# Models in Energy System Design and Policy Planning

## Project Objective

The project objective is to enhance sustainable development in Cambodia through capacity building in: (i) modeling methods and tools, (ii) the use of modeling methods and tools for energy planning, and (iii) the impact of modeling methods and tools on the development of the society.

## Description

Models in Energy System Design and Policy Planning (MODESPO) is a capacity building project targeting for wider research, introduction and dissemination of energy systems modeling, a tool for energy systems design and energy policy planning.

In the design of energy systems it is essential to be able to make scenarios how different actions, such as investments in different type of power generation systems, affect the social activities (including gender aspects) and the state of the environment. In Cambodia, skilled people are needed as electrification and other investments proceed. Therefore, energy planning and statistics development become imperative.

During the project capacity building courses will be arranged on energy planning and modeling together with the Institute of Technology of Cambodia (ITC) in order to produce competent staff to carry out training for future experts in ITC. The staff members of ITC will be trained. For high level training, educational material will be produced. The training courses will consist of lectures on energy planning, power systems (generation and distribution), energy economics and investment policy, basic principles of systems engineering and modeling, and hands-on training with some selected modeling tools (e.g. MatLab, LEAP, LINDA and HOMER).

## Project Highlights

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| **Project ID** | : 3-C-019 |
| **Country** | : Cambodia |
| **Lead Partner** | : Tampere University of Technology |
| **Partners** | : University of Turku / Finland Futures Research Centre<br>Institute of Technology of Cambodia<br>Tamlink Innovation – Research – Development Ltd |
| **Total Project Cost** | : € 208,200 |
| **EEP Financing (% to total project cost)** | : € 195,000 (93.7 %) |
| **Technical Focus** | : Capacity building |
| **Activity** | : Training courses on modeling and design of energy systems, renewable energy and energy policy planning |
| **Duration** | : 16 months |

Group works and seminar works about practical topics on energy system and policy planning and utilization of renewable energy will also be conducted.

The training courses will be arranged partly in ITC Cambodia and partly in Tampere University of Technology in Finland.

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## Relevance to Country's Energy and Environment Policies

The lack of energy expertise in Cambodia is crucially slowing down the achievement of the national electrification goals and causes major problems faced in the energy sector. This project is relevant as it will help Cambodia to fill the gap in demand and supply towards achieving the United Nations Millennium Development Goals (MDG).

Capacity building in energy planning will enable ITC to deliver B.Sc. and M.Sc. courses on energy systems. In addition, they can offer research and development services to Cambodian authorities, energy companies and organizations. Graduate students with these skills will be able to work in energy projects bringing knowledge about the local conditions and help Cambodia make better choices for future development.

## Innovation and Knowledge Transfer

*Innovative areas and new ideas are:*

- modeling approach to design socio-economic and technical systems;
- interlinking energy – poverty – gender issues in modeling and planning;
- introduction of smart grid technology in mini-grids and larger systems (co-operation with different generation systems, load scheduling, battery storage).

*Learning:*

- learning by doing in training of model development and use;
- training of the trainers approach.

*Dissemination:*

- capacity building with ITC to give them skills to give courses about energy system design and energy policy planning;
- graduated students working in Cambodian ministries and energy companies.


**For more information:**

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