



Mitigating Climate Change Through Sustainable Development

Tokyo, 30 October 2008



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 Current Offices

 Expansion Offices

Services:

- ❖ Project Identification
- ❖ Project Development
- ❖ Greenhouse Gas Inventories
- ❖ MGM Monitoring Services
- ❖ CER/ERU/VER Commercialization
- ❖ Carbon Finance

Diversification of projects

- Chemical: Nitric Acid (N₂O), Aluminum (PFC), Refrigerants (HFC-23)
- CH₄: Landfill gas, Coal mine methane ; Oil & Gas
- CO₂: Renewable energy Cement, Fuel switching, Energy efficiency, Forestry etc.

8 CDM Methodologies





What We Have Achieved So Far: Projects and Location



177 projects located in 21 countries

- Economic Growth vs. Sustainable Development
- Cost of Mitigating Climate Change vs. Cost of non-action
- Role of the Private Sector and Multilateral Development Banks (MDBs) in post 2012 Carbon Regime

- **Conventional Paradigm**

- Development = Economic Growth
- Economic Growth = More Energy Demand
- Economic Growth = More Electricity Demand
- More Electricity Demand = More Central Power Plants (Coal and Nuclear)

- **Sustainable Development Paradigm**

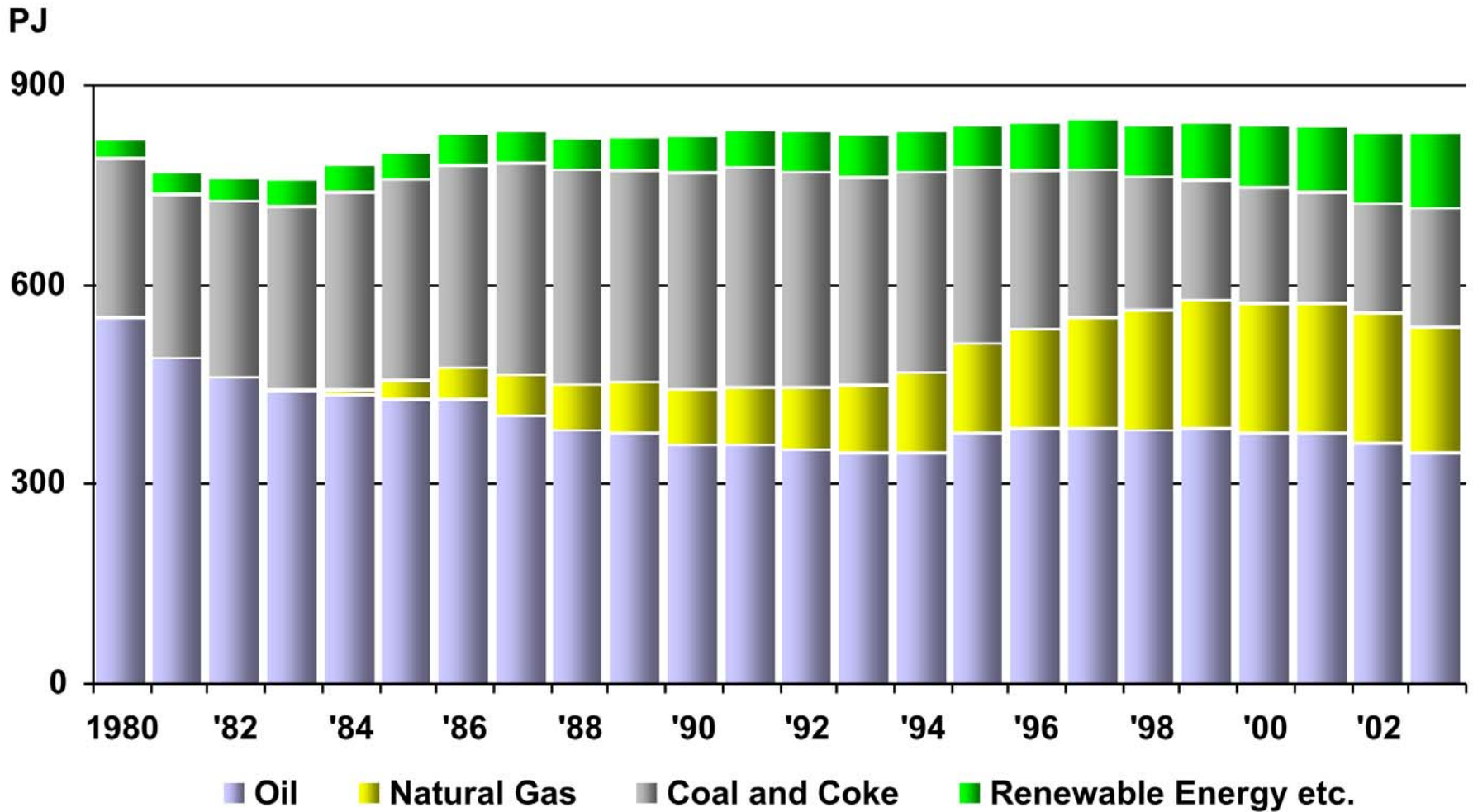
- Shows that each of the previous equations is false

Sources:

- *Energy for a Sustainable World*, Wiley Eastern, 1988 &
- Many writings of the Late Prof. A.K.N. Reddy.



Denmark: 35% GDP growth but total energy use is slightly down



gross energy demand by fuel

- Development objectives not met (Argentina Example)
- Not enough capital available for energy services
 - Centralized energy growth was not possible in most cases (maybe except in 1st world and China)
 - leading to privatization, or the need for energy efficiency
- Environmental degradation, including...
- Climate Change

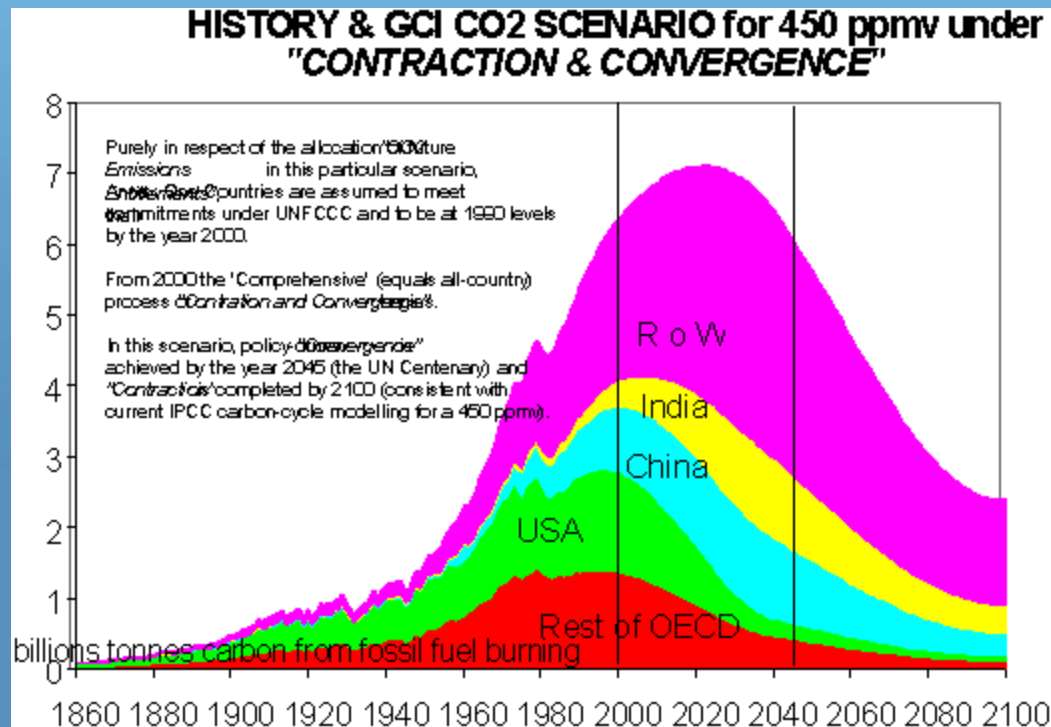
So, instead of looking for economic growth, the search shall be for sustainable development

Cost of Climate Stabilization

Cost of stabilization depends on the level of CO₂ concentration we want to return to.

Pre-industrial concentration of CO₂ was 275 ppm; currently 375 ppm

Graph shows global CO₂ emissions must fall substantially below 2000 levels to stabilize at 450 ppm



Stabilization between 500-550 ppm, (please note this is not Kyoto compliance, which is much cheaper)

- Stern Review estimates annual cost of stabilization to be around 1% of GDP by 2050;
- HOWEVER,
- Costs of climate change are estimated at 5% of Global GDP over the next two centuries (PAGE2002 Model)
- Cost Comparison
 - 1% of GDP will be around \$550 billion
 - Initial Cost to Stabilize US Financial System is \$700 billion

Complying with Kyoto will mean reducing 5 billion tonnes over 5 years (2008 to 2012), or 1 billion per year: At 25 euro or 35 USD, it will mean \$35b per year, or \$175b up to 2012

CDM and JI are expected to produce 1.5 billion tonnes, or 300,000 tonnes per year: At 15 Euros, or 20 USD, it will mean \$6 billion per year of “additional” capital flows

Cost Comparison

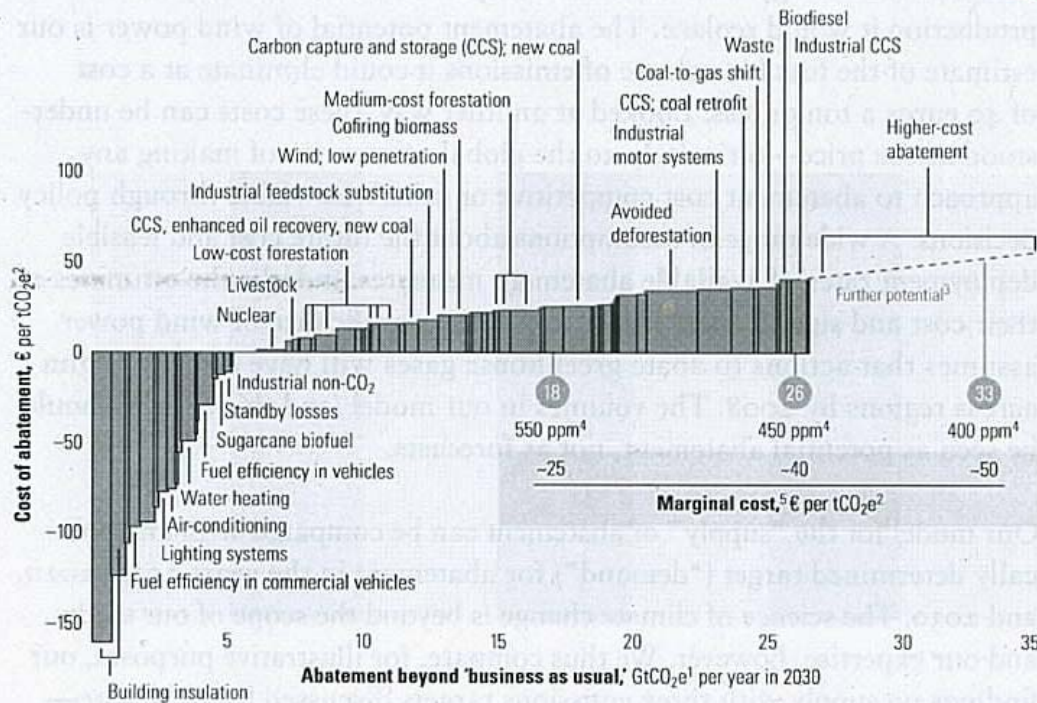
- Iraq War costs \$144 billion per year (Stiglitz) or \$720 billion in 5 years
- Millenium Development goals will cost \$40 to \$60 billion per year by 2020 in “additional” development assistance
- Initial Cost to Stabilize US Financial System is \$700 billion

EXHIBIT 1

What might it cost?

Global cost curve for greenhouse gas abatement measures beyond 'business as usual'; greenhouse gases measured in GtCO₂e¹

● Approximate abatement required beyond 'business as usual,' 2030



1. There are many negative cost measures, mostly energy efficiency.

2. Marginal abatement cost 25 €/tCO₂ for 550 ppm; 40 €/tCO₂ for 450 ppm; 50 €/tCO₂ for 400 ppm;

¹GtCO₂e = gigaton of carbon dioxide equivalent; "business as usual" based on emissions growth driven mainly by increasing demand for energy and transport around the world and by tropical deforestation.

²tCO₂e = ton of carbon dioxide equivalent.

³Measures costing more than €40 a ton were not the focus of this study.

⁴Atmospheric concentration of all greenhouse gases recalculated into CO₂ equivalents; ppm = parts per million.

⁵Marginal cost of avoiding emissions of 1 ton of CO₂ equivalents in each abatement demand scenario.

Current Carbon Market Background

Carbon Market

- The carbon markets are maturing. Opportunities for direct procurement of primary credits are becoming scarce. New projects often require investment in the underlying project or activity.
- Market has become very competitive; Price competition is fierce.
- To compete, market players need to fund projects, creating an internal source of supply at reasonable cost.

Current Energy Markets

- Today's environment of high energy prices and extreme volatility creates great pressure on emerging market economies.
- Third world countries commonly subsidize the electricity use of consumers, thus limiting consumer interest in efficiency and straining government budgets.
- DSM (demand side management) allows postponement of capital investments

Current Financial Markets

- Under current financial turmoil, governments are experiencing severely limited access to capital. Private sector and MDBs can help through Carbon investments.

- Start equity investments in emissions reductions projects that have a life beyond 2012
 - Assume Carbon market will live beyond 2012 and that some emerging markets will have limitations some time in the future
 - Careful analysis of project acceptance under current, updated CDM regulations, considering that they can have a life of up to 21 years
- Interact with Multilateral development institutions
 - By achieving an effective private – public partnership, MDBs can develop financial solutions to facilitate private Carbon investment
 - providing guarantees on behalf of public sector entities with whom MDBs have existing relations
 - co-investing,
 - developing forex hedging facilities, sovereign guarantees, etc.
 - By avoiding competition between MDBs and private sector participants

- In summary, the potential for private sector and MDBs cooperation will be in,
 - In Carbon Finance: Innovative solutions for “upfront payments”, especially as it relates to guarantees
 - Under-represented sectors such as “transport and forestry”, with methodologies, initial investments, etc.
 - By co-purchasing post 2012 reductions
- The Kyoto market mechanisms have achieved one objective, “cheaper emissions reductions”. The other objective, “contribution to sustainable development” can be further enhanced by a more active role of MDBs.

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