

Combating Desertification in Israel

Bonnie Sheinman - KKL-JNF Photo Archive

Forty percent of the world's land is classified as arid or semi-arid, affecting one-third of the global population. Desertification, driven by climate change and human activities, is a major concern for experts. In Israel, where the Negev desert covers two-thirds of the country, these issues are particularly pertinent. The knowledge and techniques developed by Keren Kayemeth LeIsrael – Jewish National Fund (KKL-JNF), based on ancient Nabatean agricultural methods, could be beneficial globally. These methods include using Liman inlets and ridges to harvest floodwater and grow forests in areas with annual rainfall below 200 millimeters.

KKL-JNF collaborates with Israel's top scientists to develop infrastructure crucial for afforestation in arid regions and invests in R&D to cultivate drought-resistant tree species. Agricultural R&D centers across Israel support farmers by developing technologies to expand the range of crops grown in arid conditions and improving agricultural profitability. KKL-JNF has also built 230 reservoirs to store floodwater and treated wastewater, providing inexpensive water for irrigation and conserving freshwater. These reservoirs help prevent environmental pollution and support agriculture in arid regions.

KKL-JNF's expertise extends beyond Israel, benefiting other countries, including collaborative projects in arid regions like Turkana, Kenya. As desertification accelerates globally, KKL-JNF's innovations and willingness to share knowledge are crucial in addressing water challenges and ensuring the sustainability of agriculture, benefiting people, animals, and plants worldwide.

We invite you to support the following vital projects in combating desertification, developing sustainable agriculture, and preserving our environment. Your generous donation can make a significant impact locally and globally:



Albetross - KKLJNF Photo Archive

Yatir Forest: Turning the Desert Green

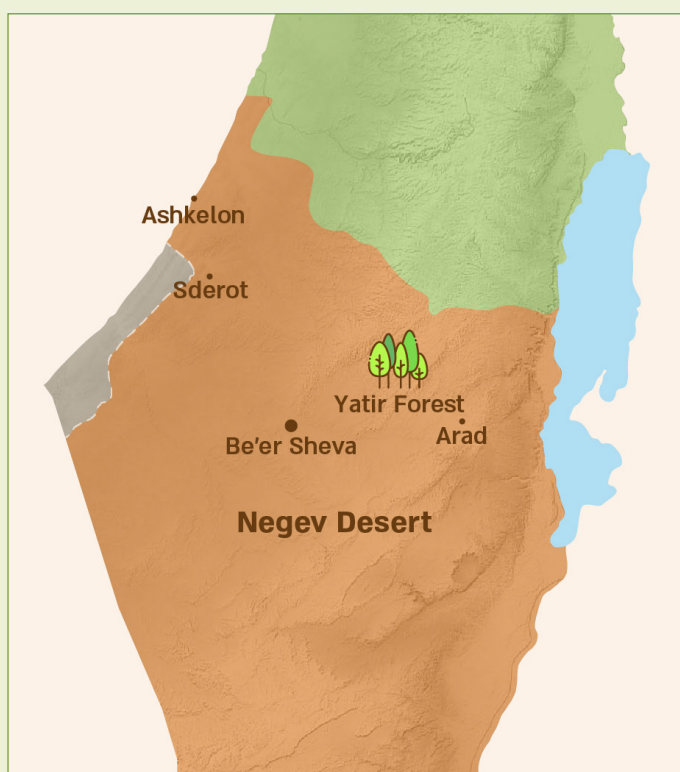
Project Cost: 3,000,000 NIS (400 dunams / 99 acres)

Established in 1966 by KKL-JNF, Yatir Forest is now Israel's largest forest, transforming the arid landscape of northern Negev. This remarkable forest demonstrates KKL-JNF's commitment to combating desertification and mitigating climate change. With approximately four million trees, it stands as the only forest in the world where fertile farmland meets barren desert.

The forest is rich in archaeological sites, scenic roads, accessible recreation areas and a KKL-JNF Field and Forest Education Center.

Yatir Forest plays a crucial role in climate regulation and dryland afforestation, halting soil erosion and restoring decertified land. It sequesters about 150 grams of carbon per square meter annually, similar to forests in temperate regions, and lowers summer temperatures by up to 4°C.

The forest's impact extends beyond climate benefits. Yatir Forest purifies the air, with each tree filtering 100,000 cubic meters of air and absorbing 20 kg of dust annually. Also, it enhances water management by improving rainwater penetration and preventing soil erosion. Furthermore, Yatir Forest provides a critical habitat for numerous bird species, supporting local biodiversity.



KKL-JNF's work in Yatir Forest showcases innovative forestry techniques adapted to arid conditions. The organization collaborates with scientific institutions for ongoing research, maintaining a sophisticated monitoring station since 2000. KKL-JNF also balances conservation with sustainable use through controlled grazing programs involving local Bedouin communities. As a living laboratory, Yatir Forest is a symbol of afforestation in semi-arid regions, showcasing nature-based solutions for global environmental challenges.

With your support, Yatir Forest will continue to expand as a model for combating desertification and climate change. Together, we can protect the environment, support biodiversity, and ensure lasting benefits for future generations. Join us in making a tangible difference.

The Arad Reservoir: Support Sustainable Agriculture in Arid Regions

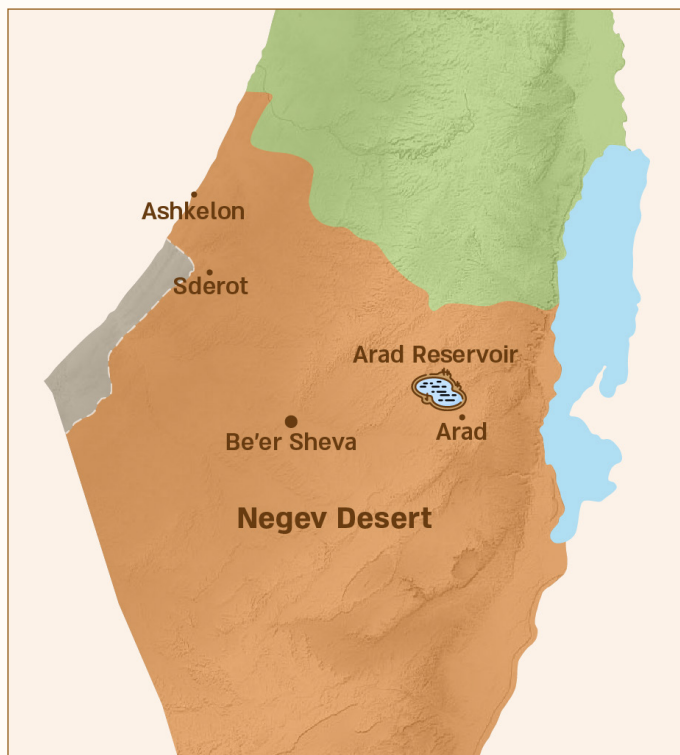
Project Cost: 10,000,000 NIS

KKL-JNF has constructed 230 reservoirs across Israel to store floodwater and treated wastewater for agricultural irrigation, saving expensive potable water and supporting farming in arid regions. These reservoirs contribute 260 million cubic meters of water annually to Israel's water economy and vital for sustainable farming and environmental preservation. Israel leads globally in reclaimed water use, treating over 85% of its effluents for agriculture, with plans to reach 90%.



By storing effluent (partly purified sewage water) in reservoirs, the effluent is prevented from flowing into the environment, thereby preventing pollution of rivers, soil, underground water sources and bodies of water into which the waters flow. The Israeli rivers' restoration projects would have no meaningful significance unless the flow of sewage and effluent into the rivers is stopped by means of controlled storage in reservoirs that are custom-made for the task.

Reservoir technology has improved, becoming incomparably more effective and sophisticated over the years as a result of the accompanying R&D, as well as the lessons learned by KKL-JNF from actual experience in building reservoirs in past decades. This includes using sealing technology using plastic sheets, reservoir engineering, preventing embankments from collapsing, improvements in maintenance and access, extending previously existing reservoirs, and hydraulic control.



Most of the agriculture in Israel is irrigated with reclaimed water. Large areas, which were once desolate due to water scarcity, especially in the Negev, are now green and covered with groves and field crops. Purified wastewater is relatively cheap and available for farmers, which enables them to profit from their labor.

The Arad Reservoir, built by KKL-JNF in the 1990s with support from JNF USA, has long provided irrigation for local farmers. After discovering significant damage in its eastern flank a few years ago, the reservoir's capacity was halved to prevent further issues, impacting irrigation and agriculture.

A major renovation project was launched to repair and enlarge the reservoir. This included planning, engineering, excavation, sealing, new piping, and additional safety features. Completed in 2023, the project increased the reservoir's capacity by nearly 50%, from 0.50 million cubic meters to 0.74 million cubic meters.

Your support is essential to maximizing every drop of water. As local temperatures rise and rainfall becomes less frequent, our reservoirs are more crucial than ever. Together, we can continue safeguarding Israel's water security and ensure its future.

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