Solar energy and sustainable community-based development

Sustainable community-based development is important in the rural areas of sub-Saharan Africa, India, Asia and vast areas of South America. Where there is solar energy, there is the capacity to apply solar applications to create entrepreneurial opportunities for local communities. Solar energy is also used to reduce the dependence on expensive and environmentally damaging fossil fuels, such as oil and gas. In communities that rely on collecting wood, time and money are saved when they start using solar energy to heat water for bathing and cooking.

Clean energy solar stoves have been used for roasting peanuts (Namibia), baking bread (Gambia) and drying tomatoes (Afghanistan). In Mexico, dried products are traded under the brand name 'La sazon del sol', which translated from Spanish means 'The delicious taste of the sun'.[1]

In an attempt to address the challenges associated with gender issues and gender inequality, solar community-based development programmes are often directed at rural women. These women have limited resources and these projects attempt to address the imbalances in gender issues through skills development and adult education.

Solar bread ovens in Burkina Faso (Source: www.seedinit.org)

The 'Hybrid Solar Bread Oven', developed by a clean-tech company called ISOMET, received the 2011 SEED Award (Energy Category).[2] The solar oven uses the solar energy gathered from a 16-m² Sheffler solar dish to bake up to 1 000 French loaves per day. Furthermore, each oven provides work for three people and daily saves up to 40 kg of wood. On cloudy days, the oven can use gas to ensure that customers are guaranteed a daily fresh supply of bread. The Solar Food Network[3] (an international NGO) and the SNV Netherlands Development Cooperation provided financial and technical assistance for the project.

The video on solar food processing in Burkina Faso[4] provides valuable insight into how people's lives have changed through the application of small-scale solar energy production.

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[1] Michael Götz, www.cocinasolarmexico.com.mx

[2] The SEED Initiative is an organisation that partners with the United Nations Environment Programme (UNEP) and the United Nations Development Programme (UNDP). It recognises small-scale entrepreneurs who are working towards poverty reduction, greener economies and social inclusion. Follow the link www.seedinit.org for more information.

[3] Solar Food Processing Network, www.solarfood.org

[4] www.youtube.com/watch?v=AYueX1BZSr4

Questions

1. In which country is the solar bread oven being used?

2. How many loaves of bread can be baked in one oven per day?

3. If 40 kg of firewood per day is saved, calculate how many kg of firewood will be saved in one month.

4. Why is it necessary to have an oven that uses gas as well as solar energy?

5. In sustainable development, social, environmental and economic impacts are important for every project, including solar ovens.

   Briefly explain how solar bread ovens can have a positive impact on a community, especially for rural women. It is important to discuss social, environmental and economic impacts.

6. Why is it important for communities to collaborate with NGOs (non-governmental organisations), and what problems could arise in the future?

7. In the case study, peanut roasting and drying of vegetables are mentioned. Can you think of other ways to use solar energy to improve the standard of living in a rural community?

Memo

1. Burkina Faso

2. 1 000 loaves

3. 40 x 30 = 1 200 kg

4. On cloudy days, the baking of bread must continue.

5. **Social impact**

   - Creation of jobs
   - Skills development
   - Technical, entrepreneurial and management training
   - Purchasing power if an income is earned
   - Improvement of standards of living and quality of life
   - Reduction of gender inequalities
   - Improved health – as a direct result of income generation
   - Ability to send children to school

   Environmental impact

   - Clean, renewable energy
   - Reduced levels of carbon dioxide
   - Reduced deforestation – save 40 kg of wood per day per stove

   Economic impact

   - Linked to social impact
   - Local community development is supported
   - Various products can be baked or dried, thereby increasing revenue

6. This will lead to sustainable community-based development, which is a grassroots initiative. Collaboration with NGOs is necessary for skills development, training and financial support at the initial stages. If this practice is not followed, there is a danger of communities becoming dependent on aid; therefore, the project will not be sustainable.

7. Encourage the learner to ‘think out of the box’.

   A few ideas:
   - Water purification
   - Milk purification
   - Communal kitchens – communal cooking
   - Thinking of ways to support other renewable energy projects such as bio-digesters
   - Solar geysers
   - Solar panels for lights inside the house and in the community to improve security at night