



Young Americas Business Trust



Organización de los Estados Americanos
Organização dos Estados Americanos
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Organization of American States

TIC Americas
Young Entrepreneurs Talent and Innovation Competition of the Americas

MARKET STUDY

COMPANY INTRODUCTION



BRIGHT NEW IDEAS, ©

Alternative Energy, Education and Health.

MISSION:

“We are dedicated to serving world’s deprived and unprivileged population by empowering them to improve their quality of life. We do this through the use, development and responsible commercialization of solar lighting technology”.

VISION:

What?

We recognize light as a critical enabler to education and envision worldwide access to micro solar lighting technology for the world’s deprived and underserved.

How? (Values)

Environmental Care: Using technologies that create minimal or no trash/waste in the beneficiaries’ communities.

Preventive Health: The technologies we use will create a net improvement in the overall health of the users through the non-toxicity / pollutant sources of the product.

Commercial sustainability: We will make our technologies available at low prices that add value to users creating a net positive income, so that the products can be made available for more people and communities. A micro credit program will be developed with local cooperatives as an enabler tool.

TEAM MEMBER & NATIONALITIES:

Patrick Delaney, United States of America (USA)

Trisha Qualy, United States of America (USA)

Mario Alemán, Nicaragua

Jorge Samper Zelaya, Nicaragua.

MENTOR

Michael Green (USA)

COMPANY WEBSITE &

<http://www.brightnewideas.org>

PRODUCT INTRODUCTION

Tega Lamp – A light for families

A Tega Lamp, is an “All in one” integrated solar powered flashlight with high quality, environmental and a very low cost effective product. Its design is basically a demanded solution from more than 150 rural communities of Jinotega city in Nicaragua.

Key-Features:

A two modes operational flashlight. 8 hours of use with the low brightness mode and 5 hours with high brightness mode.

Features White Lumileds Luxeon K2 LED (Light Emitting Diode), 1.6 Normalized Luminous Flux, Highest lumens per mm².

Forward Voltage= 3.6 volts and Forward Current=0.7 amps. 96% Electrical efficiency.

Operated by 3 AAA NiHM batteries (for environmental friendliness) and solar charging during the day time. No need to electrical access.

Money saving and non pollutant product. Helps people avoid the use of kerosene.

Tega Lamp is a Multi-task solar lantern, especially for emergency situations, walking flashlight, house duties, learning (reading and writing) tool and dentistry instrument especially for medical missions in villages.

Tega Lamp dimensions: 7.6 cm x 10.5 cm x 5.4 cm.

Standard and Variable / Categories:

The use of new cool white Phillips LUXEON K2 Light Emitting Diode (LED) and LUXEON K2 with TFFC, which is the only LED designed, binned and tested for standard operation at 1000 mA and capable of being driven at 1500 mA. Thin Film Flip Chip (TFFC) technology contributes to overall light output improvement, excellent optical performance and improved thermal capability. Deliver more usable light and optimize applications to reduce size and cost.

Indeed, Lumiled K2 is lead-free and RoHS compliant.

Our Guidelines for rural electrification comes from the Energy Sector Management Assistance Program of the World Bank (ESMAP).

Resources / Composition:

In the following lamp design, we decided to use a PIC microchip in a combination with a MOSFET to implement PWM (pulse width modulation). 4% of the power is estimated to go to the PIC and estimating an electrical efficiency of 96%. The microchip then is programmed using a PIC Kit 2 which can be plugged into any computer or laptop.

We selected the batteries to be three of 1.8 volts each connected in series, creating a voltage of 3.6 volts. The batteries are NiHM for better environmental friendliness and long last recharging.

After the wires have been soldered in the circuit board and the K2 LED has been put in the front of the ABS box, we create an independent plug space to connect the Jack which comes from the solar panel. This panel is only used to recharge the batteries during the day time. It is mobile and it can be located at any place with enough sunlight.

Tega Lamp, has been designed for the need of villagers from Nicaragua who lack electricity and lighting systems. The amount of sunlight (5.5 hours x day) in Nicaragua enables the introduction of Solar Energy as a widely used technology which is environmental, efficient and long lasting. A second technology named Solid State Lighting is used to achieve low power consumption with the K2 LED, making a system more efficient and inexpensive to users.

Prototype Assembling Phase, Images from Jinotega Nicaragua 2008.



Lamp testing, Images from communities of Jinotega, Nicaragua 2008.



PRICE: Prices are shown in United States Dollars (USD)

BNI Returns	P.U
Price	U\$ 12.00
COGS	U\$ 9.00
BNI Return (30%)	U\$ 3.00

Vendor Returns	P.U
Distributor Price	U\$ 16.00
Retail Price	U\$ 21.00
Distributor Return	U\$ 4.00
Retail Return	U\$ 5.00

INTERVIEW RECORDS

Transcript of Interviews

Name of the person: Karla Estrada

Community or contact information: Chaguite Grande, Jinotega.

Reason why this customer was chosen: Live away from grid-access and very big family.

Questions:

What do you think of this solar lantern?

- **Good Enough, good brightness!**
- Looks weird, I do not like its appearance
- Does not work well
- Poor light
- Other _____

How can we improve the lamp performance?

- Make a more esthetic design
- Increase brightness
- Enlarge size
- Reduce it to a smaller size
- **Other It is fine like that**

What would be the best application for you with this lamp?

- **As a Multi-Task house tool**
- **Learning tool (reading/writing)**
- Walking
- **Emergency situation**
- Other _____

What do you think about the price? U\$ 25.00

- It is fine, I can afford it
- **I can afford it but in a long time payment**
- It is expensive
- Price is not bad
- Other _____

How many lamps are you considering to buy?

- 1
- **1, maybe 2**
- 2
- More than 2
- None
- Other _____

What are the reasons and benefits of using this kind of technology?

- We are taking advantage of solar energy technology
- **We want to stop wasting money in kerosene**
- **It is safe for kids**
- It is environmental friendly
- Other _____

Name of the person: Esperanza Martínez

Community or contact information: La Hermita Sarawaska, Jinotega.

Reason why this customer was chosen: Leader of the community.

Questions:

What do you think of this solar lantern?

- **Good Enough, good brightness!**
- Looks weird, I do not like its appearance
- Does not work well
- Poor light
- Other _____

How can we improve the lamp performance?

- Make a more esthetic design
- Increase brightness
- **Enlarge size**
- Reduce it to a smaller size
- Other _____

What would be the best application for you with this lamp?

- **As a Multi-Task house tool**
- **Learning tool (reading/writing)**
- Walking
- **Emergency situation**
- Other _____

What do you think about the price? U\$ 25.00

- It is fine, I can afford it
- I can afford it but in a long time payment

- *It is expensive*
- **Price is not bad**
- *Other*_____

How many lamps are you considering to buy?

- *1*
- *1, maybe 2*
- **2**
- *More than 2*
- *None*
- *Other*_____

What are the reasons and benefits of using this kind of technology?

- **We are taking advantage of solar energy technology**
- *We want to stop wasting money in kerosene*
- *It is safe for kids*
- *It is environmental friendly*
- **Other: It is cheaper than a solar system**

Name of the person:. *Josefa Hernández*

Community or contact information: *El Sardinal, Jinotega.*

Reason why this customer was chosen: *Community Leader.*

Questions:

What do you think of this solar lantern?

- **Good Enough, good brightness!**
- *Looks weird, I do not like its appearance*
- *Does not work well*
- *Poor light*

- Other _____

How can we improve the lamp performance?

- Make a more esthetic design
- Increase brightness
- **Enlarge size**
- Reduce it to a smaller size
- **Other a broader light**

What would be the best application for you with this lamp?

- **As a Multi-Task house tool**
- Learning tool (reading/writing)
- Walking
- **Emergency situation**
- Other _____

What do you think about the price? U\$ 25.00

- It is fine, I can afford it
- **I can afford it but in a long time payment**
- It is expensive
- Price is not bad
- Other _____

How many lamps are you considering to buy?

- 1
- **1, maybe 2**
- 2
- More than 2
- None
- Other _____

What are the reasons and benefits of using this kind of technology?

- We are taking advantage of solar energy technology
- **We want to stop wasting money in kerosene**
- It is safer for kids and good
- It is environmental friendly
- Other _____

Name of the person: Victorino Centeno

Community or contact information: Jinotega, Jinotega.

Reason why this customer was chosen: Executive Director of AVODEC (Communitarian Cooperative)

What do you think of this solar lantern?

- **Good Enough, good brightness!**
- **Looks weird, I do not like its appearance**
- Does not work well
- Poor light
- Other _____

How can we improve the lamp performance?

- **Make a more esthetic design**
- Increase brightness
- Enlarge size
- Reduce it to a smaller size
- **Other Design a handler, easy to carry**

What would be the best application for you with this lamp?

- **As a Multi-Task house tool**
- **Learning tool (reading/writing)**

- **Walking**

- **Emergency situation**

- Other _____

What do you think about the price? U\$ 25.00

- **It is fine, I can afford it**

- I can afford it but in a long time payment

- It is expensive

- Price is not bad

- Other _____

How many lamps are you considering to buy?

- 1

- 1, maybe 2

- **2**

- More than 2

- None

- Other _____

What are the reasons and benefits of using this kind of technology?

- **We are taking advantage of solar energy technology**

- **We want to stop wasting money in kerosene**

- It is safer for kids and good

- It is environmental friendly

- Other _____

Name of the person:. Luis Marengo

Community or contact information: La Perla, Jinotega.

Reason why this customer was chosen: Live away from grid-access. He is the representative of the community.

Questions:

What do you think of this solar lantern?

- Good Enough, good brightness!
- Looks weird, I do not like its appearance
- Does not work well
- **Poor light**
- Other _____

How can we improve the lamp performance?

- Make a more esthetic design
- **Increase brightness**
- **Enlarge size**
- Reduce it to a smaller size
- Other _____

What would be the best application for you with this lamp?

- As a Multi-Task house tool
- Learning tool (reading/writing)
- **Walking**
- **Emergency situation**
- Other _____

What do you think about the price? U\$ 25.00

- It is fine, I can afford it
- I can afford it but in a long time payment
- It is expensive
- **Price is not bad**

- Other _____

How many lamps are you considering to buy?

- 1
- **1, maybe 2**
- 2
- More than 2
- None
- Other _____

What are the reasons and benefits of using this kind of technology?

- **We are taking advantage of solar energy technology**
- **We want to stop wasting money in kerosene**
- *It is safer for kids and good*
- *It is environmental friendly*
- Other _____

Opinion Poll, Images from communities of Jinotega, Nicaragua 2008.



Karla Estrada,
Josefa Hernández,
Esperanza Martínez,
Victorino Centeno
and Luis Marengo,
giving their opinion
and perspective from
different
communities.



MARKET STUDY REPORT

Market Wants & Needs

We first identified the need for increased access to light by investigating the countryside of Jinotega, Nicaragua as well as urban and peri-urban areas of Nicaragua which have limited or no access to electricity through interviews and first-hand visits to communities. We segmented our market into three core parts – which include rural agricultural families with no access to electricity; peri-urban or rural commercial “middle class” and an urban wealthier service class. The product created to fulfill the want of light was our solar powered lamp, which is an essentially scaled down, more affordable version of a solar home system.

Strategic Marketing

Overall, the key strategy to beat out competitors is to provide a low cost quality lamp with useful light and full customer support system including repairs and returns. Low cost will make the light accessible to greater numbers of people than current solutions, and customer support will increase brand loyalty in a market which in the future will likely be filled with cheap non-functioning LED products. Low-cost systems which would be affordable to the lower 50% of the population still do not exist in Nicaragua due to import restrictions on consumer goods. We have found out how to avoid these restrictions by importing the lamp sub-assemblies and assembling them in Nicaragua, which allows us to offer the lamp at the lowest price per light output over all other LED-lamps being offered around the world. Indeed, many solar products and systems are offered around the globe but one of the increasing concerns is of their low quality and that no warranty exists for the poor in the case of product failure.

Since Nicaragua does not offer any consumer protection for people in rural areas, our strategy is to offer greater service, warranty, education, support and repairs with lower emphasis on styling, packaging and advertising. We will beat out competition in the long run by creating a service-oriented brand that lowers client risk profiles and protects them from potentially damaging purchasing decisions.

Operational Marketing

Suggested flat retail price of the lamp is 25 USD, but we will also offer three month financing at 30 USD with a 5 USD discount if paid before the three months is completed. With these offerings we expect to be able to cover 75% of the “Noel” market segmentation – meaning people who have no access to electricity. Distribution to reach these people will be through AVODEC, which has over 150 community delegates which come to the main office in Jinotega on a regular basis. Community leaders from around Jinotega already make monthly and/or weekly visits to the AVODEC office in Jinotega city. The lamps will be sold here and brought back to the communities by delegates to avoid transportation fees. Advertising and push marketing tactics will be de-emphasized other than selling the lamps as a solution for increased access to education and to improve health and safety and prevent burns and smoke inhalation.

PROTOTYPE TEST REPORT

Overall Product Report

Our product brand name is “Tega-Lamp” which reflects the recognizable term “Tega” with the English “Lamp” to symbolize the local focus of the product as well as the influence from the United States partner. The Tega-Lamp has been tested and found fully functional to operate at night using a microprocessor circuit after recharging batteries during the day with a solar panel. It has two modes of operation which can be easily changed by a pushbutton. “Super-bright” mode operates for 5 hours during the night at 15% of the charge level of a 60 watt bulb, while “All-night” mode works on a low level setting for 8 hours. It uses the Philips Lumileds K2, which is one of the highest quality LEDs in the world and will maintain brightness for around 20 years. The Tega-Lamp is small and easy to carry, which also makes it easy to support in the case of default.

Prototype Packaging and Warranty Setup

Packaging has been sourced in Nicaragua and comes with operation instructions as well as warranty certificate which will cover technical problems and returns up to one year. Support will be provided by our Jinotega team as needed, and local materials are used in the construction of the lamp for ease of repair supply. We will also keep an inventory of extra batteries as accessories to be purchased when the old batteries wear out.

Inventory is managed at the AVODEC office and we will target 1000 lamps along with associated equipment and support for 2009.