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Agriculture and Water Management System in Karimabad, Hunza Valley, Pakistan

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Abstract

To understand the water governance system in a typical settlement of the Central Asian Karakorum Mountains primary data on agricultural water management systems were collected through field survey, in-depth interviews, focal group discussions, field measurements and semi-structure questionnaire covering 110 households selected by a snowball sampling scheme in Karimabad, Pakistan. People of Karimabad depend on water received from Ultar Glacier to irrigate their crops and fruit gardens. Each of the four selected zones received irrigation water for three days and two nights or two days and three nights. The cultivated land was categorised into three classes cropland (Sehin), orchard land (Baseo) and grassland (Toq). Irrigation priority was given to cropland followed by orchards and grassland. Among four main water channels discharge rate was highest ($46.73 \text{ m}^3 \text{ sec}^{-1}$) in Dallah, followed by Barba, Hamachi and Dilbar. It was also observed that recently traditional double crops patterns were replaced by the establishment of cash crops. For household consumption there is a separate water supply system that supplies water from time to time. In case of water shortage everyone is allowed to collect water from a particular channel. Jirga and Nambardars (four selected persons from each tribe) play a very important role in water distribution and water disputes. 86% of the respondents confirmed that distribution of water is managed by the jirga. Which also solved disputes on irrigation water. Farmers depend upon fruit production as a major source of income ($P \leq 0.001$) but the production and sale of vegetables also plays an important role for the household income. The data also indicate that Karimabad has experienced major socio-economic and agriculture changes in the last three decades whereby population growth and intensive agriculture in water deficient periods are main causes for water scarcity.

Keywords: Agriculture system, crops rotation, gravity fed irrigation, Hunza, water scarcity

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