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Spring Health's Tryst: Selling Safe Drinking Water

This case was prepared by Assistant Professor Sumita Sindhi of IIM Sambalpur, India and Pranab Ranjan Choudhury of NR Management Consultants Pvt Ltd., India, as a basis for classroom discussion rather than to illustrate either effective or ineffective handling of an administrative or business situation.

Please send all correspondence to Assistant Professor Sumita Sindhi, Indian Institute of Management Sambalpur, Odisha, India. E-mail: sumitas@iimsambalpur.ac.in

BACKGROUND

Paul Polak, with his long career in the social sector was intrigued by two questions — what makes poor people poor? And what can they do about their poverty?[1] After 30 long years in the social sector, in various countries and dealing with people at grassroots, Paul realized that developing grassroot entrepreneurs was one of the solutions to mitigate poverty. With this objective Paul sowed the seeds of Spring Health Water (India) Private Limited.

Some reports cited that lack of access to clean water and sanitation killed children at a rate equivalent to a jumbo jet crashing every four hours[a]. So when Paul conceptualized Spring Health Water (India) Private Limited (henceforth referred to as SH) as an enterprise, the idea was to implement a radically affordable, decentralized delivery system, to provide safe and affordable drinking water to a potential 200 million people who earn less than $2 a day.[2]

The provision of clean drinking water is given priority in the Constitution of India, with Article 47 conferring the duty of providing clean drinking water and improving public health standards. The government had undertaken various programmes since independence to provide safe drinking water to the rural masses. Till the 10th plan, an estimated total of Rs. 1105 billion was spent on providing safe

[a]Estimated with data from *Diarhhoea: Why children are still dying and what can be done*. UNICEF, WHO 2009.

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drinking water[b]. But despite this huge expenditure providing safe and secure drinking water was a major hurdle and a national economic burden.

The major challenge for Paul was to sell water to villagers of Odisha[c]. Villagers usually consumed water from common resources suchas open wells, ponds and hand-pumps. Another overarching challenge was overcoming class and caste barriers and supplying safe drinking water at the Bottom of the Pyramid (BoP). Cultural beliefs and faith associated with water required triumphing over behavioral, social and cultural biases. Lastly scaling up the venture and making it commercially viable required overcoming all kinds of biases and also convincing investors of the potential returns.

With this context, Paul designed a for-profit venture to sell safe drinking water in the remotest and poorest corners of Odisha. Paul as the Chairman and his team comprising Jacob Mathews (CEO, Spring Health) and Kishan Nanavati (COO, Spring Health) registered Spring Health as a company and started the pilot project in the Khurda district of Odisha.

SPRINGING OF SPRING HEALTH

Before Paul retired as Chairman of IDE (International Development Enterprise) in 2012, the idea of venturing into drinking water had sprung to his mind. With IDE premise still persisting in Odisha, a pilot project was conducted in 2010 for providing drinking water to 10 villages in Khurda district. Khurda was chosen because of its proximity to Bhubaneswar (capital city of Odisha) for better business management prospects.

Other factors favoring Odisha as a project site were the high water table, low industrial pollution and high rainfall in the region. These factors were an added advantage for piloting in Odisha. Initial testing of water confirmed high

[b]Drinking water quality in rural India: Issues and approaches — Background Paper by WaterAid India (an NGO).

[c]An Eastern Indian state.

levels of coliform bacteria[d] in water bodies. This water was commonly used by people for drinking and other utilities. Apart from this, no major industrial pollutant or contamination was observed in water samples. Therefore, it was easy to purify biological impurities in water at an affordable cost, using local resources.

After a pilot of 6–7 months in 10 villages, Paul was still doubtful of the commercial viability of the project and customers' willingness to pay. After much thought Spring Health (SH) was commercially launched on 11 January 2011. Spring Health Water (India) Private Limited was registered with its Head Office at Bangalore and Field Office at Khurda, Odisha.

Building Up of Spring Health

Spring Health mission is stated as — *To bring radically affordable, life-saving, income-generating products and services to 200 million new customers who live on less than $2 a day, improving their livelihoods and stimulating economic growth in rural villages.*

Pilot phase had assured the viability of the project but a full-fledged business in rural area needed some prospective visualization. With initial angel funding from First Light Ventures the project was rolled out. This was the time to appoint people who would be able to sustain and grow the venture. After initial apprehensions, Kishan Nanavati joined as Chief Operating Officer (COO) in November 2011 and later became CEO in May 2012. Since then he has led the company to grow and reach more than 200 villages with 97 employees.

Cost Effective Technology

A simple and cost effective technology like chlorination was envisaged to clean biological impurities from water and make

[d] *Escherichia coli* (*E.coli*) is the only member of the total coliform group of bacteria that is found only in the intestines of mammals, including humans. The presence of *E.coli* in water indicates recent fecal contamination and may indicate the possible presence of disease-causing pathogens, such as bacteria, viruses, and parasites.

it safe for drinking. Spring Health established decentralized Electro Chlorination (EC) points in small market towns in rural India, electrolyzing combined common salt and water at a cost of INR[e] 65 (US$1.10) for the electricity and salt (chlorine based oxidant solution) to produce 20 liters of sodium hypochlorite, enough to purify 80,000 liters of water[f]. Initial cost of Electro Chlorinators was INR 15,600 ($260) which was much less compared to any RO technology[g]. Chlorination is safe, cost effective and the free residual chlorine in treated water renders it reasonably resistant to recontamination in storage and at the actual point of use.

Organization Structure

The organization structure for Spring Health was triple layered. After the CEO, the middle level executives were in charge of finance, marketing and overall operations. Senior Officers (SO) took care of village level operations and flow of products and coordination. Each SO is in charge of at least 25 villages. Business Associates (BA) at the grassroots were responsible to check chlorination and delivery of water in at least 3 villages. Final delivery is made by delivery boys (shown in Exhibits 4 and 5).

BUSINESS MODEL

The business model was phased in 3 steps:

1. Identification of village and entrepreneur
2. Distribution channel
3. Last mile delivery

[e]INR – Indian rupee.

[f]Information collected from Spring Health's team at Khurda.

[g]RO technology is relatively capital intensive — a typical RO system costs INR 312,000 ($5200 US) to purify 4,000 liters of water.

Identification of villages

For successful business enterprise, it was important to launch the product in villages where demand was high and gradually spreading out. Initially demographic details of villages in the Khurda district were collected to shortlist villages having 400–500 households. Thereafter, Village Committee (VC) was consulted for selecting entrepreneurs. A special 'Scout team' was responsible for selection and finalization of village as well as grassroot entrepreneur. It was seen that at least 30% households has agreed to buy water.

Identification of entrepreneur

Entrepreneur is the most critical link in the supply chain. This link had to be strong to bear the pull and push of business. It was decided that a potential entrepreneur should qualify certain criteria to be eligible as entrepreneur.

A person was selected as an entrepreneur if he/she:

- Provided a source of water — either open well or borewell — which was near the village and free from industrial contaminants.
- Provided some space for kiosk (installing tank) and guaranteed the safety of the equipment.
- Agreed to pay a joining fee of INR 5000 ($83.33).
- Able to garner support from people and mobilize them to adopt safe drinking water.
- Possessed business acumen and repute — usually *kirana walas* (grocery shops in the village).
- Able to resolve petty conflicts.

These conditions assured the reliability of an entrepreneur. A final selection was made based on the commitment and amount of time a person could devote for promoting SH product. A three year agreement was signed with the entrepreneur.

Each entrepreneur started off by earning a 25% margin on bulk sales of safe drinking water, with Spring Health receiving the rest; however, revenue sharing was calculated

on a sliding scale with sales of over 1,250 liters at 50:50 sharing and sales of over 3,000 liters a day at 75:25 in favor of the entrepreneur. Revenue sharing on a sliding scale thus stemmed up the entrepreneurial tendencies and incentivized entrepreneurs to add more number of customers. On an average if an entrepreneur sells 60 jerry cans[h] (1 jerry can holds 10 liters of water) per day, he earned INR 2000 ($33.3) per month. With this income an entrepreneur could meet his monthly expenses of electricity of pumping water for chlorination.

Distribution channel

Electro-chlorinator plants were installed in three locations — Khurda, Tangi and Similipur[i]. Spring Health's staff transported the small container of chlorine solution (about 20 liters) by motorcycle through a milk route to 50 villages within a radius of 20 to 30 km. SH staff member addressed as Business Associate (BA) chlorinated the water stored in company-owned water tanks at the village entrepreneur's shop. He also chlorinated the sweet water from the entrepreneur's shallow tube well or open well and tested it for quality before pronouncing it fit for sale.

At the village kiosk, each Business Associate (BA) catered to 3 villages nearby, carrying chlorine to the kiosk and also delivering the chlorinated water to the customers. For a price of INR 3 ($0.05 USD), customers filled their own jerry cans (10 liters) with purified water.

Last mile delivery

For the last mile distribution, more than 95% of customers opted for home delivery at an extra end-user cost of INR 1 ($0.016). Each kiosk hired a deliveryman who delivered

[h]A jerry can is a water holding can. The can has a handle for holding. It is made of plastic and is easy to carry. (Exhibit 5 shows jerry cans of white and blue colour.)

[i]These are 3 big villages in the Khurda district.

10-liter cans of water either by bicycle, cycle trolley, or motorized rickshaw[j].

There was a physical sales tracker — a register with customers' name was maintained by the delivery boy. To synchronize with the records of the delivery person, customers also had a card to record the amount of water purchased each day. After delivery, the card was signed by the customer as well as the delivery boy. This system helped in synchronizing records and aided in flawless collection of fee at the end of the month.

FINANCIAL RESOURCES

Spring Health (SH) was registered in Bangalore, while its parent company Windhorse International Inc. ('WH') was registered in the United States of America. Once traction had been established by 2011, SH started operational roll out reaching 50 villages during the same year. During 2011, WH received an investment of $140,000 from Acumen Fund. The company bought over Acumen stake through investments made by 3 individual investors. With these investments the company continued to accelerate its roll out and kicked-off operations in 155 villages and reached a total of 205 villages.

The account books of the company showed that it was yet to break even. But the projections showed a high rise in revenues in the coming years with breakeven in 2017 (after reaching a target of 3000 villages). But this constant and fast growth required a large amount of capital which was one of the major challenge for growth of this social venture.

The company had a straightforward approach with investors and tried to maintain transparency on all issues. SH wanted to raise money displaying positive results they had in the last 3 years and highly promising future projections. The company had some rough experience with some of the funding agencies, where even after spending considerable time in follow-ups the funds did not materialize. A conflict of

[j]Local modes of transportation.

interest came up when investor wanted control and dictated his terms. This was not acceptable to the CEO, who vehemently opposed such compromise. SH lost the investor but that raised a potent question — should a company work on its own terms or compromise for the sake of capital?

Raising capital for sustaining the organization was the main concern at that time for Paul and Kishan. Losing investors meant stalling the ongoing water distribution work. The team learned from these experiences and further strengthened the resolve to generate funds from investors who appreciate transparency and accountability in company's work.

Later in May 2013, $308,000 from Rianta Capital and The Stone Family Foundation were raised. To date, in addition to the $308,000 raised, the company has also received a further $150,000 from small VC angels in US and India.[3]

Marketing and Expansion

For profit social venture can survive only if there is market expansion and its products reach a viable scale. After receiving capital grants from Rianta and Stone Family Foundation, marketing efforts started full swing in 2013. Since then innovations in marketing have been the focus of the company.

Spring Health had used innovative design techniques to evolve an aspirational, high volume, low cost, high margin, and high touch model. Recognizing that safe drinking water required behavioral change, Spring Health invested significantly in a proven behavior altering marketing blitz model, as it built the physical infrastructure. It created a visible "buzz" and used entertainment and participatory door-to-door campaigning coupled with unique water testing initiative that allowed it to swiftly ramp up to target volumes. SH used multiple tangible connections to retain and habituate customers to switch to safe drinking water practices. SH has a specialized "Roll out team" which is further subdivided into "Scout", "Build" and "Launch" team. Scout team was responsible for identifying new villages and targeting them; Build

team built and installed the tanks and got the plant ready for launch; Launch team marketed the product by creating awareness amongst people through street plays, distribution of leaflets, used audio-visual aids to bring about behavioural and attitudinal changes amongst villagers. The launch team visited each and every household in the village and tried to motivate and convince people to adopt healthy practice of drinking safe water.

The rollout for each new village is modular with a 68 member team that scouts, builds, and launches in modules of 25 villages per month. By increasing the number of rollout teams, it could quickly scale to launching 125 kiosks per month in each geographic market. The relatively high margin provided a viable path to scale, while still providing water at an affordable INR 4 ($0.07) for 10 liters of water delivered at home. Spring Health's staff members were monitoring the quality of the product regularly both at dispensing and consumption points.

Spring Health had evolved into a learning organization that was constantly innovating its modalities, validating improvements through rapid prototyping and then swiftly implementing them to develop an identity — a brand.

Present status — Expansion plans

Spring Health was catering to 20,000 households on a daily basis. Launching and marketing were on a continuous basis to meet a target of 275 villages. By the end of 2015 the target was to spread to 450 villages. Even with conservative growth outlook, the company forecasts to reach over 2 million people by 2017–18 with expansion to nearby states of West Bengal, Bihar, and eastern Uttar Pradesh.

ISSUES/CHALLENGES

Access to water is one side of the coin, to assure it is safe for drinking is another.

In scaling from 25 to over 200 villages, SH had faced two major constraints — working capital shortage and means to acquire and retain customers. Funding had always been a challenge for budding organizations especially those working in the social sector. To scale up a social enterprise for greater public good required more number of staff and funds.

People were consuming open well water for drinking and cooking for many generations. They believed it was the government's responsibility to supply clean drinking water free of cost. Since there was no institutional water supply, they either drew water from hand pumps or used wells as a source of water. Spending even INR 4 per day for 10 liters of water (INR 120/month) was seen as a huge expense by some of the households. Their belief that *"well water is not harmful; it has been harmless for our ancestors and will also be harmless for us"* is one of the reasons for not adopting SH water. Many villagers in spite of understanding the harmful effects of drinking unsafe water do not want to pay for it.

Moreover, the cultural and social beliefs also forbid villagers to consume water from a common source. If a lower caste[k] person touches the tap, tank or jerry can the whole water becomes undrinkable for the upper caste people. This issue became a major contention, as SH was losing a considerable chunk of customers. In every village 20–25% population was lower caste (internal communication with SH CEO). They had separate habitation in the village. Nonetheless, they were customers for SH. Losing customers meant losing business and if such incidence is not handled in a sensitive manner it could lead to closing down of business. Even a little imbalance in SH's dealings could result in losing either group of customers or even both. A balance is needed to be maintained to restore people's faith in SH, and be neutral to such social biases.

Antidote to challenges

These challenges required an indomitable spirit and motivation

[k]Caste system — Classification of Hindu society.

to bring about societal and individualistic level changes. In the last 3 years, the company had learnt many lessons and had tried to improvise and innovate its processes to reach a strong footing to scale up.

The rollout team was well versed with rural mindsets. For acceptability in villages, they used local people who worked as Business Associates (BA). Local dance and music was used to get a foothold in village and to make villagers be aware of SH and its product. Village elders were consulted and convinced to suggest potential entrepreneurs. One of the most challenging tasks was to overcome religious barriers. The team was successful to convince temple trust in the village and install the equipment in temple well (the well was located in the temple premises and owned by the temple trust) for purification and further distribution. An agreement was signed with the temple trust.

Another process innovation that had been introduced was the "Reference scheme" for entrepreneurs. For expanding to other villages, established entrepreneurs provided references of their relatives/friends/acquaintances residing in other villages who could be potential entrepreneurs. This speeded up the process of identifying entrepreneurs, building rapport in the village and establishing a network. Women usually were decision makers in such matters. Convincing village women to adopt safe drinking water paved the way forward. Involvement of SHGs in the marketing process was another procedural innovation.

To maintain SH's principles of integrity and equality, it was decided to cater to different castes and classes by starting door to door delivery. Different jerry cans were used to cater to different groups of people; so that the upper class people were not offended. As per customer choice door to door delivery was promoted and about 97% door to door delivery was taking place.

Door to door delivery had its own set of problems. At times the delivery person had some other work and was unable to deliver water on a particular day. In such situations to maintain consistency in delivery, a stand-by was required. Delivery person also needed to be trustworthy to maintain sales tracker.

To meet aspiration needs of the people, changes in jerry cans were introduced. From using simple white jerry cans to blue ones with SH name and logo inscribed on it and a tap fitted to it were ordered. Blue jerry cans later became a brand symbol of SH.

The company had 3 different kinds of jerry cans, with different prices and the consumers could take the kind of jerry can as per their requirement:

- 10 liter dispensers — customer pays INR 500 ($8.3) in the first month and get 1 month water free of charge.
- 10 liter blue jerry can with company's logo and name inscribed — INR 300 ($5) and get 1 month water free.
- 10 liter white jerry cans — INR 200 ($3.33) and gets 1 month water free.

SOCIAL AND ENVIRONMENTAL IMPACT

SH has had a positive social impact on over 20,000 households (~100,000 people) in over 200 villages in rural Odisha. SH provided water to the poorest populations as well as to the rural middle class. 54% of its customers were lower castes and minorities with household income of INR 3,600 to 12,000 per month. The company had a staff of 97 who directly reported to the company CEO. In addition, SH had employed 200 deliverymen on a part-time basis and had enhanced the incomes of those entrepreneurs who sold the purified water. SH indirectly created provision for jobs as plumbers, masons and electricians as support staff.

FUTURE PROSPECTS

The company was looking forward to raise $2 million in order to reach 3,000 villages by 2017–18 (breakeven volume), and an additional 10,000 villages by 2024 in eastern India. Funds will be used for building water tanks at village kiosks and for marketing expenses. To date, the equity raise had

been from Compulsory Convertible Cumulative Preference Shares with a projected IRR of 22%; however, SH was open to alternative investment structures.

There was a constant drop-out rate (about 3%), CEO was also worried not only about expansion but also to maintain a constant customer base. What more could be done to motivate people and bring about behavioral change? To prove that health is wealth and establish company as an instrument to mitigate poverty and not just supply drinking water still remained a futuristic task for the team. Will Paul's dream of serving 200 million people at BoP come true?

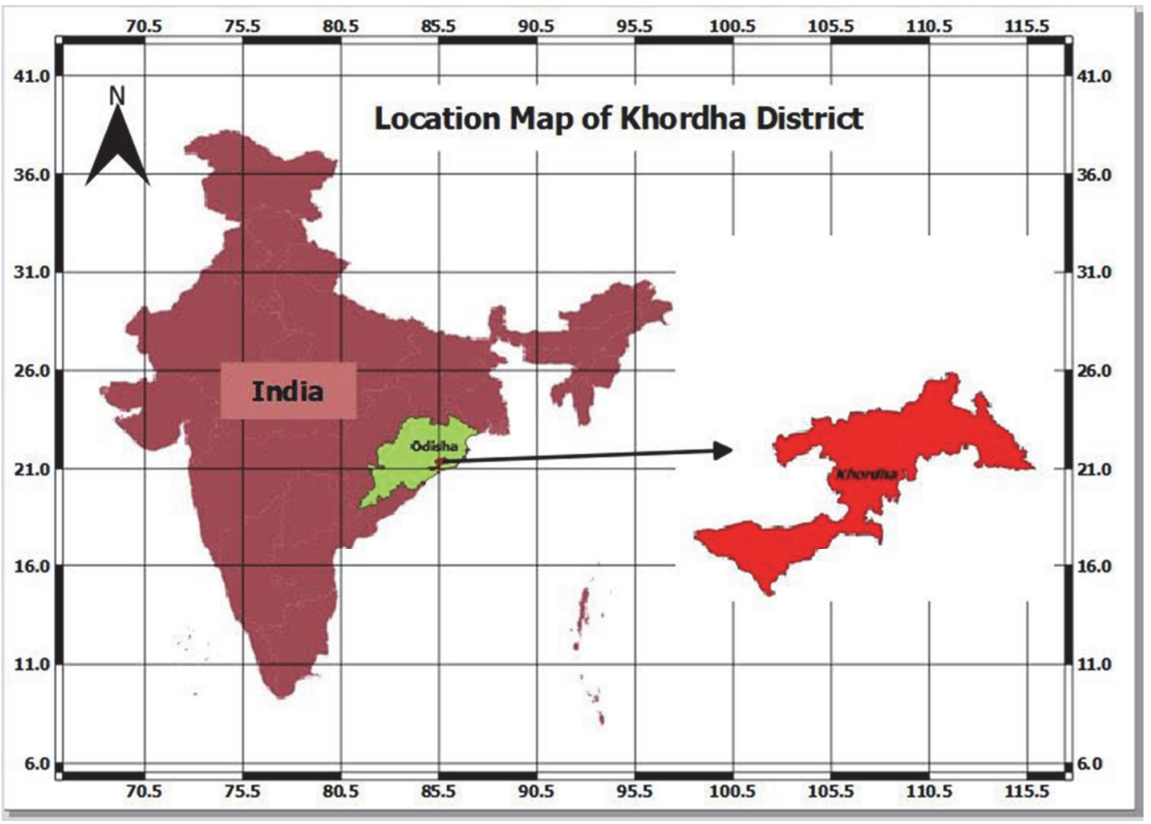
The questions which were there in the beginning still remained large for SH with every new launch. How to sell safe drinking water? How to attract investors? How to overcome social and cultural biases? What other delivery mechanism can be adopted to make it more reliable that can reach people whenever they wish?

ENDNOTES

1. Polak, P. (2008). *Out of Poverty — What Works When Traditional Approaches Fail*. Berrett-Koehler Publishers, San Francisco.
2. http://www.paulpolak.com/?s=Spring+Health. Accessed on December 13, 2014.
3. Investment Summary Tear Sheet: SPRING HEALTH (Internal document).

Exhibit 1

Project Location — Odisha, an eastern Indian State



Source: Maps of India — http://www.mapsofindia.com/ (the black marks in state map show the districts where Spring Health has presence and the red mark shows Khurda district and Spring Health Office).

Exhibit 2

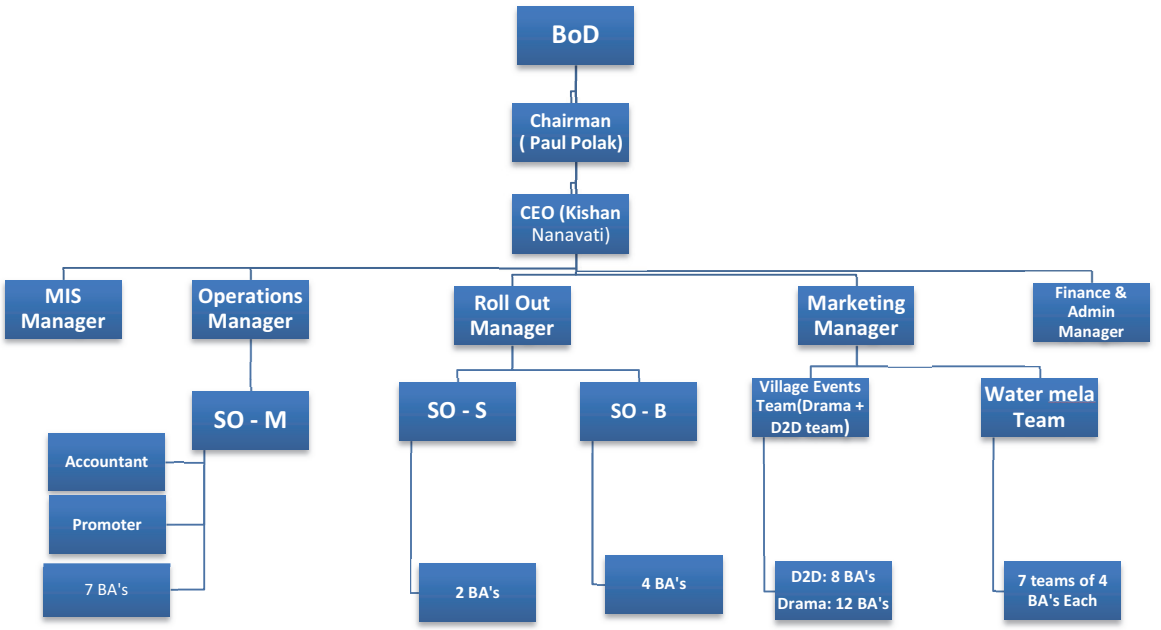
Process of Electro-chlorination

Spring Health uses a $250, 8"×10" electro chlorinator that passes eight volts of electricity at four amps through a five percent solution of sodium chloride (ordinary salt). This generates twenty liters of chlorine based liquid oxidants per day, enough to sterilize 80,000 liters of water each day, at a cost of less than INR 11 ($0.18) a day for the electricity and salt. A Business Associate (BA) dissolves 67.5 grams of salt in 2.5 liter of water and inserts electrodes plugged into a wall socket supported by a car battery in case of burnout. Two and a half hours later, BA conducts a two-minute test of chlorine concentration, and repeats the process. The same BA carries the chlorine liquid by motorcycle to 5–6 village kiosks each day, and uses it to sterilize the water in the branded cement tanks/sintex tanks attached to each kiosk.

Source: http://www.changemakers.com/intrapreneurs/entries/spring-health-radically-affordable-decentralized-drinki

Exhibit 3

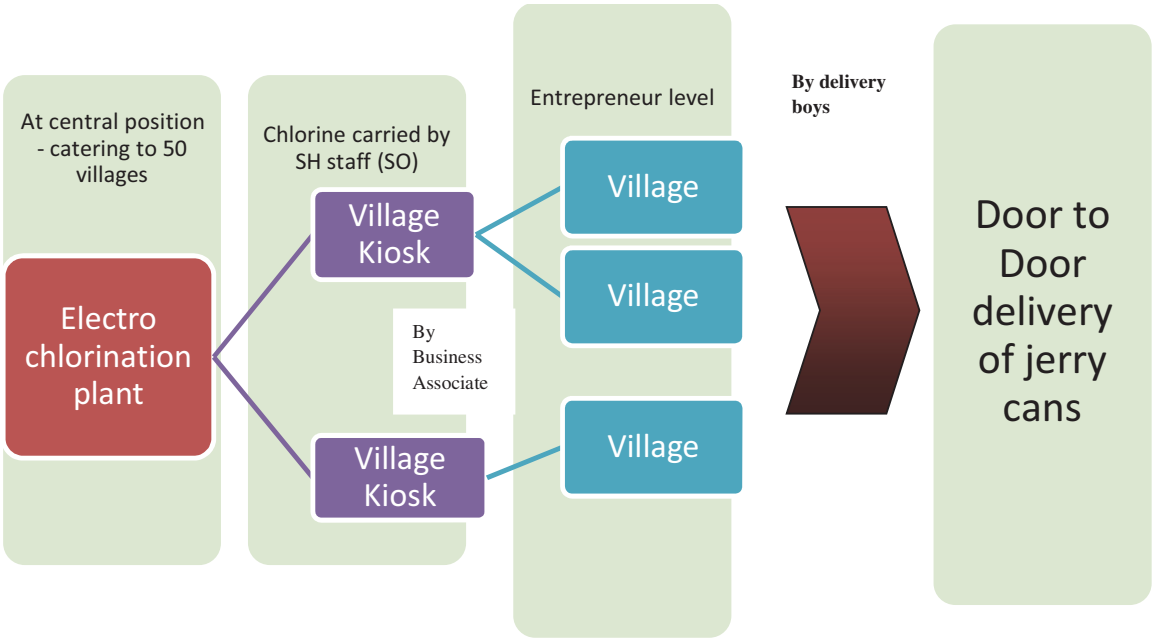
Organizational Structure of Spring Health



Source: Spring Health Water India Private Limited.

Exhibit 4

Supply Chain for Spring Health



Source: Designed by author.

Exhibit 5

Implementation Process

Source: Author's field visit.

Exhibit 6

Income Statement Summary (Projections for Next 3 Years)

000's in USD	'13A	'14E	'15E	'16E	'17E
Revenue	**45**	**110**	**700**	**3,570**	**7,950**
COGS	2	410	790	3,260	6,100
Gross Income	**43**	**(300)**	**(90)**	**310**	**1,850**
Gross Profit %	*95.6%*	*-272.7%*	*-12.9%*	*8.7%*	*23.3%*
SG&A	224	50	140	460	700
EBITDA	**(181)**	**(350)**	**(230)**	**(150)**	**1,150**
EBITDA Margin	*-402.2%*	*-318.2%*	*-32.9%*	*-4.2%*	*14.5%*
D&A	0	0	0	30	140
Rent & Other	0	80	140	160	200
EBIT	**(181)**	**(430)**	**(370)**	**(340)**	**810**
EBIT Margin	*-402.2%*	*-390.9%*	*-52.9%*	*-9.5%*	*10.2%*
Kiosk Count	140	200	444	1,653	2,810
Water Sales (1000x L)	16,973	31,000	103,000	389,000	957,000
CAPEX (US$)	0.58	0.24	3.33	13.32	13.32

Source: Spring Health Water India Pvt. Ltd. resource.

- **Key Revenue drivers:** jerry cans, purified water, and entrepreneur sign up fees
- **Key Cost drivers:** employees, sales commission, water tank build costs, jerry can purchase
- 2015 revenue growth driven by 275 confirmed additional villages for tank installation having recently signed up which will grow revenue by $ 2500-3000 per month
- Additional revenue growth will come from price increases expected in 2015 from $0.04 to $ 0.07 per 10 L jerry can and additional $0.01 for home delivery
- With additional investment SH will expand into 444 kiosks by FY 2015 and 1653 kiosks by 2016
- Costs to grow moderately as SH has front loaded its human resource capacity in anticipation of additional funding
- The CEO is training two senior staff for middle management positions to ease the process of expansion
- SH to break-even at net income level by 2017 once ~3,000 villages have been reached or 1 bn liter of water sales.

Exhibit 7

Break-Even Analysis (annualized figures)

000's in USD	EC Level	Kiosk Level	Entrepreneur Level
Customer		**Kiosks Entrepreneurs**	**End users**
CAPEX	71,972	1,435	136
Annual Operational Expenses	95,237	1,904	31
Annual Revenue	228,814	4,576	4,576
Number of Customers Required	8,150	163	85
Number of Jerry Cans Required	2,831,250	56,250	12,675
Required Sales*	191,949	3,814	859
Estimated Months	**15**	**15**	**7**
Liters of water	**28,312,500**	**562,500**	**126,750**

Source: Spring Health (*Based on average daily sales of 650L per entrepreneur and 1,250L per kiosk).*