce pressures on land and the need to convert forest to cropland. These restorative activities will result in economic growth for local populations, businesses and, through interlinkages, the global economy. Investments in SLM are analogous to investing in underperforming assets where there is potential for big returns in terms of economic livelihoods and environmental sustainability.

To utilize their full potential, agricultural ecosystems must be managed as part of the wider landscape while reinforcing the natural resilience of the land. Deforestation, degradation of catchments/watersheds and land degradation, especially in LDCs, LLDCs and SIDS, all reduce nature’s productivity as well as its resilience and its capacity to protect human communities.

Working towards a LDNW will require an appropriate mix of policy instruments and should be monitored and assessed on the basis of agreed upon indicators. Parties to the UNCCD have already agreed upon the use of a standardized set of performance indicators and eleven impact indicators are being considered, two of which are mandatory indicators on changes in land cover status and the proportion of the population living above the poverty line. Not only would a LDNW SDG create synergies with a number of other global commitments, it would also add value by: providing a strategic framework for sustainable land management policies; ensuring complementarity and coherence in addressing DLDD; ensuring predictability and concerted action globally; and stimulating action at all levels of governance.

III. Possible suggestions on the way forward

The potential benefits of addressing a LDNW in the SDG framework are significant in the short-term and essential for long-term food security, poverty eradication, and sustainable development.

Global Processes and Commitments

The international community and multilateral institutions now recognize the imperative to sustainably manage land, ecosystems and landscapes, and wherever possible to restore their ecological productivity. While SLM is essential to any effort to reverse the current trends in DLDD, there is increasing recognition that conservation and sustainable use are no longer sufficient to stem the loss of biodiversity and ecosystem services. The second dimension of a LDNW therefore calls for halting and reversing declines in productivity by restoring and regenerating land that is already degraded. Global assessments and commitments, such as the Bonn Challenge, estimate that there are more than 2 billion hectares of degraded lands worldwide with the potential for forest, landscape, and more often mosaic restoration, in which forests and trees are combined with other land uses, including agroforestry and smallholder agriculture.

The three Rio Conventions - UNCCD, CBD, UNFCCC - and international organizations that are working towards sustainable development are well-positioned to assist countries in their quest for enabling policies, support, and approaches that address both the causes and effects of DLDD. Healthy soils and lands are critical natural capital assets that form the basis for not only agricultural productivity but also biodiversity and a multitude of ecosystem services such as carbon sequestration and well-functioning hydrological regimes. The goal of a LDNW embodies conservation, sustainable use and restoration, providing the building blocks of sustainable development.

Recognizing the multiple benefits that would result from a LDNW – as well as the need for consistent assessments and monitoring tools to support the convergence of objectives outlined above – will encourage effective policy and investment approaches among the Rio Conventions and other relevant partners. In order to make the most of these synergies, it is essential that collaboration and coordination begin at the level of implementation. In addition, a post-2015 global development framework will be essential to catalyze policy and mobilize resources in order to improve the conditions of the underperforming assets (land) of the poor and restore their productivity in order to effectively and sustainably achieve poverty eradication as well as food-energy-water security.

Bridging the Science-Policy Gap: Knowledge Transfers and Capacity Building

Meaningful progress towards a LDNW will require a solid and up-to-date scientific and technical basis and the wide availability of knowledge and lessons learned from previous experience. Hence the imperative to establish a globally agreed and recognized, credible and transparent authority on scientific and technical knowledge on land and soil, including land degradation and desertification. Establishing a global data-base in cooperation with key global institutions such as the FAO, UNEP and the Global Environment Facility would be valuable for measuring and monitoring the extent of impacts on productivity, the environment and populations affected at local, national and regional levels, generating pilot projects in regions with DLDD ‘hotspots’, and quantifying the impacts of adopting SLM and other interventions (on soil quality, water resources, populations affected, and land cover) as well as for developing recommendations at the global and regional levels to facilitate the implementation of strategies and policies to achieve a LDNW.

Another important aspect in bridging the science-policy gap is the understanding and respect for traditional and local approaches to natural resource management. In many low and middle-income countries, traditional knowledge and practices related to sustainable agriculture, livestock, and agroforestry management can make significant contributions to rebuilding ecological infrastructure and

reversing land degradation. In a multi-level stakeholder approach to SLM, scientific information must be coupled with indigenous knowledge to offer a better basis for decision-making.

At the same time, advanced technologies, such as high resolution satellite images and meteorological satellite data, in conjunction with historical/existing ground-based data and maps, provide information necessary to examine the nature, trend and scope of DLDD processes and formulate relevant policies. It is therefore imperative to strengthen capacities of policy makers to access and use Earth observation and in-situ data and information in a timely manner to monitor the state of land degradation and desertification and to predict and assess the extent of droughts in support of decision making processes at the national, regional and international levels.

While recognizing the current limitations of global and national datasets, baseline assessments and periodic monitoring utilizing biophysical and socio-economic indicators of DLDD will nonetheless be required to demonstrate and measure progress towards a LDNW. Mapping and other tools emerging from data-based spatial analysis are developing rapidly, offering a number of techniques that allow us to measure and compare biophysical, climatic, and ecosystem status and trends and, more recently, ecosystem services in the landscape context. These tools will be essential for policy- and decision-makers in prioritizing land management and regeneration efforts. National, sub-national, and local assessments will be useful to governments, corporations, and communities when formulating policies and action plans that identify appropriate interventions for halting and reversing land degradation trends.

Partnerships and resource mobilization for a landscape-based multi-sectoral approach

Partnerships at all levels will be needed to achieve a LDNW. In this regard GEF and the development banks will have a crucial role to play. Enhanced resource allocation to the GEF land degradation focal area would be a smart investment and would yield multiple benefits. An inclusive, partnership-building approach whereby relevant stakeholders can participate and engage in long-term commitments would also be important. Local partnerships among governments, corporations, and communities have proven successful in leveraging scarce resources to address DLDD, and making the transition from degraded and unproductive lands to those that are sustainably managed.

All sectors of the economy benefit directly or indirectly from nature and their engagement is required for the transition to green economy in the context of sustainable development and poverty eradication. Above all, land regeneration should be seen as the foundation for an integrated development strategy that involves diverse stakeholders with common goals -- starting with food and water security, jobs and sustainable livelihoods, drought and disaster mitigation, and the ongoing struggle to reduce poverty and socio-economic inequality.

IV. In Summary

If we do not take bold action to protect, restore and manage land and soils sustainably, we will not achieve our commitments for climate change adaptation and mitigation, biodiversity conservation, forest and MDG targets; we will not alleviate rural poverty and hunger, ensure long-term food security or build resilience to drought and water stress.

At Rio+20, world leaders agreed to strive to achieve a land-degradation neutral world in the context of sustainable development. We must recognize that the many millions of people who manage agricultural systems, from the very poorest to the most commercialized producers, constitute the largest group of natural resource managers on earth. Their decisions, as well as those of the world's 7 billion consumers, will shape global food and nutrition security and the health of the world's ecosystems into the future.

The challenge is to support better decisions by using all the tools at our disposal for reversing land degradation trends and gearing towards a LDNW.

V. References

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