

Center for Solar Energy Research and Studies

(Current situation and future prospects)

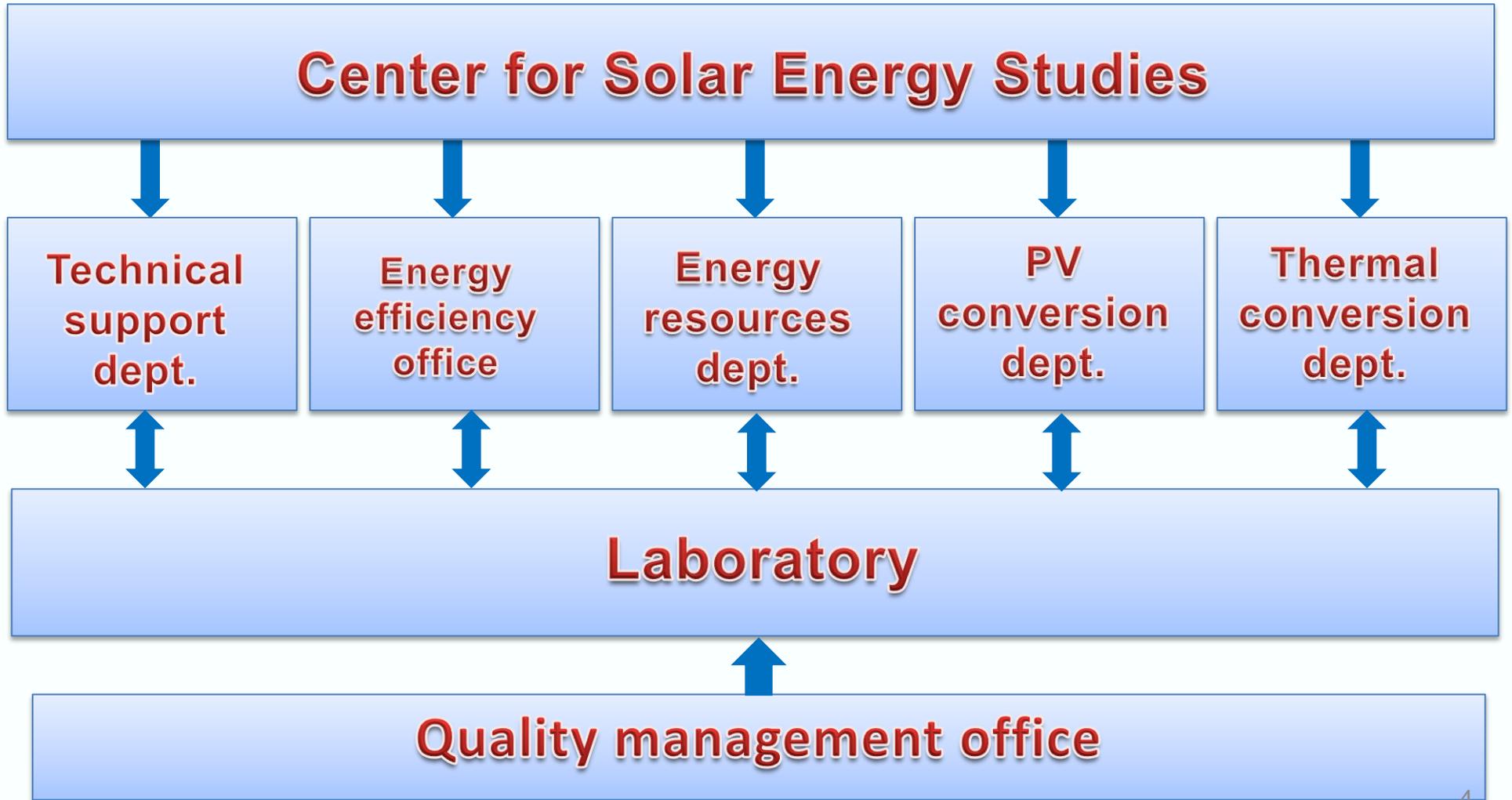
Contents

- About center**
- Center resources**
- Current activities**
- Planned activities**
- Future prospects**

Main Goals

- **Transfer RE research from abstract research to applications.**
- **Convoy the international scientific research march in the field of RE.**
- **Technology Transfer of RE aspects.**
- **Adaptation of RE technology systems for the local environment, and improve their performance.**
- **Develop and implement positive plans for the utilization of RE technologies in a wide scope.**
- **Participation in establishing industrial base for local manufacturing of RE systems.**
- **Building qualified technical personnel in the field of RE.**
- **Offer technical consultancy in the field of RE systems utilization.**

Organizational Structure



Center Resources

About center

Center resources

Current activities

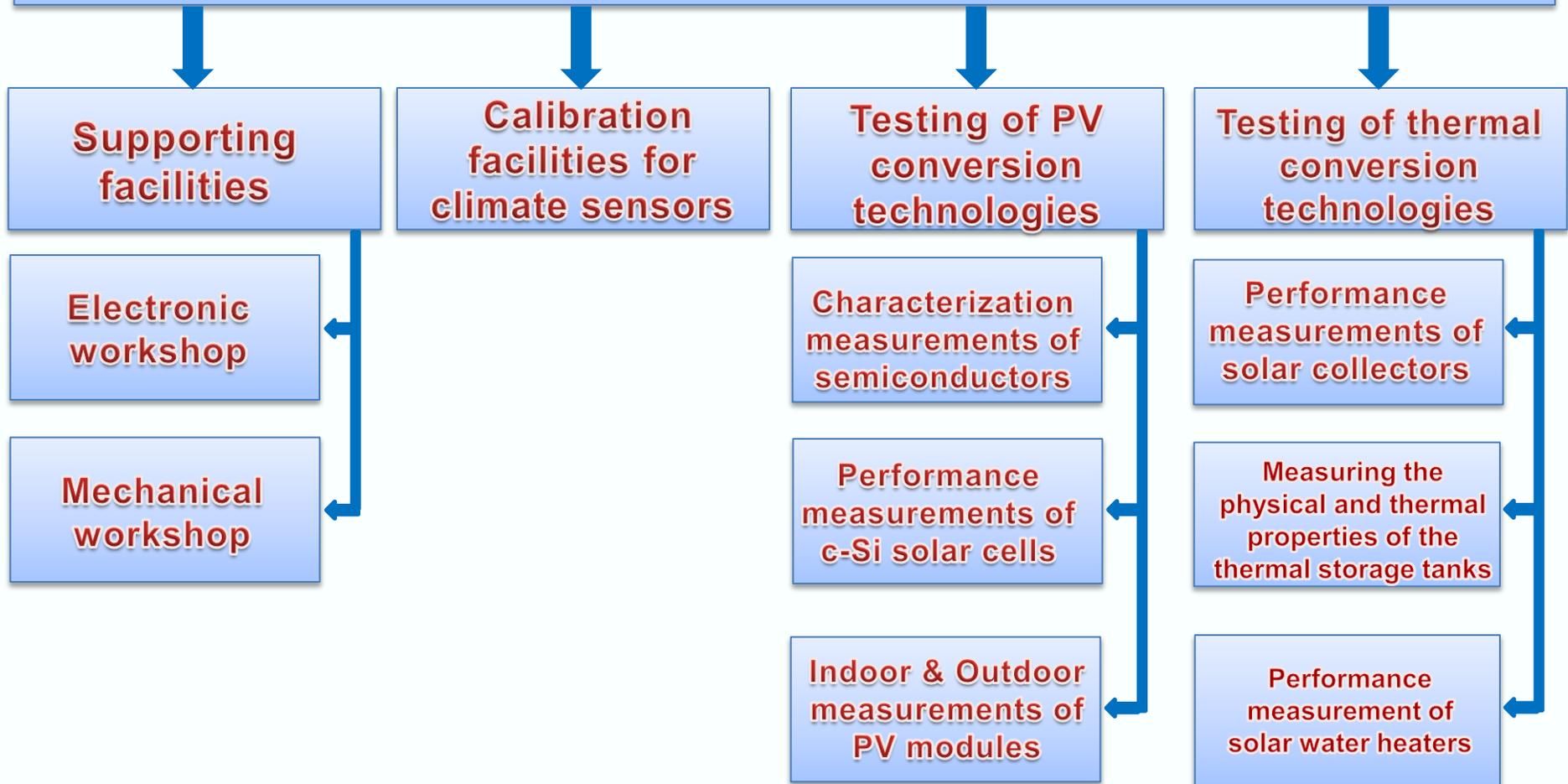
Planned activities

Future prospects

Human Resources

Qualification	Number
Ph. D	3
Msc.	7
Bsc.	47
Higher diploma	30

Measurements and Testing Facilities



Thermal Energy Systems Test Facilities



← Sun Simulator



← Infra-Red Camera



← Collector rain penetration Test

Temperature Calibration Facility



Thermal Energy Systems Test Facilities

Thermal Storage Tank Test Facility



Solar Water heating Systems Test Facility

Testing Systems of Solar Cells & PV Modules

**PV
modules
tester**



**Solar
cells
tester**



**PV
modules
field test
stand**



**Spectral
response
measure.
of solar cell**



Other Testing Facilities

UV Radiation Chamber



Wind tunnel



Climatic Chamber



Current Activities

About center

Center resources

Current activities

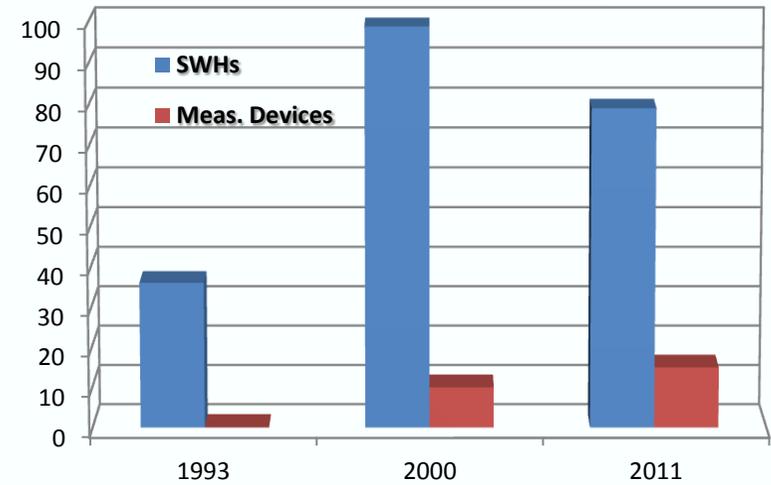
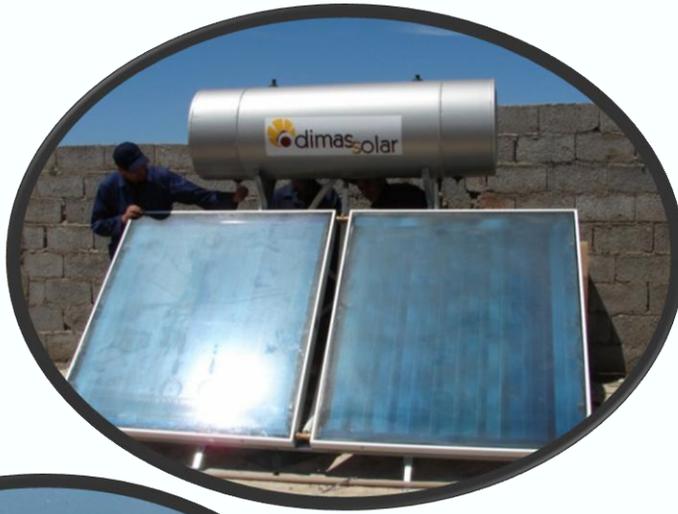
Planned activities

Future prospects

Current Projects

- 1** Field application of solar water heaters
- 2** Solar Pond project
- 3** Operating an experimental distillation unit with solar collectors
- 4** Modeling of domestic hot waters
- 5** Pilot project of using PV systems for electrification of two remote villages
- 6** Performance evaluation of PV water pumping systems
- 7** Performance evaluation of Grid connected PV system

Solar Water Heating systems Project



No. of installed system



Solar Pond Project

Pond

The project consists of main solar pond with area of 830 m² and depth 2.5 m. the project also contains evaporation pond with area of 105 m² and depth 1.5 m

MSF Desalination Unit

5 meter cubic per day Multi-Stage flashing (MSF) low operating temperature desalination consist of 14 evaporating and compensating stages.



Operating MSF desalination unit with vacuum tube collectors project



This project aims to evaluate the thermal performance of vacuum tube solar collectors to provide MSF desalination unit with continuous hot water at 80 °C



Due to limited budget, some components of the project were not imported. It is expected to import and start installation by March 2013 including measuring and control system

Pilot project of using PV systems for electrification of two remote villages



Objectives

- Spreading the use of PV systems
- Providing the electricity for 60 families in the two villages.
- Evaluating the actual performance of the PV systems under local operating conditions.
- Carrying-out the feasibility study of the project.



Experimental PV water pumping systems

Objectives

- Providing water for different purposes
- Performance evaluation under local operating conditions.
- Study the effect climatic condition on the overall performance of the systems.
- Determination the economical feasibility.





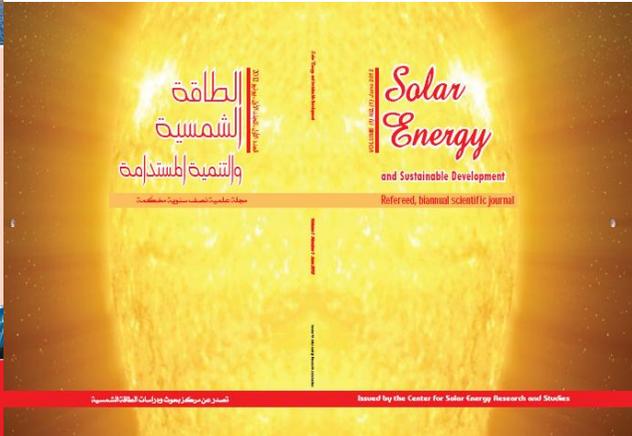
Experimental grid-connected PV system

Objectives

- **Demonstration system.**
- **Performance evaluation under local operating conditions.**
- **Increase the efficiency of engineers for design and operation follow-up of such systems**



Publications and Scientific Activities



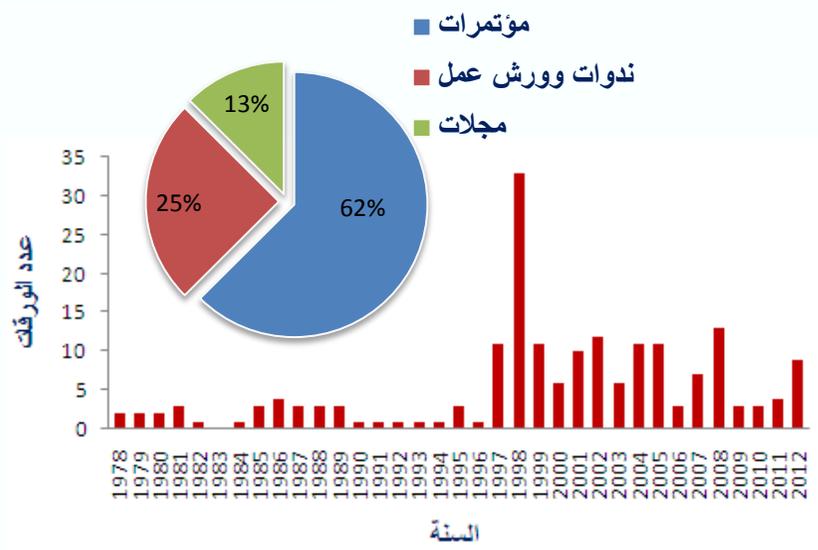
DUN-Lib
Renewable energy conference and exhibition
Tripoli 28-30 Sept. 2013



Workshop on Integrating solar energy technology in building
Tripoli 25 Jan. 2010



Open Week on Solar Energy
Tripoli 1994



International Cooperation

Desertec University Network (DUN)

Center is a founding member of the network. It works to communicate with the network to participate in its meetings and to participate in the organization of scientific conferences in the field of renewable energy and the organization of training courses in the measurements and laboratory experiments .

Regional Center of Renewable Energy & Energy Efficiency (RCREEE)

Libya is a member within 13 countries in north of Africa. The center aims to cooperate with RCREEE in different fields; the most important is having the facilities of carrying-out the quality tests for the renewable energy equipment (solar collectors and PV modules).

Planned Activities

About center

Center resources

Current activities

Planned activities

Future prospects

Planned Projects

Project	2013	2014	2015	2016	2017
Completion of center utilities	Green	Green	Green	Light Blue	Light Blue
Development of center research facilities	Green	Green	Green	Green	Light Blue
Determination of technical and economical potential of solar radiation and wind energy in Libya	Green	Green	Light Blue	Light Blue	Light Blue
Installation and evaluation of experimental renewable energy systems	Green	Green	Green	Green	Green
Seeking accreditation for testing and certification of solar collectors and PV modules.	Green	Green	Green	Light Blue	Light Blue

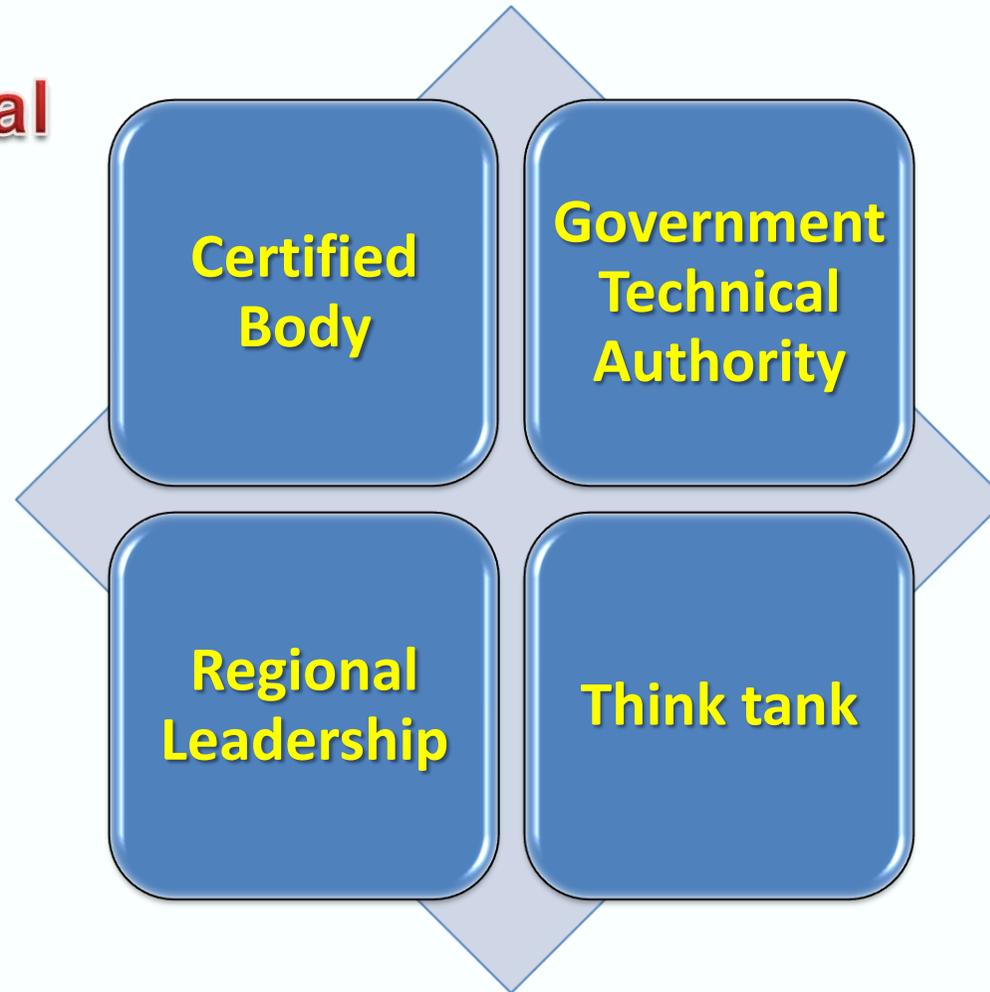
Qualification and Training Program for Engineers in the Year 2013

Nominated for abroad postgraduate study	Ph D	MSc.
	7	8

Nominated for training in different fields related to the center activities	Abroad training	Local training
	55	189

Future Prospective

**International
Level
Research
Center**



**Renewable
Energy
Technologies
and
applications**

Thank you