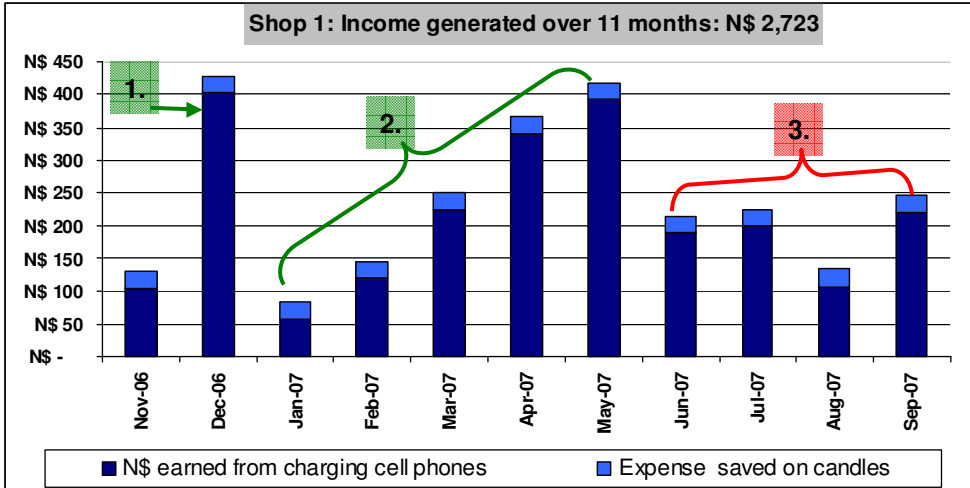


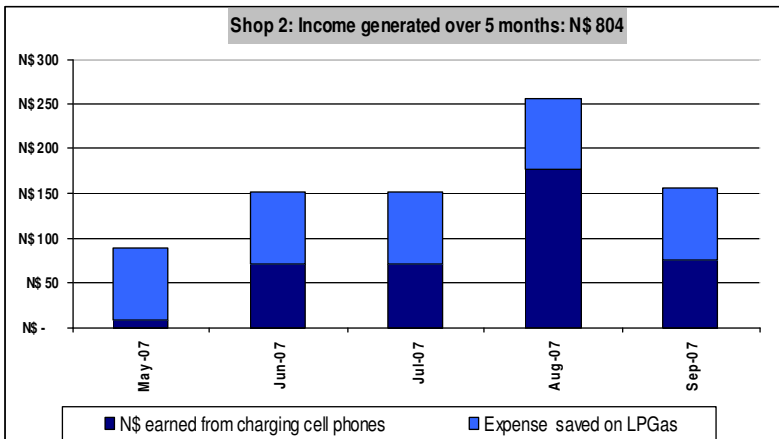
In late 2006, the DRFN commenced with investigating the feasibility of solar cell phone charging shops as an approach towards establishing Energy Shops in Namibia as specified in Namibia's Off-grid Energisation Master Plan, 2006. Two shops located in Windhoek's informal settlement, Havana, has been closely monitored and mentored and the results are described in this Fact Sheet.



**1. Business Boom:** holiday season prevented clients from charging for free at work

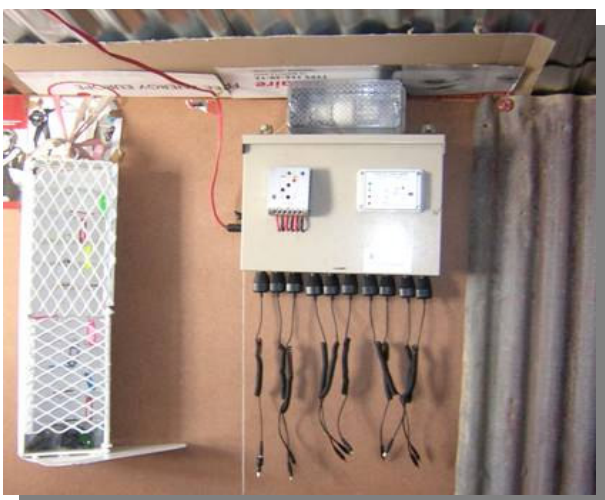
**2. Business Improve:** committed shop manager and promotional campaign

**3. Business Slump:** reduced opening times and shop manager changed. Shop 2 opens about 500 meters from Shop 1.



The cell phone charging system is powered by one small solar panel, which is easily removed at night and stored safely.

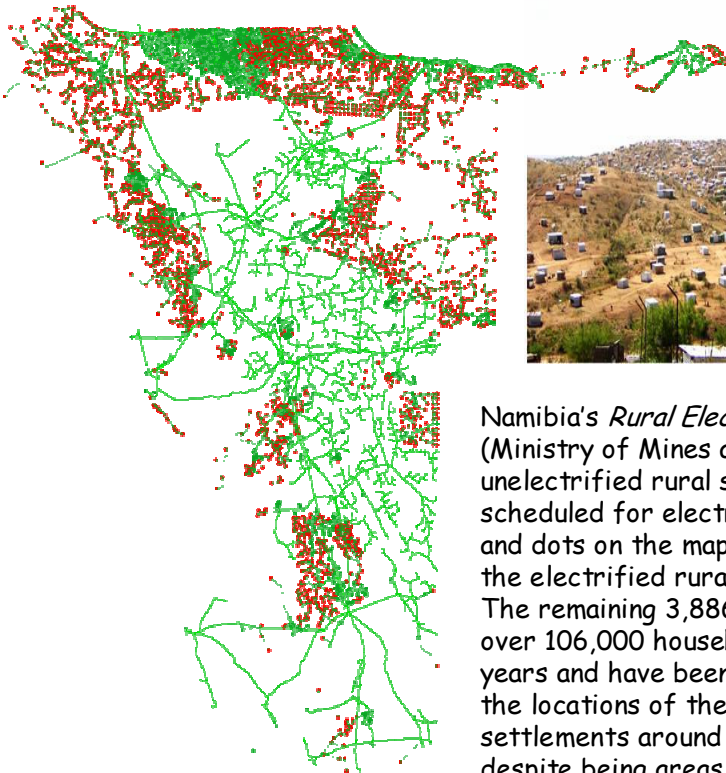
A solar cell phone charging system comprises 10 charging sockets and two lights. The system is capable of charging about 20 cell phones per day and provides daily electricity for 3 hours for each light (replacing the need for candle, paraffin or gas). The system is versatile and can accommodate any type of cell phone DC charger (car chargers).



Venasius Amukwa's solar cell phone charging shop in Havana, Windhoek, has attracted a much attention from local and international renewable energy suppliers and organisations.

## Scope for Solar Cell Phone Charging

In Namibia only about 30% of all households and less than 11% of rural households have access to electricity. In comparison, Namibia, with a population of just beyond 2.1 million, had an estimated 680,000 cell phone subscribers in mid 2007.



Namibia's *Rural Electricity Distribution Master Plan for Namibia* (Ministry of Mines and Energy, 2005) has identified a total of 5,858 unelectrified rural settlements in Namibia. Of these, only 1,543 are scheduled for electrification within the next 20 years. **Green** lines and dots on the map show the expanded grid electricity network and the electrified rural settlements after this 20 year period. The remaining 3,886 unelectrified rural settlements, which comprise over 106,000 households, will not be electrified within the next 20 years and have been designated as "off-grid areas". **Red** dots show the locations of these off-grid settlements. Unelectrified informal settlements around urban areas were not included in the master plan, despite being areas of great population growth. It is within these off-grid areas that solar cell phone charging offers greatest scope

The table shows a Return on Investment calculation for a solar cell phone charging system catering for 5 clients per day.

The system is capable of providing service to up to 20 clients per day.

### Calculation of Competitiveness

Solar charging		Description	
Investment Capital	5,000	Charger for 10 cell phones	
Investment Lifespan	10	System life time	
Production per annum	1,825	5 customers per day	
Price/unit	4.00	The current market price	
Revenue/annum	<b>7,300</b>	N\$	
Variable cost/unit	1.20	Other indirect cost	
Cost of energy/unit	0	There will be no cost of power because the energy is free from the sun.	
Total fixed costs	500	Cost for display, handling	
Amortization/unit:	0.27	500	
Direct costs per unit:	1.47	2,690	
Gross Margin/unit	2.53	The business will payback in about 1 year. There is a great return on investment of 82%	
Fixed costs/unit	0.27		
Total costs	1.75		3,190
Net Margin	2.25		4,110
Return on investment	82%		
Payback period years	1.08		



The solar cell phone charging business idea was awarded second prize in the Sam Nujoma Innovative Entrepreneurs Competition in 2006 in the Bright Ideas category.