Chronic land degradation: UN offers stark warnings and practical remedies in Global Land Outlook 2 report

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Tree nurseries, Great Green Wall restoration, MauritaniaAdditional photos: https://bit.ly/3rRSpY2. Credit: National Great Green Wall Agency, Mauritania

The way land resources—soil, water and biodiversity—are currently mismanaged and misused threatens the health and continued survival of many species on Earth, including our own, warns a stark new report

from the United Nations Convention to Combat Desertification (UNCCD).

It also points decision makers to hundreds of practical ways to effect local, national and regional land and ecosystem restoration.

UNCCD's evidence-based flagship Global Land Outlook 2 (GLO2) report, five years in development with 21 partner organizations, and with over 1,000 references, is the most comprehensive consolidation of information on the topic ever assembled.

It offers an overview of unprecedented breadth and projects the planetary consequences of three scenarios through 2050: business as usual, restoration of 50 million square km of land, and restoration measures augmented by the conservation of natural areas important for specific ecosystem functions.

It also assesses the potential contributions of land restoration investments to climate change mitigation, biodiversity conservation, poverty reduction, human health and other key sustainable development goals.

Warns the report: "At no other point in modern history has humanity faced such an array of familiar and unfamiliar risks and hazards, interacting in a hyper-connected and rapidly changing world. We cannot afford to underestimate the scale and impact of these existential threats."

"Conserving, restoring, and using our land resources sustainably is a global imperative, one that requires action on a crisis footing…Business as usual is not a viable pathway for our continued survival and prosperity."

GLO2 offers hundreds of examples from around the world that demonstrate the potential of land restoration. It is being released before

the UNCCD's 15th session of the Conference of Parties to be held in Abidjan, Côte d'Ivoire (COP15, 9-20 May).

Says Ibrahim Thiaw, Executive Secretary of the UNCCD: "Modern agriculture has altered the face of the planet more than any other human activity. We need to urgently rethink our global food systems, which are responsible for 80% of deforestation, 70% of freshwater use, and the single greatest cause of terrestrial biodiversity loss."

"Investing in large-scale land restoration is a powerful, cost-effective tool to combat desertification, soil erosion, and loss of agricultural production. As a finite resource and our most valuable natural asset, we cannot afford to continue taking land for granted."

Future scenarios

The report predicts the outcomes by 2050 and risks involved under three scenarios:

• **Baseline:** Business as usual, continuing current trends in land and natural resource degradation, while demands for food, feed, fiber, and bioenergy continue to rise. Land management practices and climate change continue to cause widespread soil erosion, declining fertility and growth in yields, and the further loss of natural areas due to expanding agriculture.

By 2050:

- 16 million square kilometers show continued land degradation (almost the size of South America)
- A persistent, long-term decline in vegetative productivity is observed for 12-14% of agricultural, pasture and grazing land, and natural areas—with sub-Saharan Africa worst affected.

- An additional 69 gigatonnes of carbon is emitted from 2015 to 2050 due to land use change and soil degradation This represents 17% of current annual greenhouse gas emissions: soil organic carbon (32 gigatonnes), vegetation (27 gigatonnes), peatland degradation/conversion (10 gigatonnes).

• **Restoration**: Assumes the restoration of around 5 billion hectares (50 million square kilometers or 35% of the global land area) using measures such as agroforestry, grazing management, and assisted natural regeneration. (Current international pledges: 10 million square kilometers).

By 2050:

- Crop yields increase by 5-10% in most developing countries compared to the baseline. Improved soil health leads to higher crop yields, with the largest gains in the Middle East and North Africa, Latin America, and subSaharan Africa, limiting food price increases.
- Soil water holding capacity would increase by 4% in rainfed croplands.
- Carbon stocks rise by a net 17 gigatonnes between 2015 and 2050 due to gains in soil carbon and reduced emissions.
- Biodiversity continues to decline, but not as quickly, with 11% of biodiversity loss averted.

• **Restoration and Protection**: This scenario includes the restoration measures, augmented with protection measures of areas important for biodiversity, water regulation, conservation of soil and carbon stocks, and provision of critical ecosystem functions.

By 2050:

- An additional 4 million square kilometers of natural areas (the size of India and Pakistan); largest gains expected in South and Southeast Asia and Latin America. Protections would prevent land degradation by logging, burning, draining, or conversion.
- About a third of the biodiversity loss projected in the baseline would be prevented
- An additional 83 gigatonnes of carbon are stored compared to the baseline. Avoided emission and increased carbon storage would be equivalent to more than seven years of total current global emissions.

Other key points in the report include:

- $US 44 trillion—roughly half the world's annual economic output—is being put at risk by the loss of finite natural capital and nature's services, which underpin human and environmental health by regulating climate, water, disease, pests, waste and air pollution, while providing numerous other benefits such as recreation and cultural benefits.
- The economic returns of restoring land and reducing degradation, greenhouse gas emissions and biodiversity loss could be as high as $US 125-140 trillion every year—up to 50% more than the $93 trillion global GDP in 2021
- Repurposing in the next decade just $US 1.6 trillion of the annual $700 billion in perverse subsidies given to the fossil fuel and agricultural industries would enable governments to meet current pledges to restore by 2030 some 1 billion degraded hectares—an area the size of the USA or China—including 250 million hectares of farmland
- Restoring land, soils, forests and other ecosystems would contribute more than one-third of the cost-effective climate change mitigation needed to limit global warming to 1.5°C while supporting biodiversity conservation, poverty reduction, human

health and other key sustainable development goals

- Many traditional and modern regenerative food production practices can enable agriculture to pivot from being the primary cause of degradation to the principal catalyst for land and soil restoration
- Poor rural communities, smallholder farmers, women, youth, Indigenous Peoples, and other at-risk groups are disproportionately affected by desertification, land degradation, and drought. At the same time, traditional and local knowledge of Indigenous Peoples and local communities, proven land stewards, represent a vast store of human and social capital that must be respected and can be used to protect and restore natural capital
- Immediate financial support is needed to fund conservation and restoration in those developing countries with a greater share of the global distribution of intact, biodiverse, and carbon-rich ecosystems
- Restoration projects and programs tend to have long-term multiplier effects that strengthen rural economies and contribute to wider regional development. They generate jobs that cannot be outsourced, and investments stimulate demand that benefits local economies and communities
- Bringing together national action plans currently siloed under the UNCCD, Convention on Biological Diversity, and UN Framework Convention on Climate Change represents an immediate opportunity to align targets and commitments to implement land restoration, realize multiple benefits, and maximize returns on investment
- Land and resource rights, secured through enforceable laws and trusted institutions, can transform underperforming land assets into sustainable development opportunities, helping maintain equitable and cohesive societies
- Inclusive and responsible land governance, including tenure

security, is an effective way to balance trade-offs and harness synergies that optimize restoration outcomes
- Grasslands and savannas are productive, biodiverse ecosystems that match forests both in their global extent and their need for protection and restoration. Equally important are wetlands, which are in long-term decline averaging losses at three times the rate of global forest loss in recent decades. Sustaining their capacity to absorb and store carbon is key to a climate-resilient future
- Intensive monocultures and the destruction of forests and other ecosystems for food and commodity production generate the bulk of carbon emissions associated with land use change
- If current land degradation trends continue, food supply disruptions, forced migration, rapid biodiversity loss and species extinctions will increase, accompanied by a higher risk of zoonotic diseases like COVID-19, declining human health, and land resource conflicts

GLO2 offers hundreds of good practice snapshots from around the world that illustrate context-specific measures to combat environmental degradation, restore land health, and improve living conditions.

Many regenerative agriculture practices have the potential to increase crop yields and improve their nutritional quality while reducing greenhouse gas emissions and drawing down carbon from the atmosphere, it says.

Examples include rewilding—reducing the human footprint to allow natural ecological processes to re-establish themselves—in the Greater Côa Valley in northern Portugal and the Iberá wetlands in Argentina; drought preparedness and risk reduction through national programs in Mexico, the USA, and Brazil; sand and dust storm source mitigation in Iraq, China, and Kuwait; and gender-responsive land restoration in Mali, Nicauragua, and Jordan. There are also cases of integrated flood and

drought strategies as well as forest landscape restoration using high-value crops.

Good practices can involve terrace and contour farming, conserving and restoring watersheds, and rainwater harvesting and storage. In addition to their economic benefits, these measures improve water retention and availability, prevent soil erosion and landslides, reduce flood risk, sequester carbon, and protect biodiversity habitat.

Africa's Great Green Wall, meanwhile, which aims to restore the continent's degraded landscapes, exemplifies "a regional restoration initiative that embraces an integrated approach with the promise of transforming the lives of millions of people," says the report.

"The case studies from around the world showcased in GLO2 make clear that land restoration can be implemented in almost all settings and at many spatial scales, suggesting that every country can design and implement a tailored land restoration agenda to meet their development needs," says Mr. Thiaw.

Many of the cases, he adds, underscore the value of education, training, and capacity building, not just for local communities, but also for government officials, land managers, and development planners. Linking local engagement to national policies and budgets will help ensure a responsive and well-aligned restoration agenda that delivers tangible outcomes for people, nature, and the climate.

Preventing, halting, and reversing the degradation of ecosystems worldwide is the focus of the UN Decade on Ecosystem Restoration (2021-2030), which calls for a broad and balanced response, addressing all ecosystems and their connectivity to reestablish a healthy landscape mosaic. These efforts are closely aligned with SDG target 15.3, which calls on countries to strive to achieve Land Degradation Neutrality

(LDN) by 2030.

"Hope remains as the decade of restoration has begun," says Mr. Thiaw. "Now is the time to harness political will, innovation, and collective action to restore our land and soil for short-term recovery and long-term regeneration to ensure a more stable and resilient future."

More information: Global Land Outlook 2: www.unccd.int/resources/global … -outlook-2nd-edition

Provided by United Nations Convention to Combat Desertification (UNCCD)