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1 **How to halt the global decline of lands**

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5
6 **The assessment of Land Degradation and Restoration by the Intergovernmental Science-Policy**
7 **Platform on Biodiversity and Ecosystem Services (IPBES) shows that land degradation across the**
8 **globe is a wide and severe issue and is showing no signs of slowing down. This trend must be halted**
9 **and reversed.**

10
11 Land degradation is the persistent reduction in the capacity of the land to support human and other
12 life on Earth¹. Human dominance of land and its natural resources has vastly increased over the past
13 century and has substantially altered natural ecological processes on three quarters of the Earth's land
14 surface². That domination of the biosphere has contributed to increased human welfare, but the
15 downside to human and environmental is increasingly apparent. In every terrestrial and freshwater
16 ecosystem type, to varying degrees, unsustainable land use and overexploitation of natural resources
17 have impaired ecological function, capacity to supply ecosystem services, and the ability to support
18 biodiversity¹. Populations of wild species have decreased and extinctions are occurring much more
19 frequently than the rate at which new species naturally evolve³. Land degradation has negatively
20 affected the living conditions of at least two-fifths of the people on Earth and it is estimated to be
21 reducing global economic output by a tenth⁴. Vulnerable groups, indigenous and marginalized
22 communities are disproportionately and negatively impacted, especially in terms of water supply and
23 quality, health, and disaster vulnerability^{1,4}.

24
25 **No easy political fix to land degradation**

26 The findings of the Land Degradation and Restoration assessment – and equally-alarming evidence
27 presented by the IPBES Global Assessment and IPCC Special Report on Land, showing the interlinkages
28 between land degradation, climate change and biodiversity loss – are not news to researchers or well-
29 informed citizens. The IPBES assessment also provides evidence that land degradation is avoidable,
30 and in many instances, reversible. Given that land degradation is typically local, visible and immediate,
31 why has the issue failed to attract global attention in a similar way to climate change? Here are five
32 systemic reasons.

33
34 First, land degradation is *perceived* radically differently by different people, depending on their
35 worldview and relationship with land. To many individuals, human impacts on land and natural
36 resources are inevitable, and indeed necessary, side-effects of human development. There is no sense
37 of urgency about land degradation, particularly among those benefitting economically from land
38 exploitation – and who are generally not the people suffering the most severe consequences of
39 degradation, at least in the short term. Second, there is *little agreement on standardized ways of*
40 *measuring land degradation*, on what the baselines and desired states should be, and systematic
41 global monitoring is currently not undertaken. The result is often inconsistent estimates of the extent
42 and severity of degradation. Biodiversity conservation policy faces a similar barrier, which has led to a
43 call for well-defined and measurable metrics to guide policy, akin to the 1.5-2 °C target in the global
44 climate policy processes⁵. Third, a *profound disconnect between causes and consequences* makes the

45 impact of land degradation invisible to many. The policies and consumer behaviours causing land
46 degradation are frequently spatially or cognitively disconnected from their outcomes. This disconnect
47 is a result of the long distances between producers and consumers of foods, biofuels and other land
48 and water commodities⁶. And it is also a result of the lags, often decade-long, between the decisions
49 leading to land degradation¹. Thus policy makers and consumers are unaware of, feel unaffected by
50 and not responsible for land degradation. Fourth, land degradation is driven by a *multiplicity of*
51 *interacting forces* -natural, cultural, demographic, economic, educational, technological, and political-
52 that interact through time at local to global scales and are hard to tease apart. For example, think of
53 the linkages between climate change, biodiversity loss, social stability, migration, and economic
54 development¹. The absence of simple cause-and-effect relationships makes the issue easy to dismiss.
55 Fifth, *limited institutional competencies and motivation* have hampered necessary action. Patience,
56 coordinated action, and the political will to change long-entrenched practices are needed but absent.
57 Land protection policies are present in most countries but are frequently ignored, fragmented,
58 contradictory, reactive or rigid. Indeed, few countries have a specific, competent environmental
59 judicial body to enforce their national land protection legislation⁷.

60

61 **Restoring the health of the land**

62 The UN has announced 2021 as the start of the Decade on Ecosystem Restoration. Here are ten
63 strategies to overcome the five systematic policy barriers, and thus transform the effectiveness of land
64 protection and restoration. In Figure 1 we show which groups are best positioned to have a leading
65 role in these.

66

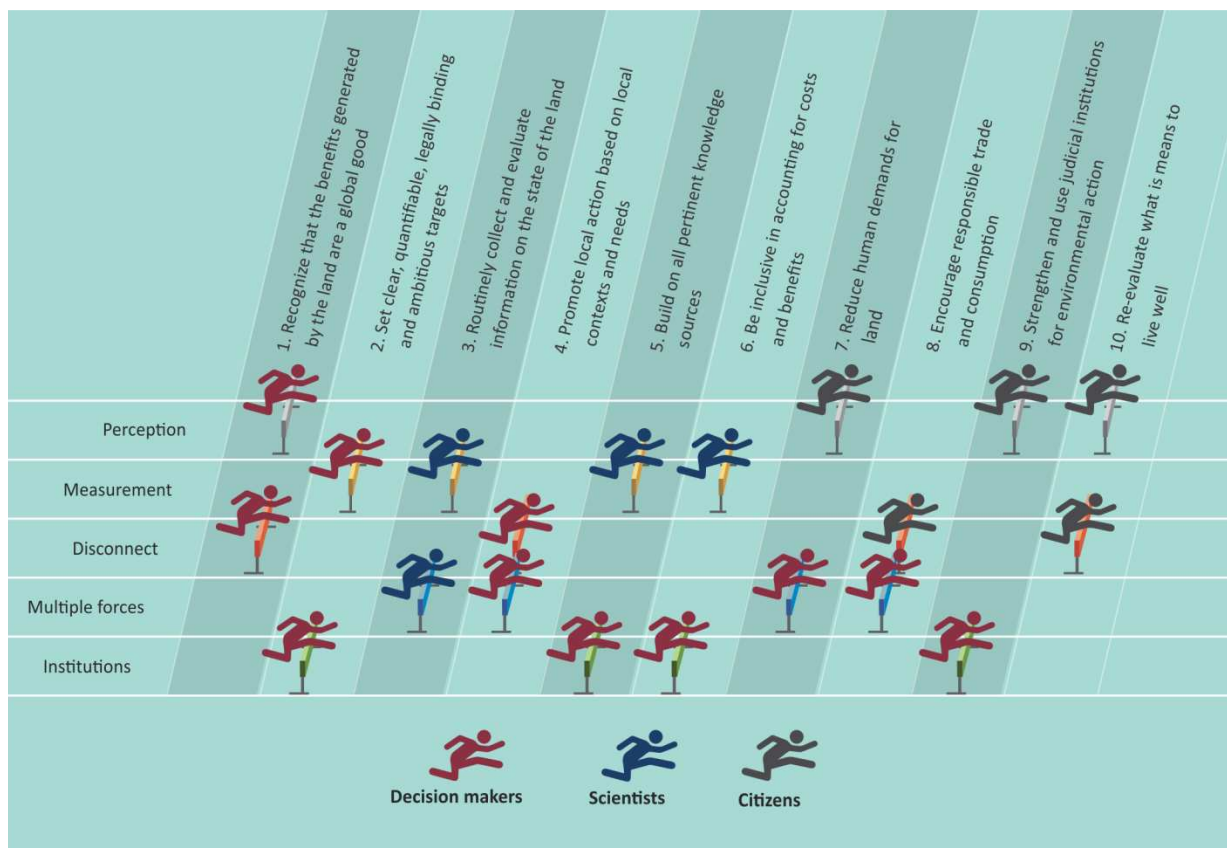
- 67 1) Recognize that the benefits generated by healthy and productive land are a global good. Since
68 the causes and consequences of land degradation spill over national borders, land needs to
69 be managed as a collective good based on agreements that minimize the adverse effects of
70 land degradation on other nations. Increased transparency on the origin of the commodities
71 linked to degradation can support global treaties to protect land as a limited planetary
72 resource for future generations⁸.
- 73 2) Set clear, quantifiable, legally binding, and ambitious targets to ensure that policies to halt
74 and reverse land degradation match the scale and urgency of the problem. Currently none of
75 the global environmental conventions are legally binding. Aspirations to restore 15% of
76 degraded ecosystems by 2020 will not be met¹. Sustainable Development Goal 15 strives to
77 achieve a land degradation neutral world by 2030. While avoiding further degradation is the
78 first priority, minimising the impacts of unavoidable development requires integration of land
79 policy and planning, across sectors. As a last resort the residual impacts of land degradation
80 must be offset through appropriate land protection and restoration elsewhere. Writing
81 national-level offsetting into environmental legislation, as Kenya has done⁹, would be an
82 effective way to curb the displacement of environmental damage, both within and between
83 countries.
- 84 3) Routinely collect and evaluate information on the state of the land. Prerequisites for credible
85 information needed to guide effective decision making are the open sharing of data and
86 libraries of proven land protection and restoration practices¹. Institutions at several scales,
87 working closely with each other and with policymakers and land stewards, must develop
88 standards, undertake systematic monitoring and facilitate access to data and tools. The
89 successful example of the climate change community in defining and sharing 'essential climate
90 variables'¹⁰ should be followed.

- 91 4) Promote local action to tackle land degradation based on local contexts and needs. Land
92 degradation takes place locally, even when driven by larger scale processes. As a result it is
93 spatially heterogeneous and context-sensitive. Local communities investing in avoiding and
94 reducing degradation must see tangible and direct benefits on the lands they depend upon⁹.
95 Eliminating the larger scale perverse incentives that frequently cause degradation requires
96 policy coordination across sectors and scales. Legislation that awards land property rights if
97 the natural vegetation is cleared is an example of a still existing perverse policy incentive.
- 98 5) Build on all pertinent knowledge sources, not exclusively on conventional science. Scientific
99 understanding and local experience are both indispensable. Indigenous peoples and their
100 spiritual and cultural interconnections with the land represent one of the oldest – and most
101 demonstrably sustainable – forms of land stewardship. A quarter of the world’s land surface
102 is either managed or tenured by indigenous peoples, and this land is often managed
103 sustainably¹¹. Governments, businesses and other actors need to recognize and support the
104 institutions and actions of indigenous peoples, and involve them in policy- and decision-
105 making regarding land management, at all scales¹².
- 106 6) Take into account all the substantive costs and benefits when making decisions that impact
107 land. Land protection and restoration actions are often dismissed as being unaffordable, but
108 when the monetary and non-monetary benefits are more inclusively evaluated, including the
109 long-term costs of inaction, restoration investments are generally welfare-improving
110 overall^{4,13}. Natural Capital Accounting can be used to systematically describe environmental,
111 social and economic values of nature¹⁴.
- 112 7) Reduce human demands for services delivered by land to match the capacity of the land to
113 supply those services sustainably. The growing human appropriation of natural resources, and
114 its unintended consequences, has two drivers: growth in consumption per capita, and growth
115 in human population. Reduced impact of individual consumption can be achieved by adopting
116 lifestyles that use fewer land and water-demanding resources, and a shift to those that are
117 produced more efficiently. An example is adopting a plant-rich rather than animal-rich diet.
118 Other examples are the reduction of waste, extension of product life, re-use and recycling.
119 Population growth has levelled off in many parts of the world, but it continues apace
120 elsewhere. Accelerated transition to population stability everywhere will deliver significant
121 and lasting environmental and social benefits¹⁵. It can be achieved through policies promoting
122 gender equality, improved access to education, family planning and social welfare for ageing
123 populations, and the re-evaluation of subsidies that stimulate population growth.
- 124 8) Encourage responsible trade and consumption. Efforts to inform citizens about the
125 environmental and social consequences of their consumption choices have to date had limited
126 impact. Internalizing the environmental costs into the price of final products would increase
127 the competitiveness of sustainable modes of production relative to those leading to land
128 degradation. Implementation of the ‘polluter pays’ principle at all scales of trade - those who
129 degrade land either pay for its restoration, or, where this is impossible, pay for equivalent
130 protection or restoration elsewhere- would help ensure that benefits and costs are more
131 equitably shared and would stimulate sustainable intensification of land resources¹.
- 132 9) Strengthen judicial institutions for environmental action by citizens. Ambitious objectives and
133 concepts are repeatedly stated but seldom followed by adequate action. Going to court
134 increases governments’ and businesses’ accountability regarding the laws and international
135 treaties they have endorsed. Citizens are increasingly using judicial power for environmental
136 action¹. Two legal innovations will help: recognizing the rights of future generations; and the
137 intrinsic right of nature to exist. Human rights, once derided as the ravings of a lunatic fringe,

138 have become a cornerstone legal concept. It is conceivable that ecological rights may be
139 regarded equally in future⁷.

140 10) Re-evaluate what it means to live well. A successful life is for many synonymous with
141 increasing purchasing power, which encourages increasing levels of consumption. Alternative
142 views exist, based on values such as solidarity with and respect for nature¹⁶. They can provide
143 a foundation for more sustainable relationships between humans and the land we rely on.
144

145 This has been a list of ‘what to do better’. ‘How to do it better’ is just as important. It is essential to
146 recognize that land degradation is a widespread, yet fixable problem. Public and private sector
147 decision makers, scientists, and citizens all have a role to play in protecting and restoring land. Figure
148 1 shows the opportunities for strategic partnerships. Addressing the systematic barriers related to the
149 measurement of land degradation is a feasible early step. There is a clear role for scientists in this
150 regard. Other actions – particularly those related to changing people’s perception – will take more
151 time. Together these actions can make the UN Decade for Ecological Restoration a turning point,
152 rather than a talking point. Much depends on it.
153



154 **Figure 1** Ten strategies to overcome the five systemic barriers to urgent and sufficient action on
155 protecting and restoring the land, and the leading actors for each (Illustration by Y. Estrada)
156
157

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163 Information.

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