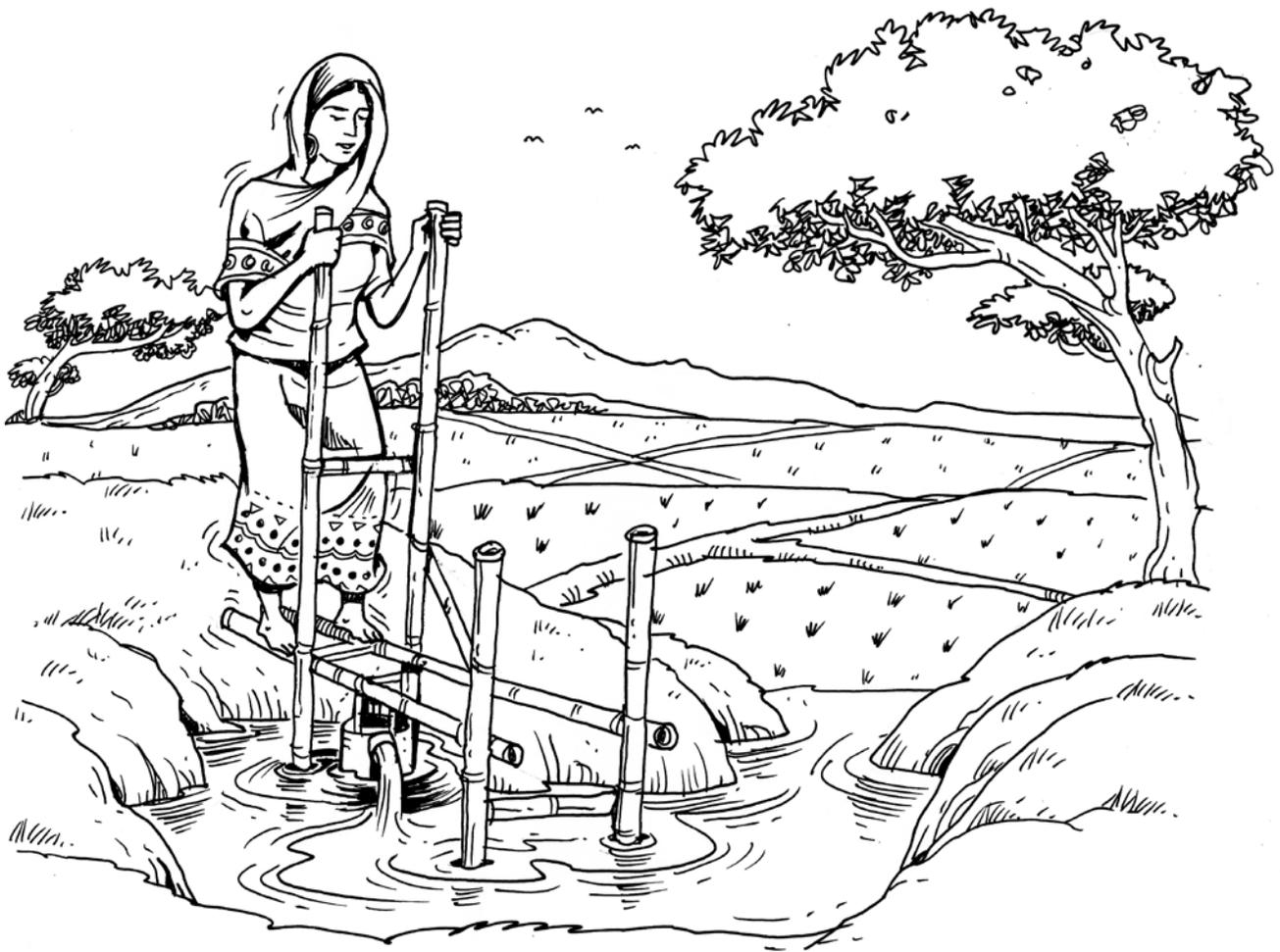


Why Small Farmers Should Invest in Irrigation Technologies



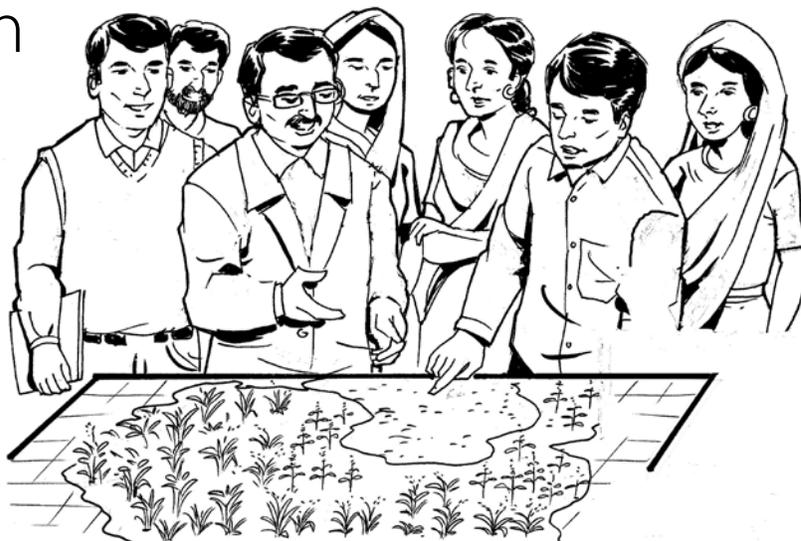
Developing irrigation solutions adapted to the situation of smallholder farmers can contribute to the improvement of agricultural water productivity, farm productivity and household income. Coming up with irrigation options based on appropriate and innovative technologies is one thing; convincing cash-poor farmers to invest in them is another. If these solutions are to be marketed to the small farmers, agricultural extension work must be

complemented with developing a strong supply chain that focuses on the small farmers as its clientele base.

Make the supply chain responsive to small farmers' need for irrigation

“Selling” irrigation options to small farmers

In the absence of affordable irrigation, it is difficult for small farmers to engage in agriculture as an enterprise and to rely on it for their primary source of income. Even the rental of engine-driven pumps is beyond their paying capacity. While other irrigation devices are available, these are mostly designed for medium- and large-scale farmlands, used by only 10% of the total farming population. In effect, this deprives the other 90% (poor and marginal farmers) of irrigation solutions suited to their small landholdings and budgets. Where these are available, there is a lack of awareness on, and access to, such irrigation technologies. The challenge is to bring these irrigation solutions to the small farmers and influence them to invest in the technologies.



IRRIGATION OPTIONS ARE OFTEN DEVELOPED FOR MEDIUM TO LARGE FARMERS WHO COMPOSE ONLY 20% OF THE TOTAL FARMING POPULATION

make these technologies affordable and available in the market by stimulating the private sector supply chain. The development of a strong supply chain was facilitated by nurturing, training and linking manufacturers, distributors, dealers and village-level assemblers.

From information on water availability and sources, soil characteristics, crops, agriculture seasons and socio-economic conditions in the region, the diverse conditions faced by farmers in different

How it was done in Jharkhand and Bihar, India

The CGIAR Challenge Program on Water and Food (CPWF) Sustainable Dissemination of Low-cost Irrigation Technologies Project showed a way to test-market a variety of irrigation solutions to meet the diverse needs of small farmers in India. An Irrigation Solution Matrix (ISM) for Jharkhand and Bihar was eventually developed based on the experience. The process that was adopted is illustrated in Figure 1. The strategy was to demonstrate irrigation solutions to farmers and

Activities for promoting irrigation solutions

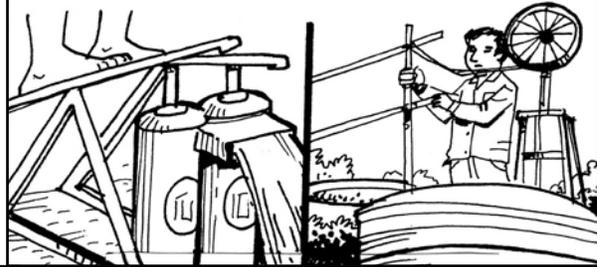
- ◆ Live demonstrations during village festivities and council meetings
- ◆ Farmers' meetings in the villages
- ◆ Exposure visits by local farmers to successful adopter farmers
- ◆ Mobilizing opinion leaders to spread good words about the products
- ◆ Video van shows of the products at strategic places in the villages
- ◆ Periodic meetings with partners such as manufacturers, dealers and NGOs
- ◆ Use of campaign materials such as handouts, wall paintings, billboards and dealer boards

MATCH AVAILABLE LOW-COST IRRIGATION TECHNOLOGIES WITH SITUATIONS AND NEEDS OF SMALL FARMERS

IDENTIFY THE IRRIGATION NEEDS OF SMALL FARMERS.

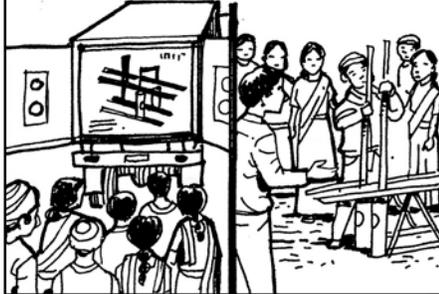


CONSIDER ADAPTION IN THE DESIGN AND/OR USE OF THE IRRIGATION SOLUTIONS.



EXTEND IRRIGATION SOLUTIONS TO BOTH INTENDED USERS AND SUPPLIERS

INTRODUCE AND DEMONSTRATE THE TECHNOLOGIES TO SMALL FARMERS.



IDENTIFY AND BUILD CAPACITY OF MANUFACTURERS, DISTRIBUTORS, DEALERS AND ASSEMBLERS TO SUPPLY THE IRRIGATION DEVICES.



FARMERS ADOPT/ ADAPT AND INVEST IN THE IRRIGATION SOLUTIONS

FAMILY NUTRITION KIT (DRIP IRRIGATION)

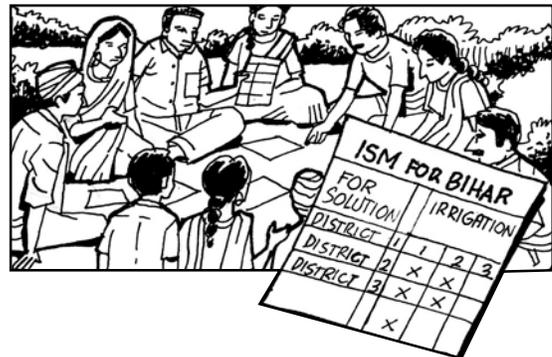


TREADLE PUMP



CONSIDER ADAPTION IN THE DESIGN AND/OR USE OF THE IRRIGATION SOLUTIONS.

COLLECT AND ANALYZE FEEDBACK ON ADOPTION AND IMPACT OF IRRIGATION SOLUTIONS



SCALE UP THROUGH PROMOTION OF THE ISM AND THROUGH SUCCESSFUL ADOPTERS.

DEVELOP THE IRRIGATION SOLUTION MATRIX (ISM) FOR THE AREA.

ISM FOR BIHAR	
FOR SOLUTION	IRRIGATION
DISTRICT 1	1 2 3
DISTRICT 2	x x x
DISTRICT 3	x x x
	x

Figure 1. Process adopted for test marketing irrigation solutions in Jharkhand and Bihar

geographical units were identified. Accordingly, irrigation solutions already available were then matched with the situations and extended to farmers as options using various promotional activities.

In the case of Jharkhand and Bihar, the technologies included the surface treadle pump, rope and washer pump, family nutrition kit, low-pressure sprinklers and low-cost drip irrigation systems. These were introduced and demonstrated in 16 districts to small farmers who decided which technology to invest in. Farmers who eventually purchased the devices were trained on the use and maintenance of the units.

While introducing irrigation solutions to farmers, supply chain partners were trained in various aspects of manufacturing, distribution, installation and maintenance of the technologies. The partners who served as marketing channels included manufacturers, village-based distributors, dealers, government sales depots, even NGOs. Manufacturers were trained to fabricate units according to product design and quality standards. The fabricated units were passed on to distributors and dealers for selling in remote rural areas. For drip irrigation kits, manufacturers were identified to supply the components for the locally designed kits. Self-help groups, agri-input and hardware dealers were then trained to install and assemble the kits. They were also linked to component manufacturers to ensure the availability of parts in remote rural areas. These dealers promoted and sold the kits directly or through agents.

Through research or surveys, the extent of adoption and the impact of various irrigation solutions in different situations may be established. An ISM for the area can be developed from the responses. The ISM can be an instrument to scale up use of the irrigation solutions by bringing them to the attention of researchers and policy makers.

Findings from test marketing of irrigation options

In Bihar and Jharkhand, the comprehensive demonstration of irrigation solutions has led to a change in attitude of the smallholders as they realized the benefits accruing from the technologies. Consequently, this has resulted in good initial sales and adoption of the irrigation solutions. This steady early demand has facilitated the establishment of a vibrant supply chain to deliver the technologies to the smallholders. Other impacts included the following:

- ◆ Development of active pro-poor markets, which allowed small farmers to participate both as buyers of irrigation technologies and as vendors of high-value produce.
- ◆ Enabling 3,116 smallholder farmers to grow more crops per unit of land. This has increased on-farm work days, livelihood opportunities and household incomes.
- ◆ Giving regular work to 225 village-level technology installers, who are either small farmers, daily wage earners or unemployed youth.
- ◆ Carbon savings as promotion of manually powered treadle pump and rope and washer pump replaces diesel pumps and ensures controlled drawing down of groundwater and precious fossil fuel resources.



Lessons learned

- ◆ Once farmers learn about the productivity-boosting benefits of various irrigation solutions, they are quick to adopt them.
- ◆ Exposure visits to successful adopter farmers builds confidence among other farmers in the area in adopting the new technology and obtaining its benefits.
- ◆ As more farmers from neighboring areas hear and see the success stories of adopter farmers, they want to find out more about the technologies, leading to greater demand for the technologies.
- ◆ There are two important lessons with regard to strategies for scaling up irrigation solutions based on the market-development approach. The first is to seriously consider making changes in existing technologies to

meet farmers' needs. The second is the use of effective promotional strategies suited to the regional socio-economic situations.

Letting irrigation solutions flow

If location- and need-specific, affordable irrigation solutions are made available in the market, smallholder farmers will buy them. Policy support is needed to enable research on developing irrigation solutions for poor small farmers. If there is no support, irrigation solutions within the price range that is affordable to smallholders will not be available. Public-private sector partnership models need to be developed with the smallholders' needs in mind.



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India Development Foundation
International Development Enterprises
International Water Management Institute
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Key Reference

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Tags: SG512; Sustainable Dissemination of Low-cost Irrigation Technologies

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