



# Carbon Capture and Storage in the UNFCCC process.

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Clean Electricity Production from Coal and Other Fossil Fuels, Geneva, November 18, 2008.



## Relevant provisions of the UNFCCC

“The developed countries and other developed countries in Annex II shall take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of or access to environmentally sound technologies and know how to other Parties, particularly developing country Parties, to enable them to implement the provisions of the Convention..”

Article 4.5

“The extent to which developing country Parties will effectively implement their commitments under the Convention will depend on the effective implementation by developed country Parties of their commitments related to financial resources and transfer of technology..”

Article 4.7



## The Technology Transfer Framework

- Five key themes and areas are:
  - Technology needs and needs assessments
  - Technology information
  - Enabling environments
  - Capacity-building
  - Mechanisms for technology transfer





## The Expert Group on Technology Transfer (EGTT)

- The EGTT
  - was established as part of the technology transfer framework and the Marrakech Accords (decision 4/CP.7) and re-established in Bali (decision 3/CP.13)
  - comprises 19 members (three from each of the Africa, Asia, and the Pacific and the Latin America and the Caribbean regions, two from AOSIS, seven from AI Parties, and three from IGOs (to be invited on issues oriented basis)).





## Technology Needs Assessments

- 94 countries conducted technology needs assessments;
- TNAs were so far prepared by 53 countries;
- Synthesis report of TNAs was presented to SBSTA 24;
- Technology needs reported as part of the second NCs of NAI Parties;
- Reporting format - considered by SBI 25.



## Technology Information



- After a workshop on technology information was organized in Beijing in 2001, The secretariat designed and developed a web-based technology transfer information system/clearing house (TT:CLEAR);
- TT:CLEAR works with existing web sites and clearing houses of other relevant international organizations and national/regional technology information centres;



# Technology Information



➤ TT:CLEAR acts as a gateway for access to up-to-date information on the latest technology transfer projects and case studies of technology transfer, ESTs and know-how.



## Enabling Environments for Technology Transfer



- Focuses on government actions (fair trade policies, removal of barriers, economic and regulatory framework, transparency);
- Creates a conducive environment to public and private sector technology transfer;
- Purpose – to improve the effectiveness of the transfer of ESTs;
- To encourage Parties to avoid those trade and IPR policies restricting technology transfer;
- Close cooperation with public and private sector partnerships is the key issue;



## Capacity Building and Mechanisms

- Capacity building
  - Is considered as cross cutting activities, hence further activities in this area were conducted as integrated activities with other work.
- Mechanisms for technology transfer
  - Innovative financing - to provide technical support through coaching and training programmes for project developers in developing countries to transform project ideas from TNAs into project proposals that meet standards of the international financial providers;
  - To encourage Parties to create an environment conducive for private sector investments by providing such incentives as greater access to multilateral sources and other sources that trigger private sector co-financing;



## Key Challenges



- How to transform many good ideas into real and practical actions in particular those referred to actions by Parties, relevant international organizations and the private sector?
- Who could play a catalytic role to make these happen?
- Which actions are sufficient to ensure effective implementation? How to monitor the progress of work?
- EGTT – review of the technology framework and adoption of set of actions @ COP 13



## Technology and international climate policy

- The UNFCCC and its Kyoto Protocol - provide opportunities for cooperation on technology development, deployment and diffusion both for mitigation and adaptation
- The Bali Road Map – two-year process to enhance international response to climate change including enhanced action on mitigation
- Industrialized countries – Measurable, reportable and verifiable (MRV) actions including quantified emission limitation and reduction objectives
- Developing countries – need for nationally appropriate mitigation actions supported and enabled by technology in a MRV manner.

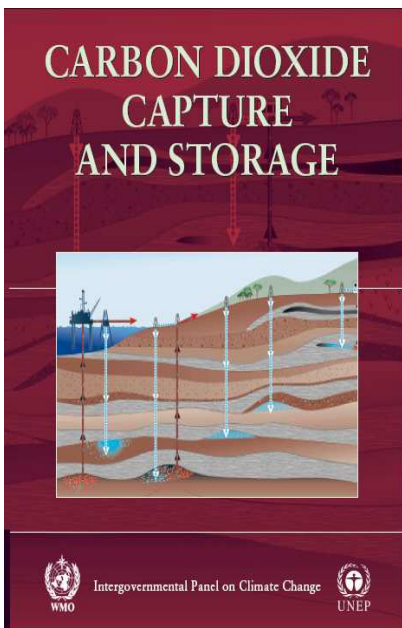
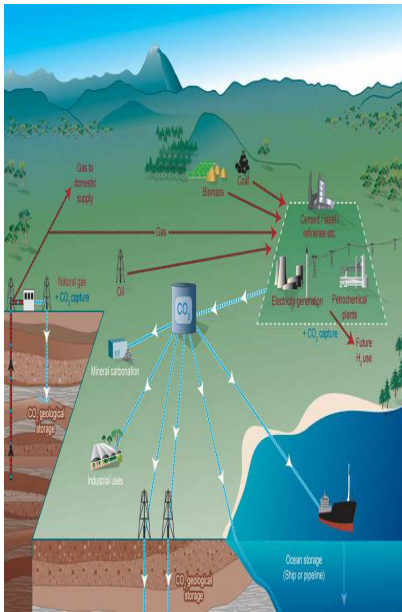


## Technology and international climate policy

- Technology features strongly in the inter-governmental process on climate change and it is the central element that will enable action.
- MRV mitigation action by developing countries depends on MRV technological and financial support.
- Technology needs a revolutionary push
  - Criticism that insufficient progress has been made
  - Need for an effective international mechanism (removal of barriers, provision of resources)
  - All stages of technology cycle need to be addressed (from innovation to application consider funding and policy for each stage)



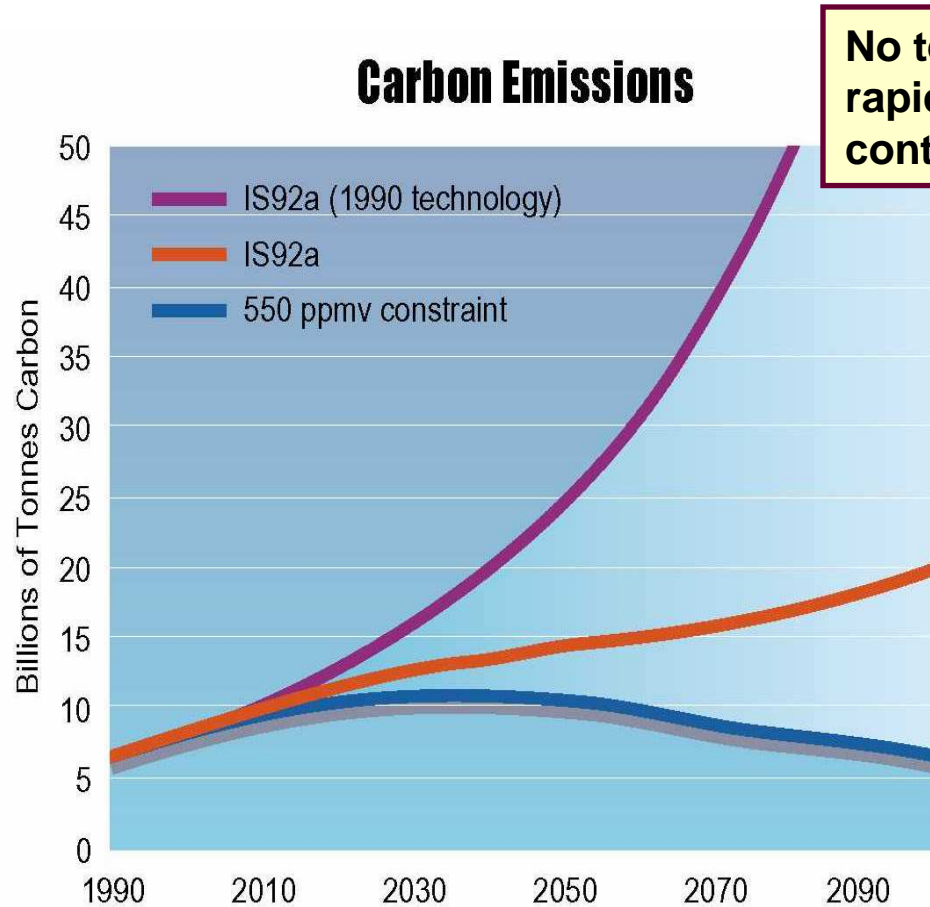
# CCS and Climate Change



- Energy
  - By 2030 energy use forecast to grow by 50%
    - o A key to meeting development objectives
      - 1.6 billion currently lack access to electricity
    - o Fossil fuels projected to remain dominant source
      - Availability, affordability
- Climate
  - Concerns over impacts of increased GHG emissions
- CCS
  - Part of a portfolio of mitigation options
  - Reduce overall mitigation costs
  - Increase flexibility in achieving GHG emission reductions
  - Application in developing countries important
  - Energy requirements point of attention



# CCS - considerations



No technology improvement – rapid growth in GHG levels to continue economic growth

With significant technology improvement, development still drives GHG levels up.

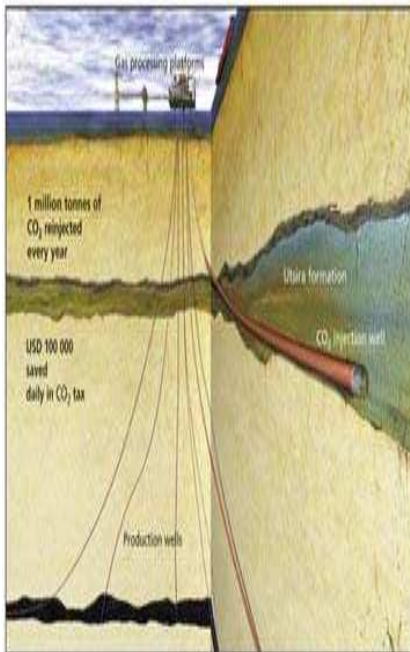
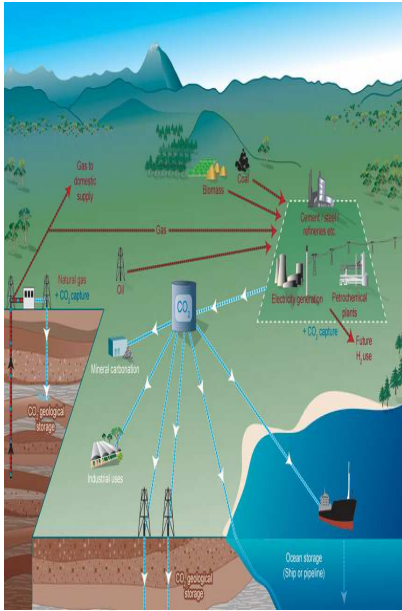
- Fossil fuels improvements
  - Energy intensity
  - Nuclear
  - Renewables

New technologies will be needed if stabilization is desired, for example:

- Biotechnologies (Soils, Bioenergy)
- Carbon capture & storage
- H2 and Adv. Transportation



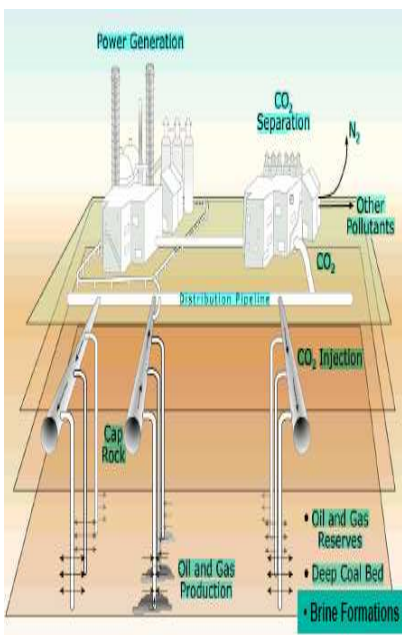
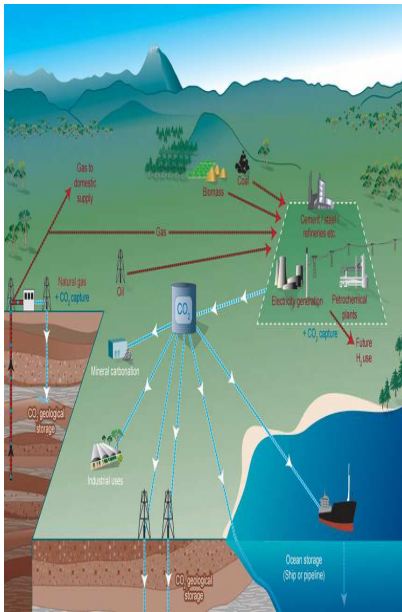
## CCS - status



- CCS being advanced by a diverse set of initiatives
- Governments, academia, industry and partnerships
  - Accumulating commercial experience
  - Efforts to reduce costs
  - Better risk definition and management
  - Form sound basis for evaluation of CCS potential and comparison to other carbon management options.
- Continued, long-term RD&D investment will be key to improving CCS's ability to deliver energy for development while managing carbon risk.



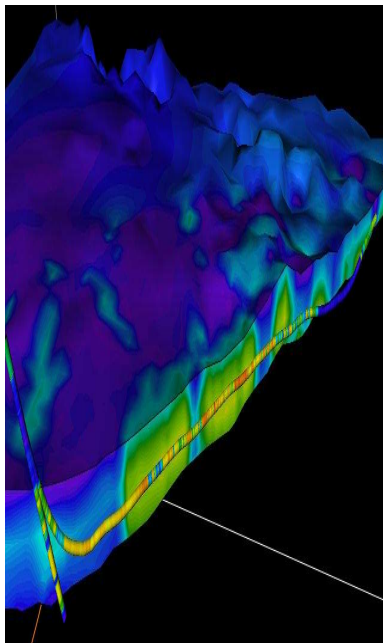
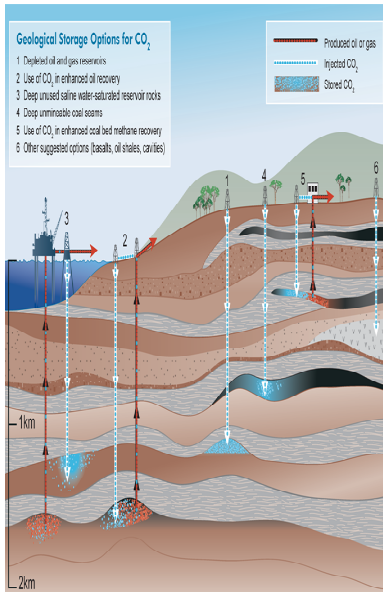
## CCS - ongoing discussions



- Incentives (e.g., involvement of CCS in CDM, crediting, R&D incentives)
- Legal/Regulatory Issues:
  - Role of policies and regulations in CCS and analogous operations (i.e. Enhanced Oil Recovery, Acid Gas Injection)
  - Potential classification of CO2 as a waste in pre-existing regulations
  - Permitting
  - Long-term liability
  - Need for monitoring
- Some Industry Strategies presented:
  - Relationship to power industry CO2 sources
  - Disseminate best practices, facilitate gov'tal interaction



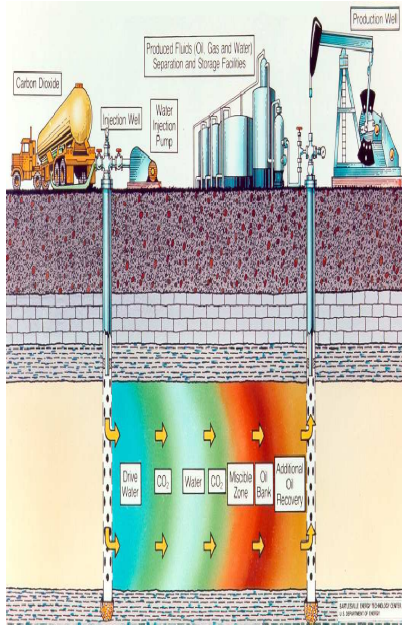
## CCS - ongoing discussions



- Carbon Capture and Storage (CCS) may become more important as a cost-effective way to reduce CO2 emissions,
- however
  - a favorable business climate is required to be in place
  - a significant CO2 infrastructure is required to be put in place to achieve widespread deployment (e.g., role of integrated regional CO2 transport networks; role of companies and governments to build and operate these networks will need policy developments)

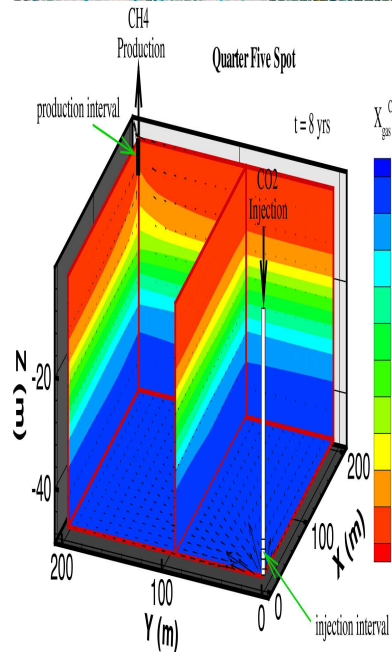


## CCS and technology transfer

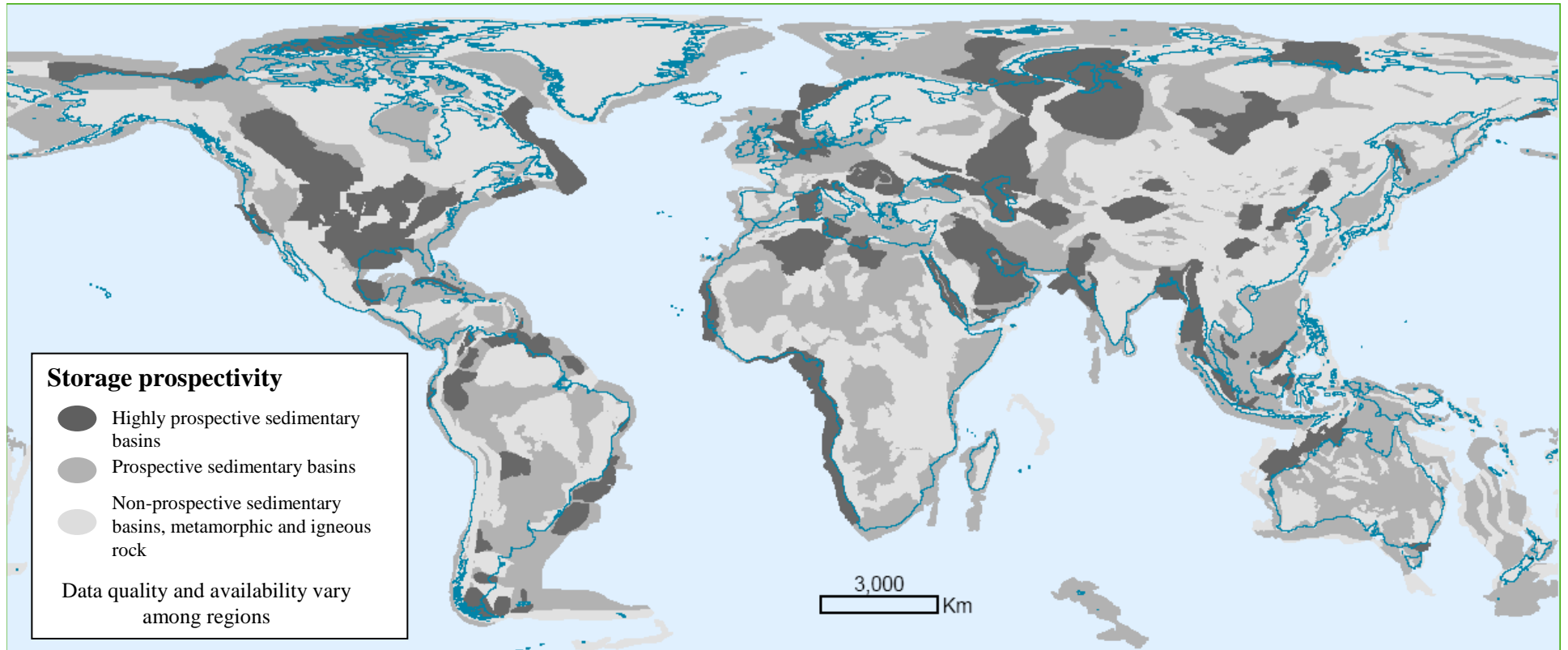


- Large numbers of sources in developing countries
  - Number of sources projected to rise

- Need technology implementation in developing countries
- Need to stimulate market take up of CCS
- Need to remove barriers



# Geographical relationship between sources and storage opportunities



Prospective areas in sedimentary basins where suitable saline formations, oil or gas fields, or coal beds may be found. Locations for storage in coal beds are only partly included. Prospectivity is a qualitative assessment of the likelihood that a suitable storage location is present in a given area based on the available information. This figure should be taken as a guide only, because it is based on partial data, the quality of which may vary from region to region, and which may change over time and with new information (Courtesy of Geoscience Australia).



Thank you for your attention.

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