DATA AND FACTS ABOUT RECENT ASSESSMENTS OF LAND DEGRADATION

Structure of this Document

This document provides a quick overview of the most important messages about desertification and land degradation that have come out of four major reports published recently. The Global Assessment Report on Biodiversity and Ecosystem Services (2019); World Atlas on Desertification, third edition (2018); the Thematic Assessment of Land Degradation and Restoration (2018); and The Global Land Outlook, First Edition (2017). [1] This is followed by a summary of the key messages, more specifically, what is new about land degradation/desertification that is communicated by each report. The most significant data related to land degradation and desertification from each of the reports is shared in the box that follows at the end these summaries. The first part of the document contains the key messages from each report, and where appropriate, the relevance of the assessment to the work of the Convention. The second half contains key numerical data that supports the assessments and is relevant to the UNCCD's work, for easy reference.

Overall Picture

Taken together, these four publications provide the clearest picture yet of the status of land degradation globally, and specific policies on how to change course, including the difference that avoiding, reducing and reversing land degradation (also known as achieving land degradation neutrality) can make.

The reports show that a significant transformation of the land system is under way. Globally, 23% of the land is no longer productive and 75% has been transformed. Today's land degradation and transformation processes are unique in three important ways. First, land transformation is happening at a faster rate than at any other time in human history, and has accelerated over the last 50 years, with the evolutionary processes only observable over very short periods. Second, the leading drivers of land degradation and transformation are not just linked to the use of the land to meet local needs. Rather, globalization of what we produce and consume is now a major driver. Third, when the 14 leading drivers of desertification and land degradation are mapped out globally, they overlap. Climate change is a direct driver that is exacerbating the impacts of the other drivers.

These developments have consequences for critical livelihood aspects such as food security, ecosystem services, water security and climate change mitigation, among others, particularly in Africa and Asia, which future scenarios show are the regions most threatened by land degradation, as well as the tropical regions due to the loss and changes in biological diversity.

Reversing these trends will require action on three major levels that can enable governments to do the right thing in the right place at the right scale. First, in creating appropriate incentives and financial approaches that promote sustainable land management for the restoration or rehabilitation of degraded areas. Second, providing incentives to change the negative linkages of consumption and production and how land is used and managed. Third, designing policies that promote integrated land use

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[1] See the proper citation after each of the headings in the subsections.

planning and management to enable and guide countries on how to optimize their land use - what to do, where and when. The studies demonstrate the importance of scenario modelling for generating practical and feasible policy options.

SUMMARIES OF THE ASSESSMENTS

1.   The Global Land Outlook [2]

While evidence-based, this publication is not a comprehensive assessment. It is more a communications tool that digests and presents complex scientific issues and policy responses simply and clearly. It paints a broad picture of the status of land degradation globally and presents some of the pressing global issues influencing land use and management. It also highlights the responses needed to achieve land degradation neutrality (optimizing land use in order to avoid, reduce and reverse degradation) and pathways that lead to reducing and stabilizing the current pressures on the land. The scenarios for change presented are a major contribution that can guide future planning, especially as they provide valuable regional analyses and the issues that require action.

- **Key messages**

    The big picture
    o   The pressures on the land have never been greater.
    o   The recent scale of rural transformation is unprecedented in terms of both speed and scale.
    o   There is increasing competition for land to provide goods and services and for ecosystem services that support life on Earth.
    o   A significant proportion of managed land is degrading, and at further risk of biodiversity loss and climate change.
    o   Land degradation triggers competition over scarce resources, which can increase human insecurity.
    o   Land degradation contributes to climate change.

    Emerging consensus
    o   The next few decades will be the most critical in shaping and implementing a new and transformative global land agenda.
    o   Our food system has prioritized short-term production and profit over long term environmental sustainability.
    o   The growing gap between production and consumption, and resulting rise in food loss and waste are accelerating the rate of land use change, land degradation and deforestation.
    o   Small scale farmers, who are (and have been) the backbone of rural livelihoods and food production (for millennia) have fewer and fewer livelihood alternatives due largely to insecure tenure, land degradation and globalized food production.
    o   The climate change effects of rising temperatures, changing rainfall patterns and increased water scarcity will alter the suitability of food production and human habitation over vast areas of land.

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[2] 2017, United Nations Convention to Combat Desertification, *The Global Land Outlook, first edition.* Bonn, Germany.

o Land grabs (known as large scale land acquisitions) have increased dramatically since 2000, and are used to hedge against future food insecurity and price volatility.
o The success to make a new agenda work at the scale required is possible if the required rights and rewards are tied to responsibility.

Six pathways could help to stabilize and reduce the pressure on land.
o No net loss of healthy and productive land by offering incentives for the sustainable consumption and production of natural resources.
o Building resilience of communities and ecosystems through a mix of conservation, sustainable management and restoration of land resources.
o Farming for multiple benefits, which requires a fundamental shift to agricultural practices that support a wider array of benefits (social, environmental and economic).
o Applying a multifunctional landscape approach, whereby the needs of different stakeholders are prioritized and balanced at a landscape level while taking into account the specificities of the site.
o Creating an enabling environment to scale local success into large scale transformative initiatives.
o Managing the rural-urban interface by framing a new approach to spatial planning.

2.   The World Atlas on Desertification[3]

Using a convergence of evidence approach, this assessment provides the **most comprehensive mapping of human-driven land degradation related processes** at global level to date. It presents the implications for each region, demonstrates the urgency to adopt corrective measures, and proposes Land Degradation Neutrality as a framework for a wide range of solutions.

Taking a nexus approach, its results are based on a methodology that examines how 14 variables affecting land degradation overlap/converge/overlay. The variables are: aridity; water stress; decreasing land productivity; climate-vegetation trends; fires; tree loss; population density; population change; income level; built-up area change; low-input-agriculture; high-input agriculture; irrigation; livestock density. It provides decision-makers with comprehensive, easily accessible insight into the causes and potential remedies of land degradation to help make smart choices to combat desertification and restore degraded land

- **Key messages**
  o Desertification has the same underlying and familiar factors – some old some new- that are driving environmental change/land degradation at a global scale. Urbanization, climate change and dietary changes, which will exacerbate the demand for natural resources are part of these underlying trends.
  o Some recurring global issues (e.g., surface and ground water) have an alarming urgency that could not be foreseen 20 years ago. Damming of rivers and an alarming decline in groundwater need to be addressed to manage risk and plan for future water shortages.

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[3] 2018, Cherlet, M., Hutchinson, C., Reynolds, J., Hill, J., Sommer, S., von Maltitz, G (Eds), *World Atlas of Desertification,* Office of the European Union, Luxembourg.

- o It confirms previously suspected global trends, in particular, the decline in productivity, which may impact sustainability.
- o Global issues (such as tele-coupling) that were suspected previously will shape how we view future processes and solutions (such as large holders versus small holders). Tele-coupling, whereby the demand for a resource in one region drives land degradation in a different part of the world or food exports that contribute to the ground water declines in the country of their origin signal new issues that require attention.
- o Some regional patterns are confirmed, such as potential degradation in South Asia and China, and heavy fertilizer use and irrigation.
- o New regional patterns of potential land degradation in Central Asia are revealed.
- o There are new regional concerns that put into question our ability to meet the demands for future populations, for example, through maintaining and increasing yields on high density croplands or increasing crop yields on low-density and lo-input croplands.

3.   The IPBES Assessment Report on Land Degradation and Restoration: Summary for Policy Makers[4]

The overall message relating to land from this Assessment is that **Land restoration and rehabilitation can have significant co-benefits for all SDGs**. The report is unique in two ways. It is intentional in considering the relationship between land degradation and each of the 17 Sustainable Development Goals. Second, a large number of diverse authors participated in this process. Their observations and conclusions are by no means comprehensive, but they paint a picture of opportunity and hope as investments in land restoration rapidly grow across the globe.

- **Key messages**:
  - o The primary direct causes of land degradation remain the same as those identified when the Convention was agreed (land management practices + climatic variations). But it also documents how these differ. In particular, tele-coupling, which means consumption and production of land products and processes are globalized, is amplified for developed countries. For developing countries, land use changes, in response to changing market demands, are the key drivers of land degradation.
  - o There is a need for urgent action on land degradation now given future projections of population growth and climate change impacts (as the scenario work done for the UNCCD GLO demonstrated).
  - o It is essential to avoid, reduce and reverse land degradation (LDN) to overcome these challenges.

This Assessment Report has at least 5 implications for the global sustainable development agenda relevant to the UNCCD.

- The review recognizes diversity in the relationship between Sustainable Development Goals and actions to reverse land degradation. It shows that t**he extent of the restoration co-benefits and the potential risks and tradeoffs vary widely among the SDGs**. This conclusion is perhaps the

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[4] 2018, Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), *Summary for Policy Makers of the IPBES Assessment Report on Land Degradation and Restoration.*

least surprising as previous reports have not even considered some of the SDGs. One significant observation, that is, the inaccuracy of a widely held view that the relative benefit of restoration for the general goal is greater than the actual benefits for the specific targets, which are in many cases more narrowly defined than the goal.

- **There is a difference in the co-benefits of the restoration *process* and of the *restored land***, and the relative benefit of each varies among the SDGs. The co-benefits of the restoration process (e.g. on poverty through incomes) are realized immediately. The benefits of the restored land (e.g. on hunger through increased agricultural production) may require years or decades to be realized. This conclusion is an important guide for how projects aiming to address land restoration together with one or more SDGs are both planned and financed.

- Chapter 4 describes a holistic approach that is in line with the landscape approach that UNCCD promotes in its work. The approach can be used to, at once, help meet the needs of displaced populations and restore land. **A landscape approach, which includes targeting investments, is the key to increasing the total return on land restoration investments**. Targeting investments to those parts of the landscape that are both most likely to respond, and where recovery is likely to persist, is key to optimizing returns on investments.

- It is easy to identify potential synergies and co-benefits. It is much more difficult to ensure that they are realized. Still, the failure to integrate development initiatives leads to missed opportunities for realizing the co-benefits of synergy (at best) and unnecessary trade-offs (at worst). **Quantitative and qualitative modeling, including scenario development, at local to global scales can help guide future investments**.

- Chapter 3.17, which offers reflections on SDG 17 (Partnerships for the Goals) presents practical "lessons learned" over a lifetime of work in conservation and development. They are a powerful reminder that there is a lot to learn yet, but there is a solid foundation of lessons learned on which we can build together.

4.   IPBES Global Assessment Report on Biodiversity and Ecosystem Services[5]

The primary focus of this assessment is the status of biological diversity and the health of ecosystems services, but it also shines a light on the role of land use change, mostly for agriculture, as a direct driver of biodiversity and ecosystem loss. It warns that 1 million species are threatened by extinction largely because 75% of the land surface has been altered. The assessment lays out the importance of land management and restoration in reversing trends. However, it cautions that some actions, such as reforesting natural forests with monocultures, producing different results for biological diversity and for people. Below are the key messages regarding land use and management gleaned from the report.

- **Key messages**
  o Land (and sea) use change are the main drivers of ecosystem change.
  o These (negative) transformational changes are creating the conditions for a biological evolution so rapid, it is visible just over a few years.

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o The conversion of land for agriculture is the leading driver of land-use change, with meeting the demand for food, feed, fibre and bioenergy production in the lead. Forests, wetlands and grasslands are paying the price. The consequence is that local varieties and breeds of domesticated plants and animals are disappearing at accelerating rates. Many of the wild relatives of crops that are important for food security lack effective protection, and the conservation status of domesticated animals and birds is getting worse.

o Holistic approaches to reverse this trend are now essential. Siloed solutions – employing biophysical measures or economic incentives or governance measures individually to induce change fail because other factors, such as expanding economic activity, trump conservation or restoration. Adding ecosystem value to economic incentives would help conservation/restoration goals.

o Tropical regions face severe challenges in future due to the interactive effects of climate change, land-use change and fisheries exploitation.

o Land-based climate change mitigation activities can support conservation goals effectively, but the measures taken to do so matter (the right measure in the right place at the right scale). Supporting integrated land use planning so that interventions can be spatially optimized and environmental, social and economic tradeoffs and be navigated is critical (this is the core of LDN). Bioenergy plantations and afforestation of non-forest ecosystems can have side effects on biological diversity and ecosystem function, and yet with proper governance, balancing environmental, food and energy needs can help bioenergy be part of the solution.

o Nature-Based Solutions can be cost-effective in meeting SDGs, particularly if all aspects of land are taken into consideration. (Note NBS in this context has been linked strongly to the urban context and actions).

o Sustainable intensification, if governed properly, may be one solution.

KEY DATA

Global Land Outlook, *First Edition* **(2017)**
1. Over 1.3 billion people trapped on degrading agricultural land. Farmers on marginal land, especially in the drylands, have limited options for alternative livelihoods; millions of people have abandoned ancestral lands for urban areas.
2. 70 per cent of agricultural land is used to grow feed crops and grazing (livestock production); nearly 30% of total food value of global crop production lost by "processing" it through inefficient livestock systems.
3. Livestock production a major cause of climate change; produces about 14.5% (7.1 Gt CO2-eq per annum) of anthropogenic greenhouse gas emissions.

World Atlas on Desertification (2018) (This data was previewed in the Global Land Outlook)
1. Between 1998-2013, 20-30 per cent of Earth's vegetated land surface showed persistent declining trends in productivity: 20% of cropland, 16% forest land, 19% grassland, and 27% rangeland.
2. Over 1.7 billion people live in river basins with water use higher than natural rate of replenishment; if BAU follows, 2/3 of the world's population will live in water-stressed countries by 2025.
3. In 2000, a projected 2% (30 million ha) of croplands globally were in areas that would be urbanized by 2030.
4. Africa and Asia projected to lose 80% of the global cropland due to urban area expansion. Expansion often happens on prime agricultural lands that often are twice as productive as national averages.
5. Drought frequency, intensity, length, and extent are all increasing. 296 large-scale drought events (i.e., greater than 500,000 km2 and longer than 3 months) reported across the world between 1950-2000.
6. In 2015, over 50 million people affected by droughts globally.
7. Between 1900 and 2013, economic cost of drought disasters recorded was US$135 billion. Poorly drought managed = humanitarian catastrophe = threat to security at all levels.

IPBES Thematic Assessment Report on Land Degradation and Restoration (2018)
1. Well-being of over 3.2 billion people undermined by land degradation.
2. Under 25% of Earth's land surface free from substantial human impacts; by 2050 it will drop to under 10% –mostly in deserts, mountainous areas, tundra and polar areas unsuitable for human use or settlement.
3. 87% of wetlands lost globally in the last 300 years; 54% since 1900.
4. Biodiversity loss to reach 38–46% by 2050. Leading causes of biodiversity loss are habitat transformation (i.e., conversions, e.g., of forest to farmland) and habitat degradation.
5. Population in drylands will have increased from 2.7 billion in 2010 to 4 billion by 2050.
6. Every 5% loss of GDP, itself partly caused by degradation, associated with 12% increase in likelihood of violent conflict.
7. Land degradation and climate change are likely to force 50 to 700 million people to migrate by 2050.

8. By 2050, crop yields to fall by an average 10% globally, and up to 50% in certain regions due to land degradation and climate change.
9. Economic cost of biodiversity and ecosystem services loss from land degradation is over 10% of annual global gross product.
10. Between 2000 and 2009, annual emissions from land degradation were 3.6–4.4 billion tonnes of CO2-e. by 2050, losses of 36 Gt of carbon from soils projected – mostly in Sub-Saharan Africa.

Global Assessment Report on Biodiversity and Ecosystem Services (2019)
1. 1 million species or about 25% of assessed plant and animal species, already face extinction.
2. 75% of the land surface is significantly altered (described as "negative land transformation" as opposed "land degradation", which is attributed to steady in-place degradation e.g. overgrazing).
3. Over 1/3 of the terrestrial land surface being used for cropping or animal husbandry (agriculture).
4. The urban area has doubled in size in less than 40 years (since 1992).
5. Land degradation has reduced productivity in 23% of global terrestrial area .
6. 66% of the ocean area is experiencing increasing cumulative impacts.
7. 85% of wetland areas have been lost.
8. Marine and terrestrial ecosystems are carbon sinks, holding an amount equivalent to 60% of global anthropogenic emissions.
9. Majority of terrestrial species will shrink even with a warming of 1.5-2 degrees.
10. The abundance of native species in most of the major terrestrial biomes have declined by 20%.
11. 35% of all terrestrial ecosystems that are least impacted are under the management and care of indigenous peoples and local communities.