

due to drought for example, others can ensure people's survival through the difficult period.



18. *Systems providing preparation, early warning and safety nets should be in place before they are needed*, as with human health care; these might include emergency grain reserves, disaster forecasting systems and herd/flock size and health management systems. Communication systems need to be established in order to reach land-users with training and advice; and in order to ease suffering when drought and other disasters strike, safety nets should be established, such as insurance and social programmes. It is necessary to be careful, however that these mechanisms do not encourage greater risk by insulating land-users from responsibility.
19. *Alternative livelihood options should be encouraged* by supporting education and training so that the dryland poor can find jobs in non-agricultural sectors, which will also reduce population pressure on the land and vulnerability to drought.
20. *Public understanding and support should be developed through more effective communication*. Land degradation is a complex concept for the general public; ways should be found of discussing it in simple but compelling terms, such as "land health", and famous personalities such as leaders in entertainment, sports, business and politics can be enlisted to draw attention to land health through sustained campaigns backed by strong visual aids and good science. The need for action might be explained via television, radio, print and the Internet.

Further reading

1. The Millennium Ecosystem Assessment, initiated by the United Nations Secretary General Kofi Annan in 2000, and supported by governments who are Parties to four multilateral environmental conventions, was a major source of the ideas presented in this brief, supplemented by leading scientific and policy analyses such as those listed below.
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United Nations Convention to Combat Desertification

www.unccd.int

International Center for Agricultural Research in the Dry Areas

www.icarda.org



International Crops Research Institute for the Semi Arid Tropics

www.icrisat.org

UNCCD

UNITED NATIONS
CONVENTION TO COMBAT DESERTIFICATION

From Land Degradation to Land Health

BRIEF FOR POLICY MAKERS

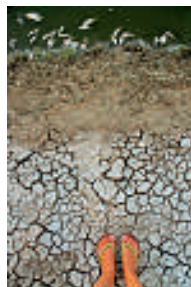
Desertification is potentially the most threatening ecosystem change impacting livelihoods of the poor.

- Millennium Ecosystem Assessment

From Land Degradation to Land Health

Land Degradation

1. *Land degradation is an under-recognized threat to global well-being which will be aggravated by climate change.* The poor are hurt most, because they depend largely on the land (agriculture, livestock, forests) for their livelihood. Estimating the cost of land degradation is difficult but it must amount to many billions of dollars globally per year, reducing agricultural GDP by several percentage points in many countries and reducing the well-being of millions of people by contributing to poverty, hunger, insufficient clean water, poorer health, insecurity and dislocation.
2. *The drylands are most susceptible to degradation* because the low rainfall slows the regeneration of vegetation (for example after removal by grazing animals, drought, farmers, firewood gathering, fires). Once exposed, the soil quickly washes away in rains or is blown away in windstorms. About 10-20 per cent of the world's drylands are already degraded.
3. *The conversion of rangelands to croplands accelerates degradation* because soil used for farming is tilled and left bare for longer periods of time, exposing it to erosion and losses of organic matter. Between 1900 and 1950 about 15 per cent of dryland rangelands were converted; the rate has accelerated since then.
4. *Land degradation has far-reaching effects.* Dust storms from wind erosion cause respiratory problems in major cities; river-borne sediments and nutrients from water erosion fill reservoirs downstream and harm coastal ecosystems; and poverty caused by land degradation compels the poor to migrate elsewhere, often lacking the skills needed to prosper.
5. *Drought aggravates land degradation, and climate change will aggravate drought.* When drought strikes, the poor lose their assets — animals, crops, money — and must start over all again at the bottom of the development ladder. Drought also kills vegetation, exposing soils to erosion. The Intergovernmental Panel on Climate Change (IPCC) predicts that drought frequency and intensity will increase with climate change, and that dryland areas are especially likely to suffer.
6. *Land degradation reduces carbon storage, contributing to global warming.* Dryland soils, for example, contain more than a quarter of all the organic carbon stores in the world. Dryland degradation



releases carbon into the atmosphere (about 4 per cent of total global emissions from all sources per year).

7. *Dryland biodiversity is a valuable resource deserving protection.* Of 25 global "biodiversity hotspots" identified by Conservation International, eight are in drylands. Large mammals such as those in the African savannas generate important tourism incomes; yet their habitats are shrinking. At least 30 per cent of the world's cultivated plants evolved in drylands, and many high-value indigenous crops have barely been explored. Overgrazing and burning cause valuable native rangeland grasses to be replaced by inedible woody shrubs ("bush encroachment").

Land Health

8. *Transition from a state of land degradation to one of land health.* Drawing from the logic and language of the medical community, this involves four actions applied in specific landscape settings: to assess the symptoms, to diagnose their causes, to treat the problem(s) (including preventative care), and to monitor the outcomes to ensure sustainable land health.

The following elements are central to the land health approach:

9. *Land degradation is a sustainable development problem.* Careful development analysis should be conducted in a particular afflicted zone, looking beneath the visible symptoms (land damage and human suffering) to find out exactly what type of degradation is occurring, how much, where, by whom, how and why. This assessment will lead to a diagnosis, revealing the underlying causes of poor land health (for example policies, markets, infrastructure, capacities, institutions, technologies, inherent fragility of the environment). Scientific assessment also provides the baseline measurements and tools needed for monitoring progress.
10. *Close attention should be paid to decision-making by land users, who should be involved in devising solutions.* Solutions imposed from above without consultation often fail, because land users do not see them as relevant to their daily lives. For example, interventions that overlook risk (such as drought risk) are unlikely to succeed. Land users should therefore be involved in consultations and provided with knowledge, incentives, responsibility and authority to manage their lands sustainably.
11. *Advantage should be taken of both local and scientific knowledge.* The people living on the land have devised ingenious ways of reducing land degradation and risk. But modern pressures of population and development are overwhelming their capacities. Forming learning alliances and using participatory approaches will enable science to build on local knowledge. Share knowledge widely.



Once a rigorous assessment and diagnosis has been carried out in a particular landscape, treatments should be prescribed, including relevant elements from the following:

12. *Policy, institutional, economic and market innovations can motivate change and unlock potential.* A range of instruments and cooperative mechanisms such as microfinance, cooperative land care, credit and marketing associations, multi-stakeholder organizations, land tenure reform, the rationalization of trade obstacles, infrastructure improvements and so on can, if carefully devised, unleash people's talents and their inclination to improve land health.
13. *Research can open major new avenues for moving from land degradation to land health.* Discoveries in soil, water, climate, ecology, biodiversity, remote sensing, spatial information systems and other scientific fields hold great promise when integrated with policy, market and institutional research and capacity-building, connecting research to human development.
14. *Natural resources should be stored and recycled in order to improve land health, reduce risk and increase resilience.* Even though water and nutrients are scarce in the drylands, much is still wasted. Rather than losing it as runoff or evaporation, land-users should be assisted to store rainwater in the soil, in reservoirs and in groundwater. Similarly, the loss of nutrients should be reduced by increasing their capture and recycling by trees, plants and animals in farming and livestock systems.
15. *The natural endowments of the land should be supplemented with strategic, sustainable inputs which will increase reliable productivity and income.* Small, profitable additions of limiting nutrients such as phosphorus and nitrogen can double agricultural productivity in many locations. Irrigation can likewise create enormous productivity gains while reducing vulnerability to drought, but care must be taken not to over-exploit water resources nor to cause salt accumulation in the soil.
16. *It is necessary to attach value to the services that the land provides* rather than treating them as free public goods, including services to future generations who will suffer from today's land and climate degradation. The creation of motivating mechanisms, such as payments for increasing the land's carbon storage to fight global warming, should enable the poor to expand their role beyond agriculture to that of stewards of the environment.
17. *Local advantages need to be captured, given added value and diversified.* Value can be added to agriculture (while managing risks) through higher-value crops and livestock, and processing and marketing innovations that reward investment in increasing the healthy productivity of the land. The potential of overlooked indigenous crops and animals should be developed, and also that of artisanal land-based activities which are already well-adapted yet can attract larger markets. Production systems should be diversified so that if some activities fail,