



## Drylands Matter, And Why?

*Drylands take up 41.3% of the land surface. This is a significant proportion of our land as is evident from in the map on drylands that is included in this kit. So would it matter if drylands did not exist?*

### Size of drylands - They take up a lot of our land

Drylands take up 41.3% of the land surface. This is a significant proportion of our land to disregard as wastelands, considering that they are habitable and part of the remaining land includes some mountains. Drylands refer to arid, semi-arid and dry sub-humid areas, and, in general, exclude deserts when used in the context of sustainable development issues. See Figure 1 for on the spread of drylands around the world.

Common Name		Area (mill.sq km)	Percentage
Desert	Hyper-arid	9.8	6.6
Semi- desert	Arid	15.7	10.6
Grassland	Semi-arid	22.6	15.2
Rangeland	Drysub-humid	12.8	8.7
<b>Total</b>		<b>60.9</b>	<b>41.3</b>

### Food Security – World's Breadbasket At Risk

Up to 44% of all the world's cultivated systems are in the drylands. Plant species endemic to the drylands make up 30% of the plants under cultivation today. Their ancestors and wild relatives still grow here. Traditionally, drylands have been largely used for livestock, but they are increasingly being converted into cropland. Rangelands support 50% of the world's livestock and are habitats for wildlife. Livestock production is dominant in the more arid zones. Cropland dominates in the dry sub-humid areas.

### Poverty – Few Comforts in Life

The livelihoods of more than 1 billion people in some 100 countries are threatened by desertification. Nearly 1 billion of the poorest and most marginalized people, who live in the most vulnerable areas, may be the most severely affected by desertification. The Millennium Assessment found that in general, the human well-being of dryland peoples is lower than that of people in other ecological systems. For example, compared to other ecosystems, infant mortality rates are highest in drylands and gross national product (GNP) per capita lowest. This implies that drylands are home to populations with comparatively low levels of well-being.



## Population – Homelands to a sizeable global population

The total drylands population is 2.1 billion, meaning they are the home to one in three people in the world today. According to UN the Habitat, the 18.5% population growth rate in the drylands was faster than that of any other ecological zone. Population density increases as aridity decreases. It ranges from 10 people per square kilometer in the deserts to 71 people in the dry sub-humid (rangelands) areas.

<i>Ecosystem</i>	<i>Total Population</i>	<i>Share of global Population</i>
Desert	101,336	1.7
Semi- desert	242,780	4.1
Grassland	855,333	14.4
Rangeland	909,972	15.3
<b>Total</b>	<b>2,109,421</b>	<b>35.5</b>

When land degradation occurs in the drylands, it is referred to as desertification. It is generally reasoned that desertification is most likely to occur in regions about half-way between the high- and low-density areas. A 2009 study by the International Food Policy Research Institute reveals wide scale restoration of forests in densely populated regions of Burkina Faso and Niger through low-cost farmer-managed restoration activities.

## Water - Is disappearing and the stress is rising

Aridity is associated with water availability or scarcity. It matters for human well-being and the two key functions of land, namely, primary production and nutrient recycling. Water scarcity, the gap between its demand and supply, is highest in the drylands. Water scarcity increases with an increase in aridity. For basic well-being, each person requires a minimum of 2,000 cubic meters of water per year. Drylands people have access to 1,300 cubic meters only, and availability is projected to decrease. Today, water scarcity affects between 1-2 billion people, most of them in the drylands. Under the climate change scenario, nearly half of the world's population in 2030 will be living in areas of high water stress. In some arid and semi-arid areas, it will displace up to between 24 million and 700 million people.

## Biodiversity – The Big Unknown

The status of species in the drylands remains unknown, as no assessment exists to date. About 8% of the drylands are protected, which is comparable to an average of about 10% in other ecosystems. The Millennium Ecosystem Assessment reports that 8 of the 25 global hotspots are in the drylands. These are areas where 0.5% of the plant species are endemic to the region but habitat loss exceeds 70%.

## Climate Change – Insatiable Carbon Absorbers

Drylands play a vital role in local, but also global climate regulation. Land use change releases greenhouse gases into the atmosphere, while soil improvement is essentially a reverse process. It is sucking excess atmospheric carbon into the soil. Drylands store approximately 46% of the global carbon share. Its soils contain 53% of global soil carbon and its plants 14% of the global biotic carbon. Land rehabilitation practices such as mulching, composting, manuring and mixed cropping and refor-

esting, which increase carbon stocks in the soil, contributing directly to soil carbon sequestration. These techniques are also part of the technology toolbox known as sustainable land management (see below).

## Land Degradation – The Crux of the Matter

Desertification refers to the land degradation in arid, semi-arid and sub-humid areas resulting from various factors, including climatic variations and human activities. When land degradation happens in the world's drylands, it often creates desert-like conditions. Globally, 24% of the land is degrading. About 1.5 billion people directly depend on these degrading areas. Nearly 20% of the degrading land is cropland, and 20-25%, rangeland.

Degradation	<i>Arid &amp; hyper-arid</i>	<i>Semi-arid</i>	<i>Dry sub-humid</i>	<i>Humid</i>
	5%	9%	8%	78%

Natural regeneration of vegetation cover and soils in arid areas takes 5-10 times longer than in favourable areas with greater and more regular rainfall. Between 1983 and 2003, approximately 16% of the land improved, of which 20% is cropland and 43% rangeland.

	Cropland	Rangeland	Forest	Globally
Degrading land	20%	20-25%	42%	24%
Recovering land	18%	43%	23%	16%

## Drivers of Land Degradation

There is no linear cause-effect process that leads to land degradation in the drylands, but its drivers, which interact in complex ways, are known. They change over time and vary by location. The direct drivers are climatic, especially low soil moisture, rainfall patterns and evaporation. The indirect drivers are mostly human derived, and include poverty, technology used, global and local market trends and sociopolitical dynamics. Poverty is both a cause and consequence of land degradation.

## Sustainable land management – A solution

Applying sustainable land management practices helps to combat desertification and to recover and rehabilitate land; soil, water and vegetation. Sustainable land management refers to the multi-functional use of land, and is contrasted to mono-functional land uses. The application of sustainable land management has been shown to increase yields by between 30-170%. The land lost annually could produce 20 million tons of grain. Desertification and degradation represents an income loss of US\$42 billion per year.

Rainfed areas	US\$8.2 billion
Cropland	US\$10.8 billion
Rangeland	US\$23.3 billion

## References

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