

Not just a good idea — marketing Bangladesh's rower pump

by Harold J. Harder

Many attempts to introduce improved technology into rural areas focus squarely on community organization. In Bangladesh, a handpump which provides water for both irrigation and household purposes, has also proved to be a commercially viable product. How did its NGO developers market this appropriate bestseller?

MANY, POTENTIALLY BENEFICIAL, new technologies have been developed in the South. Unfortunately, many never become widely used. Their use may have been limited to very small applications, or interest died when their developer moved on. As a result, great opportunities for change have been missed.

For a new technology to be adopted and used on a continuing basis, several factors must exist. First, the technology must be appropriate to local conditions, meet a real need, and be adaptable to local circumstances. Some technologies will require additional and/or continued improvements once they are put into practice. Secondly, the process of introducing a new technology may need a marketing

effort appropriate to both the cultural and the business setting to make the technology available through local marketing channels.

These factors can add up to a successful venture. Too often, however, efforts at market establishment are neglected, particularly by participating external non-profit organizations, as, traditionally, they have not considered marketing efforts to be an appropriate part of their remit.¹

Design

The rower pump, a manually operated pump developed and introduced in Bangladesh, was designed primarily for irrigation purposes, but many users also use it as a source of clean

drinking-water and household water. Over 20 000 pumps were installed in Bangladesh in 1987, rising to more than 50 000 in early 1991.

The rower pump is a reciprocating-action handpump with the cylinder inclined at 30 degrees above the horizontal (see Figure 1). The angle of the cylinder permits simplified construction and maintenance, as the energy expended in the pumping action is transmitted directly along the cylinder by a rigid rod-and-piston assembly, requiring no pivoting motion. A footvalve is held in place below the piston by a constriction in the cylinder. The pump cylinder and well-pipe of the tubewell version are made of PVC plastic, a material that does not deteriorate quickly; in Bangladesh, pipes made of materials such as bamboo are in use. A surge chamber is provided at the head of the tubewell to smooth the water-flow in the well-pipe, thereby increasing pumping efficiency. The rower pump was found to be still operable with the standing-water level in the tubewell as much as 7.6 metres below the surface. The entire pump assembly is designed to



Rower pump mounted on a tubewell in Bangladesh.

be cheap to manufacture, simple to operate, and easy to maintain.²

Two basic versions of the rower pump were developed: the two-inch pump, designed to operate on a tubewell; and the three-inch model, suitable for low-lift applications from ponds and canals. This article focuses exclusively on the two-inch pump, as this was the more heavily marketed, better-selling design.

Development

The rower pump was developed between 1978 and 1979 by staff belonging to the American NGO Mennonite Central Committee (MCC), working with groups of farmers in Bangladesh. Their experiences in using diesel-powered pumps to provide water, led the team to look for a better alternative. The ideal solution appeared to be a handpump, designed specifically for use by an individual farmer, and his or her family.

The pump soon became known as the 'rower pump', because the physical action of pumping is similar to rowing a boat. After the initial development stage, the pump was put through extensive testing in farmers' fields, eventually resulting in further design improvements.

Some essential development criteria were established: the pump had to be low-cost, suitable for use by small farmers and their families, and to be repairable locally, using available parts. In order to meet these requirements, the MCC team had to find a local manufacturer with an adequate manufacturing capacity. Their search was successful; they entered into a co-operative arrangement with the Mirpur Agricultural Workshop and Training School (MAWTS) in Dhaka, which became the pump's principal manufacturer.

Tests showed that the pump had the potential for widespread acceptance. The physical pumping action allowed adequate pumping for irrigation, and both the cost, and the potential irrigation-command area, were suitable for small-farm families. Because of annual recharging during the summer rainy season, large regions of Bangladesh have aquifers that will maintain supplies of water to within 25 feet of the surface during the dry season; one estimate suggested that approximately 500 000 hand irrigation pumps were needed.

The work did not end, however, with the development of the pump itself. By mid-1981, MCC's rower-pump programme had entered a 'market-establishment' phase.

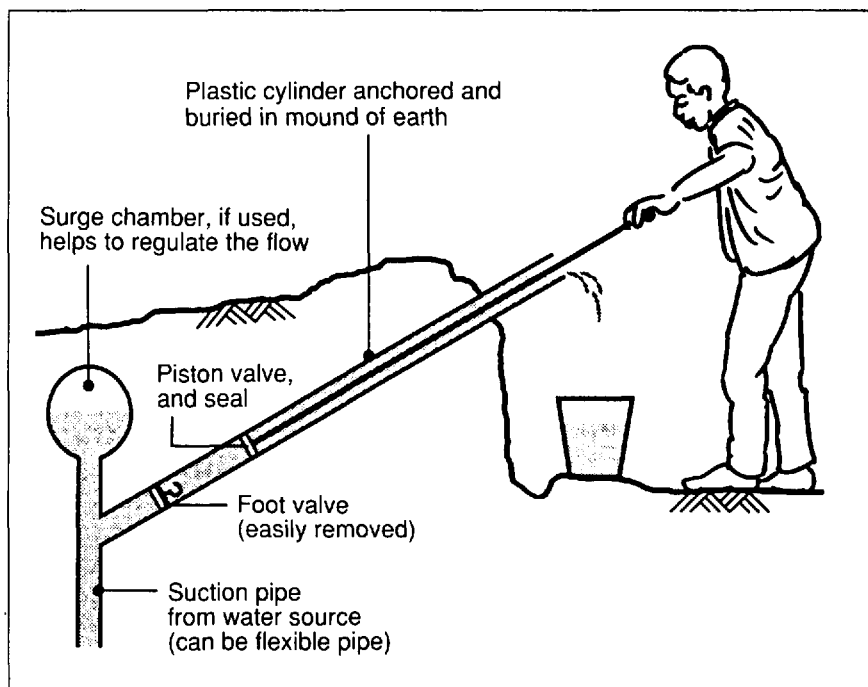


Figure 1. The rower pump design.

Establishing a market

MCC aimed to introduce the pump as a locally available technology, which farmers would *choose to buy*; they wanted to avoid the fate of other projects which showed disappointing results when control was retained by the organization itself. After the development and field-testing stages, therefore, efforts were made to establish a marketing system to distribute the pump to local farmers. Plans were set up to sell pump sets through local dealers — primarily in Comilla and Noakhali districts — at a price that almost reflected costs and which, after a few years, would reflect the true costs, plus a small profit so that the manufacture, marketing, and servicing of the pump could be established as an economically viable enterprise.

MCC adopted this strategy despite the fact that the price of a competing pump — the MOSTI#6 cast-iron pump — was heavily subsidized by the World Bank. If the rower pump was to become a truly local technology, it had to become commercially viable. Furthermore, evidence showed that farmers who had paid for their pump were likely to take more care of it, and use it more effectively in increasing crop production for extra income.

MCC's ultimate goal was to establish an indigenous marketing network that would eventually continue without its direct involvement. It was essential, therefore, to involve local distributors and dealers in selling the pumps, stocking spare parts, and carrying out repairs. The MCC strategy also included providing training for dealers and installers.

The initial sales targets were too optimistic but, eventually, the marketing initiatives paid off: a sales and service network for the rower pump was established, leading to wider distribution and acceptance than would have been possible if the pumps had been given away.

The goal of setting up an indigenous marketing network had to be balanced with another of MCC's goals — assisting poor and marginal farmers to increase their food production and income levels. Some had enough money to purchase a pump, or were able to borrow enough from extended family and friends to purchase a pump set. For the poorer farmers, however, the lack of available cash was a real constraint.

The farmers needed access to credit. The market-establishment programme included work with local banks to make credit — which was not dependent on continued intervention from foreign sources — available. These efforts were not successful; although various arrangements were made at the national level with the banks, local bank managers were reluctant to make loans to the small farmers and their families.

Sales success

The growth of rower-pump sales under MCC's market-establishment effort is shown in Figure 2. Bangladesh's period of greatest demand and most active sales is the winter dry season, hence sales-years are given summer to summer, rather than by calendar year. The first sales of 30 pumps and tubewells in 1979 were subsidized by

about 50 per cent, as part of the field-testing programme. The 1981-2 sales year marked the beginning of the market-establishment effort, with greatly reduced subsidies.

From then on, annual sales showed a general increase, with some stronger, and some weaker years. Annual sales levels fluctuated, depending on rainfall, working relationships with retailers, and changes in market region. Beginning with the 1984-5 season, MAWTS took over responsibility for sales in Comilla district, where sales were strongest; this was part of the plan to transfer responsibility for sales to local groups. The decrease in 1984-5 sales by MCC's marketing effort, therefore, represents sales in a smaller region than previously, rather than a decrease in total pump sales. After 1987, MCC's sales levels declined further, as more of the marketing of rower pumps was relinquished to others, as planned.

MCC continued its agriculture extension work, a major focus of its programme in Bangladesh and, indeed, after MCC withdrew from major, direct involvement in marketing the rower pump, its efforts within the agriculture extension programme continued to promote the use of handpumps for irrigation and, where appropriate, for supplying drinking-water.

Expansion

Other NGOs also became involved in encouraging the use of rower pumps in different parts of Bangladesh, again as part of wider agricultural-development efforts; for example, International Development Enterprises (IDE) co-operated with MAWTS in launching a major rower-pump marketing effort as a substantial part of their hand-tubewell irrigation-equipment marketing programme.

Because of the growing 'total marketing' efforts, despite MCC's reduced direct involvement in rower-pump marketing, sales of the rower pump continued to increase rapidly (see Figure 3). It is estimated that, by early 1991, over 50 000 rower pumps had been sold and installed in Bangladesh. It is hard to be accurate, however, as, in addition to manufacture and sales through established networks, it is reported that various copies of the pump are now available. As MCC's goal to make the rower pump and other hand-tubewell technologies available to small farmers, rather than to retain the rights to manufacture and sales, these recent developments are signs of success.

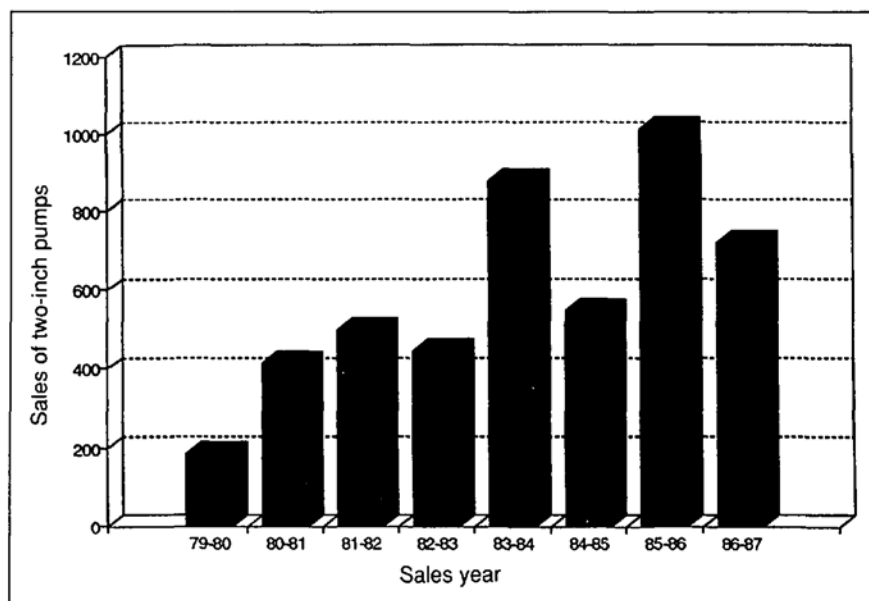


Figure 2. MCC's rower pump sales in Bangladesh in the market-establishment effort.

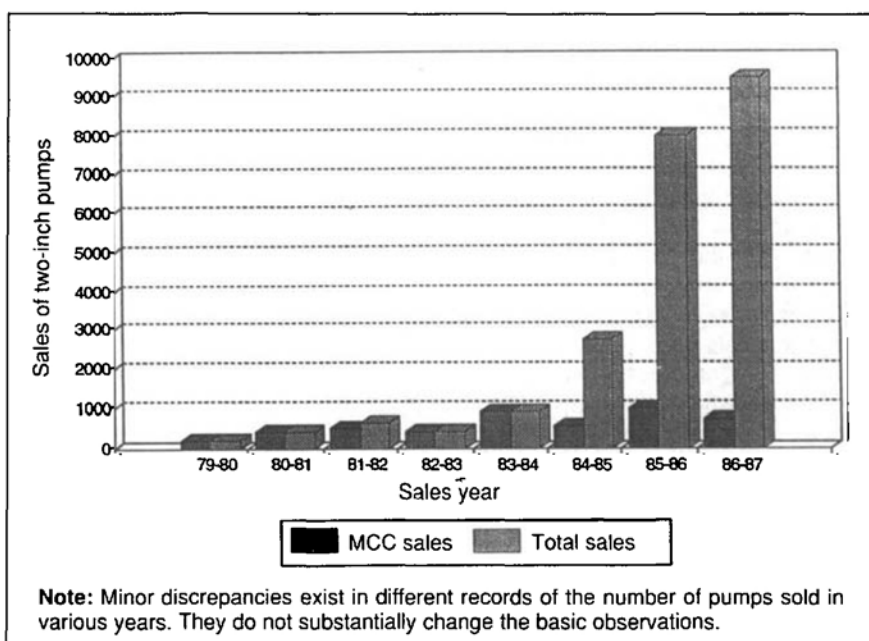


Figure 3. Rower pump sales in Bangladesh 1979-87.

Efforts at market establishment by MCC provided the basis for rapid growth in rower-pump sales and distribution. Since its beginnings in Bangladesh, rower-pump technology has spread to other countries, including India, Thailand, and several African countries.

Conclusion

The rower pump is a handpump technology which has proved to be well suited to the irrigation needs of small farmers who can call on the family's help when necessary. As a result of appropriate marketing efforts, use of the technology has grown, and many farmers are now (literally) reaping the benefits. The current level of pump ownership came about because of MCC's substantial efforts to estab-

lish a market, despite obstacles. It is crucial that technology which aids economic development is not only designed and produced appropriately, but also marketed appropriately, if it is to become available to the maximum number of potential users. ●

References

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