

THE COOLEST LITTLE REFRIGERATOR FOR RURAL INDIA

After serving Godrej and Boyce Ltd for 25 years across various divisions, Sundarraman wanted to do something that would allow him to put his knowledge to use in one place. So he decided to develop low-cost refrigerators for the poorest households in rural India. The ChotuKool weighs only 7.8 kg, and consumes half the power consumed by conventional fridges. The number of parts in the refrigerator has been reduced to a tenth of those in a conventional refrigerator. The average electricity bill for running the refrigerator is about USD 1 per month.

Currently, in urban India, about 48% of all households have refrigerators. On the other hand, in rural India, only 8% of households have refrigerators. Several factors are responsible for the low uptake of conventional refrigerators in rural India, such as the low purchasing power of households and the absence of regular power supply. However, these factors have also created the opportunity for fundamental innovations in the area of refrigeration in India.

Godrej decided to address this concern by developing an innovative product. However, the company took up the initiative as a solution challenge rather than a product challenge. A solution approach for innovation is followed in a three-stage process. Stage 1 involves innovating at the idea level—this refers to the potential of a particular idea to address current concerns facing a particular section or sections of the society. Therefore, Godrej decided to focus on the following concerns before even developing the product:

- How can a new product impact the people at the bottom of the pyramid (BOP)?
- How can a new product be an instrument of inclusive growth in the society?
- How can a new product help facilitate a paradigm change from competitive growth to inclusive

growth (this refers to the fact that a portion of corporate growth initiative can be shared with the society by partnering with the society on initiatives)?

Stage 2 involves innovating at the product level. This refers to the development of either breakthrough or incremental features in products meant to address the concerns of users. Stage 3 involves innovating at the business model level. This refers to the development of new processes for catering to the needs of people. New processes include improved supply chain, logistics, distribution and production.

Involving the Customer

With these points in focus, Sunderraman, along with his team at Godrej, began work on the “ChotuKool” (in English, this translates as small cooler) in 2007. The team adopted a different approach for developing the product. For a better understanding of consumer needs, the Godrej team decided to involve the villagers in determining the key features of the new product, instead of using a market research agency. The prototype went through multiple iterations based on the feedback received from rural women.

The refrigerator has incorporated a number of new features vis-à-vis its conventional counterparts. For instance, it weighs only 7.8 kg, and costs about USD 75. It consumes half the power consumed by regular refrigerators. Based on the usage patterns of people in rural India, freezers were removed from the model.

Innovation Across the Solution Framework

The refrigeration solution that has been developed by Godrej is unique. It embraces feature-level changes across the key elements of the innovation framework:

Business model: Godrej decided to set up a bigger goal for itself, i.e. driving inclusive growth through its initiative. With this goal as its guiding principal, the team at Godrej planned to drive entrepreneurship through its innovation initiative.

The business model involves partnering with NGOs to create community entrepreneurs, who would then be leveraged for selling the product (i.e. ChotuKool). Godrej plans to involve village

“The business model for Godrej’s “ChotuKool” involves partnering with NGOs to create community entrepreneurs.”

girls in selling the products on a commission of USD 3 per product sold. This plan will help to reduce distribution and marketing costs by 40%. This community initiative will help drive the cause of inclusive growth.

Product design: The freezer has been removed and the compressor has been replaced. These changes have helped to reduce the total number of components in the ChotuKool. The number of parts that goes into the refrigerator has been reduced from 200 to 20. The ChotuKool runs on a cooling chip and fan similar to those used to cool computers. It also uses high-end insulation to stay cool for hours without power, which helps it to adapt to situations with irregular power supply.

Technology component: The refrigerator does not use the regular method of cooling by compressor, found in the conventional domestic fridge. Instead, it uses a technique known as thermoelectric cooling. This enables cooling in an easy and economical way.

Benefits

The potential impact of such an innovative product can be felt across a variety of parameters:

Lowered utility costs: Owing to the reduction in the number of operating parts and lower power usage, the average electricity bill for running the

ChotuKool has been reported to be only about USD 1.5 per month.

Ease of maintenance: Since the key components of a regular refrigerator, i.e. the compressor and freezer, have been removed from the model, the maintenance of the ChotuKool has become very easy.

Leveraging existing and alternative power infrastructure: The ChotuKool runs on a 12-volt DC supply (i.e. by the power provided by a battery, solar cells, etc.). However, the refrigerator can also be connected to the AC mains (power provided by regular power utility providers) using a converter similar to the one used for laptops. Godrej plans to provide this adapter as a built-in feature in the ChotuKool.

Driving productivity of local enterprises: Godrej’s unique solution has found applications in local enterprises in the hospitality sector (such as hotels, restaurants, flower shops and food stalls in rural locations). The product can help these enterprises to provide customised products which require cooling, such as milk beverages, sweets, etc. The impact of the innovation on these enterprises can be gauged by the fact that the use of the ChotuKool can help them increase their daily revenue by 15 to 20% (these enterprises have a daily revenue between USD 4 to 5).

Currently, the product is in the test marketing stage. It has been put to test in the western Indian state of Maharashtra.

The product has also been slated for testing in the southern Indian states of Karnataka and Tamil Nadu. Godrej plans to achieve sales of about one million units of the ChotuKool in the next three to four years.

The ChotuKool has a lot of potential in geographies whose macroeconomic factors can drive its usage. For instance, in east Africa, the percentage of households with power supply is under 3 per cent. The average annual per capita household income in these countries is about USD 400.

Also, several developing nations which are pursuing energy efficiency improvement initiatives can benefit from a product like ChotuKool.

Therefore, in addition to delivering value to people in India, the product has a lot of potential in geographies which have concerns similar to India’s.