

Indira Gandhi Nahar Pariyojana (IGNP): Impact in Jaisalmer

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The implementation of the **Indira Gandhi Nahar Pariyojana (IGNP)** has completely rewritten the geographic reality of the **Jaisalmer district**. By routing Himalayan river water straight through the heart of the Thar Desert via its *Sagarmal Gopa Branch*, the project transformed Jaisalmer from a fragile, drought-prone landscape into a vibrant hub of agricultural activity and permanent human settlement.

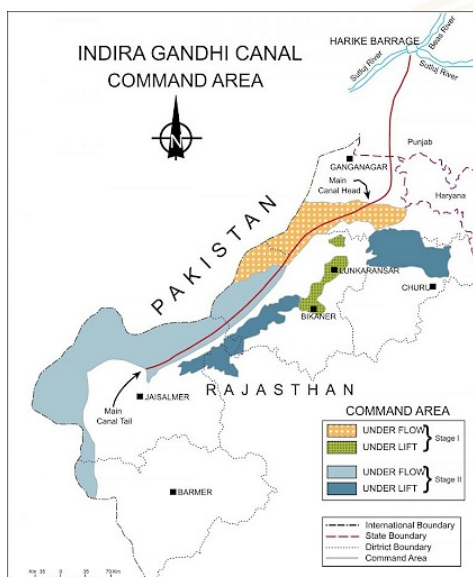


Fig. 1: Indira Gandhi Canal command area

1. The Agricultural Revolution and Crop Diversification

Before the canal's arrival, agriculture in Jaisalmer was entirely dependent on highly unpredictable monsoonal rainfall (~148mm annually), limiting farmers to basic rain-fed crops like *Bajra* (pearl millet).



Fig. 2: Farmland in the arid zone

- **The Irrigated Expansion:** The canal drove a **gross irrigated area spike of over 219%** across recent decades, with two-thirds of the district's watered farms relying exclusively on the IGNP.
- **Shift to High-Value Cash Crops:** The sandy wastelands now sustain two-season cultivation cycles. Jaisalmer has become a highly competitive producer of **mustard, cluster beans (guar), groundnuts, and cotton**, giving local farmer's substantial purchasing power.
- **The "Diggi" Innovation:** To combat uneven water distribution at the tail-end branches, local farmers engineered intermediate field-level storage tanks called **Diggis**. Over the last twenty years, diggi integration expanded **irrigated crop cover by 4.5 times**, enabling widespread adoption of high-efficiency sprinkler irrigation systems.

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2. Ecological Restoration and Environmental Alterations

The sudden introduction of intense surface water completely disrupted the hyper-arid ecosystem—yielding major environmental improvements alongside critical conservation challenges.



Fig. 3: Solar-powered pump installation on a farm

- **Reduction in Desertification and Wind Hazards:** The dramatic surge in terrestrial **Net Primary Productivity (NPP)** over the last 30 years has fundamentally anchored the loose desert soil. Increased crop cover and canal-side afforestation belts have successfully **reduced the frequency of wind erosion, shifting sand dunes, and severe sandstorms (aeolian hazards)** in the command area.
- **The Counter-Challenge of Salinity:** Because hyper-arid desert soils naturally possess high underlying salinity, excessive or poorly managed canal irrigation has triggered localized instances of **waterlogging and soil salinization**. This requires active soil monitoring by agritech bodies like CAZRI.

3. Demographic Shifts and Socio-Economic Infrastructure

The most striking impact is visible in the human landscape of the district. The canal effectively altered the traditional socio-economic framework of Western Rajasthan.

- **Stabilization of Population:** The availability of permanent water put an end to regular, climate-forced migratory cycles. Over 120,000 land entitlements allocated under the project anchored families into stable, grid-planned agrarian villages (*chaks*).
- **Unlocking Clean Drinking Water Security:** Beyond fields, the IGNP is the sole lifeline for domestic survival. Under initiatives like the Jal Jeevan Mission, massive infrastructure projects—including **Asia's largest artificial zigzag desert reservoir** spanning 7,500 hectares in Jaisalmer—have been engineered to secure a continuous, year-round drinking water supply even during annual canal maintenance shutdowns.