

## A bright idea that helped India's poor

By Amy Kazmin in Bangalore, India

Published: February 25 2009 02:00 | Last updated: February 25 2009 02:00

Harish Hande's first installation of solar-powered lights in a rural Indian home was a stealth operation. The founder of Selco India, then a 26-year-old engineer, believed passionately that millions of Indians living in darkness at night could have their lives transformed by solar technology. But he needed a customer who could afford to pay the high up-front costs of solar lights and testify to their merits.

In September 1994 Mr Hande asked a wealthy betel nut farmer in the southern state of Karnataka for permission to install the lights in his house. The farmer, who had never heard of solar energy, refused. But Mr Hande sensed the farmer's elderly mother, who had listened attentively, was intrigued.

A few days later, Mr Hande returned while the farmer was away and - with the mother's connivance - surreptitiously installed the lights. Returning a week later, he was greeted ecstatically by the farmer, who handed over the Rs15,000 (\$300) payment.

Since then, Selco has sold solar lights to about 95,000 village households, and to schools, orphanages and religious institutions.

Given the hundreds of millions of Indians still dependent on sooty kerosene lamps for light each night, such figures are modest. Yet after years spent educating rural consumers and lenders about solar power - and battling with foreign shareholders focused more on profit than on social impact - Mr Hande is poised for a dramatic expansion of Selco's operations.

In recent months, the company has received \$1.4m in equity financing from the Good Energies Foundation, the Lemelson Foundation and E+Co - all social investors supporting the effort to develop a solar energy business to cater to the rural poor.

Mr Hande's target is to sell solar lights to 200,000 more rural families within the next four years, a significant jump in pace. But he regards other aspects of Selco's model of social enterprise as equally important. The company's technicians, for instance, provide regular after-sales service, checking each installation twice a year, and aim to respond to breakdowns within 24 hours.

"We know that our contribution in terms of numbers will be tiny, but what we want to do is show a path that others can follow," he says.

The seeds of Selco were planted on a trip to the Dominican Republic, while Mr Hande was pursuing graduate studies in energy engineering at the Center for Sustainable Energy at the University of Massachusetts. "I saw these very poor people using solar lighting," he recalls. "In India, people were less poor or equally poor. And if people there were using solar, why couldn't we?"

Soon afterwards, Mr Hande contacted Neville Williams, who founded the non-profit Solar Electric Light Fund (Self) to promote solar energy in developing countries. In 1993, Self

received a \$40,000 grant from the US-based Rockefeller Brothers Fund to install solar lights in 100 rural Indian houses and invited Mr Hande, who was still working on his studies, to run the project.

But Mr Hande was concerned about the long-run servicing of the lights, which he felt only a company could guarantee. Bringing the \$40,000 grant into India also proved complicated, given New Delhi's then strict capital controls.

So he obtained a single solar lighting system on credit from Tata BP Solar, an Indian solar panel manufacturer. He sold that system to the betel nut farmer, raising his first cash. "We were desperate for money," he says. "We had got one system on credit, but I knew we couldn't get more than that."

For the next 2½ gruelling years, Mr Hande travelled across rural Karnataka by bus, explaining how solar lighting worked and installing systems - obtained on credit, with the grant money, which was still stuck in the US, as a guarantee - in the homes of wealthier farmers, who could afford them.

He also pleaded with rural bank officials to lend money to poorer families wanting to buy the lights, which cost at least Rs10,000. "It was hand to mouth," he says. "I had to create the seeds of faith in rural areas that this technology works."

After Mr Hande had personally installed 400 solar light systems, Selco received a loan of about \$128,000 from USAid, through its partner Winrock, to finance its first three rural service centres to sell, install and service solar lights. This was the first step towards building the sustainable rural delivery system that Mr Hande envisaged. "This can succeed only if you have doorstep service and doorstep financing," he says.

Between 1999 and 2001, Selco India received a \$750,000 equity infusion, after Mr Williams raised funds from boutique investors in the US for solar light promotion in India and Vietnam. The ownership of Selco India was transferred from Self to a US for-profit company; with the new investors in control, Mr Hande was given a 2.5 per cent stake. Meanwhile, Selco India received a \$1m loan from the International Finance Corporation, the private lending arm of the World Bank, in 2003.

Selco broke even for the first time in March 2001 and then earned small cash surpluses for several years. But by 2004, Mr Hande was under pressure from foreign shareholders over the company's profits, which peaked at \$88,380 in March 2005. The real crisis came, though, when Germany's solar power subsidies created a global shortage of solar cells, causing prices to rise by 47 per cent.

In 2007, Mr Hande, who by then had 120 workers and 25 rural service centres, needed to raise new capital. "We were bleeding," he says. "We had clients but we couldn't do the sales - we had no supplies." The foreign shareholders wanted him to shed staff - which he refused to do - and rebuffed his appeal for fresh funds as they sought to sell out.

But with its own \$1m loan at stake, the IFC, which had another outstanding loan to the US-based parent company, staunchly backed Mr Hande and Selco India management, giving him the confidence to bring in a new set of more socially oriented investors.

With extra cash and lower solar cell prices, Mr Hande says he can now wipe out Selco's Rs7.5m losses within two years, while expanding. But he has learnt a hard lesson about those who are driven less by ideas of social service than profits.

"Irrespective of whether you want money, you should have control of the company for the sake of the mission," he says. "No matter how desperate you are for money, never take it from someone whose mission is not aligned with your own."

## **Sustainable repayments: why solar light sales need the right loans**

An engineer from the prestigious Indian Institute of Technology, Harish Hande was writing his PhD thesis, "Rural Electrification in India: Does Solar Make Sense?", even as he started to turn his theorising into practical action.

Dealing with India's rural poor is traditionally the preserve of government or non-profit charities - or rapacious money-lenders ready to step in with emergency loans at extortionate interest rates.

But after two years of research in rural villages in India and Sri Lanka, Mr Hande was convinced the poor would pay for solar lights, in spite of their hefty cost, if they could obtain affordable loans with repayment schedules that reflected their cash flow. "If you create appropriate financing and appropriate products, the people will pay," he says.

Much of Mr Hande's energy has gone into persuading rural loan officers in state banks to provide credit to families to buy solar lights. But he remains awed by villagers' willingness to spend the equivalent of a full year's income on his product.

"Think how much time we take to make a decision to spend a whole year's salary," he says. "But the poor are willing to pay."

[Copyright](#) The Financial Times Limited 2009