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Environmental management — Guidelines for establishing good practices for combatting land degradation and desertification —

Part 1: Good practices framework

Management environnemental — Lignes directrices pour l'établissement de bonnes pratiques pour combattre la dégradation et la désertification des terres —

Partie 1: Cadre de bonnes pratiques

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 207, *Environmental management*.

A list of all parts in the ISO 14055 series can be found on the ISO website.

In the development of this document, ISO Guide 82 has been taken into account in addressing sustainability issues.

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Introduction

Land degradation and desertification are fundamental and persistent problems that have long been recognized. They are caused by climate variability (e.g. drought and floods), other natural factors and unsustainable human activities, such as over-cultivation, overgrazing, deforestation, over-extraction of water, impacts of construction activities and unsustainable irrigation practices. These activities can lead to loss of vegetation and biodiversity, declining water supply and water quality, soil erosion and loss of soil fertility and structure. The consequences in the medium to long term are loss of agricultural and economic productivity, loss of soil quality and function and loss of ecosystem services, including biodiversity loss, and adverse social impacts.

Land degradation is estimated to affect up to 20 % of the world's drylands, according to the Millennium Ecosystem Assessment (2005) [46], and 25 % of cropland, pasture, forests and woodlands globally, according to FAO (2011)[32]]. In addition, one third of the earth's population, i.e. 2 billion people, are potential victims of the increasing effects of desertification (UNEP, 2007[22]). Land degradation is both a significant driver of climate change through lack of favourable conditions for plants capturing carbon dioxide from the atmosphere and change in surface characteristics affecting solar reflectance (albedo) and is predicted to be exacerbated by climate change. Degradation and desertification greatly reduce ecosystem resilience to climate change.

Land degradation affects land productivity, and impacts directly on human livelihood and health and, in extreme cases, causes loss of life. Societies suffer from decreased access to adequate supplies of clean water, deterioration in air quality, threats to food security and declining economic status. These effects can be felt at all scales from the local to the global and by all people but especially the poor and the vulnerable.

Recognizing the significance of land degradation leading to desertification in dryland areas, the United Nations Convention to Combat Desertification (UNCCD)[18] was developed to combat desertification and mitigate the effects of drought in dryland regions, particularly in sub-Saharan Africa. The UNCCD recognizes desertification as a social and economic issue as much as an environmental concern. Therefore, it has a major focus on fighting poverty and promoting sustainable development in areas at risk of desertification. Parties to the UNCCD agreed to implement national, regional and sub-regional action programmes, and to seek to address causes of land degradation, such as unsustainable land management. This document is intended to complement and support the activities of the UNCCD by providing guidance to land managers on the establishment of good management practices that, when implemented, will reduce the risk of land degradation and desertification and assist in rehabilitation of lands affected by degradation. Land managers expected to benefit from the standard include land users, technical experts, private and public organizations, and policy makers involved in the management of land resources for ecological, productivity, economic or social objectives.

The purpose of this document is to provide guidelines for developing good practices to combat land degradation and desertification in arid and non-arid regions.

NOTE ISO/TR 14055-2 will provide regional case studies illustrating application the framework of this document to a range of land degradation cases.

This document refers to actions or interventions undertaken with the purpose of preventing or minimising degradation of land or, where land is already degraded, aiding the recovery of degraded land to improve productivity and ecosystem health.

This document seeks to provide a flexible approach to the implementation of good practices to combat land degradation and desertification by allowing for different types and scales of activities so that the guidance in this document can be applied to all activities and be relevant to public and private use. It aims to be applicable to the range of geographical, climatic, cultural and other circumstances. Figure 1 illustrates the relationship between the guidelines for developing good practices presented under this document and environmental management systems and good practice programmes as they apply to land management.

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Combatting land degradation is critical to achieving sustainable development and hence good practices programmes need to seek to attain a balance between environmental, social and economic goals. These goals are interdependent and need to be mutually reinforcing. For example, the capacity of individual land managers and communities to implement good practices for combatting land degradation can be limited by immediate challenges of poverty and hunger. Conversely, combatting land degradation will contribute to greater socio-economic as well as environmental resilience.

Provision of guidance on establishing good practices for managing land degradation and desertification benefits both land users and the wider community and can assist in increasing their resilience to climate change. It can also complement government policies to combat land degradation and desertification and contribute to objectives of parties to the UNCCD.

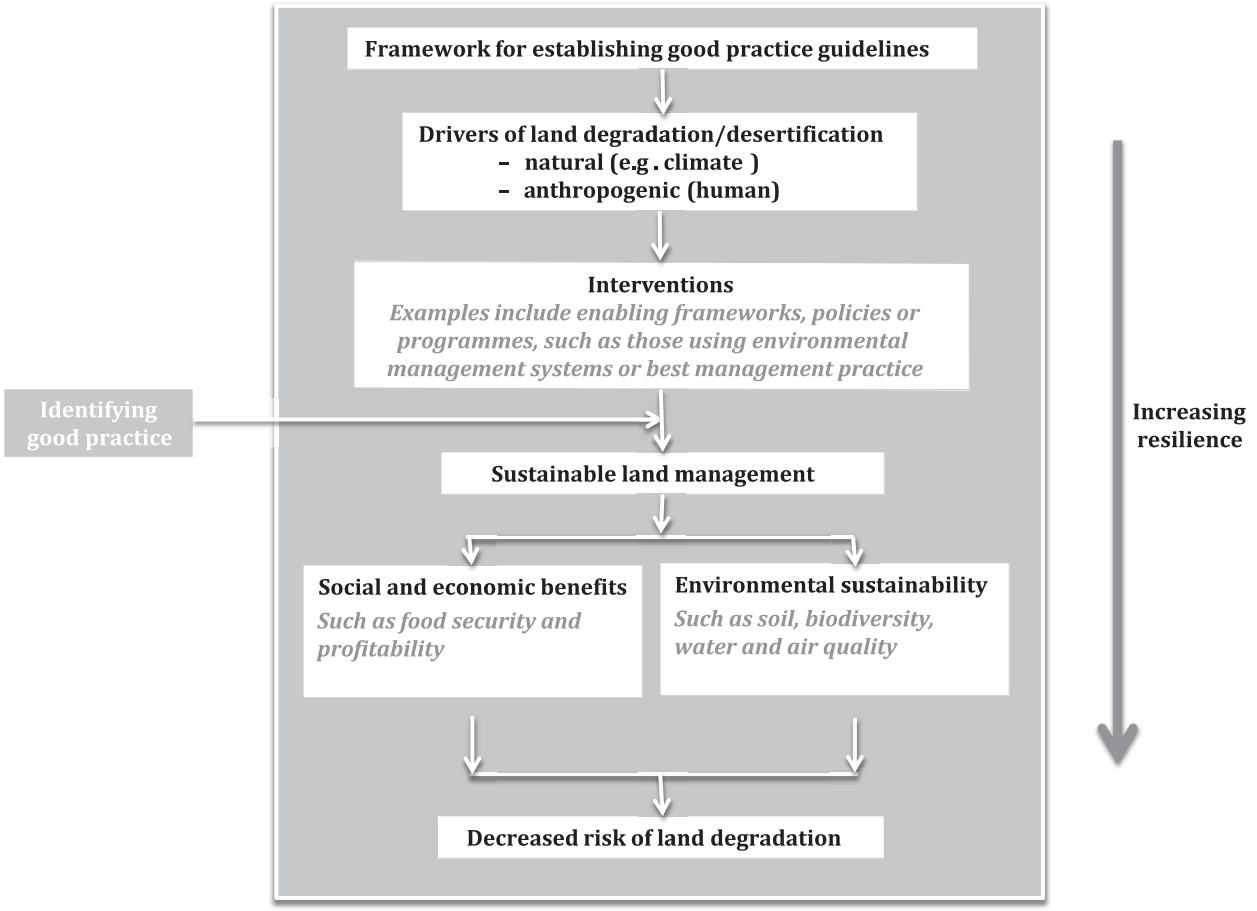


Figure 1 — Framework for establishing good practices for combatting land degradation and desertification

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Environmental management — Guidelines for establishing good practices for combatting land degradation and desertification —

Part 1: Good practices framework

1 Scope

This document provides guidelines for establishing good practices in land management to prevent or minimize land degradation and desertification. It does not include management of coastal wetlands.

This document defines a framework for identifying good practices in land management, based on assessment of the drivers of land degradation and risks associated with current and past practices. Guidance on monitoring and reporting implementation of good practices is also provided.

This document is intended for use by private and public sector organizations with responsibility for land management and will allow an organization to communicate implementation of good practices.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1 Terms related to combatting land degradation and desertification

3.1.1
ecosystem
dynamic complex of plant, animal and micro-organism communities and their non-living *environment* (3.1.7) interacting as a functional unit[SOURCE: CBD[15], Art.2]

3.1.2
ecosystem service
benefit people obtain from *ecosystems* (3.1.1)

Note 1 to entry: Benefits include provisioning services such as food and water; regulating services such as flood and disease control; cultural services such as spiritual, recreational, and cultural benefits; and supporting services, such as nutrient cycling, that maintain the conditions for life on Earth.

[SOURCE: UNEP[22]]

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3.1.3
good practice
method that has been proven to work well and produce good results, and is therefore recommended as a model

Note 1 to entry: Note to entry: Methods or techniques described as good practice have usually been tested over time and validated, in the broad sense, through repeated trials before being accepted as worthy of adoption more broadly.

[SOURCE: FAO Good Practices Template[34], modified]

3.1.4
bio-productive capacity
capacity of *ecosystems* (3.1.1) to produce biological materials and to absorb waste materials

Note 1 to entry: Bio-productive capacity is also sometimes referred to as bio-capacity or biological capacity.

[SOURCE: Global Footprint Network[16], modified]

3.1.5
biodiversity
variability among living organisms from all sources including, among others, terrestrial, marine and other aquatic *ecosystems* (3.1.1) and the ecological complexes of which they are part

Note 1 to entry: Biodiversity includes diversity within species, between species and of ecosystems.

[SOURCE: CBD[15], Art.2]

3.1.6
habitat
place or type of site where an organism or population naturally occurs[SOURCE: CBD[15], Art.2]

3.1.7
environment
surroundings in which an organization operates, including air, water, *land* (3.2.1), natural resources, flora, fauna, humans and their interrelationships

Note 1 to entry: Surroundings can extend from within an organization to the local, regional and global system.

Note 2 to entry: Surroundings can be described in terms of *biodiversity* (3.1.5), *ecosystems* (3.1.1), climate or other characteristics.

[SOURCE: ISO 14001:2015, 3.2.1]

3.1.8
sustainability
goal of *sustainable development* (3.1.9) which encompasses environmental, social and economic aspects, in which the needs of the present are met without compromising the ability of future generations to meet their needs

Note 1 to entry: Environmental, social and economic aspects interact and are interdependent. They are referred to as the three pillars of sustainability.

Note 2 to entry: Sustainability is a comparative concept, not a state or absolute value.

[SOURCE: ISO 13065:2015, 3.48]

3.1.9
sustainable development
development that meets the environmental, social and economic needs of the present without compromising the ability of future generations to meet their own needs

Note 1 to entry: Derived from the Brundtland Report.

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[SOURCE: ISO Guide 82:2014, 3.2]

3.1.10
interested party
person or organization that can affect, be affected by, or perceive itself to be affected by a decision or activity

Note 1 to entry: Customers, communities, suppliers, regulators, non-governmental organizations, investors and employees.

[SOURCE: ISO 14001:2015, 3.1.6, modified — Note to entry has been deleted.]

3.1.11
capacity building
building human, scientific, technological, organizational, institutional and resource capabilities

Note 1 to entry: These capabilities can differ between countries.

[SOURCE: UNCED[56], Agenda 21, Chapter 37, modified]

3.1.12
off-site effect
effect that occurs away from the principle area of *land degradation* (3.2.13) or site of activity directly affected by *good practice* (3.1.3) actions

EXAMPLE Sediment loads into coastal marine systems due to land degradation at the source of a stream or river.

Note 1 to entry: The concept of off-site effect can also describe impacts in the future of a current intervention.

3.1.13
forest
land (3.2.1) spanning more than 0,5 ha with trees higher than 5 m and a canopy cover of more than 10 percent or trees able to reach these thresholds *in situ*, not including land that is predominantly under agricultural or urban land use

Note 1 to entry: According to FAO, stands in agricultural production systems, such as agroforestry systems when crops are grown under tree cover, fruit tree plantations and oil palm plantations, are excluded. FAO provides additional explanation about what a forest includes.

[SOURCE: FAO Forestry Paper 163[31], modified — Additional explanation about what a forest includes has been omitted and Note 1 to entry has been added.]

3.1.14
deforestation
direct human-induced conversion of *forest* (3.1.13) *land* (3.2.1) to non-forest land[SOURCE: UNFCCC, 2006[23]]

3.1.15
salinization
soil degradation (3.2.16) brought about by the increase of salts in the soil

Note 1 to entry: Salinization is also sometimes referred to as salination.

[SOURCE: FAO Soils Portal,[38] modified]

3.1.16
drought
naturally occurring phenomenon that exists when precipitation has been significantly below normal recorded levels, causing serious hydrological imbalances that adversely affect *land* (3.2.1) resources and production systems

Note 1 to entry: Droughts can become longer or more intense due to climate change as a result of human activities.

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[SOURCE: UNCCD[18], Art.1c]

3.1.17
arid, semi-arid and dry sub-humid areas
areas, other than polar and sub-polar regions, in which the ratio of annual precipitation to potential evapotranspiration falls within the range from 0,05 to 0,65[SOURCE: UNCCD[18], Art.1g]

3.2 Terms related to land

3.2.1
land
terrestrial bio-productive system that comprises soil, plant cover, other biota and the ecological and hydrological processes that operate within the system[SOURCE: UNCCD[18], Art.1e]

3.2.2
rangeland
grassland and open woodland suitable for grazing

Note 1 to entry: Rangeland includes *land* (3.2.1) on which the native vegetation is predominately grasses, forbs (small species of flowering plants) and shrubs, and is managed as a natural *ecosystem* (3.1.1).

[SOURCE: UNCCD/LDD (1994)[19], modified]

3.2.3
wetland
land (3.2.1) inundated with water, whether natural or artificial, permanent or temporary, that is static or flowing, brackish or salt

Note 1 to entry: Marsh, fen, *peatland* (3.2.6) and pans.

[SOURCE: Ramsar Convention on Wetlands[17], Art.1, modified]

3.2.4
coastal wetland
salt water and fresh water *wetlands* (3.2.3) located within coastal *watersheds* (3.2.19)

Note 1 to entry: Coastal wetlands are found in the areas between *land* (3.2.1) and open sea that are not influenced by rivers, such as shorelines, beaches, mangroves and coral reefs.

[SOURCE: United States Environmental Protection Agency[24]]

3.2.5
arable land
land (3.2.1) under temporary agricultural crop, temporary meadows for mowing or pasture, land under market and kitchen gardens and land temporarily fallow[SOURCE: FAOSTAT[37], modified]

3.2.6
peatland
wetlands (3.2.3) with a thick water-logged organic soil layer (peat) made up of dead and decaying plant material

Note 1 to entry: Peatlands include moors, bogs, mires, peat swamp *forests* (3.1.13) and permafrost tundra.

[SOURCE: Wetlands International[25]]

3.2.7
land use change
change in human use or management of *land* (3.2.1)

[SOURCE: ISO/TS 14067:2013, 3.1.8.4, modified — Definition of “direct land use change” has been adapted.]

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3.2.8
organic matter
matter consisting of plant and/or animal organic materials, and the conversion products of those materials

[SOURCE: ISO 11074:2015, 2.1.8, modified — Example has been deleted.]

3.2.9
soil quality
all current positive or negative properties with regards to soil utilization and soil functions

Note 1 to entry: Soil quality describes the capacity of soil to function, sustain plant and animal productivity, maintain or enhance water and air quality, and support human health.

[SOURCE: ISO 11074:2015, 2.1.15, modified — Note 1 to entry has been added.]

3.2.10
soil fertility
current status of a soil with respect to sustainable plant growth

Note 1 to entry: Soil fertility refers to the quality of a soil that enables it to provide nutrients in adequate amounts, form and balance for the growth of specified plants or crops.

[SOURCE: ISO 11074:2015, 5.1.9, modified — Note 1 to entry has been added.]

3.2.11
soil structure
arrangement of particles and *organic matter* (3.2.8) to form aggregates which produce macro structures and micro structures in the soil

[SOURCE: ISO 11074:2015, 2.1.17]

3.2.12
crust
surface layer of the soil, ranging in thickness from a few millimetres to a few centimetres, which is much more compact than the material beneath

Note 1 to entry: Soil crusting is associated with biological and chemical factors.

Note 2 to entry: A biological crust is a living community of lichen, cyanobacteria, algae and moss growing on the soil surface that binds the soil together.

Note 3 to entry: A precipitated, chemical crust can develop on soils with high salt content.

[SOURCE: Bulletin 69, FAO, 1993[28], modified]

3.2.13
land degradation
form of deterioration of the natural potential of *land* (3.2.1) that affects *ecosystem (3.1.1)* integrity, either in terms of reducing its sustainable ecological productivity or in terms of its native biological richness and maintenance of resilience

Note 1 to entry: FAO describes land degradation as having a wider scope than both *soil erosion* (3.2.15) and *soil degradation* (3.2.16), covering all negative changes in the capacity of the ecosystem to provide goods and services (including biological and water-related goods and services).

[SOURCE: GEF[40]]

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3.2.14
desertification
process of *land degradation* (3.2.13) in *arid, semi-arid and dry sub-humid areas* (3.1.17) resulting from various factors, including climatic variations and human activities

Note 1 to entry: Land is degraded when it can no longer support the same plant growth it supported in the past, and the change is permanent on a human time scale.

[SOURCE: UNCCD[18], Art.1a]

3.2.15
soil erosion
removal of soil by the physical forces of water and wind

Note 1 to entry: Soil erosion can be a slow process that continues relatively unnoticed or can occur rapidly, removing large amounts of soil in a single event.

Note 2 to entry: Unsustainable anthropogenic activities can increase the risk of erosion.

3.2.16
soil degradation
change in *soil quality* (3.2.9) resulting in diminished capacity of the *ecosystem* (3.1.1) to provide goods and services[SOURCE: FAO Soils Portal [38], modified]

3.2.17
land management
process of managing the use and development of *land* (3.2.1) resources[SOURCE: FAO Land Tenure Manuals, No 2, FAO, 2006[29]]

3.2.18
water table
upper surface of standing or naturally flowing ground water below which the ground is saturated with water, except where that surface is impermeable

[SOURCE: ISO 6107-3:1993, 89]

3.2.19
watershed
catchment
area of *land* (3.2.1) where all of the water that is under it or drains off of it goes into the same place[SOURCE: United States Environmental Protection Agency[24]]

4 Principles

4.1 General

The principles outlined in this clause are the basis for the guidance provided in this document and for its application.

The overall objective of the guidance provided in this document is to develop good practice programmes for combatting land degradation and desertification to maintain or improve productivity, biodiversity and other ecosystem services, and to aid sustainable land management. Respect for the principles set out in this clause will assist in developing and implementing good practices that are consistent with the needs of interested parties and their economic, social, cultural and spiritual values related to the land.

4.2 Sustainable development

Good practices for combatting land degradation and desertification contribute to sustainable development by balancing economic, social, and environmental development and aiding management of

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