

# CSP Capacity Building

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## Objective

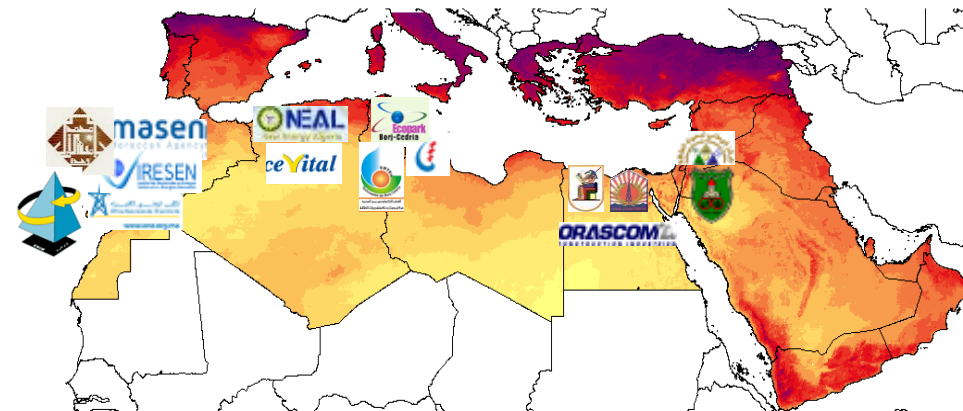
Support the implementation of concentrated solar power plant technology in MENA

### In line with DESERTEC Concept

enerMENA enables a substantial local share in partner countries by capacity building and Know-how transfer

### Objectives are achieved by permanent

- Support of people
- Improvement of technology
- Support of the dissemination of CSP-Technology



Partners in Jordan, Egypt, Tunisia, Algeria & Morocco



# Module I: Technology

“Training program for field engineers and technicians”



## Activities

- Technical **Training Program**: PSA in Almeria 11/2010 (eM-CB01)
- Five mobile measurement **laboratories**
- Development of an optical and thermal measurement technology for **quality control** of collectors

## Planned activities

- Organize **training courses** in partner countries (eM-CB02, in Tunisia and eM-CB03, in Egypt)
- Cooperate with **regional organizations** (e.g. Arab Union of Electricity Generation Companies) to organize CSP training courses. Tunisia in Nov. 2011
- Supporting the creation of local **test infrastructure** at partner institutions. Workshop at the PSA in December

# Module II: enerMENA CSP Teaching Materials

## “Preparing qualified engineers at the academia”

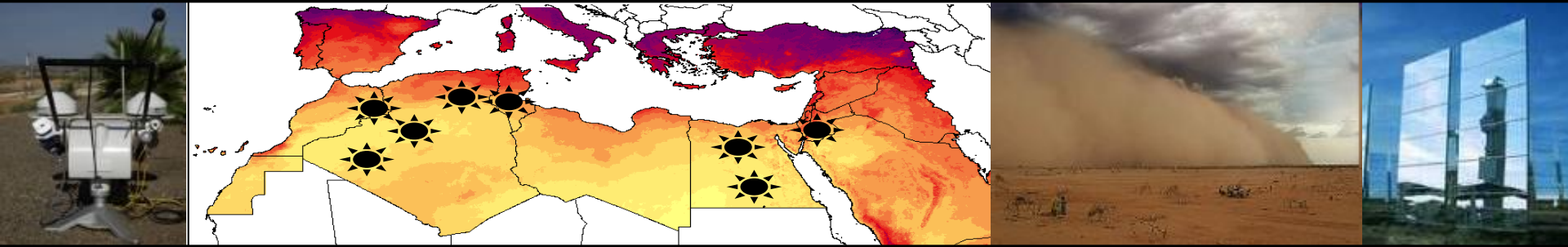


- May 2010: **Orientation-Workshop** with MENA and German Universities
- June 2010 to June 2011: Multi-phases preparation process of the **enerMENA CSP teaching materials** for universities
- June 2011: **Launching Workshop**: finalize reviewing and start the implementation of the teaching material
- September 2011: **integration** of the materials in study programs at partner universities

Tasks & Activities	2010			2011			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Orientation Workshop							
Multi-phase preparation Process							
Review in Germany							
Review in MENA							
Launching Workshop							
Finalization							
Implementation							
- Workshop in Rabat							
- Workshop in Amman							

# Module III: Dissemination

## R&D Activities - Training for local project planners



### Activities

- Preparation of **couching material** for yield analysis and project planning methodology
- Installation of eight **Meteostations** to overcome insufficient data base (not yet completed)
- “Project Planning” **training program** in November 2010.
- Establishment of local **contact points** for information dissemination at partner institutions.

### Planned activities

- Expanding of **Couching materials** to include all CSP technologies
- Implement of the computer based project planning tool (**Greenius**) and adjustment for users in the MENA region
- **Conjoint Research** with MENA institutions:
  - Soiling of reflectors and extinction of solar irradiance
  - Aging of materials in desert climates

# Summary

- enerMENA aims at the **sustainable development** of CSP technology in the MENA region
- More than **45 Partners** from five MENA countries are involved in the project
- Capacity building is **focus** of the project
- Further capacity building courses are planned
- **CSP Teaching Materials** are finalized and being implemented at partners universities in the MENA region
- A meteorological stations network is under construction in partner countries
- Contact: [www.dlr.de/enermena](http://www.dlr.de/enermena) and **louy.qoaidar@dlr.de**