ECOWAS Solar Thermal Energy Capacity Building and Demonstration Programme
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Experiences, challenges and barriers on solar thermal energy in Ghana

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Need for Solar Thermal in Ghana

- Energy very important to economic development
- Every economic activity is dependent on energy
- Demand for energy is increasing 8-10% every year)
- Constant power crisis in Ghana
- Additional 200MW of power needed yearly
- Less than 0.1% RE consumption presently

Solar thermal usage

- Water heating – mostly in hotels, restaurants and homes
- Drying of crops and raw materials for industries
- Process heating for industry eg. Fresh and Dry company
- Solar Distillation eg. fluoride-contaminated water: Bongo district of Ghana
- Cooking and Baking (prototype levels)
- Solar air conditioning unavailable except for passive cooling

Other institutions

- KNUST's Energy centre
  - ❖ Masters in Renewable Energy (2014)
- University of Energy and Natural Resources, Sunyani (2012)
- Environmental Protection Agency Training Centre
- Centre for Energy, Environment and Sustainable Development (NGO)

Experiences;
Background on Solar Thermal Energy

- Dept. of Energy Systems Engineering was established in 2008 with the HND level.
- BTech was started in 2013
- Train personnel in the exploitation of alternative energy sources and in the efficient utilization and conservation of available resources
- Areas include: All aspects of Solar Thermal, Solar PV, Wind, Hydro, Bioenergy (Biogas, Biofuels)

Activities

- Training on
  - ✓ Renewable Energy production and utilization for students.
  - ✓ solar installations for community agents.
- Supervise student Project work
- Research and production of components
  - ✓ Mixed-mode solar dryer
  - ✓ 100 litre water heater using local materials
  - ✓ Solar cooker – box cookers, parabolic cookers, bakers
  - ✓ Solar stills
- Industrial visits and attachment
- Seminars, Fairs , Exhibitions and Conferences

Information on Ghana

- No solar collector production companies
- Solar companies are mainly into importation and installation
- Components mainly from China
- Data on solar thermal is hard to come by at the ministry of energy or energy commission

Existing key barriers for solar thermal energy

- Lack of awareness of the key issues and benefits
- Initial cost of systems
- Implementation of the institutional and regulatory framework. (Lack of government commitment)
- Technical expertise unavailable

Expectations from ECOWAS Solar Thermal Program

- Collaboration with the various players to create awareness of the key issues and benefits
- Share and exchange ideas in whichever form
- Support in the area of equipment
- Technical support in terms of appraisals in new technologies, and materials
- Impress on the various government agencies and institutions in the area of solar thermal to implement their policies if they have one or else formulate one

Expectations to the Ministry of Energy

- Create the platform for private sector involvement and participation
- Put in mechanisms for easy implementation and achievements of the energy Act
- Communication linkages between the various players

➢ Expectations to the Ministries of Housing

✓ Collaborate with other ministries to encourage or even make it mandatory for new housing projects to incorporate solar thermal into their energy supply

Expectation to the Chamber of Architects

- They should ensure that solar thermal is incorporated either for domestic or commercial or industrial purposes
- Collaborate with all the ministries involved in the issues of energy to implement the energy laws

What is needed for the dissemination of solar thermal energy

- Awareness creation and education (seminars, media, school curriculla, fairs), capacity building
- Technology tranfer centres (make available information and easy access to technology)
- Subsidies and incentives for adoption
- Mandatory incoporations
- Local technical infrastructure development
- Institutional and regulatory framework that support the implementation of solar energy, financing mechanism and private sector involvement

Pictures

Mixed-mode solar dryer

Solar cooker

Concentrated solar water heater

Industrial applications at Fresh and Dry Co.

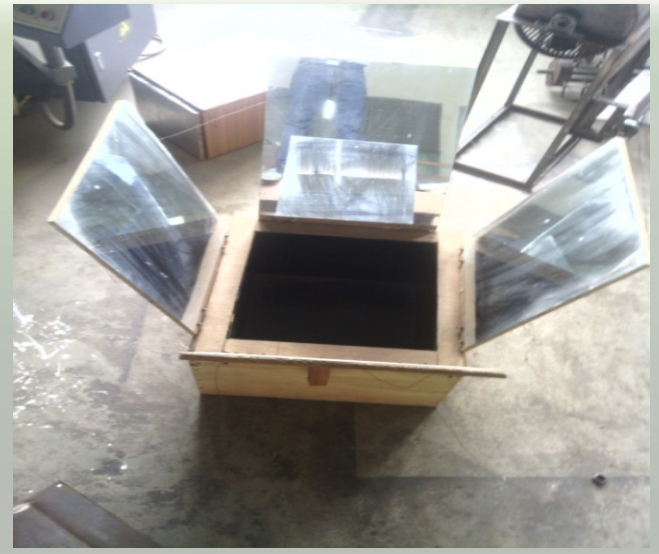
Field trip to Fresh & Dry Co.

Students tutorial session

Pictures

Solar water heater

Tutorial session for students



Solar box cooker

Thank you!