

FROM DUST TO LIFE: TURNING OUR DESERTS GREEN

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GLOBAL INITIATIVES AND RESEARCH IN COMBATING DESERTIFICATION

Did you know that over 75% of the land on Earth is already degraded? That's a staggering statistic from the European Commission's World Atlas of Desertification. Even more concerning, they predict that by 2050, more than 90% of our land could face degradation. Each year, an area about half the size of the European Union—around 1.61 million square miles—is affected, with Africa and Asia bearing the brunt of this crisis.

This is where the United Nations' Sustainable Development Goals (SDGs) come into play, particularly Goal 15, which focuses on life on land. The aim is to protect and restore our terrestrial ecosystems, manage forests sustainably, combat desertification, and halt biodiversity loss.

One of the hardest-hit areas is the Sahel region in Africa, where people are already feeling the harsh effects of climate change. Droughts, food shortages, and conflicts over dwindling resources are pushing many to migrate to Europe in search of a better life.

Efforts are being made to counteract these effects. Research is focusing on developing efficient tree-planting vehicles for deserts, addressing the low efficiency and high labor requirements of current methods. Genetic research aims to create crops that can thrive in harsh, arid conditions, with species such as *Hedysarum scoparium*, *Caragana korshinskii*, and *Artemisia desertorum* being suitable for desert planting.

A significant initiative in this realm is the Great Green Wall project, which aims to restore 386,000 square miles across 20 African countries by 2030. This ambitious plan seeks to plant trees from the west to the east of the continent, providing food, jobs, and a sustainable future for millions living in climate-affected regions. Drought-resistant acacia trees are being planted, creating shaded environments that help other plants thrive with less water.

Saudi Arabia is also making strides with its Vision 2030 plan, which focuses on transforming the nation while ensuring environmental sustainability.



The Saudi Green Initiative aims to plant 10 billion trees across the Kingdom, utilising recycled water to support these efforts. This will not only help combat pollution and reduce carbon emissions but also improve air quality and lower temperatures.

Israel provides another fascinating example. Back in the 1920s, 60% of its land was desert, but today, it's known for its water supply innovations. In 1939, a brilliant Polish hydraulic engineer named Simcha Blas was tasked with creating a new water distribution system. His plan involved deep boreholes, a sophisticated distribution network, and the construction of a national aqueduct to transport water from the Sea of Galilee to the rest of the country. The Israel Water Authority was established to manage this system, charging for water to promote conservation. This approach led to a 20% reduction in residential water consumption.

Thanks to these innovations, Israel's agriculture has flourished, generating \$2 billion in sales annually, primarily from fruits and vegetables. They've even pioneered a technique called 'Drip Irrigation,' which conserves water while boosting crop yields. In dealing with the saline nature of their water supply, Israel has focused on developing crops that can withstand salty conditions, rather than relying solely on costly desalination plants, instead of making huge investments to desalinate the water.

These examples highlight how countries are responding to the pressing issue of land degradation and climate change, showcasing innovative solutions and a commitment to sustainability.

