



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

WORKING PAPER 10

Gender and Irrigation in India

The Women's Irrigation Group of Jambar, South Gujarat

Barbara van Koppen
Rashmi K. Nagar
Shilpa Vasavada



Working Paper 10

Gender and Irrigation in India
The Women's Irrigation Group of Jambar,
South Gujarat

Barbara van Koppen

Rashmi K. Nagar

Shilpa Vasavada

Aga Khan Rural Support Programme (India)
and
International Water Management Institute

IWMI receives its principal funding from 58 governments, private foundations, and international and regional organizations known as the Consultative Group on International Agricultural Research (CGIAR). Support is also given by the Governments of Pakistan, South Africa and Sri Lanka.

This study was funded by the Ford Foundation, New Delhi, India.

The authors: Barbara van Koppen is Coordinator, Poverty, Gender and Water Project of IWMI, Colombo, Sri Lanka; Rashmi K. Nagar is a freelance Researcher; and Shilpa Vasavada is Gender Officer of the Aga Khan Rural Support Programme, India.

Barbara van Koppen, Rashmi K. Nagar and Shilpa Vasavada. 2001. *Gender and irrigation in India. The women's irrigation group of Jambar, South Gujarat.* Working Paper 10. Colombo, Sri Lanka: International Water Management Institute.

/irrigation management/women in development/ gender/ female labor/ agricultural credit/ decision making/ irrigation programs/ rain-fed farming/ institution building/ pumping/ India/ Gujarat/ Bharuck/ Jambar/

ISBN 92-9090-432-1

Copyright © 2001, by IWMI. All rights reserved.

Please direct inquiries and comments to: iwmi-research-news@cgiar.org

Contents

Acknowledgements.....	v
1. Aim and Context.....	1
2. Gender and Agriculture in Jambar.....	3
3. Initiating the Irrigation Scheme.....	4
4. Managing the Irrigation Scheme.....	6
5. Gains from the Irrigation Scheme.....	7
6. Conclusions.....	9
Literature Cited.....	9

Acknowledgements

We would like to express our gratitude to Barry Underwood, Chief Executive Officer of the Aga Khan Rural Support Programme (India) and his staff, especially the staff of the Netrang field office, Bharuch. They facilitated the contacts with the Jambar Women's Group and encouraged us throughout our various visits. We enjoyed their warm hospitality and perfect logistical support. We acknowledge the community organizing work done by Jaymati Desai, Ishwar Choudhry and technical implementation by Prabhu Koringa. We especially thank the women and men of Jambar for giving us their precious time and sharing their experiences with us. We did our best to reflect their experiences correctly and, thus, provide an inspiring lesson for other rural development and irrigation institutions.

This case study was prepared as part of a comparative research program on Gender, Poverty, and Water in IWMI, carried out with the support of the Ford Foundation and the Governments of Sweden and the Netherlands.

1. Aim and Context

Introduction

The support provided by the Aga Khan Rural Support Programme (India) to the Jambar Women Irrigation Group in Bharuch, Gujarat, increased women's benefits from irrigation intervention and fundamentally challenged prevailing patterns of male ownership and management of irrigation equipment. The experience highlights the often-untapped potential for gender-balanced irrigation intervention wherever women share in farm activities and decision making. The modest aim of this paper is to document this "best practice."

The report is based on various visits to the group during 1999 and the insightful discussions held with its 22 members, with some of their husbands, and with the staff of the Aga Khan Rural Support Programme (India) (AKRSP [I]) who also provided background material.

Aga Khan Rural Support Programme (India)

AKRSP (I) is a nongovernmental organization (NGO) working in Gujarat State since 1983. Its mission statement is "to enable the empowerment of rural communities and groups, particularly the underprivileged and women, to take control over their own lives and manage their environment, to create a better and more equitable society." Based on a participatory needs assessment and planning process in each community, a range of activities are undertaken, for example, agriculture, forestry, biogas, soil and water conservation, joint input supply and marketing, and water resource development, including canal irrigation, lift irrigation, groundwater recharge and provision of drinking water.

AKRSP (I) channels its support through formal and informal village institutions. At village level it organizes a *Gram Vikas Mandal* or GVM (Village Group). AKRSP (I) has found it more effective for reaching certain communities—especially in villages that consist of different communities divided by caste, class, religion, gender and occupation—to create separate institutions each of which focuses on one particular community, gender, or user group. To address the needs of women, they are organized into *Mahila Vikas Mandals* or MVMs (Village Women's Groups). In an initial stage, activities like monthly saving and credit programs and training in bookkeeping are taken up. As groups mature, training on group functioning and leadership is provided. Depending on the needs that women express, further activities are initiated, such as income-generating activities, agricultural training and biogas promotion. Education and awareness raising with regard to the deeper roots of gender hierarchies are an integral part of the support. The AKRSP (I) encourages women to participate in all its programs to improve the management of natural resources, and at the same time to reduce the drudgery of women and bring recognition to their productive roles, considered to be essential for improving their status (Nath 1997).

Jambar Village

Jambar is a village of 530 persons living in 84 households, in the Bharuch area in South Gujarat. The inhabitants belong to the Vasava tribe, a subgroup of the Bhils. They and other Bhils settled here, after they had been slowly pushed over the course of several generations into these most degraded hilly and deforested lands of the State. They gradually took up agriculture. Although annual rainfall (1,180 mm) is high, it falls within 4 months and allows for only one *kharif* (major monsoon season) of cultivation. Therefore, the irrigation potential is high. In this area, AKRSP (I) supports especially plantations and irrigated agriculture.

In Jambar, 136 hectares of rain-fed land are cultivated. The village also covers 187 hectares of forestlands. One-third of the households owns livestock. Seasonal emigration for employment in construction and road construction works abounds. Agricultural wage rates in Jambar are rather low, Rs 20–25 per day.¹ They are the same for women and men. According to AKRSP (I)'s poverty classification based on people's own perceptions, 17 percent of Jambar's households are considered to be poor, 69 percent of the households have a medium welfare level, and 14 percent are classified as rich.

The kharif crops that the respondents grow are cotton, paddy, groundnut, sorghum, maize, pigeon pea and black gram. Landholdings in Jambar, as elsewhere in Bharuch, are small. The average land size among the respondents is 1.6 hectares. Leasing-in land is also practiced by the landless minority.

Most houses in the village have a *wada* (an open space around the house) that, depending on the size, is used for various purposes. It is commonly used for vegetables and some fruit trees, which give both a produce and shade. If the land is larger it is also used for growing cereal crops, especially maize.

Farming is the main source of income of 88 percent of the households interviewed. Out of these farmers, 17 percent have a second occupation besides agriculture. The other income sources are agricultural wage labor (8%) and share cropping (4%). Forty six percent of the women have one of the following main income sources: irrigated production (as elaborated below), farm wage labor, or other paid work. However, 54 percent of the women did not have any income that they considered their own.

¹US\$1.00 = Indian Rs 40.00.

2. Gender and Agriculture in Jambar

Rain-fed Agriculture

In rain-fed agriculture the gender patterns of agricultural operations and decision making among those interviewed are that men make the decisions and implement the technology-intensive operations of ploughing, seed selection, fertilizer and pesticide application, and also do the marketing. Marketing primarily concerns cotton, which is preferably done through the Village Group to the Cotton Corporation of India. Pulses are sometimes sold as well.

Women, on the other hand, provide most of the labor in labor-intensive operations such as weeding and harvesting. Women's say in family farming is limited. The first domain where women and men tend to decide jointly concerns the crop choice and size of the land to be planted under paddy or under cotton. Here the wife must indicate the family's needs for food grains, also taking into account the stock that is carried forward, the buffer they would like to keep, and the additional requirement for planned social occasions like weddings.

The second domain, in which decisions tend to be taken after consultation, is labor exchange. Hired labor is scarce and expensive. Therefore, people often enter into labor-exchange arrangements with relatives and neighbors, and work on the farms of one another during the critical times of sowing and harvesting. As women are the main laborers for these tasks, the arrangements for women to provide labor, to whom it is provided, and when are decided by both husband and wife.

The third domain in which men also generally consult the women concerns credits for agricultural inputs like fertilizer and pesticides. How much to borrow is decided after a careful assessment of the family's loan repayment capacity. In case of a crop failure, all household members risk having to work as wage laborers to repay the loan.

For all three domains, however, the women respondents still said that the ultimate decision is with their husbands, although "he seldom takes a decision contrary to the consensus reached."

Wada Cultivation

In wada cultivation, on the other hand, women have a much stronger say. Except for ploughing, which men do, women not only provide all labor, but also make decisions, either alone or jointly with their husbands, especially when the size of the wada land is small. During kharif, maize is the major crop, which is invariably used for family consumption as maize flour for bread for the evening meal. Some vegetables of the cucumber family (bottle gourd, bitter gourd, cow pea, bean and pumpkin) are also grown, whose surplus is sold. This was the situation before the installation of the irrigation pump.

3. Initiating the Irrigation Scheme

General Institution Building

In 1990, AKRSP (I) started its support to the people of Jambar. A GVM was formed, which undertook rapidly expanding forestry activities. Soil and water conservation measures were also implemented. For its cotton production, the GVM has joined an initiative of collective input supply and marketing to the Cotton Corporation of India. This has helped them to introduce hybrid cotton and also to improve crop productivity. Further, the members obtain better prices and weight advantages than when they sell the produce to private buyers in the neighboring markets. In 1999, the cotton activities of the GVM had a turnover of almost Rs 200,000. Today, 72 men and 12 women are members of the GVM. Individual savings mount to Rs 51,000, and the common fund of the GVM is Rs 23,000.

In 1992, Jambar became one of the first villages in Bharuch with an MVM. While the MVM had only 8 members in the first years, it has now 41 members. However, 75 percent of the members are illiterate. The education of the chairperson and secretary is only up to 4 and 7 years, respectively. The chairperson of the MVM is very bright and dynamic. She is also increasingly engaged in extension work in AKRSP (I) activities outside Jambar. To mitigate the problem of fuel wood, the women's group constructed biogas plants, besides setting up a small savings and credit scheme. Together they have saved Rs 5,600, and the MVM has a fund of Rs 921. The training sessions organized for the Jambar MVM cover issues like membership and leadership awareness, secretarial functions, pump operation, agriculture, gender and general exposure visits.

The Group Well

A well belonging to the Panchayat of Jambar fell into neglect some years ago after four hand pumps had been installed in the village for domestic water needs. However, with a perennial flow close to the well, it could be exploited even for irrigation purposes. The option to deepen the well and use it for irrigation purposes by installing a mechanized pump was discussed independently in the (male-dominated) GVM and in the MVM. The GVM decided to approach the AKRSP (I) for financial assistance. The AKRSP (I) suggested to the GVM to consider giving the responsibility of managing the group well and pump to the MVM. Initially, the men were hesitant about the ability of the women to manage the irrigation scheme. However, the GVM felt that it might be easier to get funds from the AKRSP (I), if they agreed to their suggestion. The men also felt that, because they were already undertaking many activities with the support of AKRSP (I), the women should be allowed to benefit as well. A group of women of the MVM was thereafter offered a visit to Hazaribag in Bihar, to see for themselves how uneducated women successfully manage a mechanized pump and scheme, with the support of the NGO Pradan. This boosted the morale of the group. "If women of Bihar can do it, why can't we?" The women returned to Jambar, determined to manage the scheme, and manage it well.

The AKRSP (I) gave financial and technical support for the installation of a 7-HP diesel pump and the construction of a command area of 4.1 hectares. It also contributed Rs 95,000 to the capital costs, while 55 women contributed Rs 6,600. Underground pipes were installed through which the water is lifted to three reservoirs at a higher elevation. The rather steep topography does not allow a further extension of the command area. The scheme started in 1997, and has functioned for 2 years now.

The new command area covers the land of 20 families from the same hamlet. Most plots are wada plots. All wada land is in men's names, either the father-in-law or the husband, except in the case of one widow. Four out of these 20 families own two-thirds of the command area. Twenty-three members of the MVM were active in wada-cultivation during the last *rabi* (winter) crop. Women in 58 percent of the cases pay the water costs for irrigation while husbands or sons go and pay the water charge in the other 42 percent of the cases. Out of the 20 households that get water, all were satisfied with the water service, except two households with their plots at an elevated tail end.

4. Managing the Irrigation Scheme

Within the MVM of 41 members, a smaller subgroup was created for managing the group well. Besides 16 women whose households have land in the command area, 8 other women joined the irrigation group, even though the pump water would never reach their own lands. One of them is also a member of the Management Committee for the group well. Three of the 8 members leased in land in the command area in the first year but when the landowner saw the benefits of irrigation he terminated the lease.

Four women form the Management Committee of the entire MVM. They are in charge of organizing the monthly meetings, informing the members about the meetings and the outcomes thereof, operating the small savings scheme for the members, maintaining accounts, disbursing credit and making loan recoveries. With regard to the group well, the Management Committee decides on the water charges, supervises water distribution, collects water fees from the pump operator, and deposits the amount in the bank.

The MVM charges Rs 40 per hour for watering. Wheat requires 4–5 waterings at a rate of four hours per acre per watering. The MVM employs a male for pump operation, water distribution, and the sale of water coupons. The latter system ensures that water is paid before it is delivered. The pump operator receives Rs 7 out of the Rs 40, which amounts to some Rs 750 per season. For small repairs, women consult male mechanics.

The net benefits, presented in table 1, are used for credits and also for future maintenance needs. There is no depreciation fund for replacement of this pump after its lifetime.

Table 1. Income (Rs) from water sale, 1997–1999.

Year	1997	1998	1999
Gross water income	2,692	4,522	8,181
Operational costs	2,055	3,097	6,262
Net benefits	636	1,425	1,919

5. Gains from the Irrigation Scheme

Members with Irrigated Wada Land

The women reported a range of gains in the 3 years in which they irrigated during the winter season. Irrigation enabled the 16 households with land in the command area to add a full new season of cultivation during rabi. Half of these women members grew irrigated paddy and wheat on their wada plots. This was all used for home consumption. Higher-quality wheat bread now replaces the evening meal of sorghum.

Virtually all the women started cultivating irrigated vegetables, part of which is consumed by the household. All appreciate the improved family consumption of fresh vegetables. Barely 2 years ago, they still had to rely on rare purchases of vegetables in nearby towns. Many women grow onions. As they are not perishable, women prefer to keep onions for home consumption throughout the year and only sell a part of the produce. This differs for the other newly grown vegetables: eggplant, tomato, garlic, cluster bean and okra. Two-thirds of the women sell these vegetables. Women themselves sell small quantities of vegetables in the village, or send their sons to do so. Husbands also take vegetables to sell, especially in the nearby town. While some husbands give the full amount earned to the women, others only give a part. There was one instance where the husband does not give any money thus earned. The two-thirds of the women who sell the irrigated vegetables now have additional cash income to meet even major expenses such as that incurred in buying clothing. This has also enabled them to save regularly under the MVM small-savings initiative. Before the irrigation, they could not even save Rs 5 a month. They feel proud and are satisfied that they are now creditworthy and can borrow in times of need. One-third of the women also felt that their participation in the Group Well activity had resulted in their stronger participation in decision making in the cultivation of the wada.

All Members of the MVM

The irrigation activity also led to three sorts of gains for the MVM as a whole. First, the group benefits from net profits from water sale. For the moment, this is kept aside on a special account for future maintenance. Second, the irrigation enterprise and the ownership of an asset render the MVM creditworthy in the eyes of commercial banks. This enables the group to take loans. Thus, the MVM intends to take a loan for cattle, which would benefit the illiterate members. For those who are literate, the purchase of sewing machines is being considered. The third benefit that many members have experienced as a general result of the MVM, is that of the increased communication with outsiders, for example, feeling free and being able to answer questions. Earlier, some would hide in the house when there was a stranger, but now, they say, “Are we not talking to you?”

Committee Members

Committee members and two other more active members feel that they receive more attention now from people in the village. One Committee member was invited as Chief Guest at the local school on the Independence Day, which was a new and great honor to her. Other gains that they cited varied from “mustering the courage to go and sit on a chair during a training when that was asked” to “learning about bookkeeping and accounts,” “learning about agriculture and marketing,” “exposure to other groups” and “learning to talk with government officials.” They conclude, “We want more new and challenging projects for women. We are now looking forward to having a woman operate the irrigation pump.”

Even among the men who were hesitant at the start, there is now unanimous agreement that the women are doing a good job. Nobody would think anymore of transferring pump management to the male group and the women themselves the least. “We are managing a common asset and shall continue to do so. We have done a good job so far. If we can do a good job, why should the asset be given away to the men?”

6. Conclusions

The experience of AKRSP (I) in Jambar shows that putting irrigation technologies into the hands of women in order to irrigate plots over which women share decision-making power is well feasible and leads to multiple benefits. Women's ownership and management of equipment bring the social status attached to serving the community and, in principle, a water income for the group as a whole. It also allows its irrigating women members to intensify productive cultivation from which they themselves and their families reap the benefits.

No basic changes were needed in the irrigation intervention approach. The approach used for men also worked when targeted to women. First, people's organization in village groups (GVMs or MVMs) was necessary, and then, channelling the technical support was crucial for women as well. The only difference was that the agency spent some time with the male group to propose women's involvement and negotiate men's consent to share benefits from NGO support more equitably than in the past, when men benefited mainly. Such a successful approach is replicable elsewhere, wherever the agency, like AKRSP (I), sees and taps the opportunity.

Literature Cited

Nath, Vikas. 1997. *Impact of interventions of AKRSP (I) on women's status*. Ahmedabad, India: Aga Khan Rural Support Programme (India).

Postal Address

P O Box 2075
Colombo
Sri Lanka

Location

127, Sunil Mawatha
Pelawatta
Battaramulla
Sri Lanka

Tel.

94-1-867404, 869080

Fax

94-1-866854

E-mail

iwmi@cgiar.org

Website

www.iwmi.org