

# UNDP-GEF project on ' Market Development and Promotion of Solar Concentrator based Process Heat Applications in India (India CSH)'

## PROJECT BRIEF

**Implementing Agency** : **Ministry of New & Renewable Energy, GOI**

### ➤ **Budget**

➤ GEF resources	:	USD 4,400,000
➤ Government (MNRE)- Grant subsidy	:	USD 6,000,000
➤ Government (MNRE)- in kind	:	USD 1,350,000
➤ Industries – in cash	:	USD 6,000,000
➤ Financial institutions	:	<u>USD 6,000,000</u>
<b>Total resources</b>	<b>:</b>	<b>USD 23,750,000</b>

➤ **Date of Start** : 28<sup>th</sup> March 2012

➤ **Project Completion** : March 2017

### ➤ **Project Goal and Objective**

The project goal is to reduce GHG emissions from low and medium temperature process heat applications in India through the use of CSH systems. The objective is to increase the use and promotion of CSH systems for low and medium temperature process heat applications. This will be achieved by the integrated removal of the key barriers that prevent the wider adoption of CSH technologies in India.

### ➤ **Major Outputs Envisaged from the Project**

- ✓ 45,000 sq. m. of Concentrating Solar Technologies installed in around 90 industries and commercial establishments
- ✓ 39,200 tonnes of CO<sub>2</sub> emission reduced in the atmosphere per year
- ✓ 3.15 million liters of fuel oil saved per year

### ➤ **Component wise activities planned for implementation of project**

#### **Component-1 : Technical capacity development**

*Outcome 1.1: Enhanced understanding of CSH technologies, applications & markets*

*Outcome 1.2: Adoption of standards and specifications for guidance of manufacturers and users for assurance of CSH quality, safety, and performance*

*Outcome 1.3: Adequately capable and operational testing laboratories for verification of manufacturer claims and guidance of CSH users to enable informed decisions*

## Activities

### Information packages

- 1.1 Technology assessment of Concentrating Solar Systems world-wide & their scope of promotion in India
- 1.2 Status report on functioning of existing CST installations in the country
- 1.3 Development of performance measuring norms & equipment/instruments required for CSTs
- 1.4 Performance assessment reports of few existing installations on different technologies & applications at locations with different DNI
- 1.5 Potential assessment studies of CSTs for process heat & cooling applications
- 1.6 Identification & development of suitable technological packages for various establishments/industrial units & applications. This will include best practices involved in installation & integration of CSTs with conventional systems

### Standards/Specifications & Test Facilities

- 1.7 Development of National standards & component specifications of different CSTs for adaption by BIS & ISO
- 1.8 Development of Test procedure & 'Proof -of -Concept' testing on new technologies
- 1.9 Establishment of National test facility for CSTs at SEC
- 1.10 Strengthening of at least one Regional test centre for test facility of CSTs
- 1.11 Mobile test set up for performance evaluation in field

## **Component 2 : Enhanced awareness and capacity building**

*Outcome 2.1: Strengthened technical capacity and awareness of stakeholders of CSH systems for industrial/ institutional process heat applications*

*Outcome 2.2: CSH project deliverables facilitated and/or influenced the wide spread replication of CSH technology applications in India*

## Activities

### Training Programmes for various Stakeholders

- 2.1 Training needs assessment for various stakeholders
- 2.2 Development of course materials for training of users, installers, dealers, manufacturers, etc.
- 2.3 Organisation of training programmes for various stakeholders
- 2.4 Manpower development of Ph.Ds & M.Techs in the field of CSTs at Solar Energy Centre & various other academic institutions
- 2.5 Organise International study tours for various stakeholders on exposure to CSTs commercially available abroad. Industries to share at least 50% cost

### Industry development & their partnership with academic institutions

- 2.6 Enhancement of manufacturing units on different types of CSTs for process heat applications
- 2.7 Development of manufacturing facilities for solar glass mirrors & evacuated tube heat receivers

- 2.8 Development of technology platform comprising of experts from academic institutions & industries

#### Awareness generation & Market Development Programs

- 2.9 Publicity & awareness campaign through print/electronic media and hoardings
- 2.10 Organisation of seminars/workshops including National & International
- 2.11 Participation in industrial exhibitions & trade fairs
- 2.12 Market Development Programmes for various industrial & commercial sectors

#### Knowledge Products

- 2.13 Specific website on CSTs
- 2.14 Monthly newsletter/publications in trade/industrial magazines etc
- 2.15 Development of case studies & success stories
- 2.16 Training manuals for installers & manufacturers/suppliers
- 2.17 Design handbook on CSTs

#### **Component-3 : Pilot demonstration of CSH technologies for various application**

*Outcome 3.1: Increased number of commercial and near-commercial CSH technologies for diversity of applications.*

*Outcome 3.2: Improved technical and economic performance of commercial and near-commercial CSH technologies in an increased diversity of applications*

#### **Activities**

- 3.1 Identification of potential sites for demonstration projects
- 3.2 Organisation of feasibility studies & preparation of DPRs for such sites
- 3.3 Execution of demonstration projects on different technologies/applications in different sectors/establishments
- 3.4 Performance evaluation of demonstration projects
- 3.5 Development & installation of replicated projects

#### **Component-4 : Sustainable financial approach in the adoption of CSH technologies & applications in India**

*Outcome 4.1: Enhanced understanding of the financial viability of CSH technologies and measures to mitigate investment risks*

*Outcome 4.2: Promulgation of favourable financial policies that promote increased use and promotion of CSH for low and medium temperature process heat applications*

#### Activities

- 4.1 Identification of banks/FIs for their interest in providing loans to customers
- 4.2 Development of suitable financial packages for customers on installation of CSHPs
- 4.3 Development of projects in ESCO mode
- 4.4 Exploration of CDM opportunities