16th WEDC Conference
Infrastructure for low-income communities
Hyderabad, India 1990

The family handpump scenario

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INTRODUCTION

Background to Sector

Rural water supply and sanitation traditionally receive less than 20 per cent of government expenditure for the water supply and sanitation sector in Asian countries, yet about 70 per cent of the population reside in rural areas. Furthermore much of that investment has been characterized by a top-down approach which has resulted in poor sustainability.

The bottom-up approach is now recognised as an essential ingredient to success. Real demand is measured by the expressed need of the end users and their willingness to pay for an improved water supply. This means more sociologists and fewer engineers in the development process, it means a learning approach rather than a blue-print approach and it means greater emphasis on ownership of the facility by the beneficiary.

Regional Study

Self-help family water supply through privately owned shallow dugwells and tubewells has the potential to satisfy a significant slice of the total demand for improved rural water supplies in Asia without a significant drain on government resources. Millions of families in Asia already own their own well - many with handpumps, but how many more might do so given incentives of easy credit, economies of scale provided by a project, the guidance of a competent grass-roots NGO and the support of a village women's organization? This was the question addressed in the "Regional Study on Domestic Shallow Well Water Supplies" recently executed by the Asian Development Bank (with UNDP funding) in Bangladesh, Indonesia, Pakistan, Philippines and Thailand.

This paper describes the Family Handpump Scenario which was the central theme to that study and discusses some of the findings of that study which are presented in the Asian Development Bank publication "Women and Water" (February 1990).

THE FAMILY HANDPUMP

Definition

A handpump may be used to lift water from a tubewell or from a covered dugwell. It may also be used to lift water from a below-ground rainwater cistern.

The term "family handpump" was coined by the author as a means of differentiating from the "community handpump". It is a handpump normally owned by an individual family and used by not more than 20 people. It would most often be used on a shallow dugwell or tubewell where the maximum depth to water did not exceed suction mode limits of around 7 metres. There are several million in use in China, and in Bangladesh; and hundreds of thousands in other Asian countries. These pumps, even though they have some drawbacks, are cheaply produced by local manufacturers, are durable enough for their light use and can easily be maintained by their users. To clarify the definition of a family handpump a comparison of the family handpump with the community handpump is given in Table 1 and some advantages and disadvantages of the family handpump are given in Table 2.

Table 1: Comparison of Family and Community Handpumps

	Family Handpump	Community Handpump
Well Type	Shallow	Mostly deep
People Served	5-20	50-500
Cost of Installation	$50-$200	$500-$5,000
Handpump Source	Village Market	City/Import
Driller Source	Village Market	City
Purchaser	Family	Government/ UNICEF
Owner	Family	Community
Maintenance	Family	Community
Spare Parts Source	Village Market	Institution/ Community
Average Life	10 years	5 years

Table 2: Advantages and Disadvantages of Family Handpump

Advantages	Disadvantages
1. Convenience.	1. Potential for community pollution.
2. Time and energy saved.	2. Potential for aquifer pollution.
3. Better health.	3. Potential for well pollution.
4. Privacy.	4. Less socializing.
5. Potential family income.	
6. Dignity and prestige.	
7. Reduced maintenance/simple technology.	
8. No government responsibility.	
9. Optimum use of aquifer.	
10. Safety improved.	

Hardware

Most of the family handpumps in use today are suction type ones which can be used for water depths up to 7 metres. They generally have cast-iron bodies, a lever handle and are generally available in the village market for $20-$30 excluding pipework. However, with the falling levels of shallow groundwater aquifers throughout Asia, the most important consideration is the development of a cheap family-type handpump for lifting water up to 12 metres deep. The UNDP/World Bank Global Handpumps Project has concluded there is a good future for direct-action PVC handpumps such as the Tara (in Bangladesh) to meet such demands. Other PVC direct-action handpumps include the Wavin, Blair and IDRC-UM. All are still undergoing development testing. At the moment, price is paramount for a family handpump and the PVC direct-action handpumps are still too expensive (at around $90+) to find their way into the commercial market. Another development which is occurring in Asia is the use of cheap electric pumps instead of handpumps -these are available for about $50.

Economics

The cost of a family dugwell with a handpump in the developing countries of Asia ranges from $100-$300 and for a family tubewell with handpump from $50-$200. As to whether or not these are affordable for families, the best measure is the number who already own these facilities. It is also necessary to remember that the target may be only 10-20 per cent of the total demand for improved rural water supply - not everyone in a village will desire a family well with handpump and not everyone can afford it. A typical case may be:

Annual household income	$1,000
Cost of family well + handpump	$ 150
Annual repayment over 3 years (no interest)	$ 50

This represents 5% of household income which appears affordable.

The Grameen Bank in Bangladesh has shown that it is not necessary to have collateral to provide credit to the landless poor.

STUDY FINDINGS

Existing Situation

Table 3 shows the existing water supply and sanitation service levels in the 20 study villages of each of the five study countries. It must be emphasised however, that whilst the findings may be indicative, they cannot be deemed representative of conditions in any given country.

Table 3: Water Supply and Sanitation in 20 Study Villages (1989)

Country	Private Open Well	Private Well + HP	Public Well/ Share	Sanitary latrine
Bangladesh	5%	11%	84%	6%
Indonesia	37%	8%	55%	9%
Pakistan	32%	31%	37%	8%
Philippines	8%	32%	60%	71%
Thailand	47%	1%	52%	55%

Points to note From Table 3 include:

1. Low latrine coverage in Bangladesh /Indonesia/Pakistan.
2. Low incidence of family handpumps in Thailand.
3. Private facilities accounted for 40% - 60% of all rural water supply in four of the five study countries.

Demand

The results of the study indicated an expressed demand for the family handpump of around 10% of households interviewed in Thailand, 20% in Indonesia, 30% in Pakistan and 70% in Philippines and Bangladesh. However there was a general demand for some form of self-help family water supply and sanitation in all the study countries of the order of 80-90% of households interviewed.

Other Findings

Pakistan appeared to be a special case where due to the strong cultural influences relating to women, several of the villages surveyed already had 100% coverage by family-owned handpumps. Unfortunately this had also created serious drainage problems for the communities. Generally latrines were seen as a priority in Pakistan. Family-owned handpumps were common in many of the villages in the other study countries and there was a widespread custom of sharing water from these facilities with neighbours at no cost. The idea of ownership of a handpump being shared between two or three families (to become affordable) was rejected in all countries. A need obviously exists for health education. Health was seldom given as a reason for wanting a family well with handpump or a latrine; convenience and privacy were the main reasons. In some countries such as Thailand and to a lesser extend Indonesia, electric pumps were an affordable alternative to handpumps for the family well. It was evident that to be attractive, the credit system would have to adopt a principle of collateral based on group or social responsibility rather than property ownership.

Study Conclusions

It was concluded from the studies:

(i) That there is a significant demand for the family handpump in Asia but a very great demand for some form of self-help family water supply and sanitation.

(ii) Family water supply and sanitation will greatly benefit village women.

(iii) Village women are willing and able to take the lead role in implementing self-help family water supply and sanitation projects.

(iv) The scope of such a project should include water supply, sanitation, drainage, health and hygiene education and income-generation elements in an integrated package.

(v) Women must be made the focus of the project and their participation should be facilitated at all levels.

(vi) The beneficiaries will largely be determined by the degree to which governments wish to become involved. Only with government subsidies could the poorer people participate. In the event that governments were not providing subsidies, the major implementing role would more naturally fall to NGOs.

A PROJECT SCENARIO

A project scenario proposed by the author is presented below:

1. Government selects two strong NGOs to introduce an element of competition.
2. Funding agency provides each NGO with $50,000
   (i) for administration and implementation of the project (20%); and
   (ii) as seeding monies for the credit scheme (80%).
3. NGOs determine villages and locations for project.
4. NGOs and women's groups in selected villages design and implement their own schemes.
5. Government conducts tripartite review after 12 months with funding agency and NGOs.

CONCLUSION

The Family Handpump Scenario gives focus to an alternative development mechanism which is women-oriented and embodies important principles of self-help and ownership which will ensure sustainability. Its success will depend on the extent to which governments are prepared to allow grass-root NGOs to play the major role in implementation and to allow the development to expand by natural association rather than forced mass coverage.

(The views expressed in this paper are those of the author and do not necessarily reflect those of the Asian Development Bank.)