

PROBLEMS AND PROSPECTS OF ROD- KOHI IRRIGATION SYSTEM

by

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Content of the Presentation

Rainfall
 Water Resources
 Quality of water
 Land Resources
 Cropping Pattern and Yield of major Crops
 Water Management Practices
 Sediment deposition
 Problems and prospects

Recommendations for better management and improvement of Rod-Kohi irrigation system



DROUGHT

Period with rainfall less than 40% of the normal rainfall have been identified as drought period.

Worst Drought Years

- Punjab 1989, 1920 and 1935, 2000
- Sindh and Baluchistan 1871, 1881, 1889,
 1931, and 2000
- NWFP 1902, 1951 and 2000
- Overall Drought in Pakistan 2000

Average Monthly Rainfall in D. I. Khan)



Droughts in D.I.K During Kharif Season



Droughts in D.I.K During Rabi Season





Major zams, their catchment's area, and average discharges of perennial and flood water in D.I.Khan

S. N O	Name of Zam	Catch ment's area (km²)	Netwo rk length (km)	Perennial Water (m3/s)	Flood Water cms	Total Area of Water Rights (ha)
1	Tank	2,357	306	1.13	3398	41,014
2	Gomal	36,000	264	2.83	4531	105,281
3	Sheikh Haider	453	133	0.28	1133	21,601
4	Draban	1,095	45	1.00	1982	12,543
5	Chaudwan	912	229	0.57	1557	16,047

PLI PROJECT AREA



Draban Zam

Flood Hydrograph Draban Zam



Chaudwan Zam

Flood Hydrograph Chaudwan Zam



PHYSICAL FEATURES OF THE TWO ZAMS

S.No	Description	Draban Zam	Chawdwan Zam
1	Catchment's Area	1096 Km ²	912 Km ²
2	Length of Rod-Kohi Network	45 Km	229 Km
3	CCA With Water Rights	12543 ha	16047 ha
4	Reservoir Capacity	0.17 Maf*	0.15 Maf
5	Area to be Irrigated	22600 acres*	20000 Acres

WATER QUALITY OF THE TWO ZAMS

S	No	Source of Water	Draban Zam ECw in ds/m	Chawdwan Zam ECw in ds/m		
1		Perennial Water (Kalapani)	1.285	1.280		
2		Flood Water	1.013	0.839		
3		Drinking Water (Ground Water)	1.204	1.019		

Probability of water Availability



Flood Water





Chaudwan Zam



DRABAN ZAM

		Landholdings under Rod-kohi irrigation system (ha) per HH			CV (%)
Location on the Zam	Sample Size	Mean	Min.	Max.	
HEAD	22	73.3	5.0	550.0	181.4
MIDDLE	15	12.4	3.0	25.0	64.2
TAIL	15	37.8	1.3	212.5	166.7
OVERALL	52	45.5	1.3	550.0	207.2

CHAUDWAN ZAM

		Landholdings under Rod-kohi			
		irrigation s	irrigation system (ha) per HH		
Location o	n Sample				
the Zam	Size	Mean	Min.	Max.	
HEAD	22	49.05	1.25	500.00	223.18
MIDDLE	15	7.67	2.00	22.50	70.43
TAIL	15	74.67	2.00	650.00	225.07
OVERALI	52	44.50	1.25	650.00	259.83

Surface Map of Bundra situated in Chawdwan Zam head feeded by Kalapani (CHZ-H-KPLLE2) of Shahjehan of Rahwaal



Mean COST(Rs/ha)



Draban Zam (Kharif Crops)



Crop

Chaudwan Zam (Kharif Crops)



Cr op

Draban Zam (Rabi Crops)



Crop

Chaudwan Zam (Rabi Crops)



Draban Zam (Rabi Crops)

Chaudwan Zam (Rabi Crops)

Depth of water Applied in selected bundras of Both Zams

Infiltration rates observed on selected bundras of both zams

Problems

- Water Shortage
- Poverty
- Short lived high peak flow
- Sporadic and Unreliable flow
- Drought
- Enforcement of water rights
- Salinity

Watersheds problems

- Land Degradation
- Deforestation
- Overgrazing
- Steep Slope Cultivation
 - Erosion

conclusions

- Flood water availability decreases from upstream to down stream in both Zams, farmers at downstream gets water about two years out of ten.
- The quality of surface as well as ground water is marginal.

- The yield of crops downstream of the Rod is relatively low as compared to the upstream due to limited water availability.
- For perennial stream water management the organization set up is stronger as compared to flood water management.
- In general there exits an informal water user's Association for management of flood water but has weaken with time especially at the downstream of the Rod due to unreliable flood water availability

- Average depth of flood water applied by farmers ranges from 40 to 80 cm, due to large and unleveled fields the depth of water is relatively more than required.
- Area of fields (bundras) ranges from 1.5 to 5 hectare. Lands of the project area are not leveled with great variation among the fields.
 - Average depth of deposited sediment in the field ranged from 2 to 3.5 cm.
- Infiltration rate of water in fields ranges from 0.2 to 1.2 mm /hr, which is relatively low and water stands in the fields for longer period and significant amount of water evaporates.

 For perennial stream water management the organization set up is strong as compared to flood water management.

In general there exits an informal water user's Association for management of flood but has weaken with time especially at the downstream of the Rod due to unreliable flood water availability.

RECOMMENDATIONS

- Mobilizations and Capacity Building of Communities for Management and development of Natural Resources should be encouraged.
- Integrated approach for the identification, planning, and implementation of resource management intervention should be explored.
- Water harvesting through catchments improvements, ponds, and mini dams and other structures at cost effective way for solving water problems in arid and semi-arid regions should be explored.
- Low cost water management structures for control of flood water should be developed at field as well as Gundi/Sod level.

- Old ponds at tail of rods should be rehabilitated and their capacity should be enhanced for steady water supply.
- Communities should be mobilized and organized first at village then to gundi / sod level and later should be extended to rod as well as Zam level for overall equitable water distribution and better NRM.
- For better crop yield and moisture conservation deep tillage should be encouraged.
- Integrated approach should be explored for overall development of the Rod-kohi area.
- Different stakeholders should coordinates their activities for overall development of Rod-kohi area.

View of the selected zams

Perennial and Flood Water

Flood Irrigation

Assessment of Soil Moisture and Pond's Views

Interview sessions and gram sowing view

Results sharing With farmers

