



Blaustein Institutes for Desert Research
Ben-Gurion University of the Negev



Keren Kayemeth Lelsrael –
Jewish National Fund

Newman Information Center for Desert Research and Development



**Online Well of Knowledge:
At the Forefront of Combating Desertification**

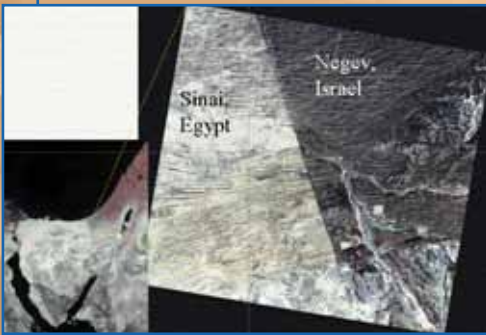
<http://desert.bgu.ac.il>

People in Fragile Ecosystems

Over two billion people in some 100 countries endure scarcity of water resources by living in drylands, which constitute 40% of the earth's continental mass. According to various estimates, between 2 to 12 million dryland residents live on farm and grazing land that has undergone degradation. This debasement, commonly referred to as desertification, reduces land productivity, which breeds poverty, famine, large-scale population migrations, as well as social and political strife. Even greater numbers of dryland residents are under threat of desertification, which, if ignored, will imperil the development of countless communities. Desertification is therefore a major environmental challenge facing mankind and a prime impediment to meeting basic human needs in dryland regions.

The Roots of Desertification

Desertification – the reduced ability of land to support crops, forage and natural vegetation – is born of a combination of natural causes and inappropriate human activities. Nature can strike a region with drought, but man can bring on soil erosion by overgrazing or over-cultivating or engaging in irrigation practices that engender soil salinization. Such land-damaging practices are often accelerated by governmental policies, global markets and increasing population pressures.



The Negev-Sinai international border from space. The dark Israeli side denotes a thin soil crust made mainly by photosynthetic bacteria, which stabilizes the dunes. Overstocking of livestock in the Sinai, associated with overgrazing and intensive trampling, has destroyed the dunes' protective crust. The bright Sinai side records these noncrusted, shifting dunes.

Preventing Desertification

Because of these many factors, developing approaches to prevent land degradation requires knowledge of dryland ecology, as well as the activities of inhabitants, local and regional governments, and global policies. These efforts are important for both developed and developing countries, because if present trends continue, most drylands will be at risk of desertification. And once degradation reaches its critical stage, reversal is difficult and costly.



KKL-JNF afforestation project in the northern Negev based on runoff water harvesting on hill slopes.

An Oasis of Hope

While dryland studies are carried out throughout the world, Israel occupies a pivotal location for advancing this specialization. It sits at the junction of three major global dryland areas: the hyperarid Saharo-Arabian desert, the arid Asian steppe, and the semiarid/dry-subhumid Mediterranean scrubland. Nearly all Israelis – despite the small size of the country – populate one of the major dryland types, making desert and desertification studies there relevant to dryland people throughout the world. These dryland investigations are carried out in various academic and governmental settings. Premier among them is the Ben-Gurion University of the Negev and its Blaustein Institutes of Desert Research (BIDR), located in the heart of the central Negev. BIDR research covers a broad spectrum of disciplines relevant to dryland habitats, including the design and construction of homes and neighborhoods; development of environmentally friendly and cheap energy sources; water supply expansion; agriculture and aquaculture; the advancement of livestock, rangeland and wildlife management; afforestation and land conservation. For this, the BIDR has brought together a dynamic multi- and interdisciplinary group of researchers.

On-the-ground development work to protect the Negev desert environment, increase its agricultural production and strengthen its population is under the auspices of the Keren Kayemeth LeIsrael – Jewish National Fund (KKL-JNF). The latter is the oldest and biggest green organization in Israel. Its work is primarily devoted to afforestation, soil conservation, park development, construction of water reservoirs, and river restoration.

Collaboration Makes a Difference

At the BIDR, research is driven by a desire to support the inhabitants of drylands, over and above the advance of scientific knowledge. Successful combating of desertification and the recovering of seriously degraded areas require tight interaction between dryland developers and researchers. It is knowledge furnished by researchers that often provides dryland developers, such as KKL-JNF, with the ability to proceed without losing the support provided by a functional environment. Researchers at BIDR therefore collaborate in specific projects with KKL-JNF workers, who are dedicated to environmentally friendly, sustainable land development.



Smart window for dryland housing. Reversible glazing system selectively modulates the admission of light and heat according to the season of the year, preserving internal comfort without resorting to standard heating or air-conditioning.

Why the Newman Information Center Website?

Despite the extensive research effort devoted to drylands, the public at large has little knowledge of their fragile nature and of the inadvisability of development work that disregards the environment on which its sustainability depends. Increasing this knowledge and strengthening the public awareness of the importance of proper land management has become urgent now that vulnerable regions are undergoing accelerated development and settlement.

Ben-Gurion University and the KKL-JNF have initiated the establishment of the Newman Information Center for Desert Research and Development (NIC) to meet these needs. The website

Provides research information on deserts, drylands and desertification for the public at large and for the community of high-school students in particular, using clear, crisp, easy-to-understand language;

Informs readers of the development activities of the KKL-JNF in forestry, river restoration, urban parks, and other areas, stressing proper usage of the services available at these improved terrains;

Furnishes background material and guidance for teachers, educators, tour guides, KKL-JNF workers, and other groups dealing in dryland restoration, preservation, and sustainable development; and

Serves for the transfer and exchange of up-to-date scientific data among researchers, research students, and other professionals dealing with dryland research and its interface with people.

The NIC operates on several levels, starting with popularly written descriptions to presentations appropriate for professional journals and reports. Because it functions as a dynamic website, posted material undergoes regular expansion and updating. The Center also enables visitors to become members, receive current data, participate in forums, and other activities.

Website Features

The NIC is a state-of-the-art, multimedia educational website dealing with various aspects of drylands, including desertification, and the centrality of human activity in rehabilitating and conserving or, alternatively, abusing the dryland environment. The site is built around main webpages containing illustrated essays dealing with various aspects of desert research and development. The NIC also provides users with supplemental material, such as video-clips, animations, interactive learning experiences, as well as published popular and technical articles.

In fulfilling its mission as a source of desert research and development, posted material on various topics is divided into mainpages known as **Research Sites** and **Development Sites**. The Research Sites post information on studies carried out primarily by researchers at the Blaustein Institutes for Desert Research. Essays are organized into five major themes: the **Environment**, **Man**, **Water**, **Agriculture**, and **Technology**. The Development Sites describe projects executed primarily by Keren Kayemeth Lelsrael – Jewish National Fund. These are divided into three areas: **Forestry**, **Water**, and **Land** and deal with conservation, rehabilitation, and development work carried out in Israel, particularly in the Negev region.

There is also a **Library** area with articles, illustrations, animations, etc., an area detailing the **People** whose work is described in the site, a **Dictionary** of technical terms, a sophisticated **Search Engine**, **Forums** on various subjects, and a **News** page updating visitors on latest advances in the NIC. In addition, there are parallel English and Hebrew language portals to best serve Israeli as well as international visitors.



Vegetation patterns along the rainfall gradient. Interactive animation in the Newman Information Center website showing how vegetation changes with rainfall.

The establishment of the Raquel H. Newman Information Center has been supported by a gift. The donor is interested in issues related to desertification and is deeply committed to the research work that is being done at Ben-Gurion University of the Negev and the Blaustein Institutes for Desert Research.

Get to Know More About the Desert and Desertification
Visit us at <http://desert.bgu.ac.il>



Front page of the research site on Solar Light Engineering.

For more information about the Blaustein Institutes for Desert Research and the Keren Kayemeth LeIsrael, please visit their websites:

BIDR: <http://bidr.bgu.ac.il>

KKL-JNF: <http://www.kkl.org.il>

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