



Scooping Visit to Pishin Balochistan for Karez Rehabilitation



Pishin – Pakistan

27 April, 2015

Global Water Partnership (GWP)

The Global Water Partnership (GWP) was created in 1996 in response to the Rio Earth Summit. It supports countries in the sustainable management of their water resources through its unique network of locally driven and staffed Regional and Country Water Partnerships. Following the 2002 resolution at World Summit on Sustainable Development, GWP has worked with numerous governments worldwide to develop Integrated Water Resources Management and Water Efficiency Plans.

GWP is an intergovernmental organization of 13 Regional Water Partnerships, over 80 Country Water Partnerships and more than 2,500 Partner Organizations in 161 countries. Its vision is a water secure world. GWP's mission is to support the sustainable development and management of water resources at all levels through Integrated Water Resources Management (IWRM). IWRM is a process that promotes the coordinated development and management of water, land and related resources in order to maximize economic and social welfare in an equitable manner, without compromising the sustainability of vital ecosystems and the environment.

A water secure world harnesses the productive power of water and minimizes its destructive force. It is a world where every person has enough safe, affordable, clean water to lead a healthy and productive life. It is a world where communities are protected from floods, droughts, landslides, erosion, and water-borne diseases. Water security promotes environmental protection as well as social justice, and addresses the impacts of poor water management. All of these will become even greater challenges as climate variability increases.

Pakistan Water Partnership (PWP)

PWP is a think tank created to promote the concepts of Integrated Water Resources Management in Pakistan through advocacy, capacity building, providing a neutral platform to review and discuss water issue of the country and help the government in better water management under the threats of climate change and droughts/floods at all levels.

Area Water Partnerships (AWPs)

Area Water Partnership (AWP) is a network of local departments, institutions, organizations and stakeholders. AWP should strive to involve and engage all relevant stakeholders (departments, institutions, organizations, farmer organizations, famers, etc.) in all activities of the AWP to achieve their ownership of this network.

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1. Background

Balochistan has the largest area among Pakistan's four provinces, constituting approximately 44% of the country's total land mass, and the smallest population, being home to less than 5% of the country's population. Balochistan is situated in the southwest of Pakistan and covers an area of 347,190 square kilometers (134,050 sq mi). Balochistan province is bordered by Afghanistan to the north and north-west, Iran to the south-west, the Arabian Sea to the south, Punjab and Sindh to the east, and Khyber Pakhtunkhwa and Federally Administered Tribal Areas to the north-east. Quetta is the capital and largest city of Balochistan Province.



Fig. 1: Map of Balochistan Province

Balochistan is rich in exhaustible and renewable resources; it is the second major supplier of natural gas in Pakistan. The province's renewable and human resource potential has not been systematically measured or exploited due to pressures from within and without Pakistan.

The climate of the upper highlands is characterized by very cold winters and hot summers. In the lower highlands, winters vary from extremely cold in northern districts Ziarat, Quetta, Kalat, Muslim Baagh and Khanozai to milder conditions closer to the Makran coast. Winters

are mild on the plains, where temperature never falling below freezing point. Summers are hot and dry, especially in the arid zones of Chaghai and Kharan districts. The plains are also very hot in summer, with temperatures reaching 50 °C (122 °F). The record highest temperature, 53 °C (127 °F), was recorded in Sibi on 26 May 2010, exceeding the previous record, 52 °C (126 °F). Other hot areas include Turbat and Dalbandin. The desert climate is characterized by hot and very arid conditions. Occasionally strong wind and dust storms make these areas very inhospitable.

Balochistan's share in Pakistan's national income has historically ranged between 3.7% and 4.9%. Since 1972, Balochistan's gross income has grown in size by 2.7 times. Outside Quetta, the resource extraction infrastructure of the province is gradually developing but still lags far behind other parts of Pakistan.

The province of Balochistan has a very fragile economic base and social structure, which to a large extent is dependent on natural resources, especially in the case of the coastal communities who rely directly on fishing and agriculture for their livelihoods. Although there are no major industrial or metropolitan regions in Balochistan, the spillover impact of climate change is visible in the province. The mean annual rainfall varies and maximum could be less than 100 mm in Balochistan.

In Balochistan province, the mangroves' total area is estimated to be 7,340 ha. These mangroves provide food and shelter during larval stage of the life cycle for some 80% of the commercial species of fish and shrimps caught from territorial waters of Balochistan.

The Karez system — an indigenous method of irrigation in which groundwater is tapped using tunnels and underground channels in Pishin — has been vanishing slowly due to installation of countless tubewells.



Pic. 1: Dr. Pervaiz Amir near the mother well of Khushaab Karez, Pishin

2. Objectives of the Scooping Visit to Pishin, Balochistan

Pishin which was once irrigated with the Karezes flowing from the foothills to the Pishin valley's fields now is drying and gardens are dying due to lack of sufficient water during irrigation period.

Prime objective of this visit was to help the farmer communities of Pishin in reviving and rehabilitating 2 karezes in the area on the basis of collaborative working with the farmer communities within an IWRM perspective. This activity focused on identification of two existing karezes located outside the tubewell system with at least 5 KM distance from last tubewell in the area. For location selection, the following criteria were strictly observed:

- i) Karez should be at least 5 km away from the nearest tubewell.
- ii) Community commitment for the ownership of watershed of the mother well, its protection and maintenance.
- iii) Judicious use and conservation of Karez water by installing control valve on the outflow.
- iv) Modernization of water conveyance system – changing it from traditional tunnel to PCV pipes with control valves.

3. Team and Visit Area

With this objective in view as explained above, a joint team of PWP-IUCN comprising Dr. Pervaiz Amir (lead person); Mr. Karamat Ali (PWP Facilitator); Mr. Naseeb Ullah Kakar (IUCN Research Associate); Haji Shabbir Ahmad Kakar (Farmer of Pishin) and Mr. Awais Khan (Farmer of Khushaab) traveled about 90 km and visited two karezes in Pishin foothills on 27th April 2015.



Pic. 2: Areal views of Pishin Foothills near identified karezes

4. Team Review and Observations

PWP-IUCN joint team visited Khushaab and Gowal villages of Pishin, some 90 km from Quetta City. Both karez systems were found operational but with meager flow of water. These karez systems were made functional many years earlier and now were in dilapidated condition and needed immediate rehabilitation to put them back in full operational condition.



Fig. 2: Location of areas of karez on Google Map

4.1 Khushaab Karez

Khushaab Karez is located some 21 km away from the main Pishin Road and it was rehabilitated five years earlier with concrete lining of the terminal under a Karez Rehabilitation Programme of the World Bank.



Pic. 3: A view of Khushaab Karez, Pishin



Pic. 4: PWP-IUCN Team together with a community leader at Khushaab Karez

Since its mother well area was not secured with fencing, there was uncontrolled animals grazing by the Afghan refugee/gipsy tribesmen causing damage to the mother well and the trees planted in the watershed for ground recharge. Mother well pond area was also requiring rehabilitation and fencing.



Pic. 5: A gypsy Afghan Refugee grazing its animals in the Mother Well area of Khushaab Karez – Plantation completely vanished.

After thorough review of the on ground situation, the Team Leader suggested the following measures for the Khushaab Karez:

- i) Mother Well cleaning to enhance water flow
- ii) Excavation of gravel and fencing to be installed
- iii) Plantation of trees in the watershed of the Mother Well
- iv) Installing PVC pipe on the mouth of Karez in the concrete plug and fixing a valve for controlled water use
- v) Community's commitment to provide labour force free of charge.

It was also proposed that the benefiting community should arrange watch and ward of the watershed areas of the mother well and help in plantation.

4.2 Gowal Karez

Gowal Karez is located about 8 km from the main road and the water of the Karez is used for drinking and household purposes through small PVC pipes. However there was no valve on the pipe and water was being wasted unutilized.



Pic.6: A PVC pipe on the Gowal Karez for drinking and household purposes



Pic. 7: Another PVC pipe on Gowal Karez – water is wasting without use

After thorough review of the on ground situation, the Team Leader suggested the following measures for the Gowal Karez:

- i) Mother Well cleaning and widening to enhance water flow
- ii) Plantation of trees around the Mother Well particularly in the recharge zone
- iii) Fencing of the watershed/recharge ground
- iv) Pond to be developed to store water
- v) Labour to be provided by the community free of charge

Since this area was not trespassed by any outsider community or gypsies, regular watch and water was not found necessary.

The Scooping Visit to Pishin concluded with a vote of thanks to the community leader and local farmer who helped the team's productive visit to the two karezes.

5. Photo Gallery

A photo Gallery of the visit is also given below for situation analysis:



Pic.8: Dr. Pervaiz Amir and Mr. Karamat Ali at a model farm in Pashin, Balochisan



Pic.9: A solar powered tubewell extracting ground water on a model farm in Pashin, Balochisan



Pic.10: A lush green field with apple trees at a model farm in Pashin, Balochisan irrigated with solar-powered tubewell



Pic.11: Pond of Khushaab Karez in Pashin, Balochistan carrying rainwater to recharge karez mother well



Pic.12: Goats grazing near Gawal Karez, Pashin, Balochistan



Pic.13: Villagers drinking karez water in Pashin, Balochistan