SunOK was founded at the end of 2008 in order to provide decentralized energy solutions, specialized on designing, manufacturing and selling box type solar cookers.

SunOK offers high quality, attractive, efficient and user-friendly solar cookers, and its goal is to improve every product, to respond to general needs, making solar cookers useful, economic and more sustainable.

http://www.sunok.eu/

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- LCC: Manuel Collares Pereira and Afonso Cavaco – IPES; Cristina Rocha, Jorge Alexandre and David Camocho – LNEG
- Company: Nuno Oliveira Martins – SunOK

- Internally: product improvement to meet customers’ demands, developing more sustainable products and reducing developing and production costs.
- Externally: finding new market opportunities, using the LC approach as a differentiating factor.

- Life cycle assessment (qualitative)
- Design for Sustainability (DFS)

The objective of this project was the application of a Design for Sustainability (DFS) Methodology, using tools developed by LNEG for the product design in a functional, aesthetic and more sustainable way, in order to achieve:

- Performance improvement
- Recyclability
- Ease of use

Application the SInnDesign Checklists developed by LNEG to analyze the sustainability profile of the product and to identify and implement improvement options.
Case Study: DESIGN FOR SUSTAINABILITY PROJECT OF A SOLAR COOKER
by SunOK

Description of the Project

This project consisted on the application of a Design for Sustainability Methodology, using SInnDesign Checklists developed by LNEG (www.sinndesignproject.eu) to analyze the sustainability profile of the product and to identify improvement options. The new product shows an increasing in the sustainability performance, mainly due to the new design, production process and the new material adopted. Phases:

• Application of the DfS Checklists for a qualitative evaluation of the life cycle of the product, according to DfS principles;
• Finding strong and weak points, from environmental, social and economic points of view;
• Brainstorming to came up with new ideas to improve the product;
• Sustainability evaluation of the design measures (economic, social and environmental);
• Comparative evaluation of the energetic performance between the current product and the prototype.

Implementation challenges / lessons learnt

• More sustainable solutions for the product, with a life cycle perspective;
• Comparison between the current product and the prototype (the prototype presented a better performance in solar energy capture, it seems fair to assume a better global efficiency);
• Identification of new short-term and mid-term solutions for the sun cooker studied;
• Validation of the new solutions implemented in the new prototype.

Expected Impact

Environmental Impact

The new product shows an increase in the sustainability performance due mainly, to the new design and the new material adopted. The polymers of the structure and the insulation material which represents some risks for the workers in the production and in the end-of-life of the product were replaced by cork, a renewable material produced and transformed in Portugal.

Economic Impact

The most remarkable fact is the total tooling parts costs difference, with a 97.5% of costs decreasing.

Social Impact

SunOK is highly committed with social demands, therefore kept a social standpoint during the whole project:
- Elimination of toxic raw material; less hazard substances, both in workplace and in the value chain actors.
- The new product is more inclusive since it is easier to operate with, and lighter.
- A new job was created for a long-term unemployed person.

Results of the project

There are prejudgments and lack of awareness about studies and projects related with LC Approaches, therefore, available information could make a difference.
The role of the LNEG in this case, giving assistance, training, etc., was very important to overcome the difficulties.
The involvement of several stakeholders in the brainstorming (producer, solar energy specialists, product developers and sustainability experts) proved very fruitful in the creative process with a pragmatic stand.

Principle@: Develop new concepts
Principle 1: Improve the sustainability performance of input materials
Principle 2: Reduce the use of materials
Principle 3: Improve the sustainability performance of production
Principle 4: Improve the sustainability performance of packaging and logistics
Principle 5: Improve the sustainability performance in the use phase
Principle 6: Increase product durability
Principle 7: Optimize the end-of-life system
Case Study: DESIGN FOR SUSTAINABILITY PROJECT OF A SOLAR COOKER by SunOK

Description of maturity in LC approaches before the project:
- Fair knowledge about LC approaches;
- Lack of awareness of ecodesign and sustainability tools;
- No systematized integration of environmental issues in the development process.

Description of maturity in LC approaches after the project:
- Increased knowledge about LC approaches;
- LC approaches integrated in the environmental management strategy of the company;
- Application of DfS methodology;
- Systematization of the development process.

Maturity and Strategy

Before pilot project:
- LC Approaches (strategic level)
- Ecodesign
- Assessment
- Capability
- External Communication

After pilot project:
- LC Approaches (strategic level)
- Ecodesign
- Assessment
- Capability
- External Communication

Long term objective:
- LC Approaches (strategic level)
- Ecodesign
- Assessment
- Capability
- External Communication
Case Study: DESIGN FOR SUSTAINABILITY PROJECT OF A SOLAR COOKER 
by SunOK

The economic measures and ideas that made this project possible are based on:
- Reduction of the investment (costs) in the development and launching of the new product;
- A huge decreasing in total tooling parts costs, this is, a significant decrease in the return of investments estimated short term return of the investment;
- Fewer production volumes will reduce the inputs, and will increase the levels of customization;
- The increase of the turn over due to the enhanced appeal of the product;
- A plan to make future partnerships with micro-credit institutions, reaching new customers.

Evaluation of the project

This project allowed SunOK to improve the systematization of the conceptualization of new products, and gave to SunOK new tools that became a big help in making comprehensive evaluations of all the relevant parameters.

LCiP project helped SunOK to be more aware of certain aspects of the users’ experience, towards which SunOK didn’t have a particular sensitivity before the project.

Overall, the company got the maximum use of the methodologies learnt. SunOK’s new product, developed simultaneously with this project, includes interesting points derived from the project’s meetings.

As SunOK customers are environmentally aware, the long-term plan is to continue improving the products for them with DfS and life cycle communication. The main plans for SunOK to develop in the near future are:

- LCA of Suncook and the prototipe +
- Improvements in knowledge and human competences;
- Spreading the projects conclusions;
- To develop a new product affordable for markets in developing countries;

Links and contacts for further information

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Webpage of the project http://www.lifelcip.eu/

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