

Land degradation: a solution is possible



Land degradation is harming the wellbeing of 3.2 billion people and the impact of its effects will only grow with time. So reports the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), an independent intergovernmental body set up by UN member states, in a new summary for policy makers. Land degradation is the human-induced loss of biodiversity, productivity, and ecosystem functions from terrestrial and aquatic environments. It results from practices that bring short-term benefits to those doing them, but have substantial long-term costs, such as overgrazing of land, draining of wetlands for agricultural uses, and disruptive mining practices. In fact, the IPBES identifies unsustainable expansion of croplands and grazing lands into native ecosystems as the largest contributors, with more than a third of the terrestrial surface of the earth now devoted to these uses. Inappropriate management of such lands can lead to soil erosion and fertility loss, excessive water extraction, salination, and eutrophication of waterways. Such effects of human activity are not new. Multiple civilizational collapses have been linked with land degradation—among other factors—including those of Easter Island, the Greenland Norse, and the Mycenaean Greeks of Homer's time. As populations grow with improved food production, numbers increase to the point where the land can no longer support them. The drive for productivity in the short term can also be the same as the drive towards land degradation in the long term.

What are the challenges of land degradation, and how can we solve it? Land degradation is closely linked to climate change. Practices such as forest clearance and drying and burning of peatlands directly produce greenhouse gas emissions; land degradation is estimated to have been responsible for annual global emissions of 3.6–4.4 billion tonnes of CO₂ in 2000–09. In turn, the effects of land degradation are exacerbated by climate change, as ecosystems alter in response to temperature changes and established management and restoration practices might no longer be viable. The combination of land degradation and climate change is predicted to reduce crop yields by 10% globally, and up to 50% in some areas. Such losses could lead to rises in migration, increasing the risk of conflict and political instability. Furthermore, these negative impacts will fall disproportionately on lower-income groups, who are often more dependent

on the agricultural sector and ecosystem-derived fuels, further intensifying income inequality. Compounding these problems are the realities of globalisation. The world is going through an unprecedented expansion of both population and consumption, and awareness of the problems of land degradation is hampered by the geographic separation between supply and demand. High-consumption lifestyles generate an immense demand that, in the short term, is most easily met with unsustainable approaches. Many developed countries have, to some extent, already been through this unsustainable phase and are now exporting their degradation—in the form of market demand—to those that are still developing. Due to these geographic distances, as well as the time lags of months or years before degradation becomes apparent, those who most benefit from the overexploitation of natural resources are often among the least affected.

Land degradation is not an insurmountable problem. While no single approach can address every situation, many low-impact farming, pastoral forest management, and urban planning solutions do exist. Restoration approaches have the added benefit of being among the most cost-effective greenhouse gas mitigation activities and will have a major role in upholding the Paris Climate Agreement. Solutions are based on a mix of scientific, local, and Indigenous knowledge, which is a useful resource for understanding how land threatened under modern management approaches can be handled more sustainably or even restored. However, this knowledge is itself threatened by land degradation, which has been linked with loss of cultural identity as peoples have to flee their traditional lands and find new ways to live.

Preventing land degradation will always be preferable to restoring land that has been degraded, both socially and economically. The costs of inaction are at least three times those of taking action, and the benefits of restoring degraded land are on average ten times higher than the costs. Substantial action is needed in the next decade to achieve the Sustainable Development Goals by 2030. Failure to act could lead not just to an ecological crisis, but a civilizational one too. We have the means to prevent this—what is needed now is concerted, high-level, coordinated action to do so. ■ *The Lancet Planetary Health*

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