

A Study on the Impact of Farm Pond under the Water Resource Development Programme of AKRSP(I), in Dang, Gujrat

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AKRSP(I): Overview

Mission:

“AKRSP(I) exists to enable the empowerment of rural communities and groups, particularly the underprivileged and women, to take control over their lives and manage their environment, to create a better and equitable society.

Vision

The Vision "AKRSP(I) can contribute in India to the creation of an enabling environment in which rural people can identify their needs and priorities and with professional support, organize themselves to improve the quality of their lives"

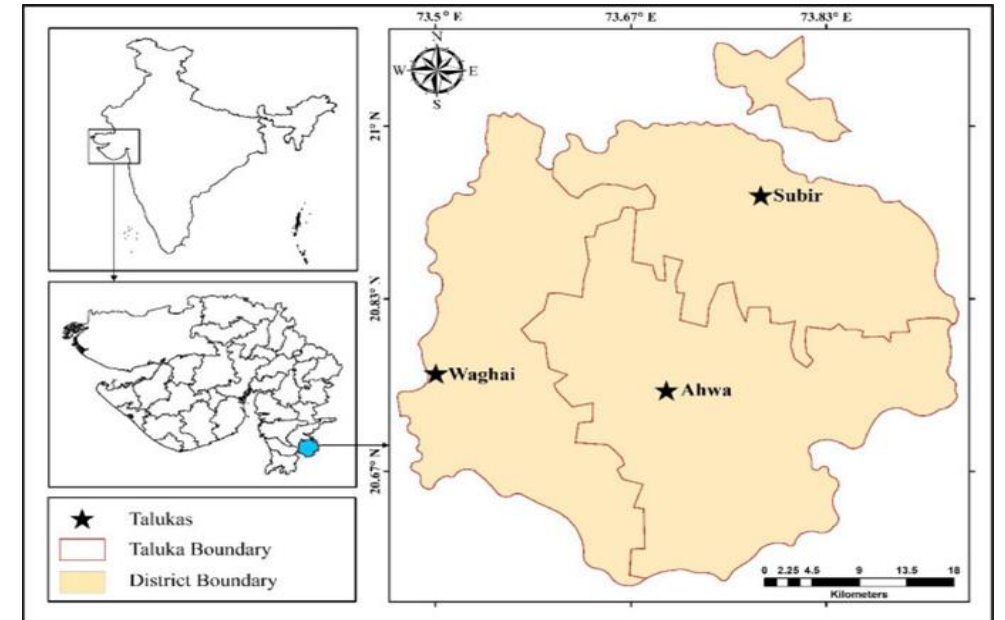
Core Values

- Empowerment
- Equity
- Transparency
- Professional Excellence
- Collaboration
- Responsive to change



AKRSP
Aga Khan Rural
Support Programme

geographically working area





AKRSP
Aga Khan Rural
Support Programme



Purpose of the Research

The purpose of this research is to evaluate the farm pond construction efforts of the Aga Khan Rural Support Program (India) [AKRSP(I)], and assess its impact on agricultural practices and change in crop productivity. The study aims to provide insights into how farms can improve water availability, diversify crops, and increase farmers' economic outcomes.

Research question

- What is the effect of farm ponds on the agriculture practices of farmers and the crop productivity in the Dang district of Gujarat?

Objectives of this study

- To assess the farm pond for irrigation support for the agriculture activities in Dang district.
- To compare the crop pattern, diversification, and productivity before and after the farm pond activities

Literature review

Farm pond has a great impact on changing crop productivity as well as cropping intensity.

<https://www.ijcmas.com/6-9-2017/J.M.%20Deshmukh,%20et%20al.pdf>

After the construction and use of farm ponds, most of the crop yield is increased due to the increased area under irrigation.

https://ijeab.com/upload_document/issue_files/29%20IJEAB-JUL-2017-4-Relational%20Analysis%20of%20Profile%20of%20Beneficiaries.pdf

The availability of water for an additional crop in the summer and Rabi seasons impacts changes in cropping Patterns.

<https://journalijecc.com/index.php/IJECC/article/view/3438/6765>

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Methodology

Study Area:

Conducted in Dang district, Gujarat, specifically in Ahwa and Waghai blocks.

Selection of Farms:

25 farm ponds were selected for a detailed survey. Farms were selected from different villages of 2 blocks using simple random sampling.

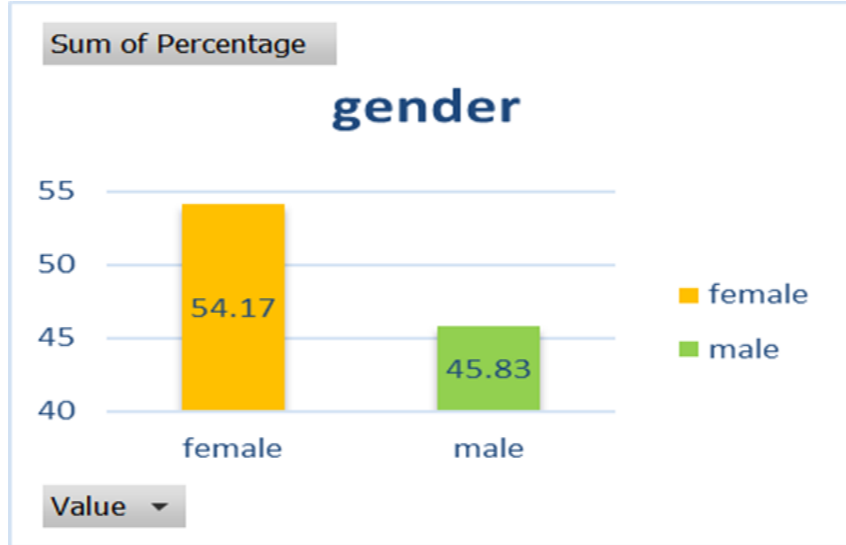
Type of Study: This study was an observational study and cross-sectional study.

Data Collection:

- Primary data was collected through surveys using a questionnaire.
- Pre-designed semi-structured interview schedules were used for interviews.
- Field visits were conducted to farm pond sites.

Finding and analysis

Fig 1: Age of respondent



respondent	Percentage
yes	54.17
no	33.33

Table 1: Water Harvesting Structures for Irrigation

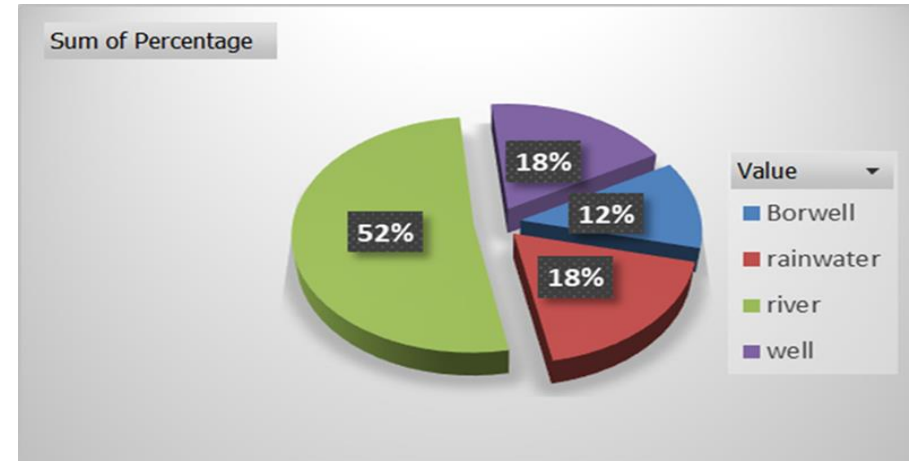
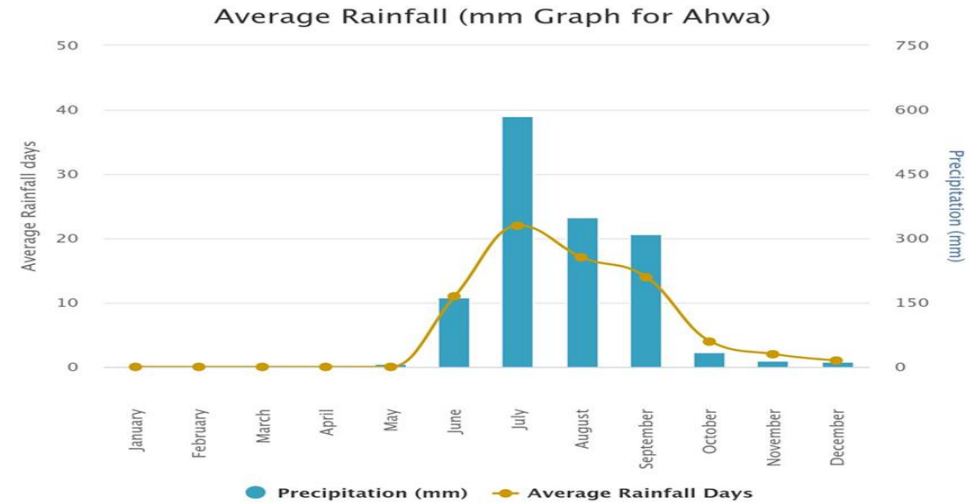
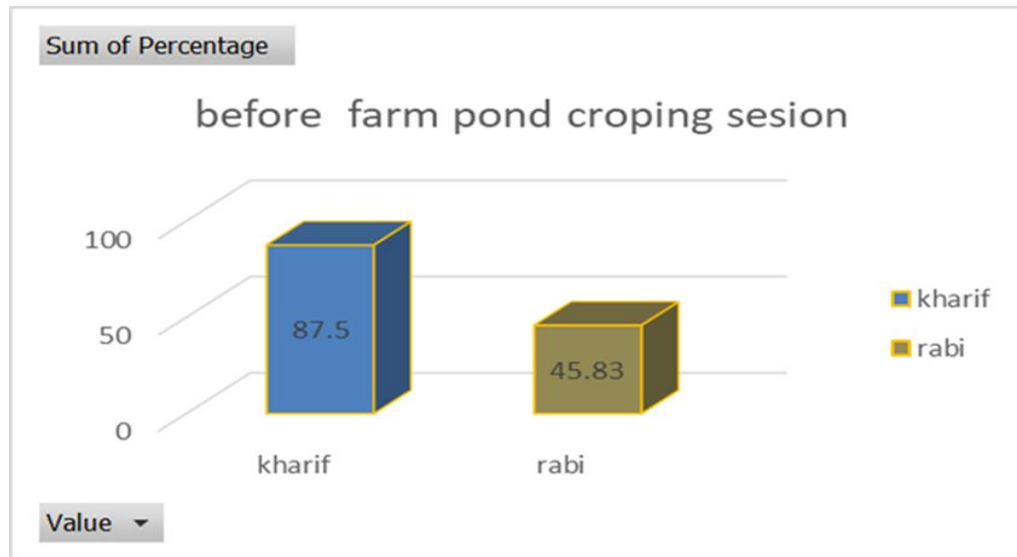


Fig 3: Farmers use water for agriculture from different sources

Fig 4: Before Farm Pond Cropping Pattern



	Minimu m	Maximum	Mean	Std. Deviation
Water storage capacity	126000.0	3237646.0	1513279.52 2	740587.9026

Table 2: The beneficiaries of the average water storage capacity of a farm pond.

Fig 5: After Farm Pond Cropping Pattern

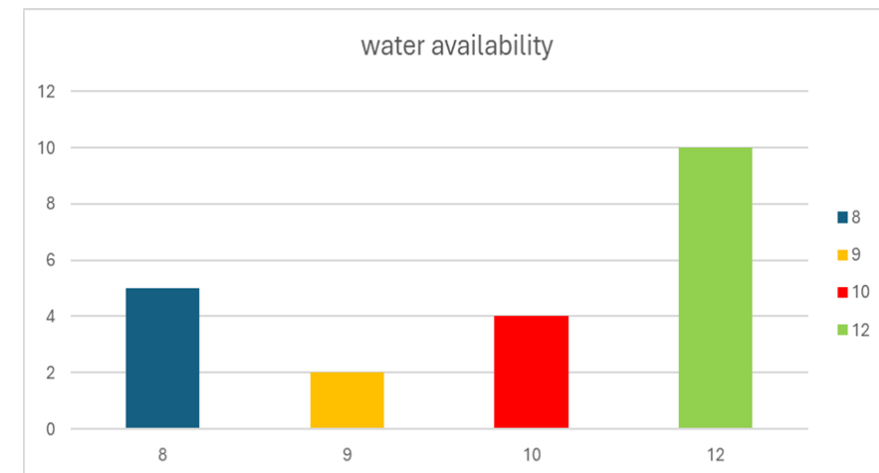
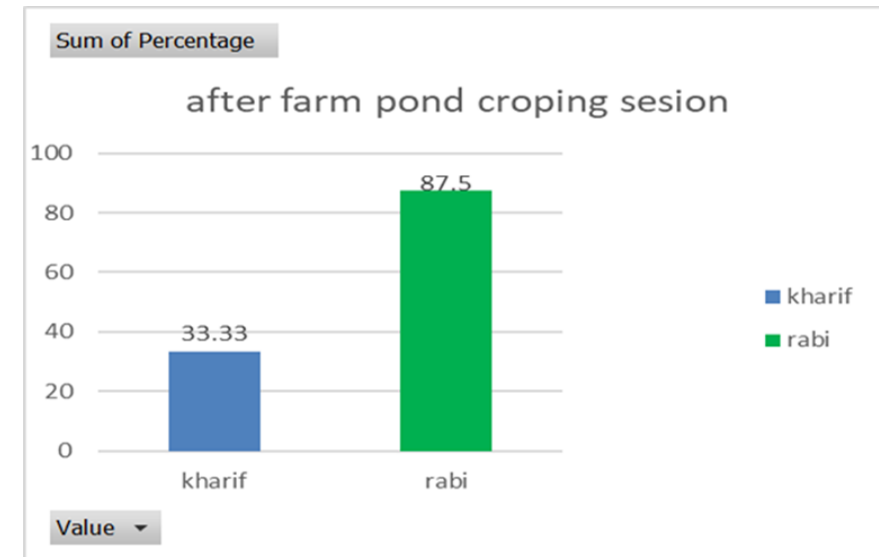


Fig 6: Water availability throughout the years

Fig 7: Farmers use farm pond water for different activities

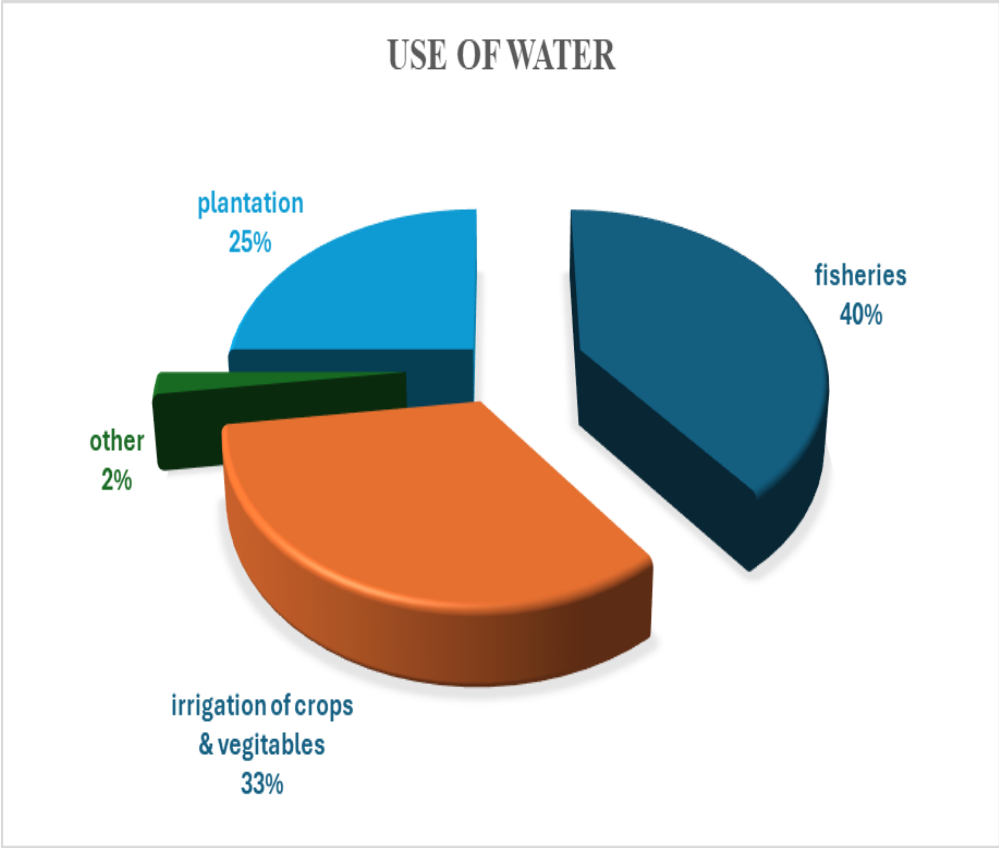


Table 3: After farm pond construction crop productivity

No of farm ponds=25

S. No.	Crops	Productivity Before (Q/kg)	Productivity After (Q/kg)	Percent Change
Kharif 1	Bhat	26.43	32.11	16.64%
	2 Nagali	10.86	12.12	7.17%
	Varai	13.78	16.03	11.72%
4	Udid	8.89	10.88	17.52%
Rabbi	5 Chana	38.93	48.21	21.28%
	6 vatana	12.44	14.59	14.90%
	7 Ground Nut	46.24	50.77	7.54%
	8 Chili	13.87	16.53	16.71%
	9 Brinjal	50.06	58.1	13.68%
	10 Bhindi	242.51	275.83	11.40%
	11 Karle	70.57	84.47	17.23%

Table 4: Total % land irrigation through a farm pond

If yes, total landholding (size acre)	irrigated land (acre)		% increase in Irrigated land
	Before	after	
2	1	2	50.00%
2	1	1.5	66.67%
2.5	0.5	1.5	33.33%
3	1	1.5	66.67%
3	1	2	50.00%
0	0	0	0%
2.5	0.5	1.3	38.46%
3	1	2	50.00%
5	1.5	3	50.00%
2.5	0.5	1.5	33.33%
3	1.5	2	75.00%
2.4	1	1	100.00%
3	1	1.5	66.67%
2.4	0.5	2	25.00%
2	1	1	100.00%
3	1.5	3	50.00%
2	1	2	50.00%
3	1.5	2	75.00%
3	1	3	33.33%
2	0	1	0%
2	0	1	0%
2.5	0.5	2	25.00%
3	1	1.5	66.67%
2	1	1.5	66.67%
60.8	20.5	40.8	

Summary table

Metric	Value
Total Landholding (acres)	60.8 acres
Total Irrigated Land Before (acres)	20.5 acres
Total Irrigated Land After (acres)	40.8 acres

Total Landholding Size:

- Total Landholding = $\sum$ Total Landholding Size (acres)= 60.8 acres

Total Irrigated Land Before:

- Total Irrigated Land Before = $\sum$ Before Total Irrigated Land 20.5 acres.

Total Irrigated Land After:

- Total Irrigated Land After=After Total Irrigated Land=40.8 acres
- Percentage Increase= (Before /After–Before) $\times$ 100

Recommendations

- 1) It is generally suitable for long-lasting and secure field irrigation. It is suggested to build as many farms as possible in drought-prone areas in the Gujarat Dang district region to address this.
- 2) It is important to interact with the farmers who have benefited from the farm pond program in the past so that they may inspire other farmers to build farm ponds and inspire a lot of confidence in them by providing real-world examples of successful farmers.
- 3) Training should be given in efficient water management and crop diversification techniques to maximize the benefits of farms.
- 4) Encouraging the integration of farms with other water conservation practices such as rainwater harvesting check dams, and gabion structures is essential to create a robust and resilient water management system.

Conclusion

- Constructing farm ponds has been an important aspect of this change.
- Water management initiatives are contributing to an important change in the region's agricultural practices.
- The sustainability and productivity of farming have increased due to increased water availability and storage capacity.
- Improved equitable land usage through the Kharif and Rabi seasons has been made possible by changing from dependency on the monsoon to a sustainable throughout-the-year water supply.
- Crop yields and agricultural diversification have increased as an effect of this change.
- The adaptability of farm pond water has been shown by its use in fisheries, plantations, and grain crops.

Thank You