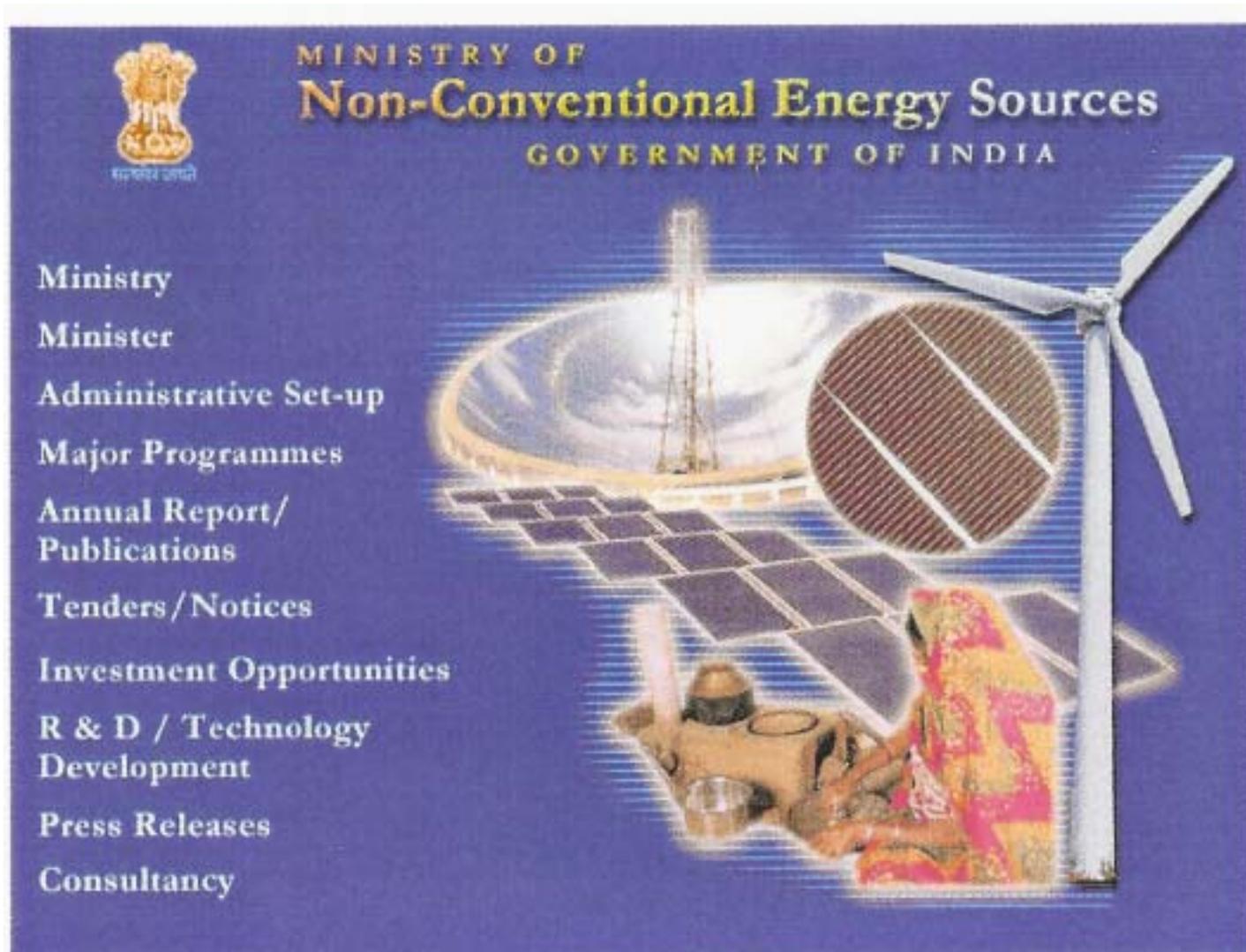


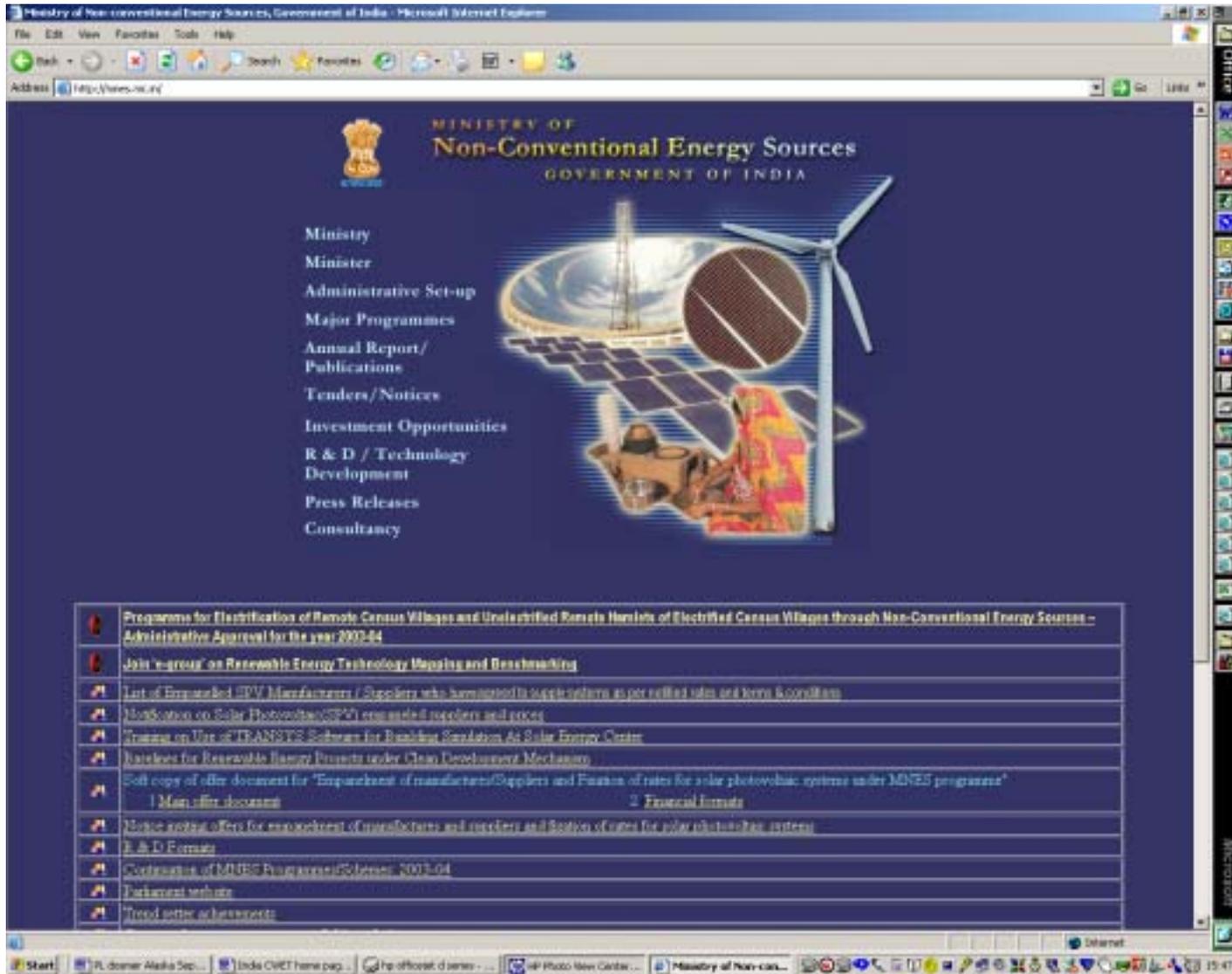
# Emerging markets India

**Per Lundsager**  
**Riso National Laboratory**

# GoI MNES homepage



# MNES Homepage (only MNES worldwide!)



# MNES Village Electrification Programme I

- **Subject: Remote Village Electrification Programme**
  - Programme for Electrification of Remote Census Villages and Unelectrified Remote Hamlets of Electrified Census Villages through Non-Conventional Energy Sources – Administrative Approval for the year 2003-04
- **Objective:**
  - Implementation of the Programme will help to achieve the goal of 100% village electrification through non-conventional energy sources such as solar energy, small hydro power, biomass, wind energy, hybrid systems, etc. in the country by 2007.
- **Scope**
  - All unelectrified remote census villages, by 2007.
  - All households of unelectrified remote census villages, by 2012.
  - All unelectrified remote hamlets of electrified census villages, by 2012

# MNES Village Electrification Programme II

- **Activities under the Programme include:**
  - Surveys and studies
  - Installation of power plants including hybrid systems
  - Upgrade / renovation of power plants
  - Training, ID & capacity building
  - Monitoring and evaluation of individual projects
  - Business Meets, publicity and awareness programmes.
- **Other programme components:**
  - Implementation Strategy
  - Operation, Maintenance and Sustainability of the Projects
  - Financing Arrangements
  - Project Proposals
  - Pattern of Release of Funds
  - Monitoring Arrangements

# Sagar Island Project I

- **1<sup>st</sup> wind-diesel hybrid project of India installed in 2002 in Sagar Island in the Sundarbans (Ganges delta)**
- **The project comprises of installation of**
  - 10 x 55 kW AOC wind turbine generators (initial phase 2 AOC's)
  - 2 x 180kVa Diesel Generators
  - 1 x WIDICS (Wind diesel integrated controller) developed by AWTS (Atlantic Wind test Site)
- **This particular project was funded by**
  - Canadian govt,
  - Indian govt
  - Govt of West Bengal

# Sagar Island Project II

- **Further system info**

- Power (max 300 kW) being provided to about 400 consumers
- Recorded diesel savings up to 90%
- Wind penetration can be very high due to the WIDICS
- Annual average wind speed around 5 m/s
- 8 hours WT operation -> 28,000 kWh annually for 2 WT's  
-> 9,000 ltr fuel saved annually
- COE from wind diesel hybrid system about 0.12 USD/kWh
- COE from diesel gensets about 0.25 USD/kWh