



THE ECONOMICS OF
LAND DEGRADATION

Report for policy makers

Key facts and figures



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Report for policy makers

Reaping economic and environmental benefits from sustainable land management

Land degradation

- Land degradation negatively affects water availability, poverty, food security, environmental migration, gender rights, deforestation, biodiversity, and climate change.
- About 44 per cent of all cultivated systems worldwide are located within drylands.^a
- **10 to 20 per cent of land globally is already degraded** about 6 to 12 million square kilometers.^a
- **52 per cent of agricultural land worldwide is moderately or severely affected by soil degradation.**^b
- 65 per cent of dryland areas are rangelands, which are better suited to sustainable grazing than crop production. However, as early as **between 1900 and 1950, approximately 15 per cent of dryland rangelands were converted to cultivated systems.**^a

Food Insecurity

- 44 per cent of global food production takes place in the world's degrading drylands.
- **12 million hectares of soil are lost each year** from desertification and drought alone, whereas 20 million tons of grain could have grown instead.^c
- Over the next 25 years, land degradation could reduce global food productivity by as much as 12 per cent, leading to a **30 per cent increase in world food prices.**^c
- Agricultural **investments of at least USD 30 billion per year are needed now** to feed a globally growing population. Without sustainable land management, that figure is expected to increase.^b
- Predicted climate change impacts on agriculture suggests that public investments of about USD 8 billion will be needed annually between 2010 and 2050 to restore development gains in just nutritional levels (especially for children) to compensate.^b
- Food insecurity will be exacerbated by a **population increase** to ~9.7 billion people in 2050. To feed this global population requires **raising global food production by some 70 per cent between 2005 and 2050**, much of which is expected to come from the intensified cultivation of already used lands, and the conversion of forests, wetlands, grasslands, and other ecosystems into arable land – affecting biodiversity and multiple ecosystem services.^d

Urbanization

- Although urban systems occupy a relatively small fraction (about 2 per cent) of dryland areas, they contain a large and rapidly increasing fraction (nearly 45 per cent) of the dryland population.^a
- **Drought and land degradation lead to migration** from rural lands to urban areas, increasing the pressure on off-site productive land resources and water.^c

Conflict

- Rural migration due to degradation can exacerbate urban sprawl, and can bring about internal and cross-boundary social, ethnic, and political conflicts.^a
- **Land issues have played a major role in at least 27 major conflicts** in Africa since 1990.^d

Climate change

- **Soil is the second largest carbon storage next to the oceans**, and soil carbon accounts for one third of global carbon stock. The ongoing degradation of land reduces soil's capacity as carbon stock.^c
- Globally, croplands bear a carbon sequestration potential of 0.43 to 0.57 gigatons every year.^b
- **Agriculture, forestry and other land uses are estimated to be responsible for about one quarter (24 per cent) of anthropogenic GHG emissions.**^f There is significant potential to reduce these emissions, largely through reduced CO₂ emissions from agriculture, avoiding deforestation and forest degradation, creating net carbon sequestration in soils, and the provision of renewable energy through sustainable land management.^b



24%

of anthropogenic GHG emissions are due to agriculture, forestry and other land uses

Lost production

- The **annual economic losses due to deforestation and land degradation were estimated at EUR 1.5–3.4 trillion** in 2008, equaling 3.3–7.5 per cent of the global GDP in 2008. This includes a startling loss of grain worth USD 1.2 billion annually.^b
- On a global scale, an estimated annual loss of 75 billion tons of soil from arable land as consequence of degradation is assumed to cost the world - about USD 400 billion per year, with the USA alone expected to lose USD 44 billion annually from soil erosion.⁹
- Reaching 95 per cent of potential maximum crop yields (by adopting SLM practices) could deliver up to 2.3 billion tons of additional crop production per year, equivalent to USD 1.4 trillion.^b

Other ecosystem service losses

- Land degradation is a top driver of deforestation: 13 million hectares of the world's forests continue to be lost each year.^c
- Changes to land cover in the past twenty years have reduced the value of the annual flow of ecosystem services by USD 4–20 trillion per year.⁹
- Global ecosystem services losses because of land degradation are estimated between USD 6.3 and 10.6 trillion per year. This estimated loss of ecosystem services is equal 10 to 17 per cent of global GDP (USD 63 trillion in 2010).⁹

Number of People Affected

- In 2000, drylands were home to about 2 billion people on 41 per cent of earth's terrestrial surface, 90 per cent of which living in developing countries.^a
- 700 million people could be displaced by 2030 from water scarcity, with as many as **50 million displaced in the next 10 years from desertification** alone.^c
- People living in degraded drylands suffer from low levels of human wellbeing and high poverty rates, being further exacerbated by high population growth rates. For example, the population in drylands grew at an average rate of 18.5 per cent during the 1990s – the highest growth rate of any ecosystem considered under the Millennium Ecosystem Assessment.^a

Benefits of sustainable land management

- Annually, **USD 75.6 trillion can be gained from transforming global policies** by adopting environments that enable sustainable land management.⁹
- **Economic rates of return from 12 to 40 per cent** have been found for a number of projects including soil and water conservation (Niger), farmer-managed irrigation (Mali), forest management (Tanzania), farmer-to-farmer extension (Ethiopia) and valley-bottom irrigation (northern Nigeria and Niger). Returns of over 40 per cent are on record for small-scale, valley bottom irrigation.^b
- A study on the economic importance of drylands in the IGAD region estimated the **ecosystem goods and services derived annually from pastoralism between USD 1,500–4,500 per hectare**.^h
- A large-scale adoption of the traditional Hima pasture management system in Jordan can deliver net benefits to Jordanian society of USD 195–393 million. Including the benefits of enhanced carbon sequestration, this could amount to USD 192–438 million of net benefits for the global society - from one region in one country alone.ⁱ
- An applied integrated sustainable land use and reforestation scenario for Sudan, developed by IUCN for the ELD Initiative, shows potential for an additional 10 tons of below and above ground CO₂ equivalent sequestration per hectare annually. The IUCN analysis suggests the avoided damage cost to the global society is in the order of USD 867 per hectare.^j
- In Mali, the restoration of degraded Kelka forest land by adopting agroforestry practices has been estimated to provide for an **economic return of USD 500 per hectare** over a 25 year time horizon, indicating a **benefit to cost ratio of 5.2 :1** at a 10 per cent discount rate.^k
- Regionally, erosion-induced soil nutrient depletion across 42 African countries is estimated to cost 280 million tons of cereals per year under 'business as usual', equaling USD 127 billion annually or 12.3 per cent of their total combined GDP for 2010–2012. However, **taking action against erosion could generate USD 62.4 billion per year**, with the total economy of the 42 countries combined estimated to grow at an average rate of 5.31 per cent annually.⁹

Soil counts –
preserve it!

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