



# **INTEGRATED WATER RESOURCE MANAGEMENT for REHABILITATION of KAREZES**

A TRADITIONAL WATER MANAGEMENT SYSTEM STRIVING AGAINST DROUGHT,  
INCREASING POPULATION, AND TECHNOLOGICAL CHANGE IN BALOCHISTAN

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A Photo by WWF-Pakistan, Investigation Team

## Executive Summary

The investigative study report (its draft version shared with UNU earlier) informs the reader about the root causes of drying up of 40 out of 50 karezes in Loralai district of Balochistan. Chapli karez was selected for a thorough analysis to represent the process experienced by most of the karezes that have dried during the prevailing dry spell. More significantly, the study will shed light on the major factors that have enabled Zarh, Chinjan, and Dargai karezes to maintain their resilience throughout the severe drought that started in Balochistan from the spring of 1996 and now after eight years has started to diminish after receiving some good rains and subsequent flash floods in July 2003 and heavy winter snowfall in 2004-05.

Two factors have greatly influenced the original scope of the work: First, social and political circumstances changed in Zarh Karez village due to a murder over ownership of a piece of agricultural land in the beginning of 2003. Second, Government of Pakistan has signed an agreement with the new Government of Afghanistan to facilitate the repatriation of Afghan refugees living in the camps inside Pakistan. Although a population of more than twenty thousand Afghan refugees still inhabits the camps in Zarh karez, the Government of Pakistan has advised against extending new services to the refugees as they are all scheduled to be repatriated soon.

Initially, a comparative study of Zarh karez with a nearby abandoned karez was planned to highlight the trends and facts that have contributed towards the continuation and discontinuation of selected karezes. However, community conflict in Zarh karez restricted our access to the people who have been managing Zarh karez for years, but we were still able to communicate with the elders of the Afghan refugee camp in Zarh Karez. Nevertheless, we have tried to overcome the barriers by expanding our study to two other karezes that had been identified by the UNDP's SDRP social mobilizer and MIS coordinator motivating us to visit these two additional Karezes and to include them in the study.

The team also initially investigated four other karezes named Shah, Kach Amakzai, Surki Jungle, and Zangiwal Jomezai karezes. Preliminary investigations of these karezes further confirmed the trends and phenomenon documented in this study.

Population explosion has remained an essential theme but the significance of pressures from Afghan refugees on decreasing water resources was down played as CAR had made separate arrangements for supplying water to refugee camps through government's water tankers. In early 1980s, conflicts between Afghan refugees and local population had started to emerge in Shah Karez village but contention over sharing of karez water was quickly resolved through alternate government controlled water supplies, which have continued to date. Internal displacement of Pakistanis occurred only in those areas where refugee populations exceedingly overwhelmed the thinly populated remote border villages, as Afghan refugees are traditionally armed and more organized than their Pakistani cousins.

The recommendations for a comprehensive IWRM plan for karez rehabilitation is given in the end as an outcome of a consultative workshop in Quetta organized to present the findings of the investigation team to the stakeholders especially the representative of the Government of Balochistan who were in the middle of planning various karez restoration works in the province and were in advance stages of negotiating funding from the Federal Government and aid agencies. In a latest development USAID has provided its technical and financial assistance to the Government of Balochistan for drought mitigation and improving livelihood in the areas of the province irrigated by karezes.

It is hoped that with the implementation of the recommendations documented at the end of this study the Government of Balochistan's planners will be able to integrate social, environmental, economic and policy aspects of the karez rehabilitation in the execution of their technical plans for restoring hundreds of dried karezes throughout the province. Moreover, the findings of the study also warn against unregulated use of tube wells and construction of ill-planned dams and reservoirs.

At first development of a comprehensive IWRM plan for karez rehabilitation was envisaged, but in the aftermath of the four field visits and consultations the scope of the investigation was expanded from one Zarh karez to karez irrigation in the entire Tehsil of Kach Amaqzai. Naturally, it became unlikely to come up with a tangible plan for addressing the issues of a particular karez rather thirty-five recommendations and six major objectives have been defined to steer anyone interested in working on water management issues prevailing in Balochistan.