



Thinking green:
A stall owner at
a local market
waits for
customers under
a solar light

PHOTO: NAMAS BHOJANI

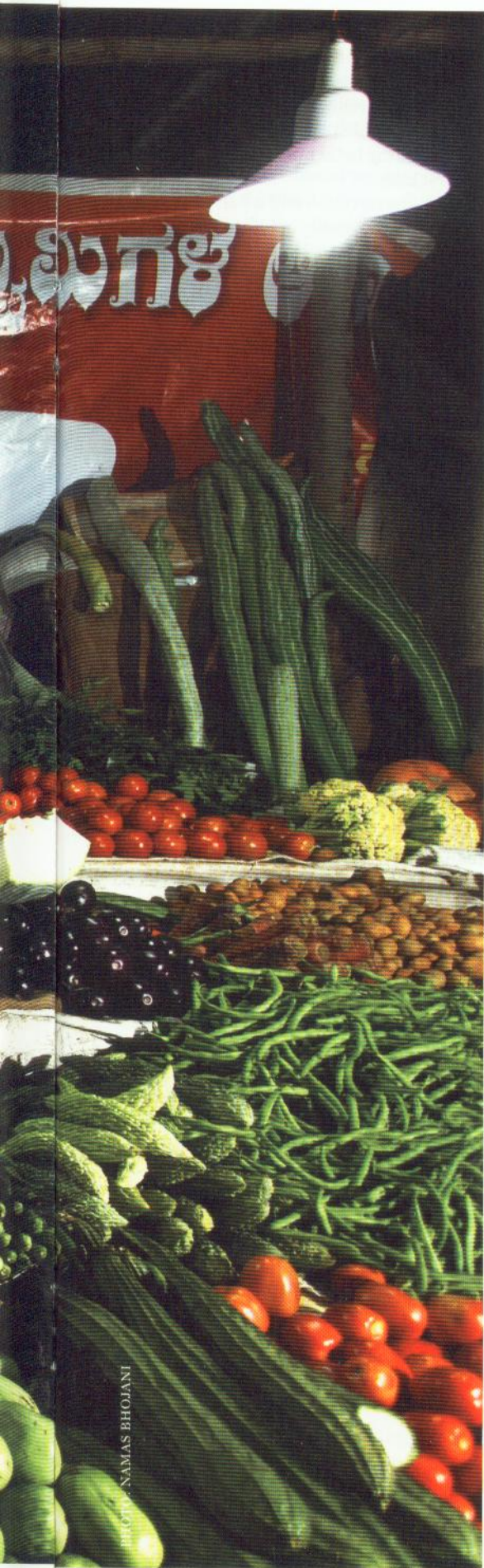


PHOTO: NAMAS BHOJANI

Lighting the way

A pioneering enterprise is bringing affordable solar power technology to India's rural poor. By *Amy Kazmin*

THE INDIAN VILLAGE of Kattehole is a collection of 34 mud-and-thatch houses in two tidy rows, a schoolroom, a Hindu shrine and a large banyan tree under which children play and men chat. Bangalore – the hub of India's vibrant software industry – is 180km away, but the 200 people who call this place home have not shared in the city's prosperity, and scrape a meagre living tending goats and cultivating vegetables.

Between them, the villagers of Kattehole have just three motorbikes to carry their produce to market, travel to a doctor, or reach the world beyond for any reason. Located several kilometres from the nearest power line, until recently the residents did not even have access to electricity and were instead dependent on highly-polluting kerosene-burning lamps.

Such neglected, impoverished villages do not figure too prominently in the business plans of most companies seeking to profit from India's economic development.

Yet the residents of such down-trodden, disconnected villages are precisely the market targeted by Selco India, a Bangalore-based social enterprise that is determined to make the benefits of solar lighting technology accessible to the poorest in the country.

From a network of 25 rural service centres across the southern state of Karnataka, Selco has already sold solar lighting to about 95,000 village homes, including 15 in Kattehole, as well as institutions such as schools, clinics and seminaries.

With an infusion of \$1.4m in fresh equity from three social investors – the Good Energies Foundation, the Lemelson Foundation and E+Co – Selco is

aiming to scale up significantly and has a target of selling solar lights to another 200,000 rural homes, across a wider geographical area, within the next four years.

"We want to destroy three myths: that the poor cannot afford technology; that the poor cannot maintain technology; and that you

to loan money to families to make purchases.

"The best financial lesson I learned is from a street vendor, who told me Rs300 a month is expensive, but Rs10 a day is fine," says Mr Hande.

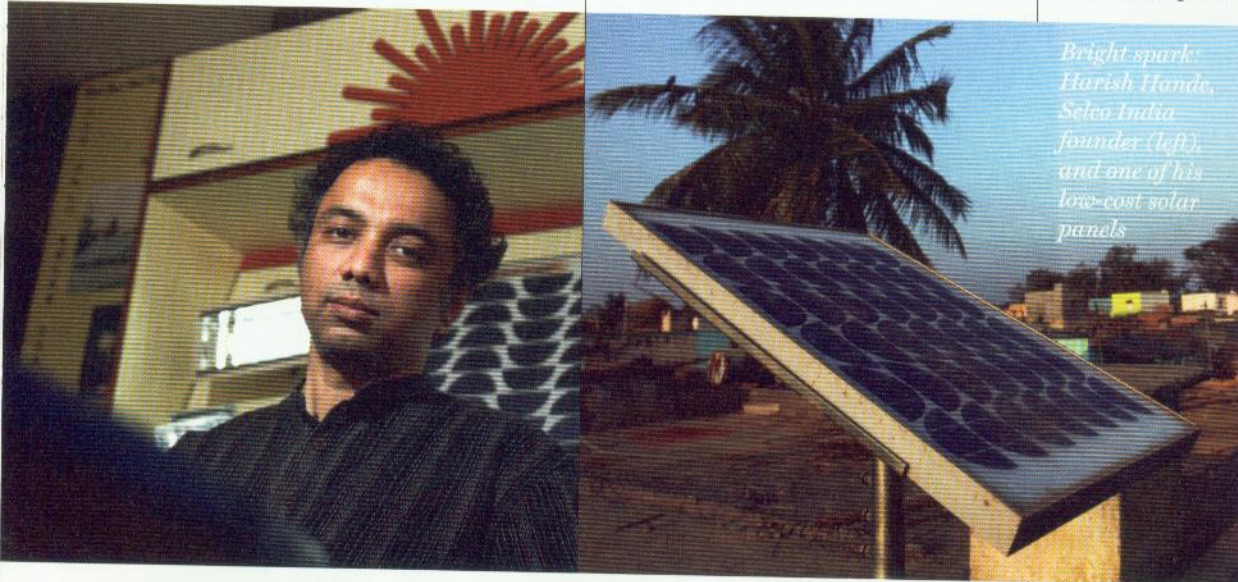
"When people talk about 'affordable products', the barrier is financing that matches the cash flow."

his own "sweat equity", in 1994 Mr Hande persuaded Tata-BP Solar, an Indian solar panel manufacturer, to give him, on credit, a single solar lighting system, which he sold to a relatively wealthy betel nut farmer to raise his first cash.

Over the next two and a half years, Mr Hande personally installed solar lights - obtained on credit - in 400 or so remote rural homes, spending hundreds of nights sleeping on buses in order to reach distant villages. It was a hand-to-mouth existence and he depended on an aunt for food and a bed when he was not working.

In 1997, Selco received its first \$128,000 loan from USAid. This allowed Mr Hande to set

Bright spark: Harish Hande, Selco India founder (left), and one of his low-cost solar panels



cannot make profits while trying to meet social objectives," says Harish Hande, the 39-year-old founder and managing director of Selco. "If you create appropriate products and appropriate financing, people will pay."

Solar lights are indisputably superior to the widely used kerosene lamps, providing a far more powerful light without emitting the black, unhealthy soot now lodged in the lungs of so many rural Indians.

Yet in a country where the average gross domestic product per capita is only about \$977, solar lights, ranging in price from about Rs11,000 (\$224) for a two-light system to about Rs20,000 for a four-light system, are a major investment for poor families.

It is certainly an investment few rural households can afford upfront, though they may spend just as much, or more, buying kerosene over a period of several years.

To Selco, this has not been an insurmountable obstacle to selling the solar lights, after sustained efforts to persuade state-owned rural banks

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Even after the past few years of rapid economic growth, approximately 400m rural Indians still live without electricity.

Many rural homes that are hooked up to the state power grid are without electricity most evenings due to the country's frequent and protracted power

cuts that seem to afflict rural areas in particular.

Mr Hande, an engineering graduate of the prestigious Indian Institute of Technology, has believed passionately in the ability of solar energy to help rural Indians light up their lives since his graduate student days at the Center for Sustainable Energy of the University of Massachusetts Lowell.

Before he had got as far as completing his doctorate on the potential of solar energy in India, Mr Hande moved from theorising to action.

Starting with nothing more than

up three rural service centres to sell, install and service solar lighting to rural households.

Today, he has some 170 employees, mainly based out of the 25 service centres in the rural districts they serve.

In India's rigidly hierarchical society, Mr Hande screens job candidates carefully, trying to ensure he selects technicians who will treat the poor, uneducated farmers with the same respect as valued customers. "Whether it's a very rich guy who gives us a big order, or a very small guy, the respect and attention should be equal," he says.

Unlike many companies, Selco's aim is to help families meet their lighting needs at minimum cost.

Before any sale, technicians hold in-depth discussions with clients about their evening activities and look at

their homes, before designing a customised lighting plan.

"The product is a combination of need-based technology and need-based financing," Mr Hande says.

Since Selco's launch, Mr Hande and his team have invested tremendous energy in convincing rural loan

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officers in state banks to lend money to families to purchase solar lights – and to develop repayment schedules that reflect farmers' income patterns, depending on the particular crops they grow.

While many officers are supportive, others are reluctant, unsure whether solar lights fit their mandate to grant loans directly for income-generating activities. Such is the importance of finance that Selco has tracked the transfers of sympathetic loan officers within the rural banks system, planning its own expansion accordingly.

"Some guys are fantastic," says Mr Hande. "The question is how flexible are they, from financing a paddy farmer to a peanut farmer to a sugar farmer?"

The company did initially try to provide some of its own financing for customers. But that did not last long. "Our technicians can never do good collection," Mr Hande says. "They are too close to the customer."

Just as important as the initial sale is the after-sales service. Selco technicians check each solar installation twice a year to ensure it remains in good running order. "We have no marketing budget," he says. "We put all our money into after-sales service, which for us is marketing."

The company also aims to respond to any breakdown within 24 hours, although Mr Hande admits that about 35 per cent of the time it cannot reach that target, particularly as Selco moves into more remote areas.

The company broke even in the year ending March 2001, and for the next several years earned small but gradually rising profits that peaked at about Rs3.8m for the financial year ending March 2005.

More recently, a global shortage of solar cells – and a sharp rise in their prices – has led to accumulated losses of Rs7.5m over the past several years, as Selco has struggled to secure supplies.

But with fresh capital from social investors, Mr Hande expects to wipe out losses within two years, while resuming a growth path.

No matter what, he insists, he will retain his orientation towards meeting the energy needs of India's most neglected citizens.

"I am interested in creating processes that will endure for the long term," says Mr Hande.

"I want my clients in 2013 to say, 'if I need another solar lamp, I am going to buy it from Selco.'" ■

BLACKNESS BANISHED

BORALINGAIAHA, A 41-year-old vegetable farmer, and his wife, Mamjamma used to spend about Rs100 (\$2) a week to buy five litres of kerosene to burn in lamps that gave the family a dim flicker of light after sunset.

Then, eight months ago, technicians from Selco India visited their village to demonstrate the powerful light from a solar lighting system.

Boralingaiaha and Mamjamma, like the other residents gathered under the village banyan tree, were in awe. "We were very impressed," recalls Mamjamma. "But we felt that we are very poor, and could not have such a light."

Yet today, the blackness that once defined the couple's evenings has been banished, after Selco officials helped 15 Kattehole families secure rural bank loans so that they could purchase solar lighting systems for their homes.

For the next four years, Mamjamma and her husband will repay Rs250 each month – far less than their previous monthly kerosene bill – for their Rs12,000, two-light system, which gives them a light far brighter and cleaner than they had before. Another nine loan applications are in process.

Manjula, a 20-year-old whose husband bought lights for their home, says village life has improved notably since the lights were installed. "Before [we got] the light, we used to go to bed around 7.30 or 8 pm," she says. "After [we got] the light, children can study until 10 pm."

Harish Hande of Selco understands from first-hand experience what it means to live without electric lights.

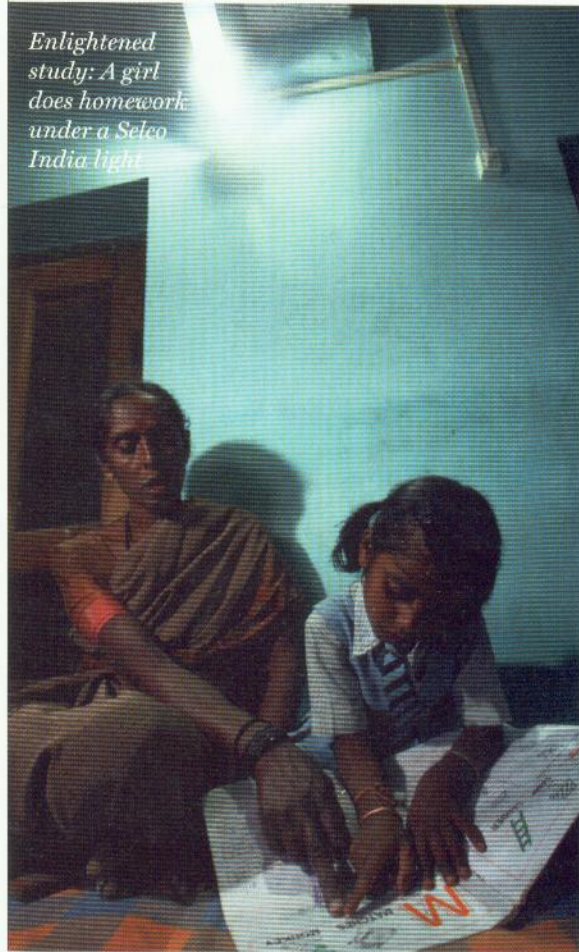
As a graduate student researching the viability of promoting solar energy in rural India, he spent nearly two years living in remote rural villages that had only kerosene lamps to provide light.

"If you do a lot of physical work in the day, and you come back to a very dimly lit house, you feel very pulled down," he recalls.

Though villages remain Selco's primary target, about 10 per cent of sales come from institutions, many of which are on the electricity grid but still experience protracted, disruptive power cuts.

"Our electricity supply was very irregular," says Sister Rosarita, warden of the Jyoti Niwas girls' hostel, which has 150 residents and now uses Selco India solar lights. "During exam time, it's very difficult for the girls, so we are using solar. It's a little bit expensive initially, but afterwards it's not so bad compared with our electricity bills."

Enlightened study: A girl does homework under a Selco India light

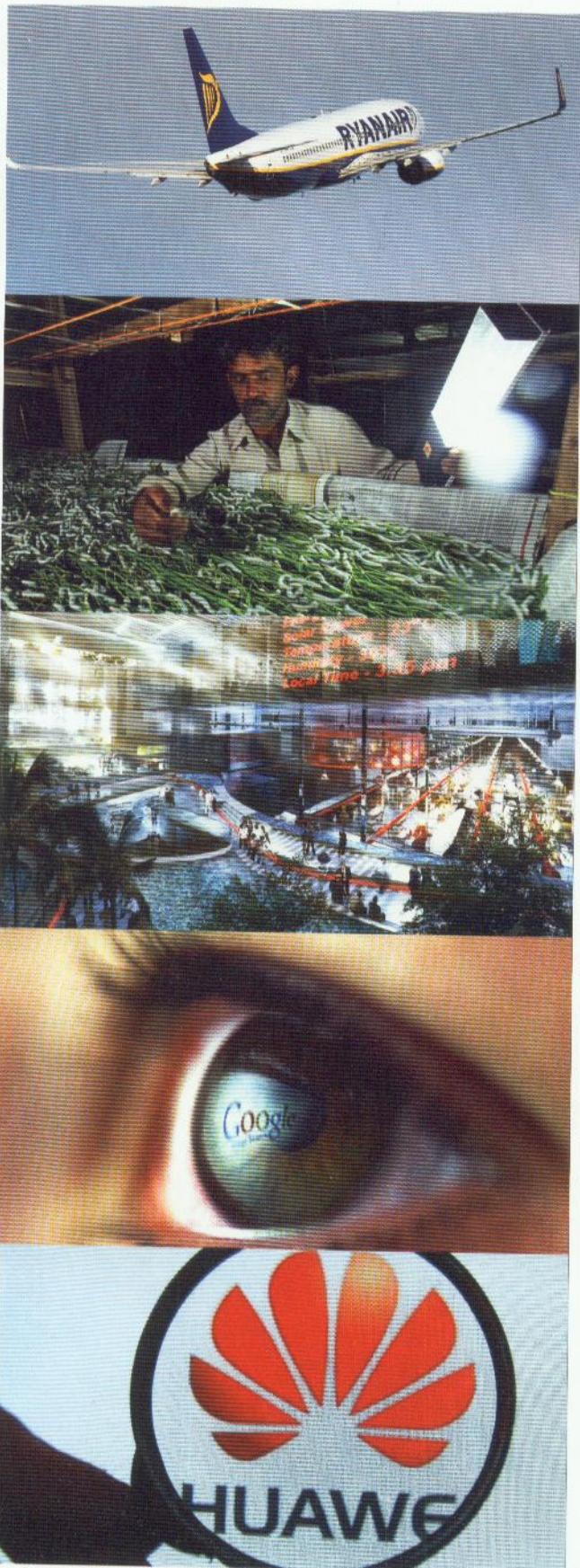


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Deepak Naik, a dentist in a small district town, bought solar lights to help keep his clinic running, since regular power cuts often coincide with the peak period for patient visits – the early evening.

Yet of all Selco's customers, none place greater value on the solar lights than those who previously had only kerosene lamps.

Sighs Mamjamma: "There is a different kind of happiness in coming back to a light home rather than a kerosene home." ■



PHOTOS: BLOOMBERG NEWS; GETTY; NAMAS BHOJANI; IMAGINE CHINA; AP

DRIVERS OF CHANGE

Ryanair

“Changed the airline business outside North America – driving the way the industry operates through its pricing, the destinations it flies to and the passenger numbers it carries.”

TERRY SMITH

CORPORATE RESPONSIBILITY

Selco India

“A unique social business model. This is a most exciting example of a company that has corporate and social responsibility at the heart of its mission.”

JULIAN BIRKINSHAW

ENVIRONMENT

Masdar

“This is a very impressive project. It embraces the most innovative technologies and I think this will change many things in the future.”

ANNE MEAUX

ENTREPRENEURSHIP

Google

“Among the most profitable media companies in the world, it enjoys extraordinarily high margins and has been continuously innovative in how it evolves its business model.”

LUKE JOHNSON

EMERGING MARKETS

Huawei

“By growing a successful business in Europe, it has become one of only a handful of Chinese companies – if not the only one – that it really making a splash on the international scene.”

DAN BOGLER