

Phone conversation between IDE-India (Suresh Subramanian, COO) and GiveWell (Elie Hassenfeld and Natalie Stone) on March 11, 2011

GiveWell: What is IDE-India's role/value-added?

IDE-India: We are increasing incomes for the smallholder farmers. It is very necessary that the smallholder farmers be connected to the markets to both buy tools and sell products. We do four things:

- 1) Develop products: determine what products are needed and develop them
- 2) Establish the supply chain: to find manufacturers, we identify entrepreneurs already in the business of making products with similar raw materials and train them to make our products. In addition to manufacturers, we also work with local retail shops that are close to the villages. These shops purchase from manufacturers and sell to farmers. We also help with installation and we bring in mechanics that are trained to install the products and teach farmers to use the products.
- 3) Market development: create awareness among farmers about potential benefits they can gain from the products and what the product features are.
- 4) Identifying constraints beyond irrigation: some farmers can only grow crops during monsoon. So, we've focused on irrigation so far, but there are also other constraints in smaller areas.

GiveWell: Why aren't for-profit companies developing these products themselves? Why do they need you?

IDE-India: The kind of people we work with have very small businesses. The manufacturers are not connected at all to the farmers, and they produce products already in the market that sell. Or, they produce products against a government order. They're not in the business of identifying a need, especially for the smallholder farmers.

Regular for-profit companies do not develop these products because transaction costs are high, they don't see potential in the smallholder farmers and the costs for market creation are high.

GiveWell: Are there other companies producing similar irrigation products?

IDE-India: Yes there are, and many are older than we are, but their products don't meet the farmers' needs. Because of the earlier stated reasons (costs etc) they do not treat them as potential customers and so do not work with them.

In the East and Northeast of the country, the main constraint is a technology where you can lift water and irrigate your land. The common product is a diesel pump, but these pumps are too expensive for smallholder farmers to buy and operate and are not designed to meet their requirements.

In the West and South, there's very little water, and the top 3 companies in the world are in India are marketing drip irrigation systems with government subsidies. Still, less than 6% of India's irrigated land is covered by drip irrigation and sprinklers.

GiveWell: What are the main products you're involved with?

IDE-India: We have three categories:

- Water lifting: treadle pumps (with multiple variants, depending on whether water source is below ground or on surface); rope and washer pump;
- Water application devices: once you have water, how do you apply it? These are drip irrigation and sprinklers. One of the adaptation of drip irrigation systems is the family nutrition kit. Allows people with just the land around their house (perhaps 20 square meters) to grow vegetables. They can grow 40 plants (70-80 kg of vegetables) over 2-3 months with just 2 buckets of water per day –one in the morning and one in the evening.
- Water storage devices: low cost storage bags of capacities 200 litres & 5, 000 litres which in turn is used with drip irrigation systems

GiveWell: What's your involvement at each step of the supply chain?

IDE-India: We train manufacturers on how to produce products. For 6 months to a year, there's heavy involvement. After that, we do quality inspection; this consists of three steps- raw material, in-process and final product inspection. Because every product that leaves the manufacturer's facility is sold on our brand and has a 1-year warranty.

Dealer: identifying local retailers that are close to villages (farmers). We then connect dealers with the manufacturers. These dealers market the products to customers

Demand generation: through promotional activities awareness, demand for products is created.

We market products to customers.

We train the mechanics who do the installation initially and re-train them whenever there is new product or modification of product.

We also have periodic meetings with those involved in the supply chain.

GiveWell: Do you do quality checking at the level of the users of the products?

IDE-India: We provide a one-year warrantee on the products and tell customers to go back to seller if there is a problem. We do client satisfaction surveys. We take a sample across the areas that we work in which gives us feedback from customers on everything we've done. We have done these on an annual basis for many years. We can share reports from this.

GiveWell: What is the breath of coverage for the client satisfaction surveys?

IDE-India: The normal sample size is over 1,000. We would have reports for at least the last 3 years. These are compiled in a single national report but that data is statewide.

The reports cover the bulk of the customers, but not every single product. The rope and washer pump has less than 500 customers per year, so they might not be part of the sample.

Recently we did a report to track farmers who have been using treadle pump for at least 10 years. It is conducted in all states.

GiveWell: Do you monitor sales?

IDE-India: Every customer is tracked. We collect copies of guarantee cards. We are digitizing data for the last three years now, and it's partially done. This digitizing will lead to the creation of GIS maps which will eventually help in sales and promotional planning as well.

We have also initiated external audits to validate the same. We have completed in one state (report being shared) as we complete others, the reports will be shared.

At a state level, we have number of customers by year.

GiveWell: Do you have information on dropouts?

IDE-India: The 10-year survey captures dropouts: why do they drop out and when?

All the products we market are environmentally friendly. We've started using carbon credits and to do that, the certification agencies verify how much they're used and how long they've been used. The validation process has been completed. The verification process has been completed for treadle pump and we're getting data from that. These are the pumps installed on and post 2004.

There's been two years of verification for the treadle pump. We have carbon credit data on treadle pumps going back to 2004. We now have a new agreement for carbon credits for our other products.

GiveWell: Can you tell us more about the 10-year survey?

IDE-India: It was done in five states, in one or two districts in each state. I can share that with you.

GiveWell: Are there products you tried out that weren't successful?

IDE-India: Many products. There are three stages in which products can drop out:

- Idea stage. Products need to meet a certain criteria¹ to continue development. Ideas could come from customers, staff, outside the organizations.
- Get a prototype of the product and decide to move forward or not.
- Do a field test.

We dropped the animal-driven pump at the third stage. About 100 years ago, it was common for cattle to be used to draw water from underground. So, we developed the animal-driven pump and prototypes, and then we started to field test it based on ten different locations. We decided it was too expensive and the areas where we were going didn't have cattle that could be dedicated to drawing water. That was 16 years ago.

Another category we do is water storage—we develop low-cost water storage devices and attach them to drip irrigation systems. We have a 200 liter and 5,000 liter products. We started working on a 100,000-liter tank a few months back. Even the working prototype had problems in maintenance. When we start working on a new product, we set ourselves price points and it didn't meet price criteria. Detailed report on these will be shared.

GiveWell: Is there a comprehensive review of products that have made it to each stage?

IDE-India: We have some documentation and we can get something to you. Also, there's some recent stuff that needs to be written up.

We have a regional meeting where these decisions are made. We would put together minutes from the meetings and also reports from field tests.

GiveWell: What do you know about the level of poverty of your clients?

IDE-India: We know pretty well because we interact with customers on a daily basis. The design is for smallholder farmers. Treadle pump needs manual labor – best for large families with little land. No large holder family would use the product because it only creates enough water to irrigate a small plot, so products self-select the poor.

In drip irrigation, it's similar because our products are designed not to need electrical pumps (they work under little pressure or gravity only) and therefore self select smallholder farmers as customers. If electricity is used it can work under lower pressure as well (1 horsepower). They are also designed to need as little maintenance as possible.

There have been both external and internal surveys that capture the amount of land clients have under cultivation, income (gross and net), impact of the product on assets building, and impact on children. One potential problem we've thought about that the treadle pump uses manual labor and there is a possibility that children operate it and not go to school. We've done studies on the impact on children in 3 states we work in. All reports will be shared.

¹ Criteria: attached along

We also do an internal assessment that covers incomes year to year. Donors have also conducted impact studies at various times. All reports will be shared.

GiveWell: How much do products cost?

IDE-India: The market retail price printed on every product and is part of advertisement campaign. The margins that the manufacturer makes are all decided at the beginning of the season and we try and hold prices for the whole year. Because we deal in products made from raw materials whose prices have been going up, we build in buffer at beginning of the irrigation season to prevent MRP rises.

GiveWell: Do you ever find dealers selling too high?

IDE-India: There are cases where they do that, and we deal with it.

I could send you the market retail price for all products.

GiveWell: Who receives revenue from the products? Does IDE-India receive revenue?

IDE-India: IDEI cannot receive revenue because the Indian legal system prevents tax exempt non-profits from receiving revenue.

The initial idea was IDEI would build up a critical mass of demand then the private sector would continue to supply the products. This turned out not to work.

In 2003, we decided that since we as an organization could not be part of the delivery chain, we would start a for-profit. IDE-India is dependent on donor funds, which are inconsistent, and there's no guarantee of sustainability. In 2005-2006, we facilitated the formation of first company, Global EasyWater Products (GEWP), 2005-2006. Today its revenues are \$3.5-4 million.

Each component is produced by different supplier. These are small businesses in different parts of India. The people who sell the products to the farmers are small dealers who are situated in very small markets. GEWP play the role of the super-stockist. GEWP maintain an inventory so there are no shortages of supplies. GEWP see that prices are not exorbitant. GEWP does all the production inspection and product modifications.

This product has applications in other countries and GEWP takes care of exports to Egypt, Pakistan and other countries.

IDEI is basically a facilitator to make sure things get started. IDEI's main role is development of products. Our metrics are number of customers, how effective our products are, and how cheap they are. We realize it's important to set up private companies to keep things going. That lets us focus on the next big problem.

GiveWell: Where does Global EasyWater Products sits in the supply chain?

IDE-India: Manufacturing is done by individual manufacturers. GEWP purchases components and supplies them to retail dealers who supply them to farmers. GEWP is a super stockiest and an aggregator.

GiveWell: Does GEWP construct the product?

IDE-India: Each drip irrigation system is different from another, depending on crops. There are mechanics associated with the small-scale retailers who construct each system on the fields of the farmers.

GEWP purchases the products from manufacturers. It has 7 warehouses across India, from which we sell to small-scale retailers.

GiveWell: Does IDEI support GEWP at all?

IDE-India: IDEI started the low cost irrigation market and expects GEWP to run it over time. GEWP have started exiting areas where the supply chain can be operated by GEWP. As of today, GEWP works in 46 locations on its own. GEWP work in another 150-200 locations. Each of these locations means a couple of blocks (India is divided into states, then districts, then blocks, then villages). One sales person focuses on a few hundred villages.

In the whole of the west and south of India GEWP have ~200 locations where we sell the same product (drip/sprinkler). In these locations, we are doing marketing and setting up retailers and mechanics. In all locations GEWP is buying and selling the products. In areas where GEWP is operating on its own, it takes over the marketing.

GiveWell: Is Global EasyWater Products profitable?

IDE-India: Yes, GEWP is profitable. Gross margins this year were about 24%. I can share those financial statements with you.

GiveWell: Does GEWP cover all of IDEI's products?

IDE-India: GEWP specializes in drip irrigation and sprinkler systems.

IDEI facilitated the formation of a second company that will operate in other parts of India and market the pumps, accessories, and all future water lifting devices (BlueWealth International). We are testing solar, wind, and other options.

We are also going to focus on agricultural inputs. Markets for these are very undeveloped. A farmer may be irrigating but has no control over the quality of seeds/fertilizer. We have started working with entrepreneurs in last 3-4 years to source the right type of seeds/fertilizer.

The third thing that the company would do is buy agricultural produce. We are starting with spices. It will market to retail and private companies.

GiveWell: Who is fulfilling the role of GEWP for treadle pumps and other water lifting devices now?

IDE-India: Since the treadle pump is the older of the programs we had already set up the supply chain. Retailers buy from dealers who buy from manufacturers. Initially we thought private sector would take over, but each actor is too small to make it work. We think the best thing to do is to facilitate setting up a private entity that can see and act on the big picture and eventually sustain on its own.

GiveWell: Have there been products that passed all the tests but weren't popular with customers?

IDE-India: We started in 2001-2002 with a drip irrigation product that initially did well in tests, but customers weren't happy with it. It didn't work for larger blocks of land and farmers started modifying the product on their own. We got to know about this and we modified the drip irrigation system in 2005. The way it works, you have plants in a row and you have a plastic pipe that lies in the row and has a hole for each plant. In the first product, you had to make holes manually and inserting micro tubes with larger land blocks this was too labor intensive. We started making the pipes pre-punched.

GiveWell: What would IDE-India do with additional funds, i.e. funds it does not currently expect to receive?

IDE-India: First, we are working in areas that have not reached market maturity and which we are not ready to exit. If we exited tomorrow, all the money that went in would be at risk. We would like to continue to work in those areas. I could get you the figure of how much that would cost. The longest funding we have is for 6 years. There are many areas where if the funding does not continue, we would have to exit.

Second, there are a number of product ideas that need to be tried out and tested. A few years ago, we got a grant from a U.S. foundation that recognized our work in product development and funded the purchase of land and buildings to create a permanent development center.

Thirdly, India has 600,000 villages and we are only present in about 15,000. Our presence is about 2-3% of all villages. There are a number of places where we don't work and where farmers face similar problems to the ones we are trying to solve. We could go to those places and set up markets.

GiveWell: How much would each of these cost?

IDE-India: I can't give you a figure right now, but I could get back to you with that.

GiveWell: Does IDE India ever pay any supply chain people?

IDE-India: No, there are no financial transactions between supply chain members and IDEI. We do try to work with banks to encourage them to extend credit to the manufacturers, dealers, retailers, and even the farmers.

The third company we would like to facilitate the formation of is a credit company for both farmers and the supply chain. Credit is a serious issue for both farmers to pay upfront and for the supply chain to working capital.

GiveWell: Do you ever have choices about with partners to work with?

IDE-India: In India there are rural markets serving a group of villages that have been going on for hundreds of years. We reach out to retailers at those markets. In most places, we have a choice of who to work with.

GiveWell: Seems like a very good deal for the retailers. Is there competition among partners?

IDE-India: At first a retailer doesn't know if product is going to sell or not. Then after a few years, competition comes in because others see that the product sells.

We have a policy to only appoint one retailer in each market. It's rare that we use multiple retailers in one area.

For GEWP's areas, they assess demand and may have many sub-dealers. In the GEWP areas, many times, there are temporary dealers that come up at the time of peak sale season. They can't keep track of how many dealers are there. Others who are not part of formal supply chain may start selling the products. Dealers are already placing orders with GEWP now for May.

GiveWell: Why don't the dealers want to come into the other areas where IDEI is working?

IDE-India: In areas that IDEI is working in, we might have 1-2 customers in a village and other farmers are waiting to see if the product works. When the adoption starts concentrating in an area, then more dealers come in.

GiveWell: Is there data on this process?

IDE-India: We did a study to understand the factors behind this better: the "tipping point study." We asked: how do we reach this point as fast as possible? It's a large report. I can send the summary and the full report however is a confidential report.

GiveWell: Do you have data on what IDEI customers were using before?

IDE-India: There are two kinds of irrigation customers: those who were flood irrigating and those who were not irrigating at all. In the case of pump users, they were not irrigating, using traditional devices, or hiring diesel pumps.

GiveWell: Have you ever had to do a product recall?

IDE-India: When we launched drip irrigation in Madhya Pradesh, had to recall 80-90% of what we had supplied. We provide a warranty on the product. If there is a small defect, we'll repair at local level. If it's a major problem, we'll replace with product from inventory. Madhya Pradesh was the last instance where we had a large product failure.

It was May 2005. We started work in one area of Madhya Pradesh, where farmers purchased the product to irrigate cotton. Within a couple of days we got reports that the systems were not working. They were either choking or leaking. We stopped supplies and asked frontline staff to go meet all clients. We got fresh supplies and replaced the products. We can track which manufacturers the products came from. We told manufacturer and he came and met farmers. All the replaced materials were sent back to him—he has to pay the cost of the defective products. We did a study to understand why problems occurred that resulted in changes in our quality inspection process. I can share that study.

GiveWell: Because of the nature of what you are marketing, does that change how you do your marketing/advertising?

IDE-India: What we do differently from other business is that we track our customers. Most of the business that work with this target group do not track their customers as a result they do not have customer lists. We also do customer satisfaction surveys. The prices of raw materials are very volatile, we want get cheap products to customers, and we need to keep the supply chain interested, so there are no super profits.

We capture a lot of videos of customers and share this with the supply chain so they understand what benefits customers are getting.

GiveWell: Is marketing to dealers or customers?

IDE-India: Marketing is 99% focused on the customers. There are 3 primary things we do:

- 1) Dynamic activities (product demonstrations at a market or on a field to show how the product works and what benefits it has)
- 2) Static materials (handbills to supplement dynamic activities)
- 3) Mass media—cable networks, newsletters, etc.
- 4) Promotional films: short films/movies of (1 hour or more duration) are made along Bollywood lines. Thematically they revolve around IDEI promoted technologies and have elements of drama, emotions, songs and action. It is quite entertaining and farmers enjoy the screening and subtly learn about IDEI

promoted technology, its features, maintenance and impact/ advantages.

For dealers, we have annual dealer meetings where old dealers share experiences with new dealers.