

Deserts can be stark and beautiful, but they aren't easy places for humans to live and grow food. While the Earth's major deserts are naturally occurring, there are several regions in which harsh desert-like conditions are developing from once-greener places. An entirely different thing from the natural wild ecosystems of the dry deserts, these new deserts are degraded ecosystems.

**WHAT'S HAPPENING?**

Landscapes are losing soil and vegetation, becoming drier and supporting less forest or agriculture. One component of desertification is the exhaustion of farming lands. Understanding and classifying desertification is difficult as it is both a sociological and ecological puzzle and it has impacts on many scales, from the single plant to the continental landscape.

**WHAT CAUSES IT?**

In the geological past, deserts shrank and grew, but now, desertification is exacerbated by global climate change and human pressures. Deforestation, poor farming practices, overgrazing and poor management of water resources are all part of the problem. In extreme instances, once-vegetated areas have become bare sandy ground.

**WHERE IS IT HAPPENING?**

About half of the world's farmland is affected by desertification, on every continent except Antarctica. The world's natural desert regions are most prominent at 30 degrees north and south of the equator, and on the edges of these zones, desertification is at its most intense.

According to the United Nations Convention to Combat Desertification, 168 countries are currently impacted by desertification, and each year, an area of farmland approaching the size of Greece (~120,000 square kilometres) is degraded.

**LEFT** Ningxia Hui Autonomous Region, China: Lush village fields beside the Yellow River contrast with the Tengger Desert

**BELOW** The Kumtag Desert near the southwest edge of Lop Nur



**HAS IT HAPPENED BEFORE?**

The Upper Yellow River areas of China, the Fertile Crescent (the land in and around the Tigris and Euphrates rivers) and the Dust Bowl of Oklahoma (USA) are all well-known examples of human-exacerbated desertification. Once forested, these areas were converted into fertile agricultural regions, eventually becoming desertified as the topsoil was exhausted, blown off or washed away. Their present-day agricultural capacity has been greatly reduced as a result.

**WHY SHOULD WE CARE?**

When agriculture and water supply are severely impacted by desertification, the people and cultures that depend on them are also severely impacted. Many of the migrations, famines, and wars in history have been linked to the stresses of desertification.

**CAN WE STOP IT?**

Retaining vegetation and using water carefully is essential to slowing desertification. Blocking the winds and diverting floods will protect the remaining soil. Lessening intensive agricultural practices and reducing the density of grazing animals will slow the advance of desertification.

**CAN WE REVERSE IT?**

Replanting trees to block the wind, reshaping the land to collect water and adding fertiliser to replace lost soil can all help to revitalise degraded lands. However, in each region there are unique human and environmental challenges, so various methods will need to be developed and tested.

Over time, reforestation and sustainable agricultural practices will allow the soil to reaccumulate. As more vegetation grows, soil moisture and fertility will slowly return. This process may take many years or even centuries, but the efforts now will pay off for future generations.