

# Appraisal and Impact Assessment

Of

## IDE Vietnam Hand Pump Program



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## EXECUTIVE SUMMARY

The purpose of this mission was to review the government of Vietnam-IDE's pump promotion program that was started in 1992 and has been expanded to three provinces. The methodology used was a desk report review followed by field interviews and discussions with government officials, IDE staff and donor organizations. Pump customers, ranging from young persons to a 93-year old woman, drillers, shop owners and factory agents were interviewed. The IDE handpump program is currently being phased out and has already stopped in some areas. The review draws lessons learnt and makes recommendations related to the worldwide problem of establishing effective supply chains for pumps in rural settings.

### 64'000 non-subsidized pumps

- purchased by households
- installed by small businesses
- bought from local shops
- manufactured in the country

### Findings

Prior to the IDE intervention, the government of Vietnam (GOV) and UNICEF (in 1960 and in the 1980s) had run water and hygiene promotion campaigns and also installed many pumps. These programs played a seeding role and started creating a demand and the desire to move from ring wells to pumps.

It is seldom that a review team finds a water project that can with certainty be proclaimed a success. The well-managed and run GOV-IDE program funded by ICCO has sold 64'000 pumps of varying types to customers with no subsidies.

Local commercial networks were formed and have developed into functioning supply chains. Each level of the supply chain benefited or profited: the customers, drillers, shops, factory agents and the factories. A result of the functioning supply chain is that after the end of the project (already phased out in some areas), customers can still buy new pumps, replacement pumps, spare parts or have their pumps repaired.

Central to this success was a well-designed promotion campaign that a) created a demand for clean water; b) informed customers about choices and quality; c) was based on the researched needs of the customers; and d) offered affordable alternatives. The project was implemented within the Ministry of Agriculture and Rural Development with the government department Center for Rural Water Supply and Sanitation (CERWASS) as the counterpart organization for IDE. The GOV structures played a leading role in the promotion campaigns and included the Women's Union and Vacvina (a parastatal NGO), both organizations having extensive memberships and networks at hamlet, commune and district levels. Training was provided to the various organizations and included participatory methods, marketing advice and inputs on where and which pumps to buy.

A complex, but in itself logical, credit arrangement (locally and culturally embedded) ensured the smooth functioning of the supply chain from the customer to the manufacturer. IDE did

Figure 1  
Logo used in Handpump Project



not distort the credit market and only made minimal interventions (less than USD 10'000 for the project period).

IDE showed flexibility and responded within a short time to the market by dropping its original plan to market the treadle pump. A few years later it also phased out its own pump design when local competitive pumps had a price advantage. This led to a focus on demand creation and selling "clean water" instead of pumps.

The type of pumps and the drilling methods used played a vital role in the selling of the 64'000 pumps. In the beginning the No.6 pump was introduced. The market responded by reducing the size and weight of the No.6 handpump until a version was for sale, which was within the means of households. The quality of these cheap pumps is barely acceptable, but they function and are affordable. The drilling methods (sludger and roboscreen filter technology) allowed the reduction of drilling costs, thus making the whole installation affordable for most households. This was a market response to an extremely price-sensitive market.

The sanitation and hygiene standards observed during the mission were very low and posed a threat to both health and quality of the water near the pumps. Latrine coverage and usage also appeared to be low with open defecation still prevalent and generally minimal hand-washing.

IDE seemed to have abandoned the water and sanitation sector despite its considerable know-how and successes. This was to a certain extent caused by the complex way of operating with government and the time-consuming search for donor funding. However, the donors we met often had the impression that IDE was still only promoting treadle pumps and drip irrigation. This indicates a promotion/networking weakness: IDE's activities in Vietnam are not visible enough among WATSAN donors.

### **Supply chains**

In the IDE areas some of the main conditions for a successful supply chain were

a) volume; b) affordable technology; c) an existing commercial network that could be linked more strongly to the water pumps; and d) a social marketing campaign that created a demand and educated the customers and trained the drillers. The external elements that helped with the success were a) increasing customer incomes; b) an improved environment for small businesses; c) a high literacy rate; and d) previous exposure to water and sanitation campaigns with new pump types becoming available.

### **Recommendations to IDE**

- IDE should build on this water success by continuing in the area of water promotion. Improved networking and a focused presentation to a range of GOV officials and potential donors would be advisable.
- IDE has an opportunity to address the chronic problem of limited latrine coverage and usage in the 3 provinces where it has established a supply chain network and good local links. This is seen as an opportunity for IDE as the application of social marketing in sanitation has had many successes worldwide.
- Considering that IDE has considerable successes in promotion, social marketing and strengthening supply chains, its promotional material should reflect these core activities. Brochures and promotional material are needed to assist IDE in marketing itself.

### **Thoughts on the global debate on supply chains**

The challenge is to find mechanisms that promote, create or strengthen supply chains. The implications to governments, donor organizations and NGOs are complex and will necessitate a new type of thinking. This could involve modified procurement procedures,



revised attitudes towards subsidies, dropping the fixation that one technology is suitable for all situations and treating beneficiaries as customers who are able to contribute and solve their own problems.

- A supply chain assessment should be made, covering the critical questions to see if
  - a) government and donor practices and policies and
  - b) RWSS programs or projectsare facilitating or blocking the use of supply chains.
- This supply chain assessment should be used in evaluating existing water and sanitation program as well as in preparing new programs.
- The promotion of the idea of supply chain assessment would be an essential measure to gain support for creating successful supply chains.

The Vietnamese approach cannot simply be transferred as a carbon copy to other places. The lessons learnt, however, can be applied. Where conditions are favorable for the setting up of supply chains (cheap and affordable pumps, high volume, short distances, good industrial base, presence of some type of commercial network, high literacy rate, government cooperation, etc.), it is possible to use social marketing and education to support the private sector in creating an effective supply chain. Some key factors are:

- Buying both spares and pumps at the lowest level in the supply chain, i.e. from artisans and shops.
- Each level of the supply chain must benefit /profit for the sustainability of the supply chain.
- No level of the supply chain should be excluded from the supplying of material, pumps, spares, latrines etc.
- Building on local commercial networks even if this means higher prices.
- Provide choices to the customers even at community level.
- The program design should take into account supply chain development and the vital role that social marketing can play.
- Avoid the usual activities that block or destroy a supply chain such as project-centered procurement, not using the existing commercial network, de-linking supply of equipment from supply of spare parts, doing everything oneself with the illusion that it is cheaper and separating the customer from the supply chain.

In many places where favorable conditions are not present the solutions would be of a different type of program support and approach, i.e. locally adapted and repairable technologies and/or contracting a commercial company on a profit-making basis to provide O&M services over a period ranging from 10 to 20 years.



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## **List of Abbreviations**

CERWASS	Center for Rural Water Supply and Sanitation
GOV	Government of Vietnam
ICCO	Interchurch Organization for Development Cooperation
ICRC	International Committee of the Red Cross
IDE	International Development Enterprises
NGO	Non government Organization
RWSS	Rural Water Supply and Sanitation
USD	US Dollar
VND	Vietnamese Dong
WB	World Bank



## 1 Introduction

### 1.1 Vietnam context (before IDE)

In the three provinces visited it was noted that prior to the 1990s, numerous efforts had been made to change people's awareness in terms of water and sanitation. These efforts contributed to the GOV and IDE successes and provided a base on which to build a successful program.

There is no doubt that Vietnam has always had practices and beliefs related to water, sanitation and hygiene. As far as could be ascertained, one movement started in 1960 when agricultural co-operatives initiated campaigns aimed at improving living conditions, i.e. "Clean house, Fertile Field"; Building three sanitary works, i.e. "Water (ring wells), Bathrooms and Toilets"<sup>1</sup>.

In the 1980s the GOV and UNICEF ran supply-driven programs that also added to the general awareness of clean drinking water. The No.6 pumps introduced by UNICEF were a rather "high-end" choice of technology for the operating conditions in Vietnam. Many of those pumps are no longer in operation, mainly due to the lack of spares because of missing or weak links in supply chains and lack of ownership. Despite these shortfalls, it is considered that UNICEF's introduction of low cost handpumps and boreholes played a seeding role in setting the scene for future demand creation. IDE could base its promotion efforts on this work and therefore found the public receptive to the message. This groundwork helped to create a demand for water in the 1990s.



Figure 2  
Cut out from Promotion Material

#### 1.1.1 Key points

(1960 to approx. 1990)

##### Water

- Government structures existed that reached to commune/hamlet level, e.g. women's unions, farmers' unions and Vacvina
- GOV and UNICEF campaigns increased the awareness of the health link to clean water
- The introduction of the No.6 pump gave the local production industry a basic community pump. This pump was later adapted to a household pump which is affordable today.
- Some organizations, including UNICEF and NGOs, often promoted community pumps and supplied these pumps, either free of charge or heavily subsidized.

The above resulted in:

- Many ring wells were built, often at household level.
- Drilling know-how increased.
- The demand for quality water was created.
- Commercial networks gained momentum, although they are still very weak in some areas.

##### Sanitation

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1. In discussions with customers, government officials, donors and in "Selling Sanitation In Vietnam - What Works", Water and Sanitation by the W and Sanitation Program East Asia and the Pacific WB January 2002



- Increased sanitation awareness was achieved from 1960 to 1990 by means of campaigns usually linked to water and the environment.
- The technologies which were promoted (usually only one option) were often expensive and not in line with the affordability and needs of the majority of the people.
- Nationally, the greater focus was on drinking water.
- At village level, a base knowledge existed regarding sanitation, and in some cases the promoted models were converted to take into account needs for fertilizer use.
- Sanitation coverage and use had not yet taken off.

### **General**

- High literacy rate.
- Good government networks (co-operatives and unions) reaching to commune/hamlet level.

### **1.2 Background**

In 1991 IDE started in Vietnam with a treadle pump project. The treadle pump did not take off as expected. Water tables, access to irrigation water, irrigation methods, and soil types were all limiting factors in the demand for treadle pumps.

UNICEF had introduced the No.6 pump into Vietnam in the eighties. These pumps were manufactured in a number of factories and were installed by the provincial departments of rural water supply. The departments were centrally based in the province capitals. They reacted when the demand for pumps in a particular area rose to five or more pumps. The information was collected through the political networks at commune level and pumps were given to the assigned recipients. Costs of the UNICEF pumps were in the region of \$100. UNICEF donated the pump heads. Drilling, installation and transport costs were borne by the government.

The IDE treadle pump project recognized a growing demand for drinking pumps installed at the homes. These pumps needed to be fitted above the ground (unlike the treadle pump), so that a bucket could fit underneath. With the realization that the market wanted a drinking water handpump, IDE in 1995 turned its promotion efforts away from treadle pumps. At the time the private sector market for handpumps was still in its embryonic stage (as were many other private sector markets). The No.6 pump was the only product on the market. IDE started with training commune-based well drillers on the low-cost sludger drilling method. It also embarked on the development of a handpump smaller in size than the No.6 and established new production facilities. The simple drilling method allowed establishing privatized drilling and distribution networks, which cut costs dramatically. The lighter pump heads helped to a lesser extent to reduce costs even further. As a result, the market changed and sales rose rapidly. The timing was good, the private sector emerged and there was a general increase in disposable income. This created a healthy market.

IDE focused its project in three provinces: Thanh Hoa in North Central Vietnam, and Hue and Quang Nam in Central Vietnam. It formulated a powerful marketing campaign. The promotion campaign was based on issues of convenience, safe water, domestic sanitation and health. IDE worked with mass organizations such as the Women's Union, Farmers' Union and CERWASS to set up a network of pump promoters, drillers and suppliers.

The production/distribution networks changed over the course of the project. Initially IDE tried to promote and produce its own pump design. Later it left the production to the established factories, which developed their own supply chains, and focused its efforts on demand creation. Two or three national manufacturers took up the pump production. The factory that IDE had established ceased to produce pumps. The market also attracted private sector manufacturers of plastic pipes. Using existing commercial market channels a supply chain arrangement was created in which the private sector provides the goods and services; the government and IDE took on facilitating roles.



The supply chains operate independently of IDE. It refrained from influencing prices. However, in order to assist promotion efforts, IDE was adamant on certain quality and guarantee standards, which were achieved through customer and driller education.

The very local level of the well drillers, and the fact that these drillers were directly accountable to the users/customers, created a close customer-oriented service. Well drillers usually provide credit to the purchaser (households) and therefore maintain a good after sales service to the customers.

With rural electrification the product range increasingly included electric pumps and handpumps became less used.

IDE has over the last two years gradually withdrawn from active promotion. It motivated and trained well drillers to take up their marketing activities themselves. Customer satisfaction is their optimum marketing tool. Other promotion activities such as commune loudspeakers, leaflets, and hi-jacking meetings (explanation below) are now all undertaken by the well drillers with no external financial support. The supply chains are now functioning independently since the marketing assistance was withdrawn. A reduction in sales noted in the three provinces is mainly due to the fact that the market had reached a saturation point. Over 64'000 handpumps have been installed through IDE-created networks and marketing efforts. Similar supply chains have developed to some degree in other provinces.


## 2 Findings

### 2.1 Promotion approach

IDE promotion initially focused on the treadle pump (1991/2), and later in 1994 on the IDE-designed drinking water pump. The level and quality of the promotional work was strongly linked to the type of technology in which IDE was involved. This push for a certain technology can be seen as a necessary learning process for IDE as an organization that internationally had success in promoting its own brand name. This focus on its own brand name to some extent conceals IDE's real competence and core activities, i.e. promotion/social marketing.

When IDE Vietnam realized that promoting its own brand was not finding the necessary response, it started moving towards a more market-based approach that focused on promoting the idea of water and linking this idea to a supply chain. The organization's flexibility had a direct effect on the design of the promotional material.

The study "A Study of the Habits & Attitudes of Hand Pump Users & Non-Users & some Recommendations for Marketing Activities in 1999"<sup>2</sup> is an excellent report and provided an improved base for increasingly more professional promotion campaigns. IDE identified its main promotional focuses and ensured that these focal points were used in all the three provinces in the project area. The promotion campaigns were developed along the lines that



**Results of promotion**

- **64'000 pumps bought and paid for by the customers**
- **Increased water and sanitation awareness**
- **Functioning and strengthened supply chain**
- **Functioning market for water products and services**

<sup>2</sup> By Annabelle Newbigging, Thua Thien Hue, Thanh Hoa and Quang Nam Nov 1998



it is important to promote dreams, rather than simply promoting pumps. For example, children might dream of becoming famous singers, football stars; mothers might dream of a less busy life, healthy kids, or a husband who doesn't drink; men might dream of earning a higher salary. In the promotion campaign the pumps were linked to dreams, by actually promoting the dreams that are realized through the product as opposed to the pumps themselves.

Some small regional changes were made to suit local conditions. Different partners were used in different provinces and even government partners were changed to facilitate promotional activities. A wide range of activities was used in IDE's promotional activities and all actors in a promotional chain (description follows) were involved. IDE learnt what promotional material was appropriate to Vietnamese society and what was unsuitable (refer to report on type of promotional material). The range chosen included a video, leaflets, shop signboards and posters. This selection of material was used at numerous meetings and occasions where potential customers were present. One of the most popular promotion tools was what is called the hi-jack meeting (when IDE opportunistically used for its own presentations a mass meeting which had been called for another purpose).



Figure 3  
Promoting a Dream

Fundamental to all these activities was customer education and getting information to potential users to assist them in making an informed, knowledgeable and market-based decision. In later campaigns the customer's right to choose an affordable option was strongly respected and no single solution was focused on. IDE in effect changed its policy and promoted all available water options. This showed flexibility, innovation and a direct response to market information about the customer's needs (price sensitive) and what the factories were producing, i.e. a range of both electrical- and handpumps.

Some of the key success factors in the promotion campaigns were the availability, selection and motivation of organizations at provincial, district, commune and hamlet levels that played major roles in promotion. IDE successfully motivated government officials, a local parastatal organization (Vacvina) and the Women's Union to work with them in the campaigns. The use and potential of the GOV and its promotional apparatus cannot be underestimated (refer to the WB report). IDE used this apparatus and worked closely towards the successful selling of pumps. (Other factors such as price, etc. are dealt with under the supply chains' section.)

All possible organizational levels of people were involved. The direct link between the organizations and potential customers was a strong focus (face-to-face). Many persons were involved in selling pumps, but the direct sales were usually arranged amongst the drillers.

The promotion chain could be seen as the following:

1. GOV official (central, provincial, district, Vacvina)
2. GOV commune and hamlet organizations (Women's Union, farmers' unions)
3. Individual motivators (union members)
4. Shop owners
5. Drillers (motivators often in two or more roles)
6. Customers (word of mouth)



The promotion chain utilizes more conventional elements of social marketing such as influential persons, society leaders and - most important - direct links to customers through a range of promotional activities that direct customers to options that will improve their standard and quality of life. In the case of IDE, these promotional activities also led customers to the supply chain and to affordable and available options, meeting key long-term sustainability objectives.

The above promotion chain had the objective of linking the customer to stakeholders in the supply segment, through the promotion of a private sector supply chain. In practice the situation is now that the upper levels of the promotion chain (1 and 2) slowly and naturally phase out as the other links between the supply chain and the customers become stronger. Indications were found that the market was taking over as a certain momentum of knowledge and customer awareness was reached.

It was found in all areas that the drillers and all people involved had a good understanding of promotion. Those directly involved in selling pumps told again and again how valuable the promotion campaign was for their business. In many cases drillers/shops have already started printing their own leaflets, using the hi-jack meeting technique and also continuing using the face-to-face approach promoted and developed by IDE.

## **2.2 Technology and costs**

### **2.2.1 Hydrogeological conditions**

In the project area the ground water conditions for using low cost handpumps are very favorable. The water table is constantly well above 6 m. Most pumps are used to pump from 2-4 meters. The installation setting of the screen (filter) is hardly ever deeper than 10 m.

In most areas sandy aquifers can easily be found. In very few pockets salty water is encountered or rock and stones prevent the low cost drilling methods from being used.

It appears that these conditions prevail in large parts of Vietnam. In hilly areas, however, groundwater-based supplies are much less feasible.

### **2.2.2 Drilling methods, well design**

Drilling is very easy. The methods used are sludger or jetting if the driller has a centrifugal pump available. Both methods (especially the sludger method) require a minimum investment in drilling equipment. Drillers often use the PVC rising main pipes (later used in the pump installation) for drilling with the sludger methods. Low capital requirements and simple techniques make it relatively easy to set up small private enterprises for drilling.

The rising main pipes are installed directly in the drilled borehole. The sandy-loamy soil collapses around the pipes and stabilizes them in the ground.

The filters are always roboscreen (continuous slot). The screens used are of good quality and normally have a slot width of 0.2 mm.

UNICEF's introduction of the sludger method for drilling and even more the use of roboscreen in the eighties were prerequisites for making the low cost drilling of boreholes and the handpump program possible in Vietnam. The (less safe) dug wells were replaced by handpumps in household water supply. UNICEF played a pioneering role in making these low cost methods popular and should be given credit for bringing these technologies into Vietnam.



Figure 4  
Cut out Promotion Material



## 2.2.3 Handpumps used

### 2.2.3.1 VN6 (No.6)

VN6 is the original UNICEF No.6 design. This good old workhorse was designed in Bangladesh to serve about 50-100 people. In Vietnam, however, the user groups are usually much smaller. As household pumps, the pumps normally only have to serve a maximum of 10 people. Under these service conditions the pump was too heavy and consequently too expensive for the market.

Therefore the VN6 did not really make it on the market in its original form. The market demanded cheaper pumps. The (smaller and lighter) copies of the VN6 often carried a fake UNICEF brand label, which indicates that sellers and users consider the original UNICEF VN6 as the Mercedes of the handpumps. The fact that these UNICEF pumps are sought after shows how highly the No.6 design is regarded.

Again UNICEF's role in bringing this technology into the country and popularizing it should be appreciated.



Figure 5  
No.6 Pump

### 2.2.3.2 Mailan

The Mailan pumps are cheaper copies of the VN6 and are manufactured in Hai Phong. The factory reduced the weight from 33 kg to 10 kg. Accordingly the prices have come down to about a third (VND 185,000 to 50,000).

The quality standard of these cheap pumps is very low. However, under the circumstances and the service conditions, the quality can be considered as just about acceptable. Since the pumps are very inexpensive and are only used for household water supply, they can be said to be serving their purpose. It appears that farmers often prefer to simply replace the pump than fix it.

### 2.2.3.3 IDE Pump

IDE started the development of a smaller, lighter and therefore more inexpensive pump in about 1994. The design was an adaptation of the UNICEF design, but did retain some treadle pump features (foot valve). At this time IDE (Denver) believed that the treadle pump was the magic potion for all countries and was trying to promote it in all the countries in which they were working. IDE Vietnam had the insight to recognize that Vietnam did not need a treadle pump. They did, however, compromise and include in the IDE drinking water pump some features like the foot valve from the then "en vogue" Indian and Bangladeshi technology. The new foot valve design was more complicated than the No.6 design and the pump body was more difficult to manufacture. The insistence to keep such treadle pump features resulted in the death of the development of the pump. Soon the No.6 copies made by Mailan were much cheaper. The IDE pump was never really popular and production stopped in about 1998.

IDE's involvement in the development of a handpump of its own design can be regarded as a failure. The IDE pump did not find the acceptance of its users. (They wanted to buy a UNICEF-type pump, or the Oshin Pump with its "pressure" feature to pump water up for irrigation.)



Figure 6  
IDE Pump



The development of the IDE pump and its eventual collapse in the market shows that IDE's strength lay (and still does) much more on the technology promotion and marketing side than on the R&D side.

However, it should be noted that the IDE pump was an important step towards the drive to make handpumps cheaper. It showed the producers that smaller, cheaper pumps were actually the technology the users preferred. Furthermore, IDE showed enough flexibility not to insist on the promotion of its own brand, but to promote clean household water instead.

#### 2.2.3.4 Oshin

The Oshin pump is a pressure pump of Chinese design. The pressure feature enables the pump to be used to pump water up into a roof tank or into a garden hose for irrigation. This might be the reason why the Oshin is quite popular.

Again the Vietnamese versions are very light and flimsy. Like the Mailan, the quality is on the border of acceptability. Because the pump is more complicated than the Mailan, its reliability is reported to be even worse. The cost is the same as for the Mailan pump.



Figure 7  
Oshin Pump

#### 2.2.4 PVC pipes

PVC pipes are normally graded according to the pressure they can withstand. The pipes used are of the lowest grade possible with very thin walls. The drillers form makeshift bell ends for jointing, which are neither central nor straight. But since the pipes are buried in the ground and bear very little stress, they serve their purpose and their quality is adequate.

#### 2.2.5 Roboscreen

The roboscreens are of good quality and have a very effective filter. The design gives a high percentage of open area (~11%) with a very fine slot size (0.2 mm). Mass-produced they are very cheap (VND 22,500 for 2m length).

The introduction of the roboscreen in the late eighties made the switch from ring wells to inexpensive, small diameter boreholes possible. Thus the roboscreen is likely to be the most important technological building block for the successful household water program.

#### 2.2.6 Installation

The installations are generally of quite good quality. A concrete pedestal is used to secure the top pipe in the ground. The platforms are usually made of concrete; their size is normally adequate to protect the immediate surroundings of the tube well.

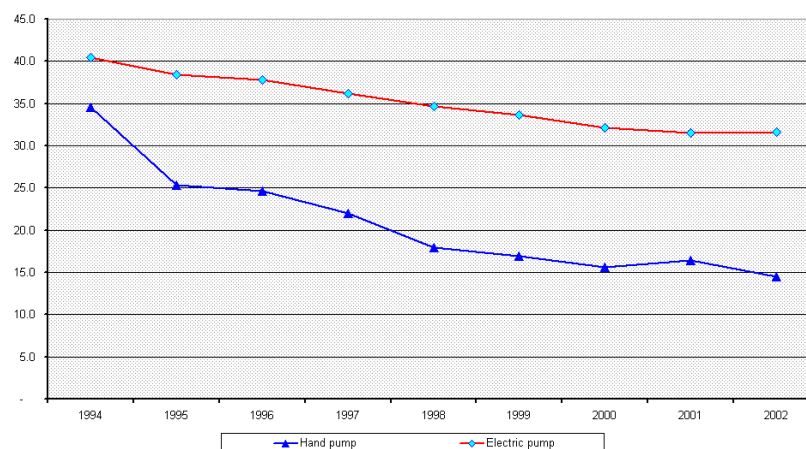
#### 2.2.7 Costs

The market is very price sensitive. The customers want affordable products to the point that they will forfeit considerations of quality. IDE did not intervene in the market; it did not try to dictate prices or enforce certain quality standards.

Since the price level is so low, the quality of the pumps is not as important as it might be in other places. The number of non-functioning pumps is most likely determined by the perceived need of the households to have the pump working. It also appears that repair services are of minor importance. Simple repairs (like replacing a seal or a foot valve) can easily be done by the owner. Major repairs are in many cases not done because it is not very expensive to buy a new pump after a few years (VND 60,000 –80,000).



Well Cost in USD



The following table shows the development of prices over the period of the IDE handpump project.

**Cost of Pumps Wells and Installation**

ITEMS	Unit	1994	1995	1996	1997	1998	1999	2000	2001	2002
<b>Hand Pumps (head)</b>	VND/head									
UNICEF VN6 (30-35 Kg)		200,000	180,000	168,000						
Mai Lan (27 Kg)				158,000						
Mai Lan (25 Kg)				148,000	140,000					
Mai Lan (20-22 kg)						120,000				
Mai Lan (15-17 kg)						90,000	90,000	80,000	75,000	
Mai Lan (10-12 kg)							59,000	57,000	52,000	52,000
Mai Lan (9-10 kg)									50,000	47,000
Oshin						90,000	70,000	55,000	50,000	50,000
IDE Pump			143,000	130,000	130,000	130,000				
<b>Electric Pumps (Chinese)</b>	VND/head									
Centrifugal pump 370w		330,000	330,000	325,000	290,000	290,000	280,000	270,000	265,000	265,000
Centrifugal pump 750w					450,000	430,000	420,000	390,000	390,000	375,000
Vacuum pump 370w			350,000	340,000	310,000	310,000	290,000	290,000	280,000	275,000
<b>Filter</b>	VND/meter									
Filter pipe (Roboscreen)		15,000	15,000	14,000	13,500	12,500	13,500	13,500	13,500	12,000
<b>Plastic pipe</b>	VND/meter									
Binh Minh		10,000	10,000	9,500	9,500	8,900	8,300	8,600	8,000	8,000
Dat Hoa Class 1		8,000	8,000	7,500	7,700	7,000	7,000	6,600	6,800	6,800
Dat Hoa Class 2		6,000	6,000	5,700	5,900	5,900	5,600	5,300	5,200	5,200
Danang		N/A	5,500	5,500	N/A	6,000	N/A	N/A	4,500	4,500
<b>Installation cost (manual drilling)</b>	VND/well									
<10m well		100,000	100,000	85,000	80,000	70,000	70,000	60,000	50,000	50,000
10-15m well			100,000	100,000	100,000	N/A	N/A	N/A	N/A	N/A
<b>Installation cost (Mechanicaldrilling)</b>	VND/well									
10-15m well			160,000	160,000	140,000	125,000	125,000	100,000	85,000	85,000
<b>Miscellaneous</b>	VND/well									
Glue, connectors, steel pipe										25,000
Commission for Dealer/Promoter										15,000
Transportion										15,000
Profit										10- 30,000
<b>Well cost (with hand pump) (*)</b>	VND/well									
10m well		525,000	385,000	375,000	335,000	273,000	257,000	237,000	250,000	200-250,000
<b>Well cost (with electric pump) (*)</b>	VND/well									
10m well		615,000	584,000	574,000	550,000	527,000	511,000	489,000	479,000	480,000
<b>Guarantee period</b>	month									
Hand pump well		6	6	6	6	6	6	6	6	6
Electric pump well		6	6	6	6	6	6	6	6	6
<b>Spare parts</b>										
Foot Valve					2,500	2,500	2,500	2,000	2,000	3,000
Bucket					2,500	2,500	2,500	2,500	2,500	2-3,000
Piston					15,000	15,000	15,000	15,000	12,000	12,000

Source prices quoted by IDE, CERWASS and shops  
 (\*): prices given by drillers

1 USD = 15,200 VND



## 2.3 Supply chains and markets

The project supply chain can be summarized as follows:

- **Hamlet-commune-district level**
  1. Customer
  2. Driller (often dual role as salesperson and motivator)
  3. In some areas a sales motivator
  4. In some cases shops at this level
- **Provincial or town level**
  5. Wholesale supply shop
  6. Factory agent
- **National level**
  7. Factory

IDE built on the already-existing commercial networks, some of which were hardly existing and just emerging in the liberalized market. Many potential customers had seen pumps, used pumps and in some areas a few had bought pumps. Drillers were existent as were shops in most areas. Factories were producing pumps and related material, but often at unaffordable prices.

IDE's promotion activities affected all levels of this supply chain, ensuring benefits ranging from knowledge where and what to buy to increased profit for drillers, shops and factories. They worked from the lowest possible level of the supply chain up to the factory level. This ensured that right from the beginning all players in the supply chain were involved and benefited from the pumps that were installed. IDE avoided the trap of excluding any level of the supply chain. This mistake is so often the major threat to long-term sustainability.

The right price for the customers played a major role in the successful selling of pumps. Through the promotion campaigns all levels were provided with information about products, the advantages of available options and the costs related to quality. Drillers and in some cases shop owners repeatedly told that they were linked to customers through the information given out in the campaigns.

This linking of the commune/hamlet level customers to the supply chain strengthened the chain through ensuring profit/benefits for all players at all levels of the supply chain. This is a key element of supporting and using market supply chain mechanisms for social purposes to improve the living conditions for customers.

The relationships between each link in the supply chain were characterized by the adjacent links having a detailed knowledge of each other. For example, the drillers know most of the customers personally; the shop owners certainly know the drillers and their creditworthiness. This personal contact, information flow and mutual accountability are important factors in functioning supply chains. Without these factors, the risks increase for all and if the



Figure 8  
Shop Selling Pumps and Spares



relationship mechanisms become too distant or impersonal, they will pose a threat to the existing social credit retrieval culture.

### **Historical aspects of the links to the supply chain**

1992: The initial treadle pump project was a non-starter; the market did not demand small-scale irrigation pumps. IDE had the flexibility to realize this in time and changed not only its technology, but also the goals of the project (from small scale irrigation to drinking water).

1995: When IDE started with the handpump project, some of the groundwork had already been done (UNICEF and CERWASS interventions). The quality of IDE was that it realized the opportunity, seized it and then contributed substantially to setting off a handpump drive.

1998: IDE soon grasped that using the existing commercial network showed more potential; and stopped handpump production and technology development. Towards the end of the project they even stopped using an NGO-type organization (Vacvina) for the distribution and relied completely on supply chains through the private sector.

IDE developed an effective promotion campaign for handpumps. This has helped to accelerate the acceptance of handpumps as a household level technology. (The government has promoted open wells as far back as the 60s and 70s).

The introduction of the UNICEF No.6 pump through the government (CERWASS) paved the way for the acceptance of handpumps in households. The No.6, however, was too expensive for single households; the market demanded a cheaper and better-adapted technology.

To what extent the IDE intervention and promotion campaign influenced the process of gaining recognition for handpumps is not completely clear. Would the UNICEF (CERWASS) promotion effort have been enough to popularize the handpumps? It is difficult to say, but it appears that UNICEF definitely had a seeding role in building up handpump acceptance at government and user level. (The many fake UNICEF No.6 pumps that are flooding the market indicate that the UNICEF program has had a strong effect in the process.) It is believed, however, that IDE did serve an important purpose in the handpump promotion in that its promotion input was critical to further "push an already moving wagon, to keep it rolling and to allow it to gather speed".

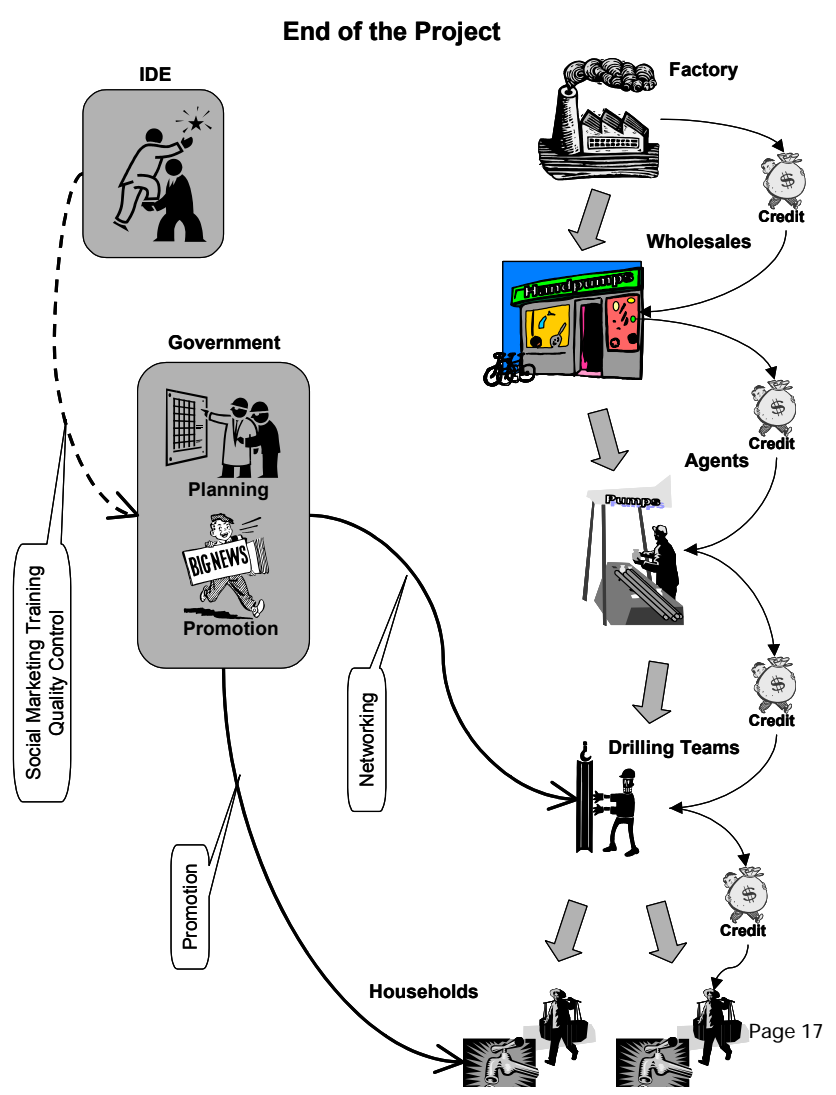
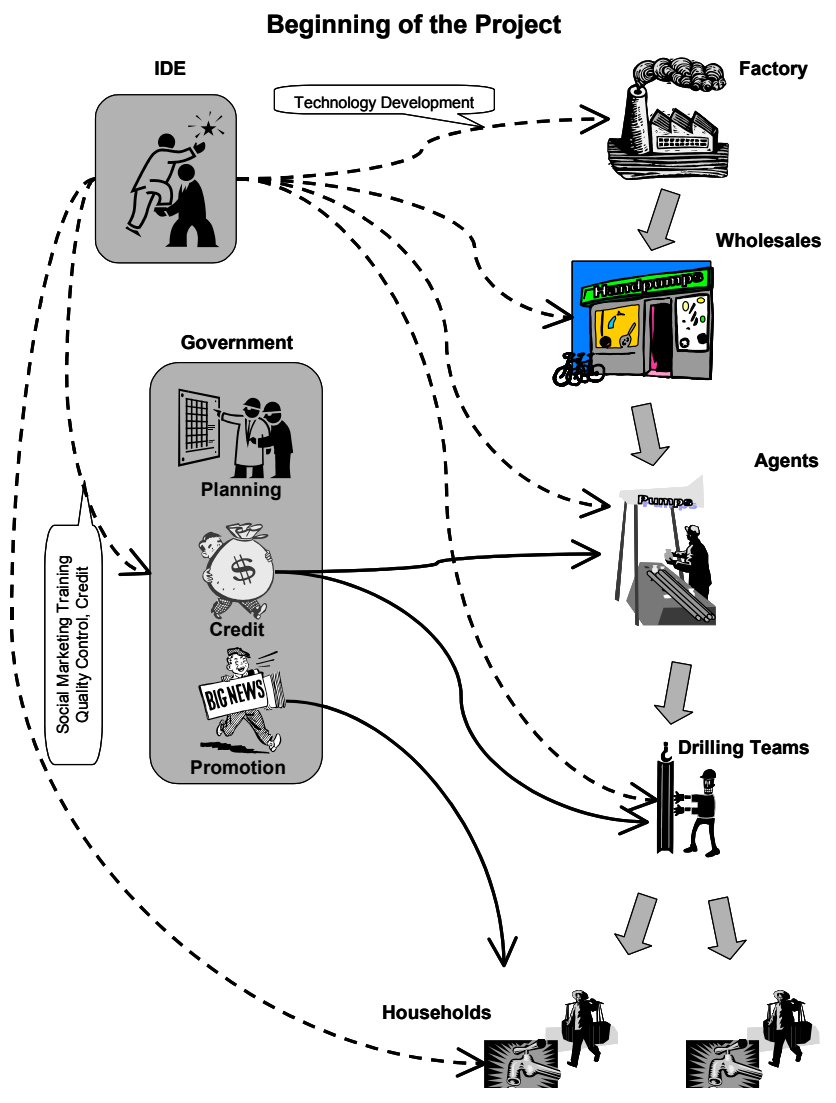
IDE was very effective in the selection process of its representatives (drillers, shops, etc.) It is clear that it used suitable criteria and was flexible enough to discontinue using those representatives that did not perform. IDE also kept the door open for those private entrepreneurs who did not join immediately in the beginning.



Figure 9  
Handpump and Electric Pump  
on the same borehole



# Evolution of Supply Chain in Vietnam





### 2.3.1 Pump supply statistics

When IDE started promoting drinking water pumps, the UNICEF-CERWASS program had already laid the groundwork. Handpumps as a source for drinking water were known in the three provinces in which IDE worked.

However, using an existing commercial network for the provision of services and intensive promotion activities resulted in the IDE networks soon supplying much larger numbers of pumps in all three provinces than the UNICEF-CERWASS program. (See statistics and graphics below.)

#### Pumps Supply Statistics

Year	Province								
	Thanh Hoa			TT-Hue			Quang Nam		
	Total pumps sold through IDE network	Estimated total pumps sold (other areas)	Pumps provided free by Government, UNICEF and NGOs (*)	Total pumps sold through IDE network	Estimated total pumps sold (other areas)	Pumps provided free by Government, UNICEF and NGOs (*)	Total pumps sold through IDE network	Estimated total pumps sold (other areas)	Pumps provided free by Government, UNICEF and NGOs (*)
1994	-	N/A	1,222	-	1,200	966	-	N/A	332
1995	21	N/A	1,078	351	2,300	1,035	-	N/A	534
1996	1,811	N/A	374	1,045	2,300	950	729	N/A	236
1997	1,458	N/A	307	417	3,300	619	180	N/A	450
1998	6,065	N/A	195	1,218	3,300	647	1,099	N/A	330
1999	13,042	N/A	924	2,150	2,300	430	2,185	N/A	310
2000	14,055	N/A	734	2,267	2,200	750	2,719	N/A	300
2001	10,560	N/A	11	908	2,100	532	2,033	N/A	310
<b>Total</b>	<b>47,012</b>	<b>N/A</b>	<b>4,845</b>	<b>8,356</b>	<b>19,000</b>	<b>5,929</b>	<b>8,945</b>	<b>N/A</b>	<b>2,802</b>

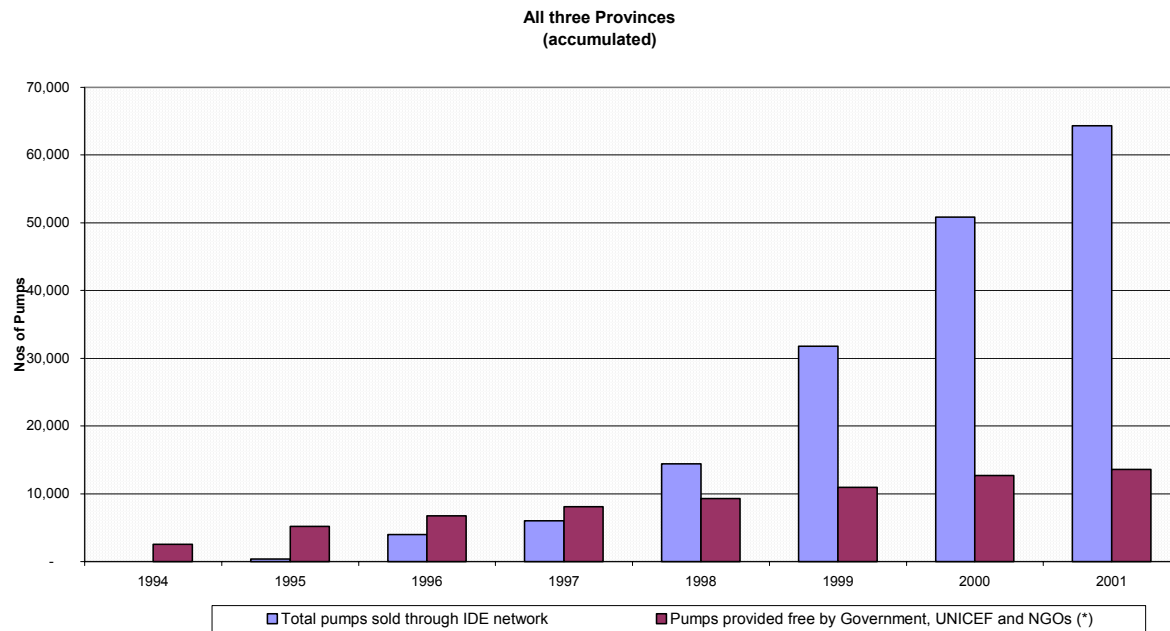
#### Total all 3 Provinces

Total pumps sold through IDE network	<b>64,313</b>
Estimated total pumps sold (other areas)	<b>19,000</b>
Pumps provided free by Government, UNICEF and NGOs (*)	<b>13,576</b>

Source: Centers for Drinking Water and Rural Sanitation (CERWASS) of Thanh Hoa, Thua Thien - Hue and Quang Nam provinces  
 (\*): by UNICEF, DANIDA and others.

Today, electric pumps are increasingly replacing handpumps. The cheap Chinese centrifugal pumps are easily affordable and provide a higher level of service (i.e. a tap with running water and the possibility of irrigating a garden effortlessly). It is foreseeable that the handpump might remain the technology of the poor and the more affluent households will go for up-market products.

It seemed that the market in the three provinces will soon be saturated; coverage is reaching approximately 80%. As a result, the number of wells drilled is decreasing. The established capacity for providing services (drillers, shops, etc.) is in some communes and districts already too big. There might be a natural selection process among the drillers and the shops in which only the strongest will survive. According to the IDE Thanh Hoa staff, discontinuing the IDE promotion campaign also had an impact and contributed to the slowing down of the program. In their opinion the campaign should have continued and included more hygiene components.



## 2.4 Credit channels

The credit mechanisms through the private sector are quite complex. Each level from the customer to the manufacturer/factory; all give and receive credit in varying degrees. In no case was interest charged on the loans and no credit agreements are signed. In the past Vacvina had signed credit agreements with the local shops and the sales representatives before they gave credit to them (see below).

This credit line from the customer to the factory plays a crucial role in allowing the goods and services to flow. At each level the creditors have credit retrieval mechanisms that they adapt to their own and their customers' needs. Usually credits are given with very short cycles of repayment, the exception being the drillers who often allow longer periods for settlement to their customers. Some customers also obtained credit from neighbors or family. These credit mechanisms are seated in the Vietnamese culture and often the fear of being seen as a bad debtor encouraged all levels to do their best to repay. The concept of removing the pump of the bad debtor was strongly rejected by all drillers and indicates how cultural mechanisms come into play.

As each level had its own assessment methods, i.e. knowing the person, it is also probable that the very poor were excluded from credit. In the time available it was not possible to follow this up.

### Manufacturer-trader

The manufacturer (supplier) sells his products (handpumps and PVC pipes, screens) to the wholesaler. The credit facilities given are basically covered by the inventory (i.e. the wholesaler has to pay for the previous delivery when he orders and receives new goods). Since the materials in stock represent roughly one month's supply, the credits (or outstanding bills) are paid relatively soon. With a growing market the outstanding bills increase. In a decreasing market they would also decrease. The supplier has quite a secure system to recover the outstanding bills (he can take legal action or stop the supplies).



### **Wholesaler–retailer**

The wholesaler also sells his goods to the handpump retail shop in a similar manner. The goods on credit are more or less the inventory of the shop. Once the stocks need to be replaced the shopkeeper has to pay before he receives a new delivery. The mechanisms for collecting arrears are based on payment before a new order is delivered. Wholesalers have a system to eliminate shops with a bad payment moral. They blacklist such shops, thus the shops, which do not pay, go out of the market. It was reported that sometimes a discount was given for cash on delivery; it did not, however, seem to be the general practice.

### **Retailer–drilling team**

The retail shops also sell the materials to the drillers on credit. Again the goods supplied are more or less the pumps sold by the driller. Shops and driller are normally geographically near (from the same area and same society). Therefore, for the collection of outstanding bills the social pressure is the main encouragement to settle arrears. An additional threat is that the shop might close the supply chain in case of non-payment. Again the debts are more or less covered by the inventory. Discounts for cash payments are not common.

### **Drilling team-household**

Drillers sell their labor as well as the pumps. Normally they keep the credit given to the customers below or around the value of their labor. In the case of a defaulting customer, they can pay their obligations to the retail shop. However, the drillers are the most vulnerable link in the supply chain. It also appears that they have arrears that date back quite long and are certainly no longer recoverable. The only means of enforcing payment appears to be social pressure. The commune level administration (people's committee) might help in collecting debts if the driller or the shop owner has a political influence.



Figure 10  
Shop selling a range of pumps  
and spare parts

### **Vacvina credits**

The credit picture for Vacvina credits is similar to the present line of credit. From 1997-1999 Vacvina took on the role of wholesaler. Vacvina sold materials (pumps and pipes) on credit to the local retail shops, agents and the drilling teams. Credit agreements were signed between Vacvina and the shops. The credits were about 30%-50% of the total amount of the materials bought by the shops and the local sales representatives.

When the shops or the sales representatives wanted to buy new materials, they paid back the outstanding loan and received a new loan for the new purchase. In 2000 the handpump project was phased out, and Vacvina stopped buying and selling materials. After this Vacvina ran into difficulties collecting money back. Not all shops could or wanted to pay back their debts. Because Vacvina and IDE were not commercial creditors, the credits taken from Vacvina and IDE were considered grants rather than loans right through the supply chain. It was convenient to claim that the lower link in the supply chain had not paid his due and therefore it was not possible to repay the outstanding bills.

In this way the Vacvina/IDE credit scheme served rather as a subsidy in getting the handpump program started than as a viable credit program.

There is an inherent danger that such credit schemes can distort the market and have an effect that a functioning supply chain is based on an unsustainable credit mechanism. However, since the Vacvina/IDE credit scheme was provided in a rapidly growing market, the effects were not that grave. Vacvina loans represent only about 0.1% of the total turnover in



the Thanh Hoa program and can therefore be considered negligible. IDE might have to (and also seems willing) write off their outstanding arrears. It is not clear how the pipe supplier feels about his non-payments.

## **2.5 Institutional Setup (collaboration IDE-private sector-government)**

The institutional framework used in the three provinces was affected by the fact that GOV regulations compelled IDE to work with government institutions.

### **2.5.1 Thanh Hoa**

The work with Vacvina was to a large extent dictated by the government restriction of not allowing international NGOs to work alone. The use of a “quasi” NGO was basically a means of finding an opening for the operations of the project.

The Vacvina interventions certainly had a positive influence in getting the ball rolling. The services offered through Vacvina made it attractive to small private shops and drillers to sell and promote handpumps. Drilling teams were trained and received an official certification, which enabled them to be considered as representatives of a government organization. As a member of the network, shops did not have to pay taxes on their sales. Many drilling teams started selling pumps and acted as local shops after they joined the network. Most important to the shops and drillers, the networks promotion campaign helped them to find more customers. The credit facilities offered through Vacvina were an additional incentive for small private shops to start selling and promoting handpumps. It was an opportunity to obtain interest-free capital.



Figure 11  
Wholesale Shop

Vacvina failed to develop into a commercial enterprise (as some may have foreseen). Therefore, the Vacvina credit scheme in Thanh Hoa, with no interest charged and an inadequate collection mechanism, seemed doomed to fail. Luckily the development of the market with its rapid growth masked the potential problems that the credit scheme could have created. The non-commercial nature of the cooperation between Vacvina and IDE and the institutional setup did not negatively affect the project.

The exit strategy of IDE leaves Vacvina with the problems of having the liability of repaying the credits (VND 13 million to IDE and VND 53 Million to PVC pipe producers). Since Vacvina is a government institution, the outstanding loans may have to be written off. (For IDE this should not be problem and the pipe suppliers may consider the loans given to Vacvina as a promotion of their products and also write it off).

The lesson learnt from the Vacvina experience is that trying to set up a commercial enterprise through a government institution is questionable. Under the Vietnam circumstances, however, working with a credit scheme through Vacvina might have been the only way in which IDE could start a handpump promotion project in Thanh Hoa. It has to be noted that the influence of Vacvina to get the handpump promotion started was essential. The flexibility to change handpump suppliers and technologies (including the easy switch to motor pumps) were definitely also strong points of Vacvina. IDE's cooperation with Vacvina and the government therefore served as a launchpad to establish the more enterprising local private sales network.

Such a cooperation, however, may not be successfully replicable in other situations (e.g. Africa).



## 2.5.2 Quang Nam, Tam Ky

The project began working here in 1997. IDE's counterpart was CERWASS under the Department of Agriculture and Rural Development. CERWASS had 5 drilling teams. Initially three districts were chosen as the project area. CERWASS-IDE developed a management structure on provincial-district-commune levels. The working area was expanded to eight districts (out of 14).

IDE started with the promotion of handpumps of mainly its own design, the IDE pump.

Promotion was done through the Farmer's Union and Women's Union. Promotion activities focused on the advantages of the IDE pump. The customer target group were private households. The few subsidized pumps (118 free pumps out of a total of 8'216 installed pumps) were given to schools and to poor people. Some pumps were given away in raffles as promotion.

The demand grew more rapidly than CERWASS could cope with. Consequently the government and the private sector had to share the work. IDE convinced CERWASS to invite private drilling teams to join the network and privatized its own five drilling teams. IDE-CERWASS established a drilling network with 44 private drilling teams. The drilling teams are all small enterprises in the private sector and are registered with and certified to operate by CERWASS. In order to ensure certain quality criteria, they were given training.

The project established a supply network of local promoters and drilling teams as suppliers of pumps and pipes.

Drilling teams submit a monthly report to CERWASS. CERWASS monitors the progress by paying visits to sites to verify the reports and check on quality.

Hardware was initially supplied through CERWASS (mostly IDE pumps). Since 1999 all the material and pumps are supplied through a private sector supply chain.

Prices were initially fixed to prevent customers from being cheated by the drillers (e.g. the final well price should never exceed VND 450,000 for a 10 m handpump without platform). Customers, however, had the right to decide how much their well would cost by selecting the materials they wanted to use. Today the fixed maximum price has become quite irrelevant as the going rate for a handpump installation is in the region of VND 200,000 to 250,000.

IDE provided financial support for promotion material and training. It also paid the costs of one CERWASS staff member (salary, administrative costs, transport) until the end of 2001.

Promotion campaigns were developed jointly between IDE and CERWASS.

IDE's support stopped at the end of 2001. CERWASS continues with promotion, managing and supervising driller and promoters. The ongoing activities are funded by the government budget. This funding is insufficient, but it is hoped that the network of drillers and suppliers will pick up some of the components (i.e. for promotion).

During the IDE support credit was given through CERWASS. This practice was long since stopped. Today CERWASS has outstanding credits of approximately VND 7-8 million.

UNICEF, IDE and several NGOs (World Vision, East meets West, ICRC) are working in the province. NGOs operate differently from IDE in that they try to motivate the people's committees. The commune applies for planning permission to the district. Once this is granted, the people's committee receives the money and it can either choose to use the government units or the private sector to implement the work.



Figure 12  
Prices dropped with the weight



### 2.5.3 Hue

In Hue IDE started establishing a handpump distribution network in collaboration with CERWASS. Between 1994 and 1997 the network installed a total of 1'813 handpumps. The cooperation between CERWASS and IDE was, however, tense and the partnership did not work effectively. As a result from 1998 a new approach was adopted. After this IDE stopped its promotion work through CERWASS and concentrated on cooperating with the Women's Union in its campaign for clean water. The drilling teams that were trained started working independently from the CERWASS as private contractors.

This institutional switch did not affect the program severely. The Women's Union is working very closely with the commune administration and therefore CERWASS still has control over the program. It would, however, have been preferable to have a similar institutional situation as in Quang Nam.

Now that the IDE support to handpump installations has ceased, GOV is regulating the private sector.



Figure 13  
Women's Unions led the demand creation drive

## 2.6 Cost effectiveness

IDE's total cost for the handpump project was USD 1.9 million. The management structure set up by IDE for running the handpump project was lean. The number of local staff employed to manage the project was less than 10 at the peak of the activities. The project ensured that 64'000 handpumps and electric pumps were installed in the three districts. The cost effectiveness of the project is outstanding compared to other similar projects.

Considering the fact that the pumps were sold without subsidies, the customers (households) bear the main cost. The support structure to promote the pumps was very cost effective. From the beginning the promotion was geared towards an eventual handover of the promotion activities to small enterprises in the private sector. IDE developed promotion activities that are affordable to drillers and shops, but were at the same time effective in reaching a large audience.

It has to be noted that the cost level for household water supply in Vietnam is incredibly low. A household installation of a complete handpump including the drilling of the well is as low as USD 15.00 and an electric pump fitted on a tube well can be purchased for just over USD 30.00. The very low price of the water services makes them available to individual households. In the three project provinces the average annual incomes per household are USD 197 (Quang Nam), USD 279 (Thanh Hoa), and USD 321 (Hue). Most of the households (even the quite poor ones) can afford to buy a handpump. The level of credit needed is well within the scope of repayment.

## 2.7 IDE's role in the policy dialogue

In the process of this review, meetings with partner organizations revealed that they were not well informed about IDE. The perception of IDE's activities ranged from being told that IDE was involved in treadle pumps to that that IDE only worked in irrigation. This indicates that IDE did not participate sufficiently in the donor dialogue and coordination. It was thus not promoting itself well at national levels with the result that fundamental information or knowledge of its approach is not readily available. Nor did IDE publish any specific promotion brochures on its own activities.



### **National Sector Policy**

In the mid-90s the IDE handpump project established an institutional framework and mode of public-private cooperation which is now stipulated in the National Rural Clean Water Supply and Sanitation Strategy. The strategy was endorsed in 2001.

It is not clear how much the IDE project influenced the formulation of the national strategy. The IDE project was definitely known to the authors of the strategy and IDE was invited to participate on the donor group panel for WATSAN, which only met four times.

**The success of the IDE handpump project, however, is an active example that the National Rural Clean Water Supply and Sanitation Strategy can work in Vietnam.**

This lack of a clear character of the IDE focus was observed by the IDE staff as well. It was also apparent that IDE is at present in the process of clarifying its role and working out its core focus. This clarification and sharpening of the IDE role is under discussion for the IDE Vietnam country program as well as for the global IDE.

The other activities of IDE were briefly looked at, i.e. the trachoma project, drip irrigation project and the deep-seated urea project. IDE seems to have abandoned its very successful projects in the promotion of water for both household use and land irrigation. The reason for this in Vietnam can probably be attributed to the fact that these activities are highly time-consuming and that IDE had a relatively low success rate in acquiring new funding and projects.

Furthermore, the GOV and other major players (World Bank, UNICEF) have developed strategies/policies, projects and are in the process of developing major countrywide programs in which IDE has not been invited to participate. These strategies and programs often include elements and activities in which IDE already has a good track record and are its core strength, yet these players are not informed about services that IDE could offer.

The knowledge within IDE of the details of the new National Rural Clean Water Supply and Sanitation Strategy, as well as the future and planned projects seems to be limited.

### **2.8 Sanitation**

When promoting safe drinking water, the discussion on hygiene, sanitation and health took place to some extent. These aspects, however, were not central to IDE's work. Contrasting with the water pump success, no supply chain links to the customers were made regarding sanitation. In all three provinces visited, particularly in Hue, some latrines were observed, but the coverage seemed to be low, less than 50%.

A range of latrine types, however, was seen, ranging from off-set pit latrines (where the excreta was later used as fertilizer) to simple pit latrines. The superstructures in most cases were inadequate, often without doors or roofs. Many of the latrines were in poor condition.

In hardware shops a small range of ceramic latrine pans were for sale, indicating the existence of customers' demands for these products and also the existence of a supply chain. Our sample of visits was small and not representative, and it is assumed that wealthier people had better facilities. The use of ash, and the presence of latrines adapted for utilizing excreta



Figure 14  
Animals roaming around  
waterpoint



as fertilizer as well as the home-built low cost option latrines indicate that local alternatives are available in Vietnam. This in turn would be an aspect worth examining closely when a range of improved and less expensive technology options is developed.

Many of the persons interviewed said that latrines were too expensive. When questioned further they mentioned prices of VND 2m. In reality prices for basic latrines are much lower. This indicated an information gap, particularly in the Hue province. When asked, most people said they washed their hands, but very little evidence of hand washing facilities was observed.

In some cases where houses did not have individual latrines, there was evidence that latrines were sometimes shared. In Hue open defecation was widespread. Where this practice prevails, pigs, dogs and chicken roam freely, thus exacerbating the transmission of diseases to people.

The conditions near and around the houses were in most cases very poor from a hygienic point of view. These conditions present a very real danger for contamination of both tube well water and of utensils used. Dogs were observed drinking from dish-washing water. In some areas barefooted people/children went to defecate in the open, thus being exposed to feces and related diseases.

From the interviews the impression was gained that people were generally well-informed about the advantages of latrines and the danger of unhygienic behavior. The observed practice, however, contradicts this. The latrine and hygiene situation in Vietnam is described in an excellent research report called "Selling Sanitation in Vietnam, What Works?", published in January 2002 by the World Bank Water and Sanitation Program, East Asia and the Pacific. Broadly this report confirms our observations. Areas where 100% sanitation coverage has been reached were researched to find out what works and why. This report could very helpful in designing any sanitation project or promotion campaign.



Figure 15  
Drilling Team (Promotion Material)



### **3 What worked and why (lessons learnt)**

#### **3.1 Favorable factors in Vietnam**

Listed below are some favorable factors for the setting up of supply chains in Vietnam:

1. Household water supply is very cheap and affordable (USD 13 - 15 for a complete installation of a handpump, USD 30 - 32 for a tube well with an electric pump).
2. Population density is high.
3. Distances between centers are short.
4. The economy is growing.
5. Well-educated population (high literacy rate).
6. Population is accustomed to and receptive to receiving messages e.g. health information
7. Decisions are taken by men and women (women have a strong influence in decision-making).
8. National Rural Clean Water Supply and Sanitation Strategy established.
9. Legal ownership of water points clear (either people's committee at commune level or private households).
10. Socialism in the government is receding, but has left some clear structures and administrative framework (positive and negative).
  - a. Mass organizations right down to commune level are highly developed (women's, farmers' and youth unions).
  - b. Social control in the society is still quite high.
11. Established administrative structure and people's committees exist at:
  - a. Commune level (the lowest level).
  - b. District administration.
  - c. Province administration.
12. Government is not corrupt (even though the administrative processes are complicated and slow).
13. Government institutions did not have the chance to build large, aid-supported construction and maintenance units (because of war and socialism).
14. Decentralized monitoring done regularly by the government.
15. Hydrogeological conditions are most favorable:
  - a. The water table is very high (2-4m).
  - b. The soil is sandy (in most cases an aquifer can be found within 10m).
  - c. Drilling is very easy (sludger method or jetting).
16. Many solutions possible at household level.
17. Emerging private sector that is eager to take up any business opportunities.
18. Cost levels are very low (for material and labor).
19. Industrial production base is apparently good.
20. Relatively good services (electricity, transport, telephone, etc)

#### **3.2 Strong points of IDE's implementation strategy**

1. Used their promotion market approach to create a demand for affordable products: a range of both handpumps and electric pumps.
2. Strengthened the supply chain by encouraging its use and thus ensuring its sustainability.



3. The campaign ensured that the pumps were procured/bought at the lowest possible level, i.e. in nearby shops or from local agents.
4. Promoted water and not a specific type of pump. Promotion campaigns were developed not to inform people about the product, but to motivate them to fulfill their dreams by buying a pump.
5. Combined promotion with training. The government perceived marketing or promotion as a bad thing. The approach to use “Training of potential customers” as a promotion tool worked well.
6. Used customer knowledge to design promotion campaign.
7. Showed flexibility by dropping the treadle pump and also the IDE pump once it had served its purpose.
8. Used and improved existing GOV promotion networks through training.
9. Treated water users as thinking adults and customers with the right to choose from a range of options.
10. Moved away from the common belief that one size fits all.
11. Well-managed project with succinct reporting and low general costs.

### **3.3 Factors that could have negatively affected the program**

1. Initially IDE was fixated on old recipes i.e. promotion of one technology (treadle pump and later the IDE handpump). When, however, it became apparent that the market demanded other products, IDE responded in a flexible way by promoting what the supply chain had to offer.
2. In order to obtain approval for the IDE projects from the government counterparts at provincial level, it was necessary to introduce credit schemes through Vacvina and CERWASS. The credit schemes served as an entry point to become operational. When it became apparent that external credit was not required, IDE stopped this.
3. Limited focus on sanitation and few sanitation options promoted.
4. No links to sanitation supply chain.



Figure 16  
The way forward



## 4 The way forward (Recommendations)

### 4.1 The Vietnam context (IDE)

#### 4.1.1 Push for sanitation and hygiene

The potential for IDE's experience in promotion and marketing is considered to be an opportunity for IDE to become involved in sanitation promotion (including hygiene). In this context the following points are recommended:

- Focus on social marketing and promotion with the aim of strengthening the appropriate supply chains.
- Refrain from developing technology options for sanitation. Collaborate in this field with other programs, i.e. WB and/or GOV.
- Utilize the already-existing commune and hamlet knowledge about both technology preferences and practices. (Some areas already have coverage of 90-100%. Refer to WB W & S study "Selling Sanitation in Vietnam: What Works?" January 2002)
- IDE should consider formulating a sanitation promotion project in the three provinces where the water pump projects were implemented (Thanh Hoa, Quang Nam and Hue). Lobbying and soliciting funding for this pilot project could be done within the larger sanitation programs now under preparation by the GOV through UNICEF and the World Bank.



Figure 17  
Handpump and dug well

#### 4.1.2 Geographical extension

- IDE should investigate the influence that its promotion campaigns for water had in neighboring districts. If the results are positive, they should be documented and shared for replication elsewhere, either by other players or by extending the IDE handpump project into other provinces. Such a documentation can also be utilized for the promotion of IDE's approach and the organization as such.

#### 4.1.3 Collaboration with UNICEF, WB, donors

IDE has practical and hands-on expertise in social marketing and strengthening supply chains. This core competence should be further developed and promoted for involvement in Vietnam's rural water program.

- IDE should keep its identity, and convey the message that it can offer different capabilities from what other NGOs normally provide.
- IDE should increase its presence and involvement and actively seek dialogue with key players such as GOV, the WB and UNICEF.
- IDE should continue using its track record to become involved in the promotional aspects of the national rural water policy and strategy. Both the proposed UNICEF program (USD 17 million) and the WB program (USD 100 million, which is presently under preparation) have included promotion as major elements. IDE should try to participate with its specific strength in these programs.
- IDE should prepare promotion material on its core focus activities. It should develop a brochure with a focus linked to the type of projects it implements, i.e. water, irrigation, trachoma, etc.



## 5 The global context

This section tries to provide general guidelines for evaluating existing programs and designing new programs for governments, donors and NGOs. It is recognized that every situation varies and that there are no magic answers or general solutions. It is nonetheless believed, however, that far too little is done worldwide to seriously use existing commercial networks for the development of water and sanitation supply chains.

The Vietnam example shows that it is possible to successfully establish supply chains. Admittedly many of the key factors in Vietnam are very favorable. The one biggest factor of this success in Vietnam is the fact that the cost of household water supply is so low that almost all households can afford to buy their own pumps without subsidies. In the initial IDE approach a few mistakes were made that could have jeopardized its accomplishment. These mistakes were soon realized and rectified.

In the global context (and especially in Africa) the circumstances are not always as favorable. In many countries the geological and economic conditions make it more difficult to provide safe water to rural houses. The need to establish mechanisms to subsidize the construction of water systems makes the setting up of supply chains considerably more complicated. In Africa and other similar situations, however, the market approach, the proper use of existing networks and the strengthening of water and sanitation supply chains will contribute to sustainability.

### 5.1 Major factors that inhibit the functioning of supply chains

1. **Procurement/buying at factory level** Many problems of non-functioning supply chains arise from project-centered procurement. That is each project purchases its own equipment according to its own rules and where it deems best. Thus local private suppliers have no continuity in the market and can therefore only produce or import the specific equipment that a particular project needs. Buying directly from a factory (abroad) short circuits the essential links in the supply chain, depriving the intermediate traders and contractors of their income and in turn impeding their capacity to support water systems with after sales services.  
Project-centered procurement abroad provides no incentives to the local dealer and thus it is unlikely that customers can find spares or artisans to repair their pumps and equipment once a project stops.
2. **De-linking supply of equipment from supply of spare parts** Generally the provision of spare parts only is not economically lucrative. Therefore spare parts suppliers are not interested in the continuation of the sales of spares. If it is possible to create a long-term market for the supply of equipment and this market is made dependent on the sustained supply of related services (spare parts and repairs), the dealers will organize themselves.
3. **Separating supplies into different sections** Instead of forming a chain, a loose conglomerate of parallel links is built. Often the provision of services is split up into various individual components (supply of pumps to the harbor, delivery to the site, installation, etc.). The suppliers of all these goods and services are not linked but independently managed through a project. Thus the accountability of the specific suppliers is reduced to the particular task. He has often no connection to the users who are supposed to be his customers. Water systems (handpumps) should be supplied as turn key installations with one responsible supplier who resides near to the customer and who has the necessary contacts to the next links in the supply chain.
4. **Separating the customer from the supply chain** If the users have no say in the procurement of the equipment and are passive beneficiaries of received aid (heavily subsidized and/or free pumps or latrines), they are not part of the local or district supply chain and cannot create a fruitful customer-supplier relationship. Thus, the supplier's



accountability is limited. At best the facility is used for a while and later abandoned due to missing knowledge on where or how to get repairs/replacements as well as their costs.

5. **Give away or subsidize pumps** This distorts the market and at worst can keep the lower links of the supply chain inoperative.
6. **Non-affordable pumps or latrines** Promotion of technology choice(s) that are cost wise far out of the reach of the customers. Commonly customers are then grouped into larger user communities to make the technology affordable (with all the social and management implications), rather than first seeking affordable solutions.

At best high cost technical options can play a seeding role, giving customers something to look up to and strive for (status value). When cheaper solutions or simplified versions are available, the customers may be prepared to make the purchase.

7. **Neglecting the importance of clear legal ownership** (This applies especially to community facilities). Ownership does not start when a water system is “handed over”. It is essential to create the full control through those who run the facility.
8. **Promotion of community solutions** Because it is easier to control the construction of sizeable facilities than individual solutions, projects prefer to implement community water supplies also in areas where the customers would prefer household solutions.
9. **The assumption that credit (from outside) is always required** It is important to properly investigate the existing cultural credit mechanisms that could be used by customers for the purchase of equipment, rather than to set up an alien credit scheme.

#### **Projects have “good” reasons for not using existing commercial networks**

- **Our procurement procedures do not allow this** (results in a non-functioning supply chain and no chance of spares or replacement)
- **We cannot buy locally as it is too expensive** (even more expensive are abandoned pumps)
- **Our policy is community pumps** (even when household solutions are what the customer prefers)
- **Donor condition of support is procurement from their country** (no hope of spares ever and pumps usually inoperative after a year or so)
- **We cannot promote cheaper solutions because the government/donors/NGOs do not agree** (what do the customers think?)
- **We are investigating cheaper alternatives as part of the project** (but in practice only one expensive solution is provided)
- **Minimal budget (if any) for promotion of “clean water” or “latrines”** (resulting in people easily turning away from broken pumps as the real value of clean water is not seen in economic terms i.e. cost of illness or days off work)
- **Concentrating on “water only” programs, neglecting sanitation and hygiene** (promises of sanitation later)
- **No targets for sanitation coverage or latrine usage** (we include a bit of hygiene promotion and it is up to the people to do something sometime)



## **5.2 Setting up supply chains**

The Vietnamese approach cannot be transferred as a carbon copy to other places. The lessons learnt, however, can be applied. Most importantly, the major stakeholders in the water sector (governments, donors, UNICEF, World Bank) should carefully review their approach to supply chains. After all, the functioning or non-functioning of supply chains is very often the result of procurement procedures. The often-used project centered procurement systems are detrimental to the development of effective supply channels through the private sector.

If the relationship between the various elements in a supply chain is loose and inefficient, it is less likely that it will effectively function on a sustained basis. Relying on a factory on a distant continent with no direct communication with the customers because the contact links were made by the organization or donor project will guarantee that no spare parts or after sales services will be available once the organization/donor project has withdrawn.

A paradigm shift is needed on part of the donors: Emphasis has to be placed on setting up mechanisms to work with and through the local private sector. The prerequisite to buy equipment (handpumps, latrines, etc.) at the cheapest source needs to be abandoned. Supply chains have their costs as well. Using commercial networks might mean that handpumps, equipment and spare parts may be a few dollars more expensive, but investing in the development of independent and sustainable private sector suppliers is money well-spent and worth its outlay.

The following points might be considered when supply chains are used:

- Commercial networks exist in most countries to some extent. This is witnessed by the availability of soap, agricultural material, alcohol, vehicle parts and other products in most rural areas.
- Part of the solution is to tap into these existing commercial networks in such a way that they see RWSS as a profitable business. Each level of the supply chain should benefit sufficiently to ensure sustainability.
- In designing a program, the activities that actually destroy existing networks or completely exclude encouraging the expansion of a supply chain should be avoided (see Chapter 5.1). The most obvious mistake is not using or bypassing the local supply chain, or only using it at a certain level i.e. factory near to the city, and leaving out the rest.
- Water systems and latrines should be sold as turnkey installations, i.e. the customer (individual households or communities) has one accountable supplier to deal with. This supplier in itself has the contact to the next link in the supply chain.
- Market forces apply to supply chains! It is unlikely that a supply chain will function with products that are not affordable, spares that are too expensive or a volume/profit relationship that is not favorable.
- Supply chains cannot function for a single project, but have to serve the whole sector. Coordination is necessary among all stakeholders. An awareness/promotions campaign is needed for governments, donors, large organizations and NGOs on the implications of setting up supply chains.

In many cases, following the above simple guidelines will eventually mean policy changes at government and donor level. For example, procurement rules, a range of options, buying at the lowest level, buying in the country or in the region despite price advantages of international tenders. Often it will mean paying a higher price, particularly in remote areas where the commercial network is weak. This is, however, a small price to pay for sustainability and to avoid the thousands of broken down or abandoned pumps worldwide.



### 5.2.1 The roles and responsibilities in a supply chain

Institutional Framework	Supply Chain
<p><b>Government</b>            Policy and national planning functions            Seeking, co-coordinating and administrating internal and external funding, co-ordination with ESAs            Co-coordinating, guiding and supervising NGO activities            Keeping records and inventory of RWSS facilities in the country            Formulating of standards, specifications and regulation guidelines            Registration and licensing of suppliers            Establishing training programs for extension workers, construction workers and pump mechanics, etc.            Co-coordinating of health and hygiene education            Formulating guidelines for monitoring and evaluation of the program</p> <p><b>District Level Administration</b>            Prepare development plans including NGO activities            Make communities aware of procedures in obtaining a subsidized facility            Assist communities in the choice of technology and choice of location            Vet, rank and approve applications for subsidies            Establish financing mechanism for direct subsidies to communities            Collect data on water resources and water points            Form links between communities and the private sector            Ensure quality standards; supervise, inspect and certify construction works            Participate in the registration/licensing of suppliers/contractors            Keep records and monitor village level O&amp;M activities.</p> <p><b>Communities</b>            Fully involved in all aspects of planning construction and operations</p>	<p><b>Supplier/ Manufacturer</b>            Imports/manufactures the pumps            Custom clearance            Stocks pumps and spares            Appoints regional dealers            Distributes pumps to regional dealer            Training of mechanics, area mechanics, installation crews            Marketing of the pumps            Liaison with government licensing and quality control agencies            After sales services</p> <p><b>Regional Dealer</b>            Marketing equipment            Distributes pumps to site            Pump installation            Training of village mechanic            Stocks and sells spare parts            Provides repair services            Liaison with local mechanics</p> <p><b>Local Mechanic</b>            Repairs pumps and sells spare parts on commission            Assist regional dealer in installations            Link between dealer and community</p> <p><b>Households, Water User Groups</b>            Choice of technology, design, choice of location            Construction, participation with labor, contribution of building materials            Entering into a legal contract(s) with the contractor(s), dealer(s)            Financing, collect money for contribution towards construction cost; collect money for O&amp;M, management of the collected funds            Maintenance, minor repairs, keep facilities clean and operational            Purchase of spare parts, utilize the collected money for the purchase of spares and eventually for the replacement of facilities</p>



### **5.2.2 Where there is no supply chain: Where one is not viable**

It is recognized that in remote areas with a low volume and a population with limited means, it is unlikely that a supply chain exists or that one can become viable. If the profit margins along the supply chain are not attractive to all levels it will simply cease to exist. Probably a completely different approach is needed to areas where it is recognized that there is little likelihood of encouraging a supply chain:

- Longer program cycles (5 to 20 year)
- Different type of funding, i.e. contract a commercial company to run the supply chain for 5 to 20 years or more
- More flexible technologies, based more on what is done locally/traditionally
- Twinning/linking arrangements with largest town/city in the area

The implications to governments, donor organizations and NGOs are complicated and will necessitate a new type of thinking. This could involve modified procurement procedures, revised attitudes towards subsidies, discarding the fixation that one technology is suitable for all situations and treating beneficiaries as customers who are able to make choices, decisions and contributions to solve their own problems.

### **5.3 Supply chain impact assessment**

The following is not seen as a complete answer or magic formula, but proposes a new way of examining existing water and sanitation projects as well as proposed programs. The analytical tool would be similar to both an environmental impact study and a business viability study.

In designing any intervention in the water and sanitation sector, in the interests of long-term sustainability an "Impact assessment on the supply chain" study should be undertaken. This should have the aim of ascertaining if the planned interventions would strengthen or weaken the supply chain. If the environment is suitable for a supply chain to function, then all levels will make a profit.

The impact study should consider the following at each level<sup>3</sup> (this applies equally to both water and sanitation):

#### **a) Customers (communities, individuals)**

- Are options provided which are affordable?
- Do the customers buy pumps/latrines and spares directly from the nearby shop/supplier?
- Are they involved in the selection of the option and making the payment?
- What is the impact of the subsidy or free equipment on all levels?
- Does the artisan who does the installation have a direct link to the supplier of the pumps, material or latrine?
- Does the artisan provide after sales services such as repairs and sales of spares?

#### **b) Distributors (artisans, retailers, wholesalers/shops)**

- Is the commercial network involved in arranging the purchases i.e. ordering, paying and supplying?
- Do retailers/wholesalers have a direct link to the factory?
- What are the links of the retailer/wholesaler to the local administration (licensing, registration, reporting procedures)?

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<sup>3</sup> Taken from the Water and Sanitation Program Publication "Supply Chains A global Initiative" Update Spring 2000



- Do the distributors make sufficient profit?
- Do the artisans (involved in installing/building) have links to the shops/suppliers?
- Do the artisans make a sufficient profit?

**c) Suppliers (factories and service providers)**

- Do the factories have local or national agents?
- When local manufacturers are available, are they given preference as suppliers?

**Some general questions that should be asked:**

**d) Promotion**

- Is a significant budget percentage used for demand creation?
- Is a significant percentage used for linking the customer to the supply chain and each link in the chain?
- Does the campaign focus on giving information about the supply chain?
- Does the promotion focus on training customers/artisans in quality control?

**e) Profit and use of a supply chain at local (country) level**

- Does each level of the supply chain make sufficient profit?
- Which level (link or links) of the supply chain is bypassed for whatever reason and what is the long-term impact of this bypassing?
- Does money flow into the chain at each level?
- If out of country (imported) supplies are needed, what commercial mechanisms are used for this purpose i.e. local agents or local commercial procurement businesses?

**f) External conditions**

- Volume of items sold directly for installation in water and sanitation
- Income of customers
- Awareness and need
- Commercial network (often for other related businesses such as bicycles, cars, trucks, supply stores, agents etc.)



## Appendix I

**TERMS OF REFERENCE**  
for  
**Final External Appraisal and Impact Assessment of ICCO-Funded  
IDE Vietnam Hand Pump Program**

The purpose of the appraisal mission is twofold: appraise and document key aspects of the nine-year program, which has been phasing out and will end in December 2002. A short description of the program is attached in Annex 1. The document produced should mainly serve as capitalization of experience and as a learning ground for basic service delivery approaches in water supply. It should not exceed about 20 pages in length.

The major aspects to be included in the appraisal mission are:

- **The results and the impacts of the program.** The foci are:
  - The current water supply situation compared to that before program's intervention;
  - Established supply chain, its sustainability, its credit mechanism;
  - Results on cost and prices of water supply compared to the situation before
  - Health and other socio-economic impacts to the target group - end users;
  - Impacts on other implementing stakeholders
  - Customer satisfaction

A list of available documents is attached in annex 2.

- **The applied approaches and processes and lessons learnt from the program,** including, but not necessarily limited to:
  - The proven market demand driven approaches;
  - The process which made possible a shift from a supply driven, government implemented hand pump delivery system to a market driven, private sector implemented system
  - The supply chain / business development services in the Vietnamese context with restrictions for NGOs in accessing the private sector, i.e. through the government;
  - The profitability of each part of the supply chain should be assessed and documented
  - The aspects of good governance in water supply programs, especially the pros and cons of involving the private sector in supply chains and service provision
  - The implementation model derived from the program implementation
  - The methods and the process used to make household hand pumps affordable, and to cut the price of household hand pumps in half through decentralized private sector distribution strategies.

## Output



- An analysis of the desktop review, field observation, interviews [and beneficiary assessments];
- A discussion paper on the pre-requisites of increased private sector participation and a thorough analysis of the supply chain, its strengths, its weaknesses and their causes.
- A final synthesis report including an overview of the achievements, lessons learnt, recommendations in view of further dissemination.

The appraisal and impact assessment mission will be undertaken by the two external sector specialists Mr. Erich Baumann from SKAT, St. Gallen, Switzerland and Mr. Derrick Ikin, project leader in the SDC institutional development project in water and sanitation in Maputo, Mozambique from July 1<sup>st</sup> to July 16th, 2002. They will be assisted and accompanied by two key IDE staff members Ms. Nghiem Thi Duc, Manager of the handpump program and Miss Bui Ai Trang. They were involved in the management of this project for the last 5-6 years and have hands-on experience in the project field activities. Other IDE key staff and partners of the project will be available for interviewing.

### Tentative schedule

July 1 (Mon)	Arrive in Hanoi
July 2	AM: Meet with Dan, Quang, Ms. Duc, Miss Trang in Hanoi for introduction and finalization of detailed plans (to be confirmed -- if Dan is not available, meeting with Quang, Duc and Trang can be arranged in Thanh Hoa instead of Hanoi).  PM: Travel to Thanh Hoa by car (150 km, ≈4 hours). If the above introduction meeting is arranged in Thanh Hoa this afternoon, depart in the morning.
July 3-6	Field work in Thanh Hoa
July 7 (Sun)	Day off -- Night train to Quang Nam (700 km, ≈17 hours)
July 8-10	Field work in Quang Nam
July 11-13	Travel to Hue by car (175 km, ≈4 hours). Field work in Thua Thien-Hue.
July 14 (Sun)	Day off
July 15	AM: Validation of findings with Quang, Duc and Trang (?)  PM: Fly to Hanoi (Ms. Duc travels to Thanh Hoa by night train)
July 16 (Tue)	Meeting with Dan in Hanoi (?). Leave Vietnam.

The readily available data for the evaluators to use are project documents and annual reports, including reports of the previous external appraisal. Additional data are being collected by IDE field staff for project documentation, especially a full-fledged survey on the economics of the supply chain and its profitability. IDE is also planning to carry out a small survey to assess the health impacts of the program. The survey, if realized, will be undertaken before mid-June 2002 and the data will be provided to the consultants.

Berne, 12. April 2002

Armon Hartmann  
Senior Water Advisor



## Appendix II

### List of persons met

Name	Organization	Place	Designation
Mr. Dan Salter	IDE	Hanoi	Director
Mr. Martin Bullard	IDE	Hanoi	Trachoma Project Director
Ms Hillary Jones	IDE	Hanoi	Director Project Dev.
Mr. Chander Badloe	UNICEF	Hanoi	Chief WES
Ms Sylvaine Rieg	Helvetas	Hanoi	Program Director
Mr. Markus Ischer	Helvetas	Hanoi	Program Coordinator
Mr. Le Huu Hinh	Vacvina	Thanh Hoa	Director
Ms Nghiem Thi Duc	IDE	Thanh Hoa	Program Coordinator
Mr. Le Phu Ton	IDE	Thanh Hoa	Supervisor
Mr. Nguyen Ngoc Minh	IDE	Thanh Hoa	Supervisor
Mr. Nguyen Huu Cay		Quang Tan Commune	Shop Owner
Mr. Trinh Viet Sav		Quang Loi Commune	Driller, Sales Rep
Mr. Truong Viet Dung		But Son Commune	Driller, Shop Keeper
Mr. Truong Van Can		Huang Nguc Commune	Driller, Sales Rep
Mr. Bui Ngoc Kim		Huang Tien Commune	Driller, Sales Rep
Mr. Ngoe Quynh		Thanh Hoa	Wholesales
Mr. Dang Kim Danh	CERWASS	Tam Ky	Director
Mr. Nguyen Dong	IDE	Tam Ky, Quang Nam	Program Coordinator
Ms Tran Thi Lei	Women's Union	Nui Thanh District	Vice Head
Ms Nguyen Thi Nhung	Women's Union	Tam Hoa Commune	Commune Head
Ms Vo Thi Thu Thuy	Women's Union	Tam Hoa Commune	
Mr. Doan Van Thu		Tam Hoa Commune	Driller
Mr. Nguyen Tan Dung		Binh Nam Commune	Driller
Ms Anh Sang		Tam Ky	Wholesales
Ms Phan Thi Xuan	Women's Union	Phu Xuan Commune	Promoter
Ms Dang Tui Le	Women's Union	Phu Xuan District	Head
Mr. Phan Phuoc Vy		Phu Da Commune	Driller
Ms Le Thi Dieu Huong		Hue	Wholesales
Mr. Nguyen Van Quang	IDE	Hue	Program Coordinator
Ms Bui Ai Trang	IDE	Hue	Project Manager
Mr. Nguyen Cong Thanh	World Bank	Hanoi	Sen. Operations Officer
Mr. Steve Thorne	Oxfam Hong Kong	Hanoi	Representative



## Appendix III

### Mission Schedule

Date	Province	Activity
June 30		Depart for Vietnam
July 1	Ha Noi	Arrival Hanoi Meeting with IDE, Dan Salter
July 2	Thanh Hoa	Briefing with IDE Staff in Hanoi Preparation of the mission Travel to Thanh Hoa by road Meeting with Vacvina
July 3	Thanh Hoa	Field Trip, Interview, Retail Shops, Drilling Teams, Pump Users in Quang Xuong and Sam Son district
July 4	Thanh Hoa	Field Trip Interview, Wholesales Shop, Retail Shops, Drilling Teams, Pump Users in Hoang Hoa and Hau Loc district
July 5	Ha Noi	Transfer to Hanoi by road Meeting with UNICEF WES Meeting with Helvetas
July 6	Ha Noi	Discussion with IDE Dan Salter, Review Progress, Report writing
July 7	Da Nang	Flight to Da Nang Transfer by road to Hoi An
July 8	Quang Nam	Transfer to Tam Ky Meeting with CERWASS Quang Nam Field Trip, Interview Drilling Team, Local Promoter, Pump Users in Nui Thanh District
July 9	Quang Nam	Field Trip, Interview Drilling Teams, Pump Promoters, Pump Users in Thanh Binh district Transfer to Hue by road
July 10	Hue	Field Trip, Interview Wholesaler, Drilling Teams, Pump Promoters, Pump Users in Phu Vang district
July 11	Hue	Debriefing with local IDE Team Flight to Ha Noi
July 12	Ha Noi	Meeting with World Bank
July 13	Ha Noi	Report Writing
July 14	Ha Noi	Report Writing
July 15	Ha Noi	Debriefing with IDE Team Meeting with Oxfam Hong Kong Meeting with SDC
July 16		EB Departure to Switzerland DOI Report writing
July 17		DOI Departure to Mozambique