Financing Rural Water Supply

Experiences from Vietnam and Cambodia

Dan Salter, February 2003
Private Sector?

Ranges from self-employed individuals to village-wide ‘utility’ enterprises.

They can be broadly categorized into:

• Technology Supply Enterprises

• Water Supply Enterprises
1. Technology Supply Enterprises

Enterprises that make, distribute, sell, and install water supply technologies, such as:

- Pumps, Pipes, & Filters
- Well Drilling Services
- Rainwater Storage Tanks / Jars
- Water Purifiers
2. Water Supply Enterprises

Enterprises that sell water:

- Informal water vendors
- Piped scheme investors / operators
Example Market: Villages in Rural Cambodia:

Populations clustered in village settings 200 – 500 Households

Unregulated market, but private sector is flourishing – it has been assisted by a lack of regulation at its current scale.

Domestic water:

- Purchased from Water Vendors
- Harvested from Rainwater
- Sold by informal, unregulated small piped schemes – no treatment
Example Market: Villages in Rural Cambodia:

The limitation to expansion of these small piped schemes to village-wide systems is:

1. Lack of Regulation = lack of investment security
2. Cost of Capital ~ 25% per year in rural areas

Through the MIREP project, there is now experimental scaling up in six villages. This project is helping investors with credit, and technical assistance as well as piloting regulatory frameworks.
Example Market: Villages in Rural Cambodia:

A typical Cambodian family may typically spend 5% of their income on water, made up of:

- Piped, metered, purified water (@ ~ 30 – 50 US cents per cubic meter)
- Purchased Water Vendor untreated water delivered to the house (@ ~ $2.5 per cubic meter)
- Harvested Rainwater (Free)

Most families use all three of these water sources. Water from vendors that is untreated, and from selected sources is used for cooking and drinking, piped water is used for washing / bathing, and rainwater is collected for drinking and cooking (Rain water is therefore also worth approximately $2.5 per cubic meter)

Why? Cambodians seem to be very taste sensitive – Blind tests on multiple water sources including commercially available bottled water, river water, pond water, sub-surface water, and chlorinated water confirm a clear-cut preference for surface water – pond and river water.

Perceptions: There is currently a lot of publicity concerning pesticide contamination of foods, which triggers a skeptical reaction to the ‘chlorine’ in the drinking water.

Thus, it cannot be assumed that piping cheaper water into households will automatically result in a switch to safer water sources.
Example Market: Tien Giang Province, Mekong Delta, Vietnam:

- Populations clustered in village settings 200 – 1000 People.
- Ground-water prohibitively expensive for individual households
- Historically families would harvest rainwater, collect surface water from village ponds, and / or purchase water from water vendors
- Early nineties: Growth of small-scale unregulated private sector using groundwater. Mostly financed by up-front user ‘investment’ at a ‘market rate’ ($60 - $100)
- Alternate management structures also emerged: Cooperative, and User groups ~ $60 ‘user’ investment
- 1988: Provincial Government Regulation Introduced
The growth in rural piped water supply in this province has been impressive:

- Provincial population of 1.6 million
- 65% now have access to piped water (mostly connected over the last 8 years)
- 70 – 80 new schemes each year for the last couple of years
- Remaining 35% of population will likely be served within the next four to five years

Example Market: Tien Giang Province, Mekong Delta, Vietnam:
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There are currently 49 State Enterprises, 80 Private Enterprises, 28 Cooperatives, 258 User Groups

Of the total investment capital thus far: $3,645,000 (61%) has been invested by private investors and water users, $1,760,000 (29%) invested by state enterprises, and $618,000 (10%) provided as subsidy from state budgets.
Mr. Vo Thanh Nha’s rural water supply company:

- A household survey indicated that 120 families would be interested in purchasing piped water at the Government ceiling-rate of 25 cents/m³.
- With this market research Mr. Nha invested $14,000 of his own money towards the system.
- Built in 2000, it draws water through a 1 Km pipeline from a canal, purifies it, and pumps up to water tower from where it gravity feeds into the village.
- Seeing is believing: After the first 120 households, the demand quickly grew, but he needed more money. He proposed to new households to pay $20, for which he would reduce the water tariff by 40% until the $20 was repaid. The number of connections grew from 120 to 480.
Mr. Vo Thanh Nha’s rural water supply company:

- He now needed to upgrade the system, and buy a larger pipeline to feed the station. For this final expansion he borrowed $9,000 from the bank at a rate of 0.85% per month.
- He anticipates that by the end of 2003 all 600 households in his village will be connected.
- He is projecting it will take ten years to recover his own and borrowed capital.
- Most of the consumers use his water for drinking, cooking, and animal husbandry, but continue to wash / bathe in nearby ponds. They also collect rainwater to save on piped water.
- Mr Nha is confident that consumption will increase as his consumers will eventually appreciate the value of ‘safe’ water.
- Five user’s representatives check water meters and collect the tariffs - he pays them with free water.
- The 600 households of the village are spread across an area of 6km\(^2\), which equates to an approximate population density of 500 people/km\(^2\).
Example Market: Central Vietnam

In large areas of Central Vietnam, along the populated coastlines, water resources are very different from those cited earlier.

Groundwater is easily accessible in shallow aquifers, of good quality, and replenished every year through runoff from the inland mountain ranges.

In the early nineties, with UNICEF support, the government developed provincial level capacity to drill shallow tube-wells and install No. 6 pumps, mostly donated for community use.

An installed hand pump purchased through the provincial government network cost in the order of $100.

Due to the centralized (Provincial Capital) location of the government teams, it took some five simultaneous orders to get them mobilized and out to the countryside.
Example Market: Central Vietnam

International Development Enterprises (IDE) began a program in 1995 to develop private sector capacity to provide hand and electric pump installations and after-sales services / maintenance throughout three provinces of Central Vietnam.

Manufacturing, wholesaling, and well drilling capacity was built. The ‘front-line’ of this network were 150 branded well drilling and pump installation enterprises. The decentralization and competitiveness of the hand pump supply / well-drilling enterprises resulted in a cost reduction from approximately $100 to around $30.

The most critical intervention of IDE was market development ~ 80% of the total program budget. This fuelled a demand for services and technologies, as well as promoted sanitary water handling, storage, and hand washing. The marketing strategy tapped into the emotions and aspirations of the consumer base, separately targeting men, women, girls, and boys. It did not promote hand pumps or wells. It promoted dreams.

Resulted in a rapid growth in end-user financing of domestic hand pumps and tube-wells. By the end of 2001, a total of 64,000 pumps had been installed, providing clean drinking water to some 320,000 people. The total user-invested capital in these unsubsidized installations totaled $2.3 million.
Example Market: Central Vietnam

Domestic Water Installations, TTHue, Quang Nam, and Thanh Hoa Provinces, Central Vietnam, 1994 - 2001
Ingredients of an ‘enabling environment’ for investor / user financing…

- Government support
- Regulation – Investor friendly, User friendly, Environmentally Friendly
- Availability of technical skills – design / installation / operation
- A strong demand… If users want improved supplies, want improved health, and know how to attain it…
- National, Provincial, District, & Community targets and rewards – sharing the MDG’s around
- Decentralized service provision, choice, planning, regulation, …
- Access to affordable investment capital
- Increasing the value of water? - Attachment to High(er) Value Sources of Water
Red Flags…

**Donor / Government / NGO subsidies can cause more harm than they do good:**

- Donations at best distort markets, and en-mass kill markets for local suppliers

- Rarely are equipment donations purchased from local supply networks - often because of internal tendering rules – seeking cheapest technology purchases usually means bulk purchases directly from manufacturers. (Usually it is still cheaper to buy locally because it is a one-stop shop, and of course the spare parts, the guarantee…)

- Where subsidies are provided as a sizeable portion of larger investments (such as piped schemes), ‘ownership’ may be dictated by political / social connection rather than a demonstrated willingness to enter business. Enterprises that are spoon-fed by the social sector are not as committed, or in the worst case, may not have decided to enter business, but been ‘put’ into business.

- The commitment and long-term success of businesses has much to do with their start-up personal investment risk. If it is necessary to provide direct subsidies, the challenge is to find a balance between two extremes – encouraging business, but not jeopardizing the likely success of the intervention.
More Red Flags…

Private Sector cannot bear the cost of ‘Software’ marketing, yet these are critical:

- Less than 50% of the rural population of Cambodia is aware of any linkage between water quality / handling and disease
- Piping purified water into households is not enough - as we see from the Cambodia example

& Opportunities…

Hardware and Software Marketing Campaign Overlay:
Private sector does need to develop markets, and this effort can be linked with social marketing objectives. This result in:
Greater efficiency of total resource use
Opens new marketing channels that can be used for this dual promotion that might otherwise only be accessible to the social sector – schools, health stations, local political networks.
Golden Opportunities…

Attach RWS programs to higher value sources of water

Consumers are purchasing water because they attach a value to it – may be convenience, improved health, taste, etc.,

The greatest water-value in poor rural areas is for irrigation and animal watering. These activities make money – water is no longer an expense; it is an income.

In most rural areas, families cultivate crops or keep animals not in some remote farm, but at their houses, the same place that they need drinking water access. In the hand pump supply chain initiative sales are much higher where consumers are additionally using their water source for irrigation.

In Tien Giang province in Vietnam, piped-water users are also using the water for small chicken and pig farms situated alongside their houses. In Cambodia, where IDE has developed supply networks for irrigation, 60% of the consumers additionally use the water for domestic use. The two are interlinked, and there exists opportunity to capitalize on this fact.

Programs are now underway to demonstrate 100% cost recovery of water source development in very poor areas where source development is expensive, by integrating drinking water and irrigation needs.[1]

Top of the agenda...

1. Demand creation is 8/10ths of the challenge, the rest will fall into place (or at least it will require just 2/10th the effort)

2. Decentralize ‘everything’ as far as possible:
   1. Regulation
   2. Marketing strategies
   3. Technological choice
   4. Service delivery
   5. Design
   6. ……..
   7. …..
Harmonized Complimentary Roles…

**Donors**
- Facilitate an ‘enabling environment’
- Capacity Building
  - of both Government and Private Sector
  - and of Government to work / negotiate with Private Sector
- (Social) Marketing / demand creation (via specialized agencies)

**Government**
- Regulation / Licensing
- Provision of Technical Expertise / Technical Capacity Building

**Private Sector**
- Infrastructure investments (Capital)
- Management investments (Time and Effort)

**Users**
- Infrastructure Investments (Capital)
- Operation and Maintenance (via fees)