



# **Energy Technology Conclave**

**13-14 March 2008, New Delhi**

**Session on Synergy in Technology Funding &  
Combined R&D Efforts**

**Climate Technologies – Challenges and  
Opportunities**

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GTZ-ASEM**



# Overview

**01 Challenges**

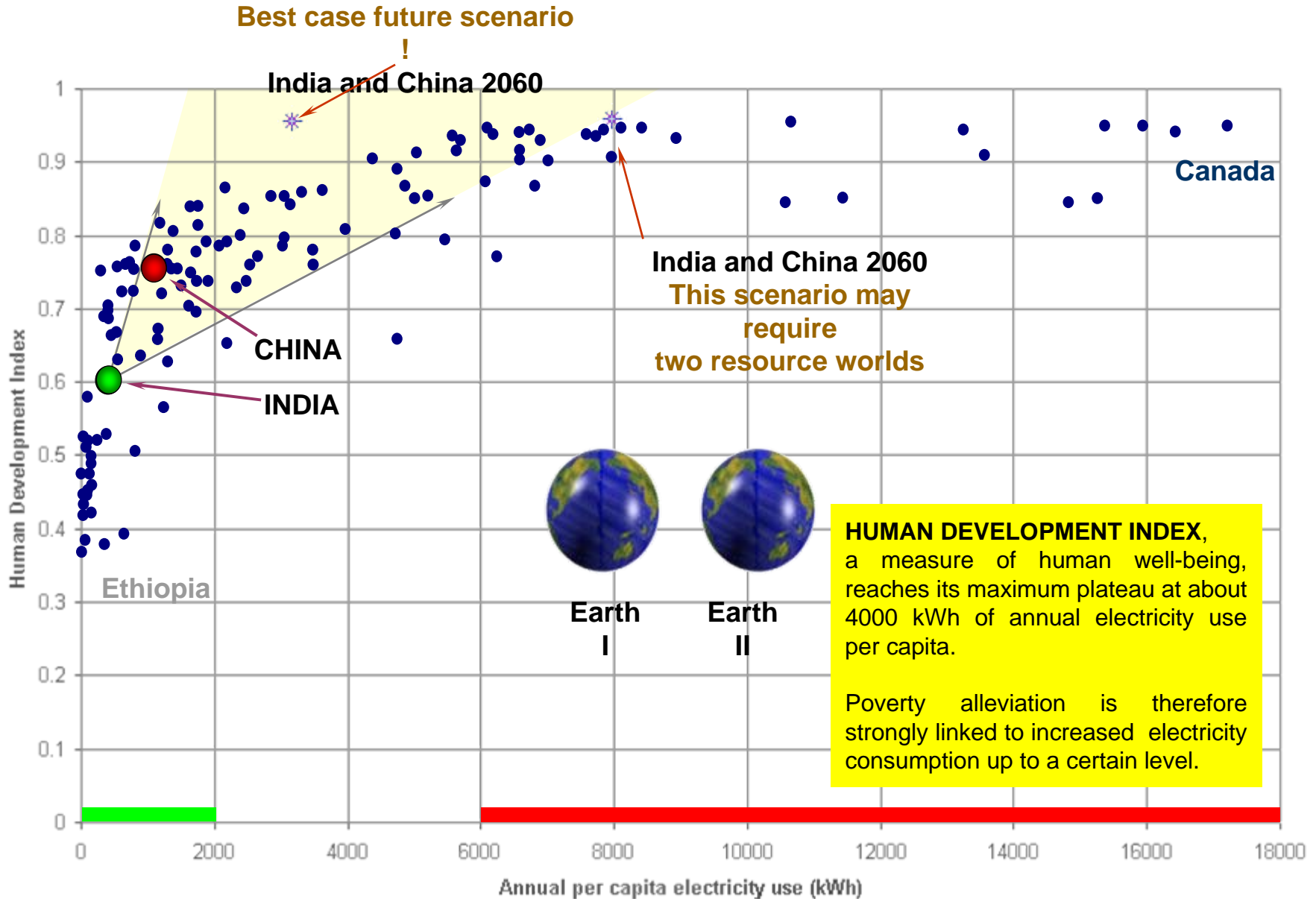
**02 Opportunities**



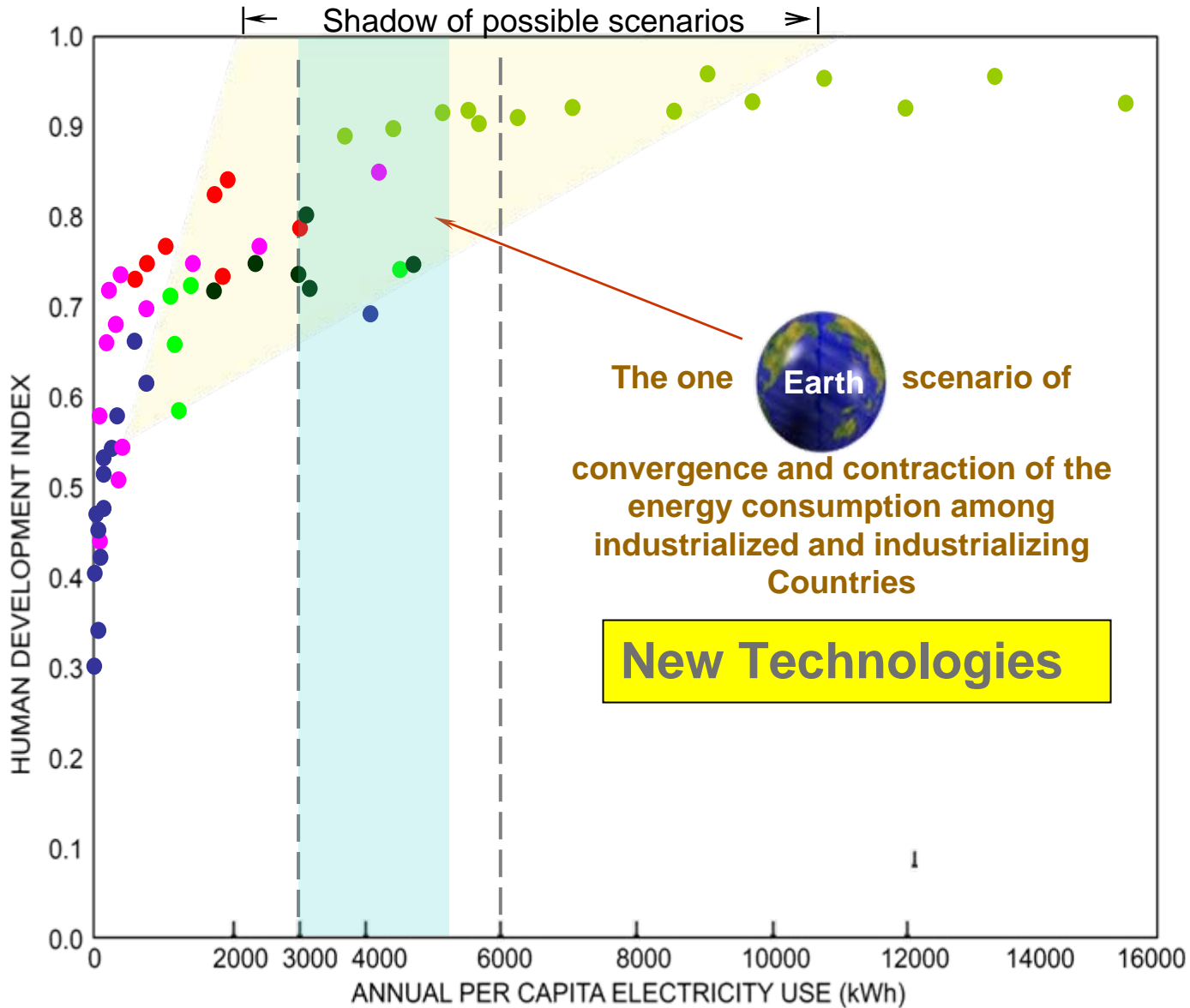
# 01

## Challenges

# The Need for Convergence

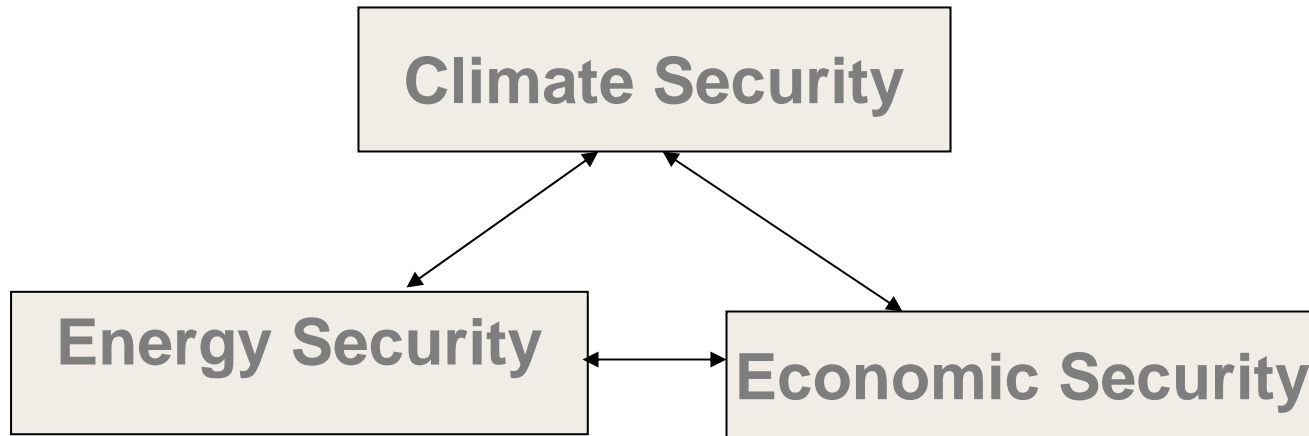


# Convergence by ALL





## Managing Risk





## The UN Framework Convention on Climate Change, 1992

- The UNFCCC set forth certain principles for addressing climate change by a global effort, in particular, that of “common but differentiated responsibilities” of countries; that development is the foremost concern of developing countries,

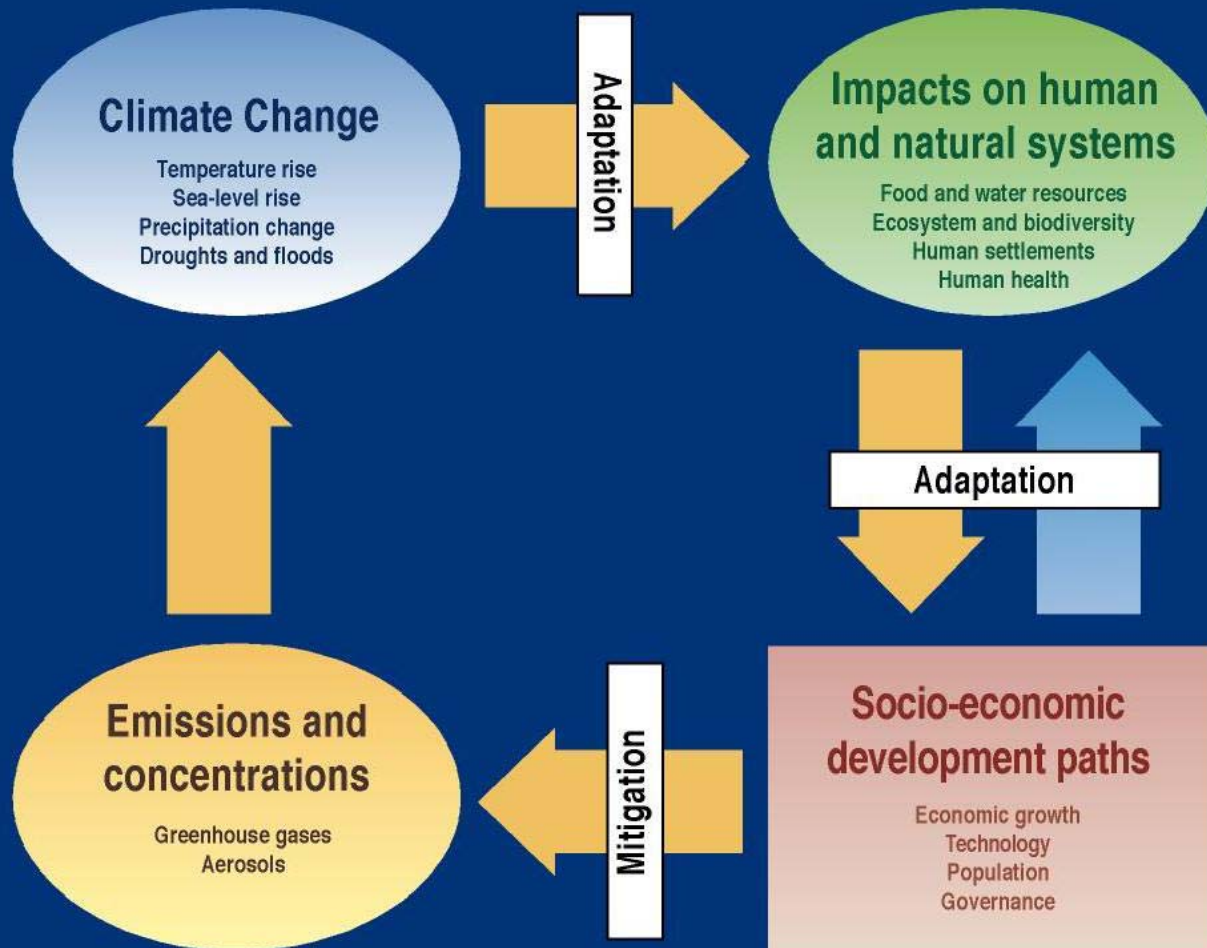


# 02

## Opportunities



## Climate Change - an integrated framework



SYR FIGURE 1-1



## Options to manage climate change

1. Increased efforts and investments in Mitigation of the generation and/or emission of Greenhouse Gases, i.e. mostly Carbon Dioxide (CO<sub>2</sub>) and Methane, (CH<sub>4</sub>).
2. Increased efforts and investments in CDM Projects i.e. Mitigation projects that would earn additional income for investors through sale of CERs.
3. Accepting that Mitigation alone will not prevent or stabilize climate change and Adaptation measures will be necessary.

**Technology is an important factor**



## COP 13: Funding for development and transfer of technology

- **Technology needs assessment**
- **Joint research and development programmes in the development of new technologies**
- **Demonstration projects**
- **Enabling environment for technology transfer**
- **Incentives for the private sector**
- **North-South and South-South cooperation**
- **Endogenous capacities and technologies**
- **Licenses to support the access to and transfer of low carbon technologies and know-how**
- **A window for venture capital funds**

**Financing through GEF, current institutional arrangements**



## Mechanism for technology transfer and research

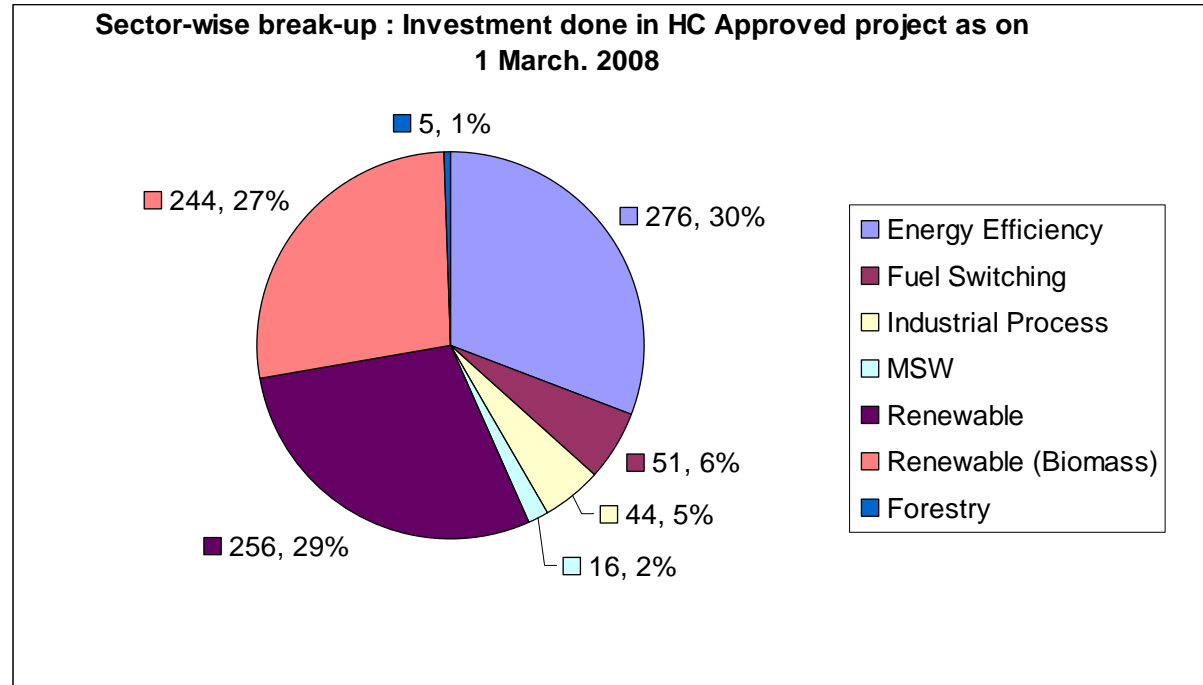
- **Innovative options for financing the development and transfer of technology**
- **Possible ways and means to enhance cooperation**
- **Promotion of endogenous development of technology through provision of financial resources and joint research and development**
- **Promotion of collaborative research and development of technologies**

**Financing through GEF, current institutional arrangements**



## Portfolio of Host Country Projects approved

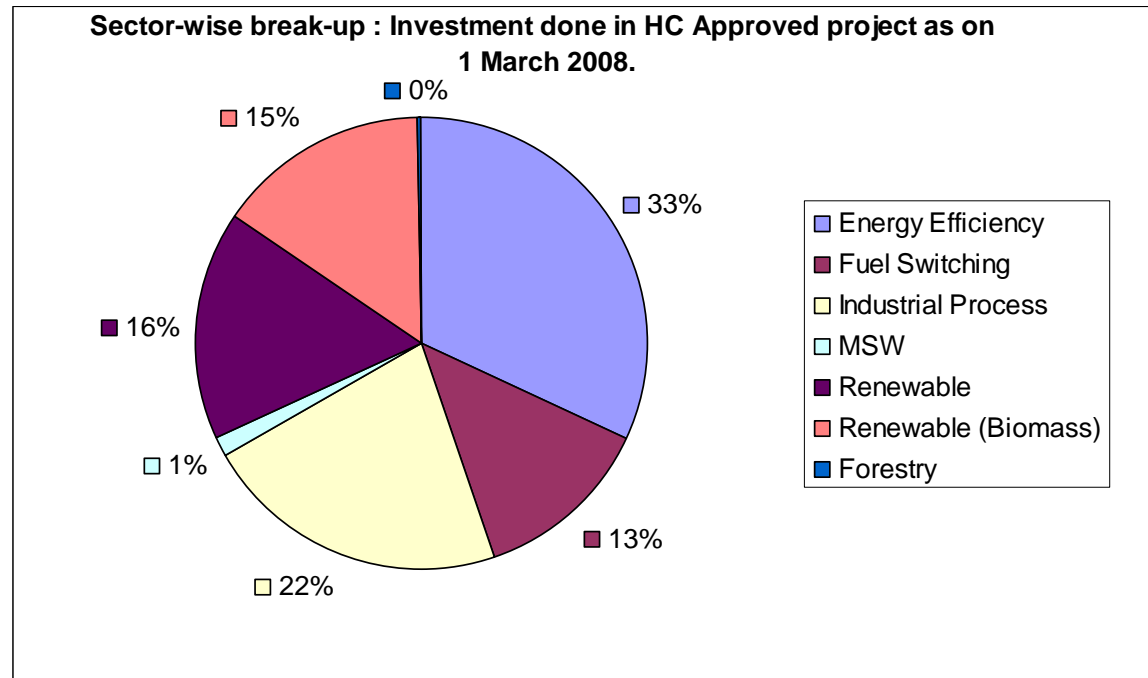
Sectors	No. of Projects
Energy Efficiency	276
Fuel Switching	51
Industrial Process	44
MSW	16
Renewable	256
Renewable (Biomass)	244
Forestry	5
<b>Total</b>	<b>892</b>





## Sector-wise break-up : CERs expected till 2012 from Host Country Approved projects as of 1 March 2008.

Sectors	CERs
Energy Efficiency	146,668,071
Fuel Switching	58,925,430
Industrial Process	100,615,866
MSW	5,984,821
Renewable	75,450,134
Renewable (Biomass)	69,844,412
Forestry	984,090
<b>Total</b>	<b>458,472,824</b>





## Key figures

- **\$500 billion Value of low carbon energy markets by 2050 (Stern)**
- **\$100 billion Demand for projects generating GHG emissions credits by 2030 (UN)**
- **\$100 billion World wide investment in clean energy by 2009 (New Energy Finance)**
- **\$18.6 to \$ 23.1 billion Estimated solar industry revenues by 2010(Solar Buzz)**
- **\$15 billion global fuel cell and distributed hydrogen market by 2015 (The Climate Group)**
- **\$84 billion Cumulative net savings from energy efficient products in US by 2012 (The Climate Group)**
- **Investing in Climate Change - An asset management perspective**



## Key Figures

- **17 trillion U.S. dollars - to be spent till 2030 on energy sector**  
- Source IEA
- **Development of low carbon - clean energy markets;**  
including biofuel, wind, solar and fuel cells
- **Demand from China and India -**
  - **45% of the increased energy demand from China and India**
  - **India energy demand to increase @ 3.6% per year**
  - **China energy demand to increase @ 3.2% per year**

Source: IEA (<http://www.iea.org/Textbase/npsum/WEO2007SUM.pdf>)



## Climate change technologies

- **Management Systems**
- **Clean Technologies**
  - **Resource Efficiency/Conservation Technology**
  - **Clean Energy Technology**
  - **Emission Efficient Power Generation**
  - **New & Renewable Energy Technology**
  - **Energy Efficiency**
  - **Building, Lighting, Insulation**
  - **Heating and Cooling**
  - **Consumer Electronics**
  - **Product Innovation**

**Green Industrial revolution**



# German TC: Climate Change Initiatives

- IGEN Indo German Energy Programme, in cooperation with Ministry of Power (MoP) since 2003 in the field of energy efficiency and energy conservation to reduce fossil fuel consumption. (Mitigation 2003 – 2012)
- CDM-India with MoP and National CDM Authority at MoEF to upgrade mitigation projects to CDM projects i.e additional revenues for Indian/Foreign project developers. (CDM, 2003 -2008)
- PPP Biodiesel Private Public Partnership, in the field of socially just, sustainable and environmentally friendly concepts for non edible vegetable oil production and refining as a source of energy (Mitigation by renewable energy and possibly CDM, 2005-2008)
- ASEM, Indo German Environment Programme with focus on urban and industrial management (Mitigation in industry and urban sector 2003 -2012)
- Proklima, Phase out of Cloro-Fluor-Carbons (CFCs) and Carbon-Tetra-Chloride (CTCs) (Mitigation 2004 -2008)
- Adaptation planned under National Resource Management Programme under process.
- MoP/GTZ/ADEME Cooperation on Energy Efficiency



# THANK YOU FOR YOUR ATTENTION





❑ **Important areas for TT and research (Besides domestic R&D, International Collaboration R&D (Bilateral, Multi-lateral))**

- **Energy efficiency**
- **Clean coal technologies**
- **Fuel efficiency**
- **Renewable energy**
- **Recovery of methane**
- **Coal gasification**
- **Carbon capture and sequestration**
- **Storage technologies**
- **Hydrogen**
- **Advanced materials**

**Financing through GEF, current institutional arrangements, private sector**