Target: *6th World Water Forum Target*

Title of the Solution: Livelihood security through integrated water resource management

EXISTING SOLUTION: the solution is already being implemented and has demonstrated long-term sustainability and added-value

Key words: *IWRM, Karez, livelihoods, self-help*

DESCRIPTION

Description of the solution

Category (technical, institutional, legal, policy, financial, communication, others (please specify):*

Technical and communal

Brief description of the solution: *

Karezes are indigenous sub-surface water management structures and the only source of water for irrigation and human needs in the remote, mountainous drylands of Balochistan, Pakistan. The reduced influx of water due to clogged channels and conveyance losses was a huge factor in low productivity and food insecurity in Qila Iskan Khan village, forcing the villagers to migrate to other areas in search of livelihood.

The issue was resolved through an innovative and integrated approach; the underground water channels were cleaned and fixed with perforated UPVC pipes. These small channels were then combined into one main channel and water was transported through a 14-inch wide 2,060 feet long UPVC pipe to a newly constructed earthen water reservoir. The reservoir was then lined with geo-membrane to reduce further seepage losses. With the water conveyance losses reduced to almost zero and opening of the inlets, water flow from the Karez has increased fourfold.

With increased availability of water, the community has started coming back to restore their land, allowing the agricultural activities to take place with great enthusiasm. The outcome was immediately visible as the irrigated land increased from 40 acres to 93 acres over last few months and as of 2011 stands at 310 acres. Taking opportunity of the increased water, the community has started growing vegetables, which has provided them with alternate source of food while ensuring economic stability. The vegetables are in great demand in the nearby villages now and even being supplied to the provincial capital Quetta.

A farmer can earn up to 500 rupees for a crate of bell peppers in the nearby Pishin market and 800 rupees for a crate of tomatoes. During the packing season, the farmers pack about 1000 crates of a single produce like the tomatoes and are now able to send at least 2 truckloads of the produce everyday from the village to the market. With an investment of 2.3 million rupees, the community has been to earn 14.2 million rupees in a single year. The project, up to a greater extent, addressed the food security needs of the community with a rapid impact on the livelihood of the people. It is worth-mentioning that the total cost of the project was Rs. 2,300,000/- out of which the community contributed 20%.

As an integrated solution, IUCN also established a 40,000 container plants' tunnel nursery where indigenous bushes are promoted for the rehabilitation of de-graded rangeland to support livestock, in addition to introduction of low-delta crops including almond, pistachio, olives, and pomegranate.

This demonstration project is highly successful and has a great potential for replication. The sustained flow of water from the Karez will ensure food security for the people of Qila Iskan Khan in the coming years.

Note: Open text entry field – word limit: 300 words

Location

Where was/is the solution implemented?*

Qila Iskan Khan is a village of 40 households, located on alluvial fans of Kan Hill Range in the Pishin District of Balochistan province in Pakistan and bordering with Afghanistan. With an average annual rainfall of 200 mm, it is an arid mountainous area. The village economy is agro-pastoral, dependent on the waters of a karez.

Note: Open text entry field – word limit: 50 words

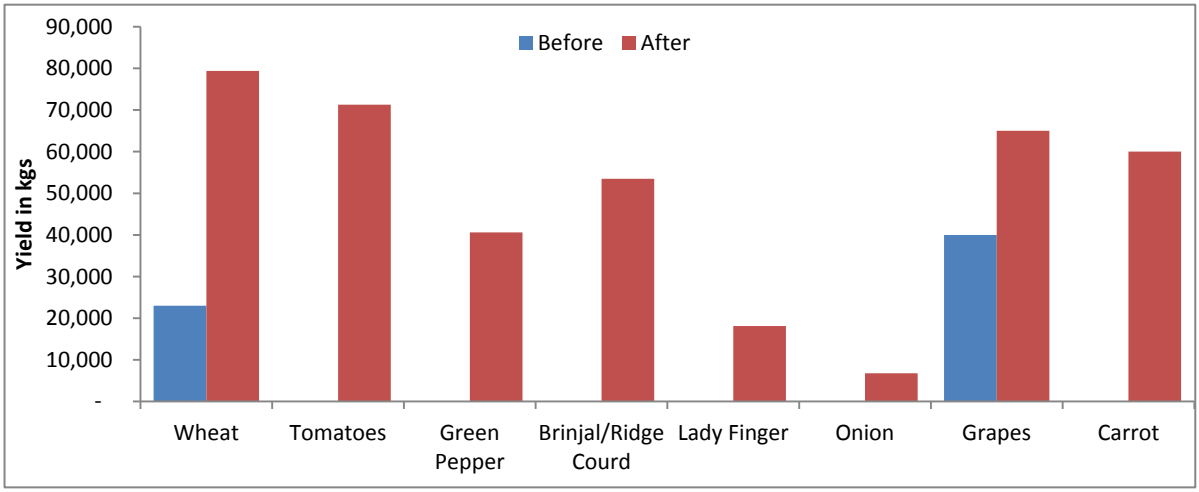
Actors
Who had initiated the project? What were the stakeholders' drivers? ***Which actors proved strategic in the implementation? At what stage were they brought in?*** ***Who has ensured follow-up of the solution at the local level?*** The intervention was identified during an extensive scoping of the selected river basins in Balochistan under IUCN's Balochistan Partnerships for Sustainable Development (BPSD) programme. The major drivers for selection of the intervention included; environmental and livelihood degradation in the area, level of community's willingness to change, potential for success, and demonstrability. The success of the initiative can be attributed primarily to the community's keenness to improve their livelihood through self-help, financial assistance by the Embassy of the Kingdom of the Netherlands through BPSD, and technical skill and motivation of IUCN staff to work under strenuous field conditions. These three actors were hand in hand from planning to implementation. The communities in Qila Iskan Khan and surrounding villages are the custodians of initiative's sustainability. They have witnessed how the power of self-help and a combination of modern techniques can tap into existing water resources and can turn around the entire village. *Note: Open text entry field – word limit: 150 words*

STRATEGIC FIT & ADDED VALUE

Problem to solve
Key question your solution aims to answer (i.e. if your Solution is the answer, then what is the question) and how does that fit with the target?* ***How does the solution contribute to the target's effective implementation and attainment?*** The intervention is aimed at enhancing agricultural productivity and the resultant food and livelihood security through sustainable management of water resources using the indigenous knowledge and mechanisms with a combination of modern techniques. This is in line with the 6th World Water Forum's Economic, Food, and Water Security Regional Target with an emphasis on green growth and in support of economic, food and water security. The initiative also contributes to the following elements of the Framework of Action: • Water allocation, management and investment supporting green growth, having explicit food and nutrition security and poverty reduction targets. • The water and food nexus. *Note: Open text entry field – word limit: 100 words*
Added-value and cost effectiveness
What are the solution's key outputs and what impacts did the solution have given the investment level (not only financial)?* ***Can the solution continue to deliver tangible impacts on the long term?**** The initiative had very clear tangible outputs, including: • Rehabilitation of main channel (628 meters) downstream of daylight point using 14" UPVC pressure pipe. • Construction of main water storage tank (34 x 34 x 1.23 meters), lined with geo-membrane (0.25 mm). • Construction/rehabilitation of secondary water storage tank (50 x 20 x 1.2 meters) lined with geo-membrane (0.25).

- Cleaning of channel and mother well of the karez (1,000 meters).
- Construction of eyebrows (micro-catchment areas) for water conservation.
- Construction of 2 washing pads for women.
- Construction of a nursery tunnel with 40,000 container plants

The graph below shows the impact in terms of agricultural productivity and food security:



Note: Open text entry field – word limit: 100 words

Monitoring

In the process of effectively implementing this solution, what are some of the key qualitative and quantitative indicators of success over time (i.e. what would you expect to see change, where and when)?*

A joint committee of IUCN and the Community monitored the implementation, keeping in view the following indicators of success:

- Consensus of community as a result of community mobilisation
- In kind contribution by the community to the interventions in the ratio of 20:80
- Increase in the availability of water
- Increase in area under cultivation
- Increase in average yield
- Crop diversification
- Net increase in the income of the farmers
- Ease in household chores for the women

Note: Open text entry field – word limit: 100 words

WIDER APPLICATION

Replication and up scaling potential

Given your experience, who would / should be most interested in this Solution and why? How will it help them?*

In what context do you think this solution could / would work best and why?*

Given your experience, what would be needed to upscale this solution, for example to a political or/and a regional level?*

The initiative addressed the food security issue of the community to a great extent, with a healthy impact on their livelihood as well. With a total cost of US$ 27,000, out of which about 20% was

contributed by the community in kind, the outcomes have been very encouraging. Hence, this is a replicable model with the financial assistance of multilateral and bilateral donors, and the national and provincial governments. The model developed is simple and can be easily implemented with the help of communities.

The solution is expected to work well in communities with limited livelihood options and potential to diversify crop patterns. The technical knowhow and backstopping can be provided through intermediary organizations.

The key elements of replication would be necessary finances, community mobilisation and zeal to improve their lives.

Note: Open text entry field – word limit: 300 words

Key lessons learnt

What tips and guidance (dos and don'ts) would you give to others interested in applying this solution in their own context?*
What is the minimum investment necessary (in terms of human resources, time, energy, infrastructure, financial resources, political will, etc.) in order to effectively implement this solution?*
What are the main factors of success that you wish to emphasize?*

This yearlong initiative took place with an investment of about US$ 50,000 (for inputs and human resources). However, the most important contributor was community's enthusiasm to bring about a change, without which this initiative could not have been implemented in a remote and tribal village.

IUCN was able to develop strong liaisons and establish its credibility within the community through respect for cultural norms and financial transparency. The key lesson learnt is that if a genuine need is addressed through community's participation, it not only sustains but also results in positive outcomes.

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Existing commitments

Have some organisations/institutions/committees already committed to implement or replicate this solution?*

CIDA has committed limited funds to expand the initiative under its Balochistan Responsive Fund. The model is being shared with a broad range of donors and partner organizations, such as Pakistan Poverty Alleviation Fund, for possible replication and up scaling.

Note: Open text entry field – word limit: 100 words

CONTACT*

Key contact institution

Where can people go for more information, help or advice on this solution?*

IUCN Pakistan (www.iucnp.org) through its Country Office and the Balochistan Office would be available to share more information and details.

Details of the contact person* (e.g. name, address, e-mail or phone number)

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Note: Open text entry field – word limit: 100 words

ADDITIONAL INFORMATION

Supporting material

Website, Video, podcast, report, PowerPoint presentation, photo album, creative support, etc: please do not hesitate to send us as attachment to this template any supporting material to be circulated about your solution!

1. "Of Pearls in the Sand", an 11 min documentary by award winning filmmaker Umbreen Butt on Iskan Khan. Produced by IUCN Pakistan.
   http://www.youtube.com/watch?v=7EUqavRIKoA&feature=youtu.be

2. http://www.flickr.com/photos/72211516@N04/

Your material will be uploaded on the Platform to be consulted by all.