

Parasol: Expanding Ductile Solar Innovation

Guyana

Angelica Ramdhari

Budget:

< \$1,000

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Project Summary

Elevator Pitch

Concise Summary: Help us pitch this solution! Provide an explanation within 3-4 short sentences.

My goal is to leverage the Earth's most abundant renewable energy source, the sun, to make developing communities less reliant on the traditional grid system as a source of electricity, while allowing for undeveloped communities to have access to a clean source of power. A parasol is traditionally an umbrella, and its primary purpose is to act as a sunshade. A parasol also has a key design component that would make it a viable candidate to be a mechanism to capture solar energy. I aim to create functional, reliable, and clean energy systems by integrating thin film into commonplace products, like the parasol, to make energy more accessible for everyone and lessen the impact of development on the environment.

About Project

Problem: What problem is this project trying to address?

Guyana is considering a developing nation, but a nation rich in natural resources and potential to develop. There has been a history of exploitation, so development in the future must take a more sustainable course to prevent future degradation of the environment. It is primarily an agrarian society, with rice being one of its chief exports. There is one power plant that supplies the entire country with power, which makes power inaccessible to be parts of the country where the grid does not reach. The power plant is powered by fuel, which is currently driving the costs of electricity up and making power less affordable for the Guyanese consumers. The power is also not reliable, and there are often power outages. The Guyanese community is very diverse, with the ancestry of the population contrived of East Indians, Ameri-Indians, and Africans, and this has led to a meshing of cultures, but with views that reflect their country of origin on the other side of the world. Few women hold jobs or continue their education, remaining as domestics with very large families in agrarian communities. Most families are subsistence farmers, and can barely make ends meet to provide for their extended network. The only developed part of country is concentrated near the country's capitol, Georgetown, but there is also a very large amount of the population in remote regions of the country. These people live in far greater poverty than their more urban counterparts, and are afflicted by disease and have low literacy rates.

Solution: What is the proposed solution? Please be specific!

Thin film photovoltaic (PV) cells are an unexploited mechanism for capturing solar energy. Parasol develops this technology through innovative design, low-cost production, and accessibility to BOP consumers. Design/Form: Thin film in its most basic form is a flexible sheet of PV cells. This sheet can be applied to fit a traditional panel to be mounted on a roof, or can be molded to the shape of things like a parasol. Crystalline PV is only functional in panel form, whereas the ample space for manipulation of thin film allows it to be a more operational direct energy system. Production: Thin film PV is produced in a way that is similar to offset printing, and uses minerals that are easily accessible to create the cells, and it can be mass produced with little effort. Traditional crystalline PV is made with silicon, a very expensive element, through an extensive process that has a high failure rate, through a very difficult production process. Cost: Low manufacturing costs make thin film the most affordable form of solar power. The costs of the thin film will vary with the product it is applied to, remaining affordable for developing consumers. This is a new contribution in that it redefines how solar energy can be harnessed, and makes it a very viable clean energy solution for those who already have low-energy need. It decreases dependence on cheap fuel, making clean energy a competitor for power production.

Impact: How does it Work

Example: Walk us through a specific example(s) of how this solution makes a difference; include its primary activities.

The primary objective of my project is to create a clean energy system in Guyana that is equitable and practical. Therefore, the initial activity of my project will be to create the infrastructure necessary to vertically produce and integrate thin film solar products in Guyana. The infrastructure will create a new workforce in Guyana, generating jobs in manufacturing, design, innovation, installation, maintenance, and education. Products will be created that will be functional to the consumer, and at a price point where there is no inequitable disparity in how the products are distributed. Research will be a very large part of this project, especially in developing the technology in an application that will be beneficial while maintaining a vertical production line. All activities will revolve around developing and adopting a clean energy system.

About You

About You

First Name

Angelica

Last Name

Ramdhari

Twitter<http://www.twitter.com/jeliy>**Facebook Profile**<http://www.facebook.com/angelica.ramdhari>**About Your Organization****Organization Name****Organization Country****Country where this project is creating social impact**

, DM

How long has your organization been operating?

Less than a year

Is the project that you are entering related to this organization?

Yes

The information you provide here will be used to fill in any parts of your profile that have been left blank, such as interests, organization information, and website. No contact information will be made public. Please uncheck here if you do not want this to happen..

Innovation**What stage is your project in?**

Idea phase

Share the story of the founder and what inspired the founder to start this project

Angelica is the first-generation of her family to be born in the United States, her parents both being from Guyana. Growing up, her parents would ship barrels of clothing and non-perishable food to her family there, them having to support a family of four, her brother in Guyana supporting a family of 9. The blatant disparity in Angelica's life and that of her cousins abroad led to an insatiable curiosity on how to alleviate the poverty that prevails through her country of ancestry, but there was nothing she could do growing up, besides shipping the gigantic barrels of provisions and US currency. While studying at the University of Florida, Angelica often wrote papers under the canopy umbrella at Starbucks, never being able to work for more than an hour or two because the battery on her laptop would die and there would be no immediate power source. Since then, she has been fascinated by the prospect of converting practical things, such as a canopy umbrella, into a source of a small amount of energy through renewable energy. Hence, the Parasol idea was born. Angelica was inspired to start this project in Guyana to give back to the community where her parents are from, where the main differential between them is the horrible economic conditions. Combing her passion of the environment and social justice, Angelica hopes Parasol will bring create a new standard of living through sustainable energy systems.

Social Impact**Please describe how your project has been successful and how that success is measured**

This project has not been implemented yet, therefore success cannot be measured. However, success will be measured through a few environmental and social factors. Accounting for the reduction of carbon emissions due to the decrease of fuel power will be one measure of success, in lessening the effects of climate change. The amount of people who elect to use the technology will also be a measure of success, especially in noting if there is a distinct movement toward a clean energy future. Education revolving around a new technology will also be a measure of success, increasing one's skill set. Success will also be measured economically, as in how many more people are able to live out of poverty through the development of workforce in clean technology.

How many people have been impacted by your project?**How many people could be impacted by your project in the next three years?**

More than 10,000

How will your project evolve over the next three years?

This project will start by educating and training the populations in the more developed parts of the country in thin film technology. There will be an organic growth and expansion to other parts of the country through research and development, making applications specific to geographic communities. This project will create an inherent demand for the new technology, and therefore create a need for more education around it. Eventually I would like to see the creation of net-zero communities, especially in the rural environments where they can still live sustainably, but provide their youth with a means to have live in poverty and a means to help develop their nation sustainably.

Sustainability**What barriers might hinder the success of your project and how do you plan to overcome them?**

The main barrier that may hinder the success of the project is developing and implementing the thin film PV technology. This is the main component

of the project, and it will be overcome through thorough research and development within the country. Another barrier would be getting the population to use the thin film products. This barrier will be overcome by showing how their initial investment in the clean technology will increase their disposable income by decreasing how much money they need to pay for electricity, and by delivering a functional product that they would want to use.

Tell us about your partnerships

There are no current partnerships.

Explain your selections

This project is in the idea phase, and therefore is not supported by anyone who has not heard the idea. In the future, I hope to work with the national government in creating something that is not only beneficial to the people of its country, but something that they would want to help create incentives for to help finance it, following a similar model that of utilities in the States.

This project will also be supported by the customers who use the thin film technology.

How do you plan to strengthen your project in the next three years?

I plan to strengthen my project over the next three years by connecting the people of Guyana with the means to further develop this renewable technology. I want to provide the initial volition to get the movement started, but to stimulate the community to work for a cleaner mean to energy and to jobs. Developing a training/education system revolving around solar energy will be essential and integral component of Parasol, and will work to develop the technology and the workforce further. Economies of scale will improve as the technology is introduced to more of the population.

Challenges

**Which barriers to employment does your innovation address?
Please select up to three in order of relevancy to your project.**

PRIMARY

Lack of skills/training

SECONDARY

Restricted access to new markets

TERTIARY

Restrictive cultural norms

Please describe how your innovation specifically tackles the barriers listed above.

Primary: Parasol will educate the local population on thin film technology, engaging them in all steps of the process so they are the ones controlling and producing their clean energy.

Secondary: This technology is nonexistent in Guyana and most developing countries. They will have access to the one of the latest and cleanest technologies.

Tertiary: Guyana is an agrarian and patriarchal society, where most women are domestic and most income is generated from farms. This project will provide the means to move toward a more equitable opportunity for both men and women to work in an industry.

**Are you trying to scale your organization or initiative?
If yes, please check up to three potential pathways in order of relevancy to you.**

PRIMARY

SECONDARY

Grown geographic reach: Multi-country

TERTIARY

Leveraged technology

Please describe which of your growth activities are current or planned for the immediate future.

Parasol will begin in the more developed region of the country to reduce reliance on the fuel driven grid. Once that is accomplished, the same products can be delivered to the remote areas of the country that use diesel generators or have no power at all. Similar initiatives can then be expanded to other parts of the Caribbean with high solar irradiation. Parasol will innovate and develop the thin film technology to be the practical third-world clean energy application.

Do you collaborate with any of the following: (Check all that apply)

If yes, how have these collaborations helped your innovation to succeed?

There is no current collaboration, but partnerships with the government in providing feasible incentives for residents and academia/universities in developing clean technology will be essential in the future.