It's time to fast-track action to save our land

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Healthy land is fundamental to feeding the world, tackling climate change, purifying and conserving water, improving air quality, ensuring human well-being and protecting nature. Avoiding, reducing and reversing land degradation is **essential for meeting the Sustainable Development Goals**.

Land and climate are interdependent. Climate change exacerbates land degradation, and diminishes carbon uptake by the land, while land degradation reduces the resilience of human and natural systems to cope with climate change. Drylands already suffer from climate variability, and climate change is expected to increase the frequency and severity of drought. [1]

Agriculture is both a cause and a casualty of land degradation. Unsustainable agriculture, resulting from economic pressures, misaligned policies, and limited access to production assets, knowledge and appropriate technologies, is the leading driver of land degradation. The combined effects of land degradation and climate change lead to food insecurity and poverty, and could force 50-700 million people to migrate by 2050.[2] **Holistic and inclusive approaches are required to overcome the complex pressures driving unsustainable land management**.

Sustainable consumption, and reduction of food loss and waste, will lower GHG emissions and reduce the pressure on land. Currently, 25-30% of food produced is lost or wasted. Measures to foster sustainable consumption, and reduce food loss and food waste, can support sustainable food systems and will reduce pressure on land resources, enabling the implementation of less-degrading land management practices and making land available for conservation and climate change mitigation measures. [1]

Land degradation neutrality (LDN) provides a framework to encourage sustainable land management and land restoration based on ecological principles and understanding of human-environment interactions. LDN can contribute to climate change mitigation and adaptation through carbon sequestration in vegetation and soil, as well as supporting food security, sustainable livelihoods and biodiversity conservation. [1, 2]

Land is key to meeting the Paris Agreement. The theoretical potential for climate change mitigation through increasing carbon in vegetation and soil is vast: 14-37 $GtCO_2e$ (up to 10 GtC)] per year [1, 3]. This includes 1.9-5.2 $GtCO_2e$ (0.5-1.4 GtC) from soil carbon sequestration through land restoration in the drylands [4]. For comparison, the gap between projected global emissions without climate policy and the +2°C target for 2030 is 25 $GtCO_2e$ [5]. However, land can realistically contribute only a portion of the mitigation and carbon dioxide removal required to stabilise the climate – strong action is also required to achieve rapid decarbonisation across all sectors [1].

Sustainable land management (SLM) reduces land degradation, and contributes to climate change mitigation and adaptation. A portfolio of scientifically-proven land-based response options must urgently be deployed. SLM actions that remove carbon dioxide from the atmosphere include

planting trees, building soil carbon in cropland and pastures, applying biochar and restoring degraded land. If we fail to manage land degradation the carbon sink capacity of the land will be reduced. [1] . Enhancing soil carbon by 1 tC per hectare can increase food-grain production in Africa, Latin America and Asia by over 30 million tons per year [6]. Drought-smart land management is needed to build resilience of agricultural systems. [7]

The cost of land degradation is far greater than the cost of reversing land degradation. Annual economic losses due to deforestation and land degradation, that represent a fraction of the overall ecological cost, were estimated at EUR 1.5–3.4 trillion in 2008, equaling 3.3–7.5 per cent of the global GDP in 2008. In contrast, the benefits from transformational policies that enable sustainable land management are estimated at USD 75.6 trillion.[8]

Integrated land use planning for landscape-based land management can ensure that interventions are applied in the right places, in the right way, at the right scale. There are no one-size-fits all solutions: SLM practices must be tailored for the local environmental and socio-economic context. Sub-national, national and regional capacity-building are needed, including capacity to assess land condition, land potential and soil carbon. Regular monitoring and adaptive management are needed to ensure that short-, medium-, and long-term national development aspirations are achieved. [9]

Improved understanding of the relationship between land management, drought mitigation and risk management is urgently needed in order to improve the targeting and monitoring of interventions and policies. [7]

Effective and inclusive land governance is needed. Secure land tenure and equitable access to land are fundamental enablers for LDN. Effective governance of land requires coordination and compromise among multiple sectors (e.g. finance, agriculture, environment, education, welfare, health), levels (local, national, regional, global) and actors (e.g. international bodies, governments, local communities, civil society organisations, private sector). It requires effective engagement of local communities and other stakeholders -particularly indigenous groups, women and youth- in planning, implementation and monitoring of measures to sustain the health of the land. [10]

[1] IPCC, 2019. Special Report on Climate Change and Land. Summary for Policy Makers. Intergovernmental Panel on Climate Change, Geneva.
[2] IPBES, 2018. The IPBES assessment report on land degradation and restoration. Secretariat of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, Bonn, Germany.
[3] Lal, R. et al., 2018. The carbon sequestration potential of terrestrial ecosystems. *Journal of Soil and Water Conservation* 73(6): 145A-156A.
[4] Lal, R., 2019. Carbon Cycling in Global Drylands. *Current Climate Change Reports*, 5:221-232.
[5] UNEP, 2018. Emissions Gap Report 2018. United Nations Environment Programme, Nairobi. Note: Under a no-policy baseline scenario, global GHG emissions in 2030 are estimated at 65 $GtCO_2e$ (60–70 $GtCO_2e$). Global emissions in 2030 must be 40 $GtCO_2e$ (38-45 $GtCO_2e$) for 66% chance of limiting global warming to 2°C.
[6] Lal, R., 2006. Enhancing crop yields in the developing countries through restoration of the soil organic carbon pool in agricultural lands. *Land Degradation & Development*, *17*(2), pp.197-209.
[7] SPI, 2019. The Land-Drought Nexus Enhancing the Role of Land-Based Interventions in Drought Mitigation and Risk Management Science Policy Interface of the UNCCD.
[8] ELD Initiative. 2015. Economics of land degradation Report for policy makers Key facts and figures. GIZ.
[9] SPI, 2019. Realising the Carbon Benefits of Sustainable Land Management Practices Guidelines for estimation of soil organic carbon in the context of land degradation neutrality planning and monitoring. Science Policy Interface of the UNCCD.
[10] SPI, 2019. Creating an Enabling Environment for Land Degradation Neutrality and Its Potential Contribution to Enhancing Well-Being, Livelihoods and the Environment. Science Policy Interface of the UNCCD.