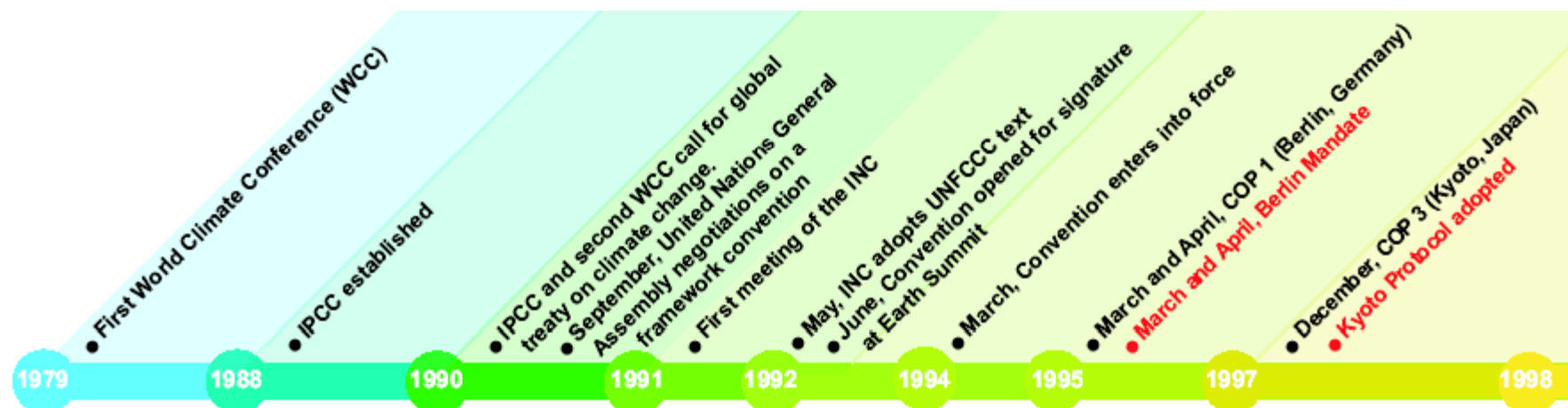


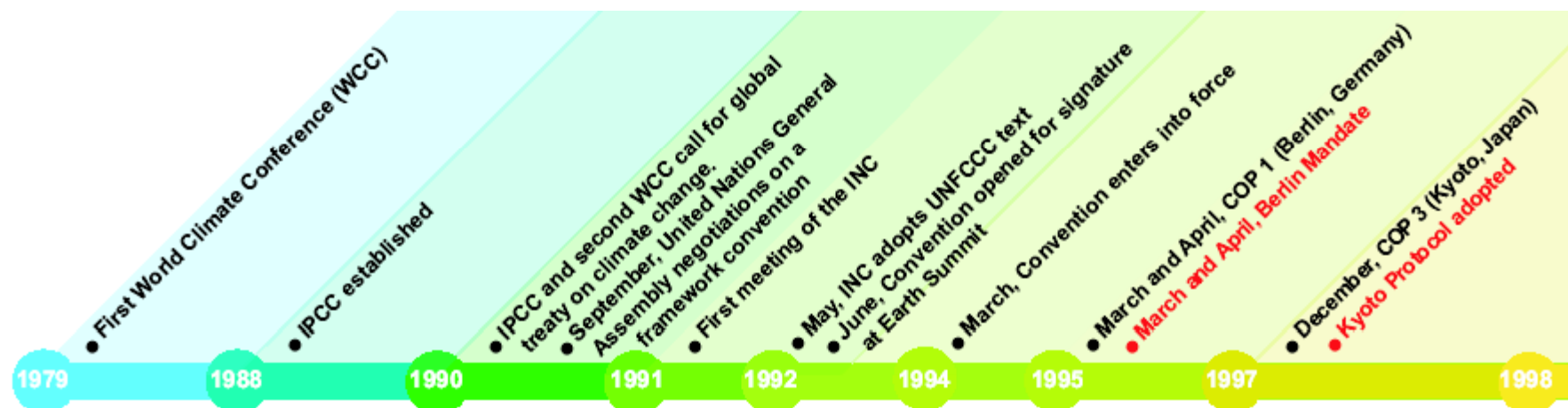
# To Kyoto and Beyond

## International Cooperation on Climate Change



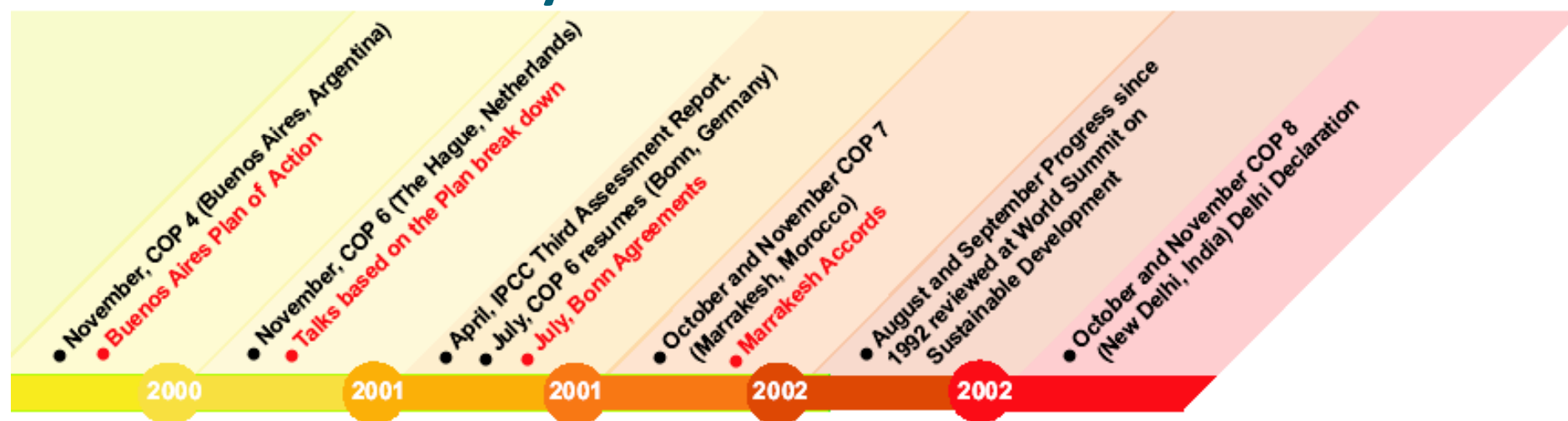
- 1988
  - United Nations General Assembly adopted resolution urging the ‘protection of global climate for present and future generations’
  - IPCC established by UNEP
- 1990: 2nd World Climate Conference launches negotiations on convention on climate change
- 1992: UNFCCC opened for signature at Rio de Janeiro Earth Summit, entered into force in 1994

## International Cooperation on Climate Change



- Parties meet regularly: COP- Conference Of the Parties to foster and monitor implementation and continue talks on how to address climate change
- 1995 Berlin Mandate (COP<sub>1</sub>): Initiated talks on commitments for industrialized countries
- 1997 Kyoto (COP<sub>3</sub>): Protocol outlined legally binding commitments

## From UNFCCC to Kyoto



- COP4-COP7: How should details of the Kyoto protocol be designed in order to make ratification possible (55% of the countries and emissions needed)?
- 2001: USA withdraw from Kyoto protocol
- 2001: Remaining countries reach compromise
- 2005: Kyoto protocol enters into force February 16<sup>th</sup> 2005 following ratification by Russia in November 2004

**UNFCCC**



Objective:

“to **achieve stabilization** of atmospheric concentrations of **greenhouse gases** at levels that would prevent dangerous anthropogenic (human-induced) interference with the climate system...”

Signatories to the UNFCCC are split into three groups:

- **Annex I** countries: Industrialized countries
- **Annex II** countries: Developed countries paying for costs of developing countries

Annex II countries are sub-group of Annex I countries, comprise OECD members excluding economies in transition

- **Developing** countries

## Kyoto Protocol

- Industrialized countries agreed to reduce their collective GHG emissions in 2008-2012 by 5.2% compared to the year 1990
- Annex I parties have individual, legally binding emissions targets

EU-15, Bulgaria, Czech Republic, Estonia, Latvia, Liechtenstein, Lithuania, Monaco, Romania, Slovakia, Slovenia, Switzerland	-8%
US (never ratified)	-7%
Canada, Hungary, Japan, Poland	-6%
New Zealand, Russian Federation, Ukraine	0%
Norway	+1%
Australia (joined Dec 2007)	+8%
Iceland	+10%

## US and Kyoto

With Australia joining 2007, US is only major industrialized country that has not ratified Kyoto

**The U.S. withdrawal from the Kyoto negotiations was based on**

Byrd/Hagel resolution in Senate (1997) voted for 95 – 0:

- “the United States **should not be a signatory** to any protocol to, or other agreement regarding, the United Nations Framework Convention on Climate Change of 1992, at negotiations in Kyoto in December 1997, or thereafter, which would
- (A) mandate new commitments to limit or reduce greenhouse gas emissions for the Annex I Parties, **unless** the protocol or other agreement also mandates new specific scheduled **commitments** to limit or reduce greenhouse gas emissions for **Developing Country Parties** within the same compliance period, or
- (B) would result in **serious harm to the economy** of the United States”

## Implementation mechanisms

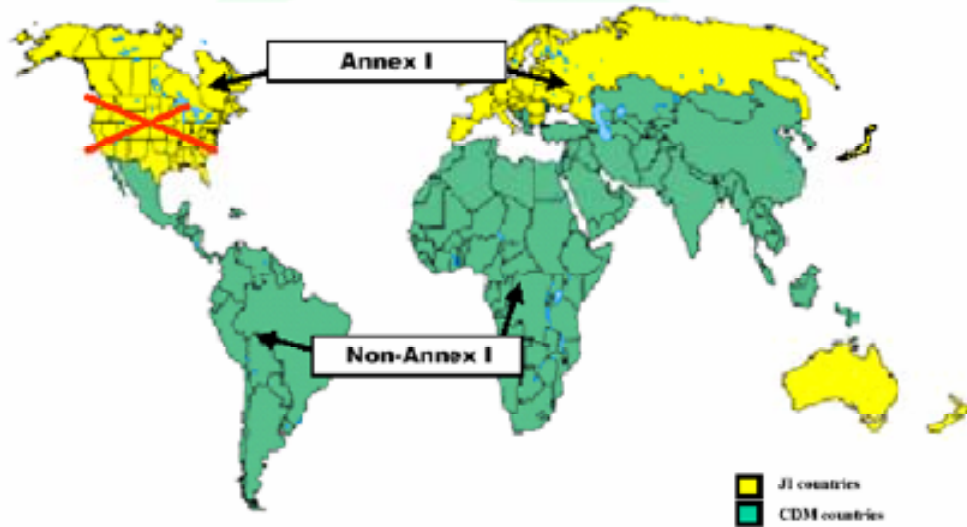
- Parties receive **assignment amount units (AAUs)**
- **Joint implementation** (Article 6)
  - Industrialized countries can cooperatively implement projects to reduce greenhouse gas emissions
  - Investor from one country receives **emission reduction units (ERUs)**
- **Clean development mechanisms** (Article 12)
  - Goal to promote sustainable development in developing countries
  - Allows industrialized countries to earn emissions credits from their investments in emission-reducing projects in developing countries
  - Requires verification that greenhouse gas emissions reductions are real, and additional to what would have occurred in the absence of project
  - **Results in certified emission reductions (CERs)**
- **Removal units (RMUs)** are generated through sink activities in the LUCF sector



## Implementation mechanisms

- Emissions trading (Article 17):
- Parties may exchange AAUs, CERs and ERUs, as well as RMUs
- Each of these units equates to one ton of carbon dioxide equivalent (calculated using the Global Warming Potential index)

## Trading Regimes – Kyoto Protocol



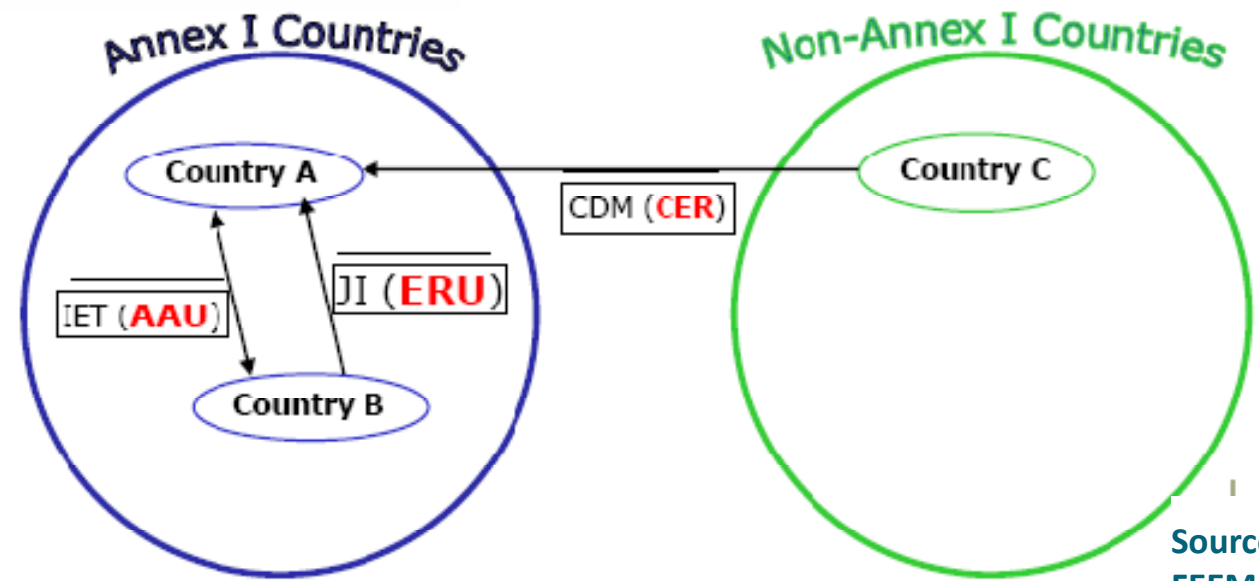
## Kyoto Mechanisms

**Clean Development Mechanism**  
 Projects in developing countries  
 - Sustainable Development Objective

**Joint Implementation**  
 Projects between countries with targets  
 (Annex 1 countries)

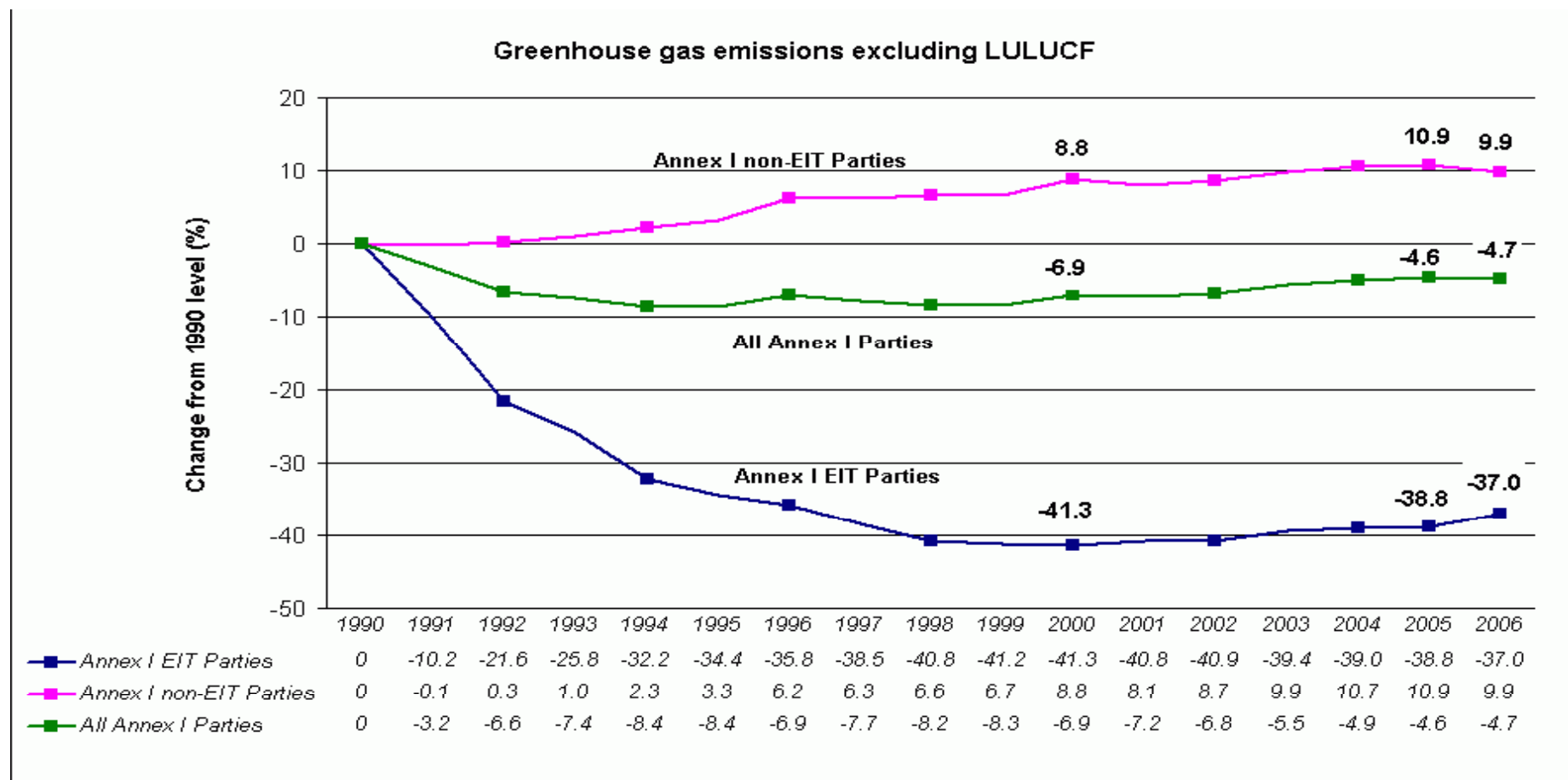
**International Emissions Trading**  
 Between countries with targets  
 (Annex 1)

AAUs, ERUs and CERs are fully fungible within a commitment period and are treated as equal units.



Source: FEEM

# UNFCCC

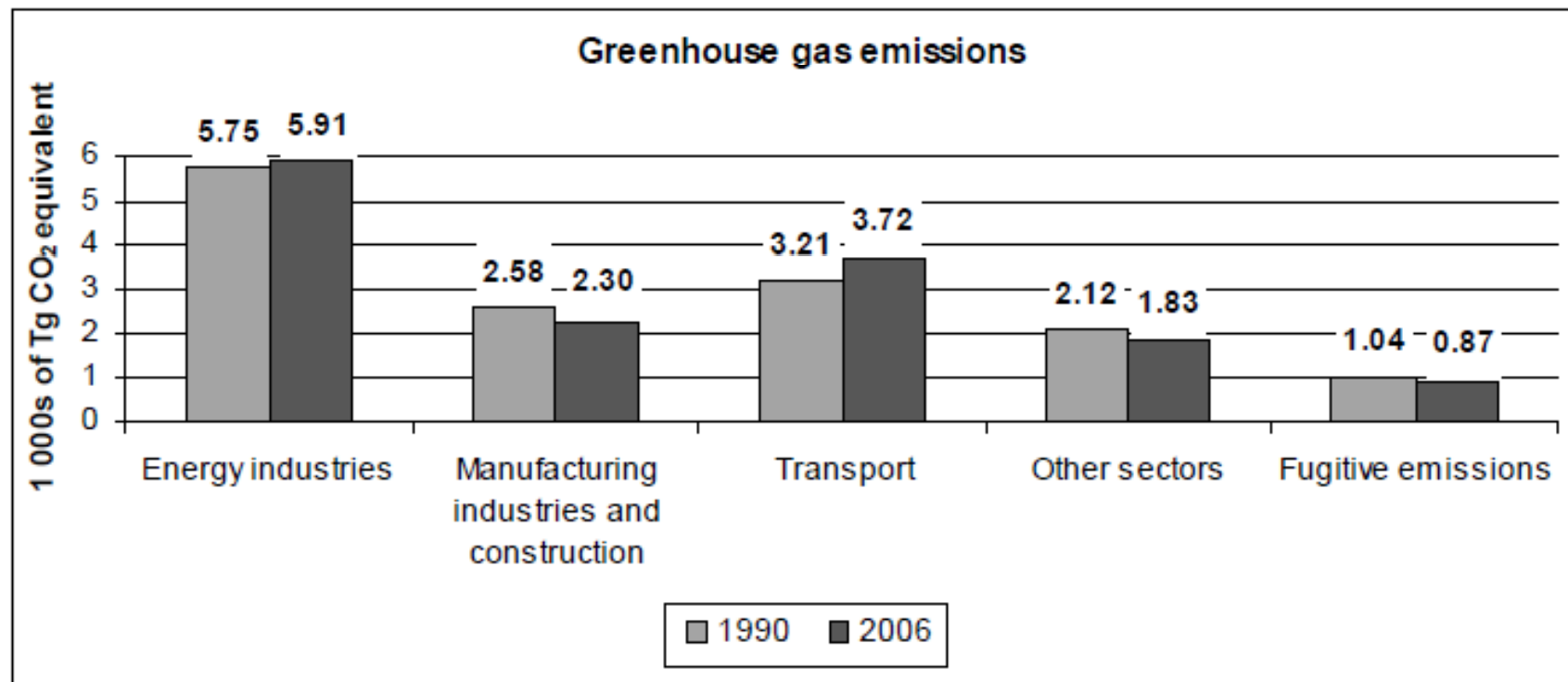


Source: National greenhouse gas inventory data for the period 1990–2006, FCCC/SBI/2008/12, November 2008.

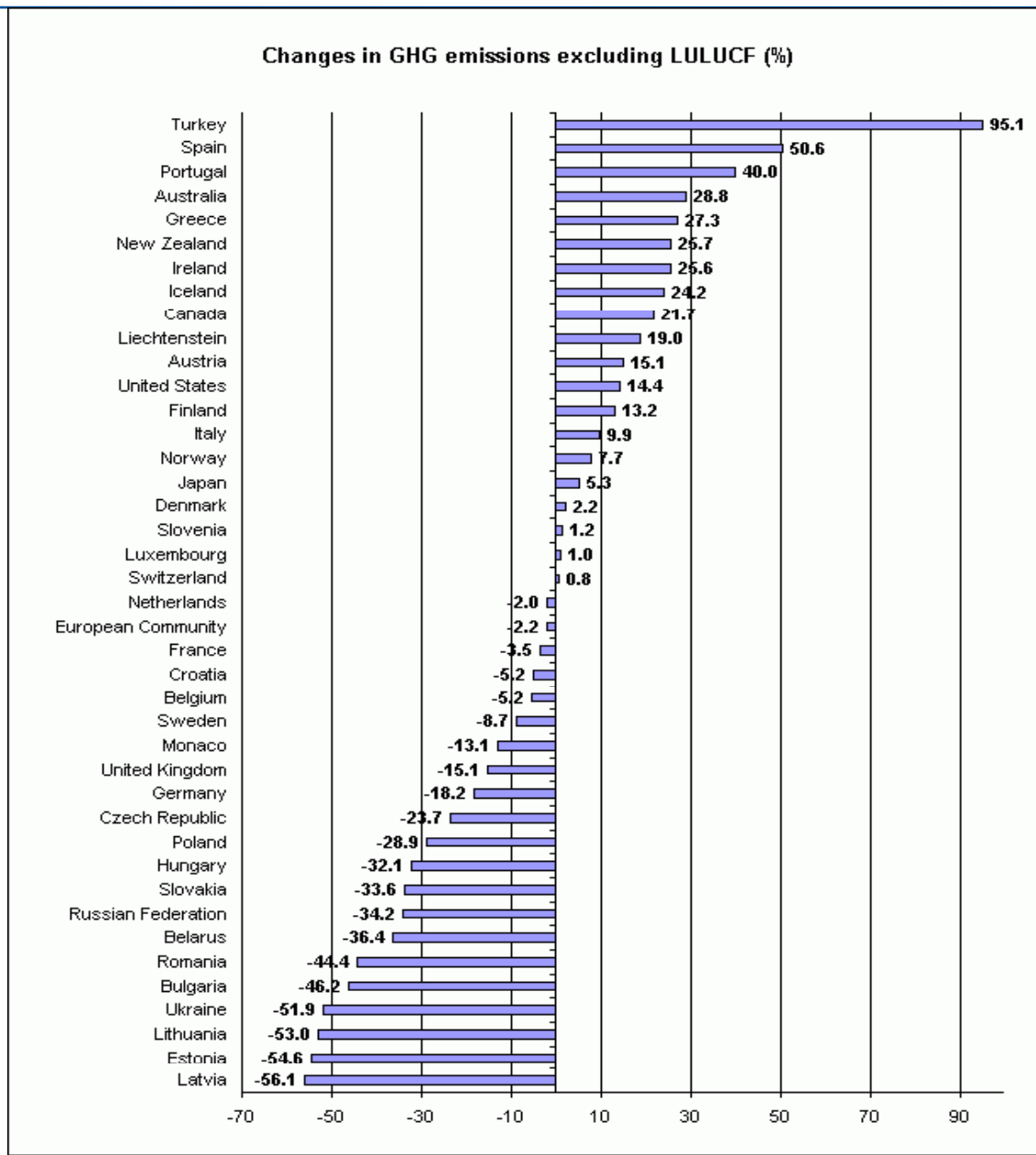
Note: UNFCCC Annex I countries include US

## UNFCCC

**Figure 7. Greenhouse gas emissions from Annex I Parties in the energy sector, 1990 and 2006**



Source: National greenhouse gas inventory data for the period 1990–2006, FCCC/SBI/2008/12, November 2008.



Source: National greenhouse gas inventory data for the period 1990–2006, FCCC/SBI/2008/12, November 2008.

## Kyoto, Goals vs Baseline

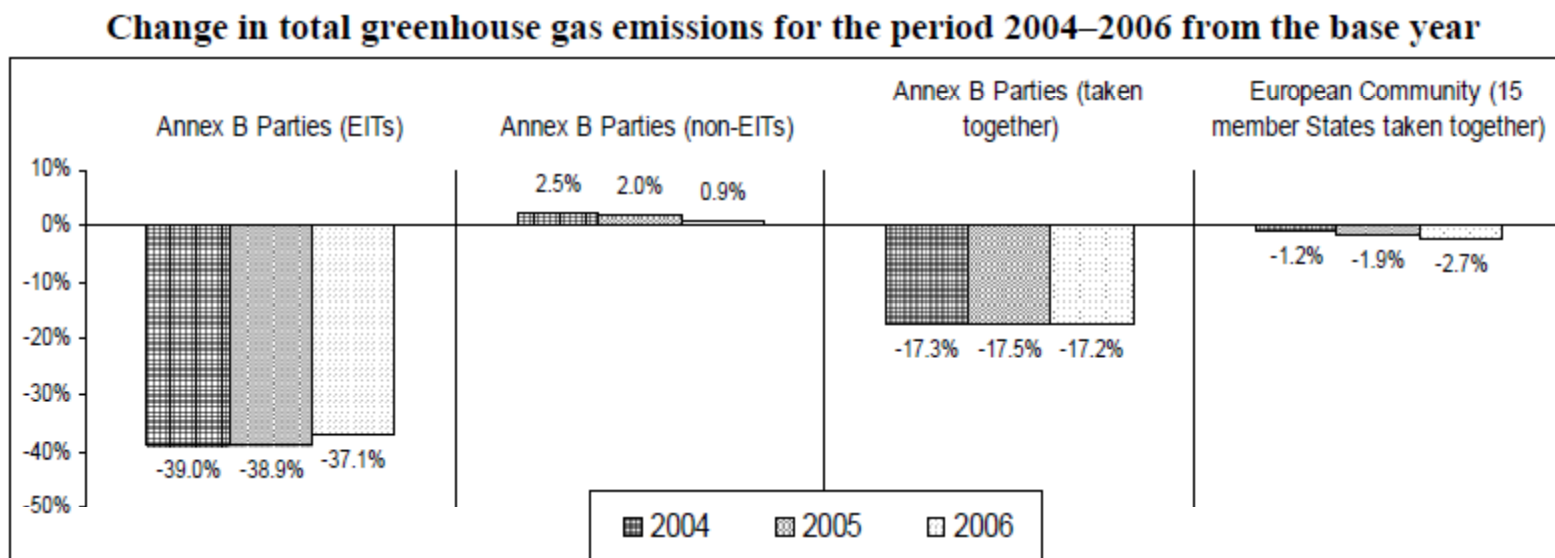
**Table 4. Summary of total greenhouse gas emissions in base year and assigned amount units**

	Total greenhouse gas emissions in base year, t CO <sub>2</sub> eq	Assigned amounts for the commitment period, t CO <sub>2</sub> eq	Annual average assigned amounts, <sup>a</sup> t CO <sub>2</sub> eq	Ratio of annual average assigned amounts to total greenhouse gas emissions (base year), %
Annex B EITs	5 738 538 481	28 162 863 400	5 632 572 680	98.15
Annex B non-EITs	6 288 875 784	29 164 486 569	5 832 897 314	92.75
Annex B Parties	12 027 414 265	57 327 349 969	11 465 469 994	95.33
European Community	4 265 517 719	19 621 381 509	3 924 276 302	92.00

*Abbreviations:* Annex B Parties = Parties to the Convention that are also Parties to the Kyoto Protocol with commitments inscribed in Annex B to the Kyoto Protocol (taken together), Annex B EITs = Annex B Parties with economies in transition, Annex B non-EITs = Annex B Parties that do not have economies in transition.

Source: Annual compilation and accounting report for Annex B Parties under the Kyoto Protocol, FCCC/KP/CMP/2008/9/Rev.1, November 2008.

## Kyoto, what happened so far:

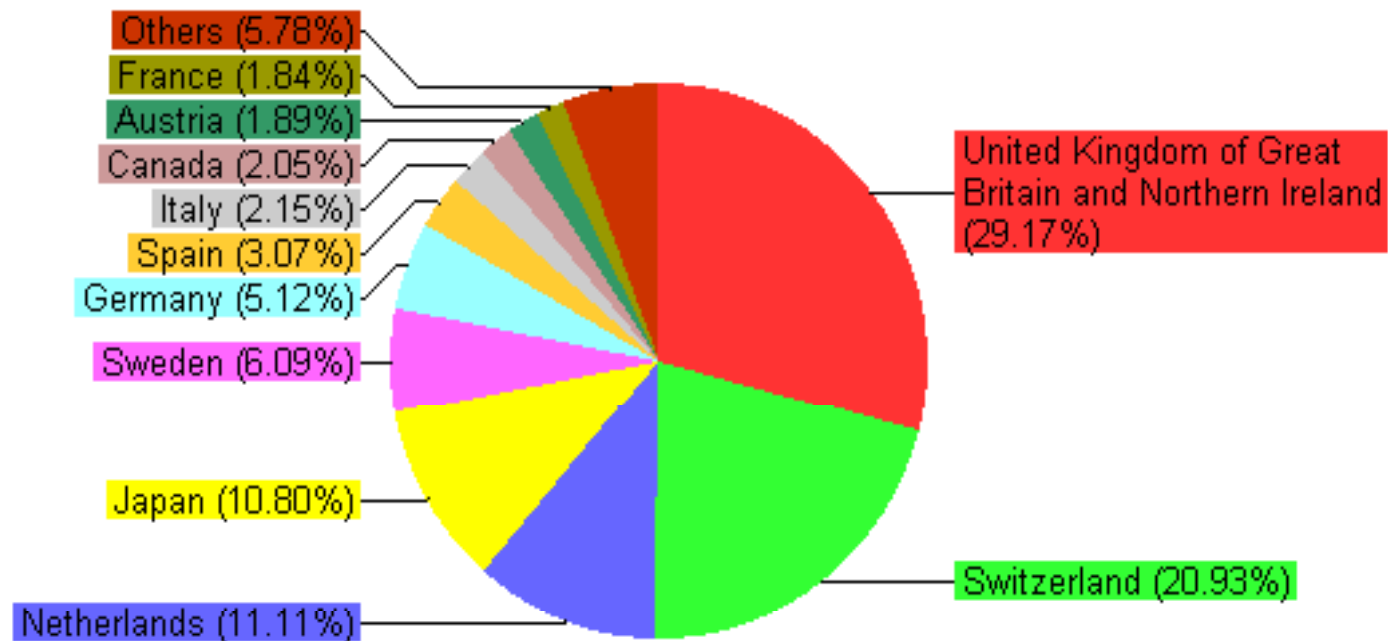


*Abbreviations:* Annex B Parties = Parties to the Convention that are also Parties to the Kyoto Protocol with commitments inscribed in Annex B to the Kyoto Protocol, Annex B Parties (EITs) = Annex B Parties with economies in transition, Annex B Parties (non-EITs) = Annex B Parties that do not have economies in transition.

Source: Annual compilation and accounting report for Annex B Parties under the Kyoto Protocol, FCCC/KP/CMP/2008/9/Rev.1, November 2008.

## Kyoto, some Data on CDM Projects

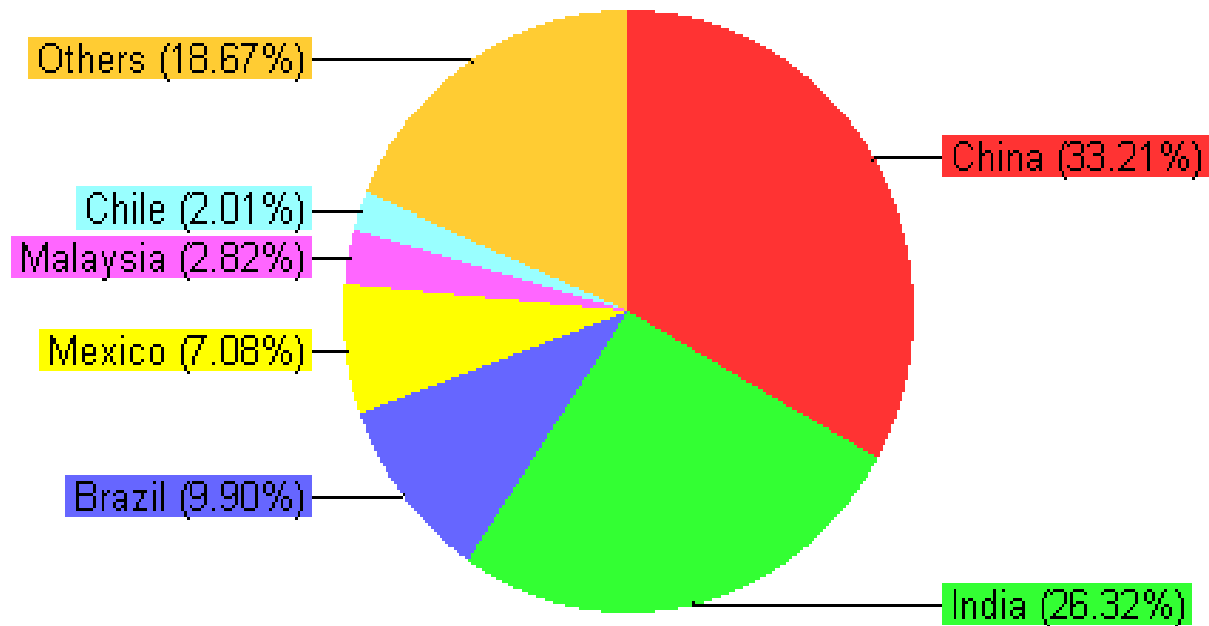
Registered projects by AI and NAI investor parties



<http://cdm.unfccc.int> (c) 27.04.2009 14:53

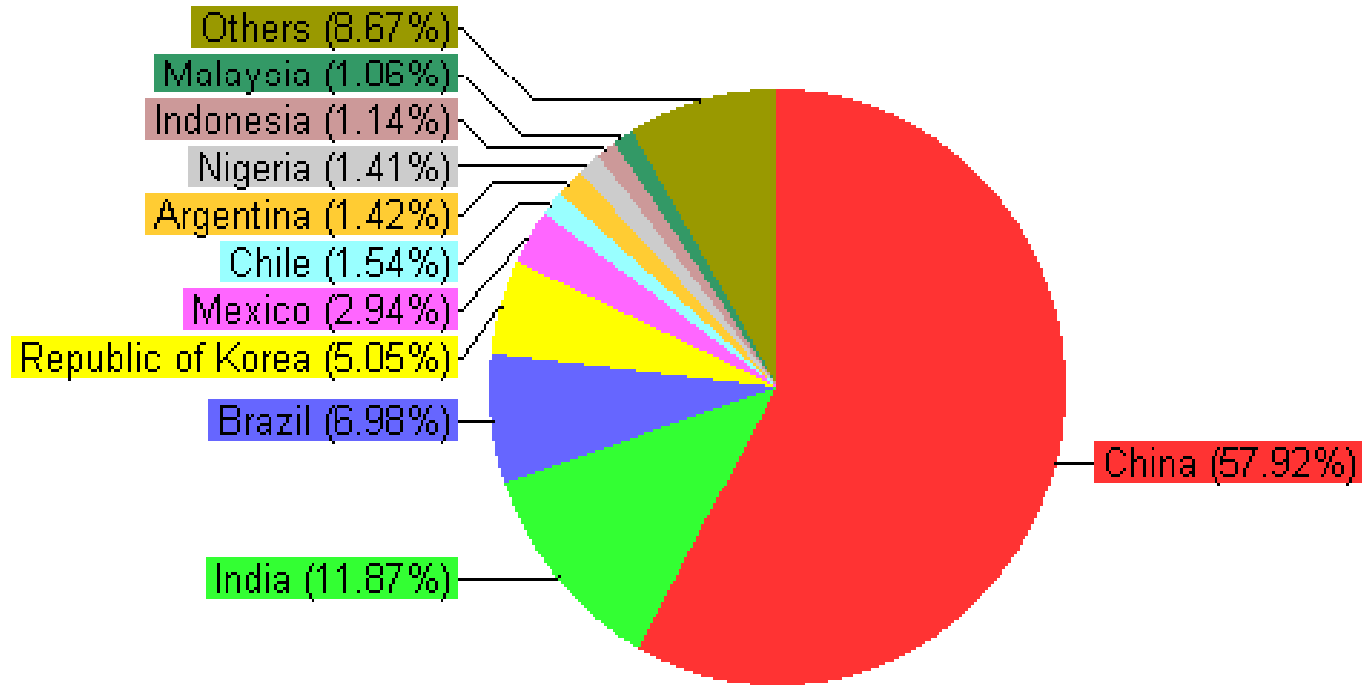


Registered project activities by host party. Total: 1,596



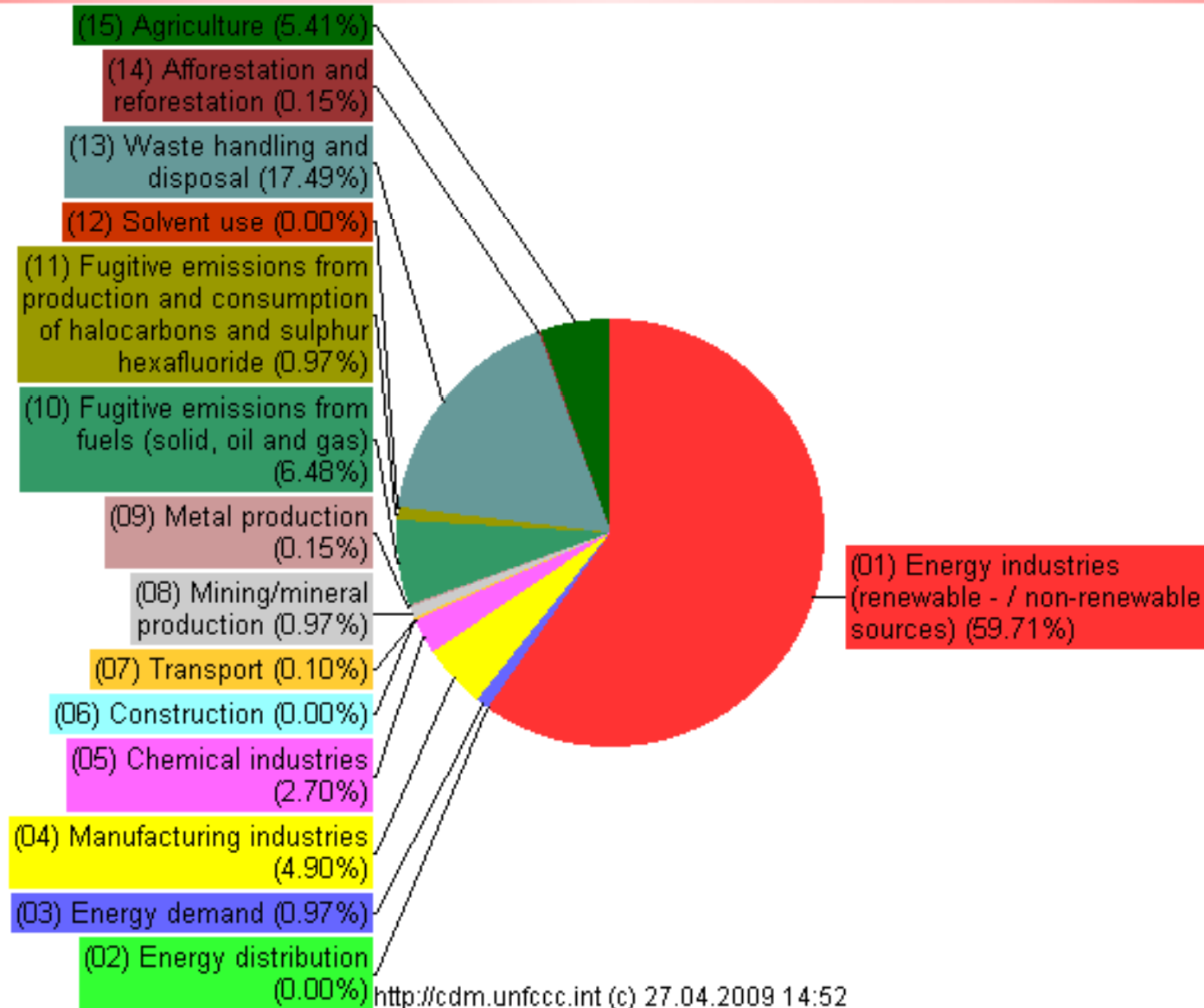
<http://cdm.unfccc.int> (c) 27.04.2009 14:52

ected average annual CERs from registered projects by host party. Total: 291,890,



<http://cdm.unfccc.int> (c) 27.04.2009 14:52

### Distribution of registered project activities by scope



## The road ahead...

### Pros of Kyoto

- Market-based approach
- Flexibility
- Focus on those responsible for problem
- Monitoring and reporting established

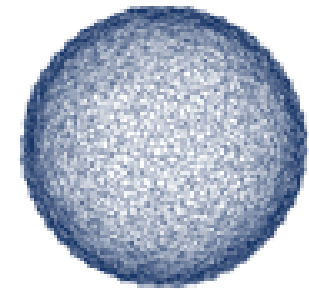
### Cons of Kyoto

- U.S., China, India face no commitments
- Russia has hot air
- Potential of emissions leakage
- Potential of withdrawal
- Only 5 years 2008-2012

### Current

- UNFCCC dialogue continues
- G8+5 (Brazil, China, India, Mexico, South Africa) talks on climate and energy

## The road ahead...



COP15  
COPENHAGEN

UNITED NATIONS  
CLIMATE CHANGE  
CONFERENCE  
DEC 7-DEC 18  
2009

<http://en.cop15.dk/>

The ambition of the Danish government is that the COP15 conference in Copenhagen will result in an ambitious global agreement incorporating all the countries of the world

## The road ahead...

Climate change as a global problem...

### Criteria:

- Environmental outcome
- Distributional equity
- Dynamic efficiency and cost-effectiveness
- Practicality
- Flexibility in presence of new information
- Participation and compliance

## The road ahead...

### Scenarios

- Implement Kyoto -> current structure remains, new commitments negotiated every five years
- Change Kyoto -> renegotiation of some key elements such as a change from absolute targets to rate-based targets or a safety valve price cap on the price of carbon.
- Parallel Kyoto -> some countries or groups of countries proceed with implementing Kyoto while other countries and groups of countries adopt a different approach
- Replace Kyoto -> countries start over again

## The road ahead...

### Questions to be addressed:

- Global agreements vs. Climate Club
- Inclusion of avoided deforestation (REDD)
- R&D cooperation and Support for developing countries?
- When to start? – 2013 or later?
- Legal status? – binding targets (Kyoto) vs non-binding (UNFCCC)
- Banking, borrowing, safety valve
- Burden sharing
- Issue linkage (trade tariffs, technology transfer)