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I- BACKGROUND

SGFE produce and sell locally environmental friendly char-
briquettes to offer a sustainable alternative to the traditional
unsustainable charcoal in Cambodia.

The mission of SGFE is to fight deforestation and poverty in Cambodia by providing all
Cambodian people with sustainable access to green fuel through an empowerment oriented
approach that leverages both market and philanthropic forces.
A QUICK OVERVIEW OF CAMBODIA

- Cambodia is facing both, a problem of **massive deforestation** and a **high poverty rate** (categorized as one of the poorest countries in the world and as one of the highest rates of deforestation in the world, third to only Nigeria and Vietnam (2005 FAO UN)).

The future sustainability of Cambodia's forest reserves is under severe threat.

<table>
<thead>
<tr>
<th>GDP real growth rate 2010</th>
<th>6%</th>
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<tbody>
<tr>
<td>GDP per capita 2010</td>
<td>2000</td>
</tr>
<tr>
<td>HDI ranking 2010</td>
<td>0.494</td>
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<tr>
<td>Population below the poverty line 2007</td>
<td>30.1%</td>
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</tbody>
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Cambodia's primary rainforest cover fell dramatically from over 70% in 1970 at the end of the Vietnam War to just 3.1% in 2007.

Deforestation is accelerating at an alarming rate, with overall rate of total forest loss at nearly 75% since the end of the 1990s.
SUSTAINABLE GREEN FUEL ENTERPRISE

Sustainable Green Fuel Enterprise (SGFE) was created in 2008 with the aim of alleviating poverty and reducing deforestation in Cambodia, as well as improving waste management in urban areas, by developing a local economic activity: manufacturing charcoal using organic waste.

SGFE charbriquettes factory started in 2008

Now: 1 director
1 production manager
13 workers

81,867 tons of eco-charcoal produced in 2011
NEED FOR AN ALTERNATIVE TO THE TRADITIONAL CHARCOAL

**Domestic resource is biomass**
- Cambodia’s main domestic energy resource is **biomass**, essentially wood and charcoal, intensively used for domestic cooking.
- Only in Phnom Penh, the population consumes annually over 100,000 metric tons of charcoal **deriving from deforestation**

**Informal poor economy**
- In Cambodia there is **no official “legal” charcoal** production and the entire charcoal sector is an informal poor economy, where the raw material is **cut illegally** and then transformed into charcoal with archaic, hazardous techniques and then transported to the main cities.

**Recycled biomass Fair job**
- SGFE’s char-briquettes are **100% recycled biomass**, produced from coconut shells and char-residues, collected from factories, which use wood to produce energy and heat.
- SGFE offer at the same time **socially fair and secure jobs** to the poor people.
SUSTAINABLE GREEN FUEL ENTERPRISE
MAIN OBJECTIVES

I- Environmental impact
• SGFE’s activities contribute to reducing pressure on natural forests in Cambodia and CO2 emissions
• SGFE contributes also to improved waste management in urban areas.

II- Social impact
Improving living condition of the poorest by offering fair and secure jobs

III- Quality product
• Combining modern processing techniques with innovative technology
I- ENVIRONMENTAL IMPACT

1kg of SGFE charbriquettes can replace 1.1kg of traditional wood charcoal, which results in saving up to 6.6kg of wood from forests.

Green House Gases emissions are reduced at each and every step of the process:

- **Collection of the raw**
  - all the biomass that is used comes from organic matter reducing the amount of methane emissions resulting from biomass decomposition in open landfills.

- **Along the production**
  - our energy efficient carbonization technology which burns the organic matter completely and reuses the heat generated.

- **When using the final**
  - the low volatile matter content limits emissions of harmful smoke and greenhouse gases.
II- Social Impact

- SGFE’s first concern is to implement a viable economic activity in order to improve the living conditions of some of the extremely poor families.

SGFE offer **socially fair and secure jobs** to the poor people living in the area of Steung Meanchey, one of the poorest districts of Phnom Penh, where the recent closure (2010) of the municipal dump site, left the already extremely poor community (waste pickers) in the area, without a source of subsistence.

- All SGFE’s worker are now able to send their children to school.
III- Quality Product and Advantages

- SGFE’s char-briquettes are sold at about the same price as the traditional charcoal (0.25-0.30 USD/kg)

Same price BUT

- Longer burning duration (higher fixed carbon content)
- No smoke (which cause respiratory diseases in indoor cooking).
- Small cut and easy to use
- No spark (which can cause domestic fires)
SGFE is the result of a project implemented by two NGO

which have invested partly own funds and mainly funding from the French Government from an international development and cooperation program.

PSE (Pour un Sourire d’Enfant)
Social partner

PSE is a community-based NGO which proposes a wide range of support programs to the poorest communities in the suburbs of Phnom Penh, including schooling and vocational training for children, food, healthcare, and social rehabilitation through work for teenagers and adults.

GERES (Group for Environment, Renewable Energy and Solidarity)
Technical partner

GERES is an independent, nonprofit organization that has been promoting sustainable development for over 32 years worldwide.

GERES Cambodia has worked to enhance the sustainability of ongoing renewable energy services, with the fundamental aim of preserving the environment and improving the living conditions of the Cambodian people.

SGFE and PSE work together to provide jobs at socially fair conditions and life skills training to the employees.

GERES developed the char-briquettes’ product to be eco-friendly.
SGFE SUSTAINABLE ENERGY SOLUTION

The project started in early 2008 and the factory was opened in December 2009. GERES has then continued running and subsidizing the business for the entire years of 2010 and 2011.

Currently SGFE specializes in 2 types of product:
✓ Diamond Charbriquette
✓ Premium Charbriquette

(Both comply with EU NF 1860-2, the international standard for charcoal briquettes).
Carlo Figà Talamanca, has been employed by GERES as consultant in July 2010, one year later he has been asked to manage the business to lead it to sustainability.

Few month later, SGFE had noticeably improved, increasing sales of 300% and at the same time decreasing its operation costs. However, it still wasn’t fully financially sustainable and since GERES ran out of budget dedicated to the charcoal briquette project, it found itself forced to close the business. At that point Carlo Figà Talamanca decided to take over the business personally.

Carlo has a master’s degree in industrial engineering and in the past he has worked mainly in the consulting business (in Europe/Italy and the United States/Boston).

He works with Chom Vichet, the Production Manager, who manages the daily operation, supervises production, HR (supervising and training), raw material supply (stock management/quality control) and accounting.
WHO BENEFIT FROM OUR ACTIVITIES?

13 Employees

- 8 men/5 women with Health insurance
- Fair salaries (35% above minimum wages in Cambodia) with 13 months of salary
- Public holidays and Annual leave
WHO BENEFIT FROM OUR ACTIVITIES? (BIS)

4 raw material suppliers

Independent actors which collect coconut shells in the city’s markets and/or collect charresidues from the factories (waste for the factories)

Sell the collect to SGFE at a set price, negotiated according to quality and quantity

30 shops/retailers selling SGFE’s products

Independent shops selling a variety of products

Some of these shops were also selling traditional charcoal before and now decided to substitute it with SGFE’s char-briquettes.

10 regular restaurants/businesses

Bakeries, Saunas...

Use regularly our charcoal

We reach about 150 end consumers (families)

A typical Cambodian family uses from 30-60 kg of charcoal per month

Some of these shops were also selling traditional charcoal before and now decided to substitute it with SGFE’s char-briquettes.
SGFE didn’t just create a few new jobs for poor people, but has created a new economy in Phnom Penh, generating profits and benefits for the factory workers, SGFE’s suppliers and SGFE’s distributors and customers.

Businesses as restaurants and retailer shops use and sell a new better product, and finally end consumer switched from the use of illegal charcoal to a better quality, saver, healthier, cleaner and environmental friendly fuel.
As we can see, SGFE has an impact at 360 degrees. SGFE alleviates deforestation in Cambodia’s forests, offering an alternative fuel to traditional charcoal, where all raw material are recycled and no additional tree needs to be cut.

Today, with its monthly sales exceeding 10 tons, SGFE reduces CO2 emissions for over 1,500 tons per year, and this figure is destined to grow together with SGFE’s business expansion.
CONCLUSION

- SGFE can also say that it casts its impact into the future. Not only the preservation of Cambodia’s natural resources will benefit the country in the future, but since all our factory workers are able now to send their children to school, the new generation can look forward to a brighter future, full of opportunities and they will be able to actively contribute to the country’s critical development.
● Link to see the German reportage focuses in Environmental impact:
  http://www.youtube.com/watch?v=JMb1-0s3R3g

● Link to see the French reportage focu in Social impact:
  https://vimeo.com/gustproject/videos