

Deutsche CSP

Deutsches Industriennetzwerk
Concentrated Solar Power



Capacity Building

Joint Saudi-German CSP Workshop

The Importance of Local Human Capacities

- Human capacities in CSP are necessary
 - to achieve a high local content over the complete value chain
 - to build high-quality CSP plants to achieve the prospected energetic and economic output
 - to guide the re-structuration of the energy system
 - to prepare and evaluate biddings

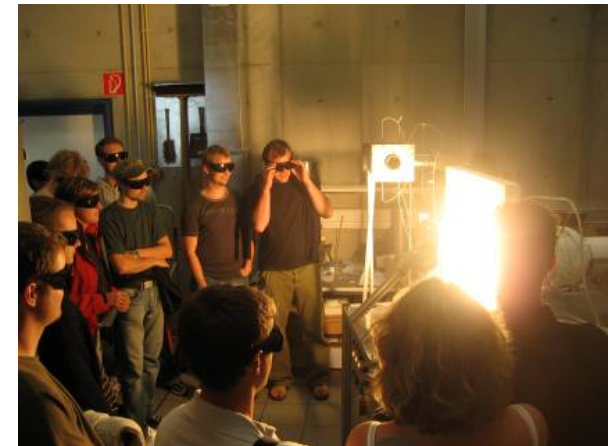


→ Sustainable implementation of concentrating solar power plant technology in Saudi Arabia

Proposal: Capacity Building Project

- Deutsche CSP searches a long term cooperation in the field of Capacity Building with Saudi
 - Universities
 - Research organizations
 - Companies
 - Policy makers and decision takers

- Local human capacities must be built on different levels
 - University level: Professors → Students
 - Researcher level
 - Engineer and technician level (active company workforce)
 - Policy maker and decision taker level



Proposal: Capacity Building Project

- Proposals for Capacity Building measures
 - Joint R&D activities
 - Development of high-quality training programs for specific target groups and its implementation
 - Planning and establishment of a Saudi-Arabian competence and testing center for CSP components and systems

Proposal: Capacity Building Project (1)

- Proposals for Capacity Building measures
 - Joint R&D activities
 - Resource assessment (DNI, sunshape, extinction)
 - Ageing of CSP Materials under desert conditions
 - Design, construction, testing, and optimization of small-scale prototype and demo plants
 - Development of high-quality training programs for specific target groups and its implementation
 - Planning and establishment of a Saudi-Arabian competence and testing center for CSP components and systems



Proposal: Capacity Building Project

- Proposals for Capacity Building measures
 - Joint R&D activities
 - Development of high-quality training programs for specific target groups and its implementation
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Proposal: Capacity Building Project (2)

- Proposals for Capacity Building measures
 - Joint R&D activities
 - Development of high-quality training programs for specific target groups and its implementation:
 - University professors → students
Support with CSP teaching materials and knowledge
 - Engineers and Technicians (e.g. EPC, O&M companies)
 - Researchers
 - Project Developers
 - Policy Maker and Decision Takers
 - Planning and establishment of a Saudi-Arabian competence and testing center for CSP components and systems



Proposal: Capacity Building Project

- Proposals for Capacity Building measures
 - Joint R&D activities
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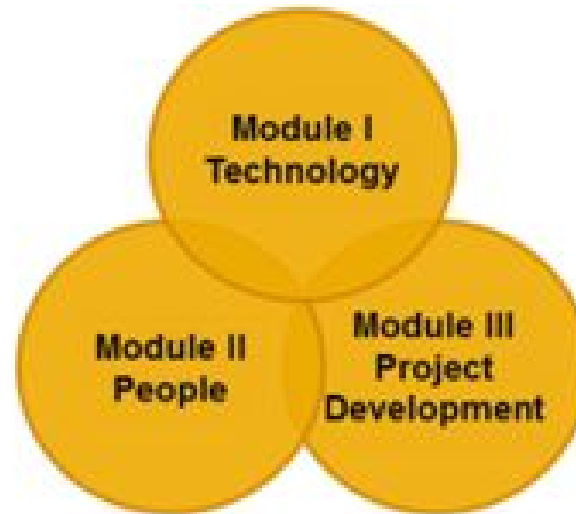
Proposal: Capacity Building Project (3)

- Proposals for Capacity Building measures
 - Joint R&D activities
 - Development of high-quality training programs for specific target groups and its implementation
 - Planning and establishment of a Saudi-Arabian competence and testing center for CSP components and systems
 - to check if receivers, mirrors and other components comply with the regulations stated in the biddings
 - Specify necessary test rigs of testing center
 - Training of personnel on test rigs
 - Cooperate on intern. standardization activities



German CSP institutes & companies have wide experience in CSP capacity building programs

- DLR: enerMENA program
 - 2009 – now
 - >50 partners from MENA & EU
 - 5 MENA countries: Jordan, Egypt, Tunisia, Algeria, Morocco



German CSP institutes & companies have wide experience in CSP capacity building programs

- FICHTNER:
 - enerMENA program, focus: Project Planning & Procurement, Project Implementation and Project Management, (2009 – now)
 - Saudi Aramco Energy Efficiency Project conventional power: Training of engineering staff related to generation expansion planning and planning of generation units dispatching, (2006 – 2009)
 - Saudi Arabian Electricity Company (SEC), conventional power: Training for engineering staff of SEC in energy technology (mechanical & electrical) and engineering economics, (2013)
 - Brasil: Consultancy to EPE (national company for energy research and planning) for implementation of CSP projects, including training / capacity building, (ongoing)

German CSP institutes & companies have wide experience in CSP capacity building programs

- SUNTRACE:
 - India: Capacity building of Indian Institute C-WET to implement the Solar Radiation Resource Assessment and Solar Mapping Program for DNI, based on 51 measurement stations, including training / capacity building, (2012 - ongoing)
 - Jordan: Support of WECSP program to install CSP pilot plant and laboratory at NERC for research purposes, including training / capacity building (2012 - ongoing)
 - Brazil: Advisor to CHESF & ELETROSUL (utilities) and EPE regarding solar radiation measurement program, including training / capacity building, (2013 - ongoing)

The active involvement of Saudi partners is desired

- The following Saudi partners are necessary for the success of the proposal
 - Universities
 - Research Centers
 - KACARE
 - Saudi Companies, e.g.
 - Project developer
 - EPC contractor
 - O&M companies
 - Decision makers

Capacity Building Summary and take-aways

Key Statements

- Human capacities in CSP are necessary to create local content, built high quality plants and evaluate bids effectively

Our Proposal

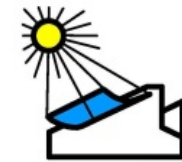
- Development of high-quality training programs for specific target groups and its implementation
- Planning and establishment of a Saudi-Arabian competence and testing center for CSP components and systems
- Joint R&D activities

Opportunities and benefits for Saudi partners

- Achieve ambitious targets more quickly
- Improve decision process

Why choosing German partners

- Experience in CSP capacity building programs in other Arab countries
- Integration of research center and industry competences



FICHTNER SOLAR
Excellence in Solar Engineering



A bright common future is possible by

- paving the way to know-how transfer and capacity building between German and Saudi institutions and companies
- working on a basis of collaboration

Thus,

- achieving a balanced local and global content
- creating a win-win-situation
- generating CSP projects with economic, social and environmental benefit.

