Integrating Climate Concerns in Development Planning

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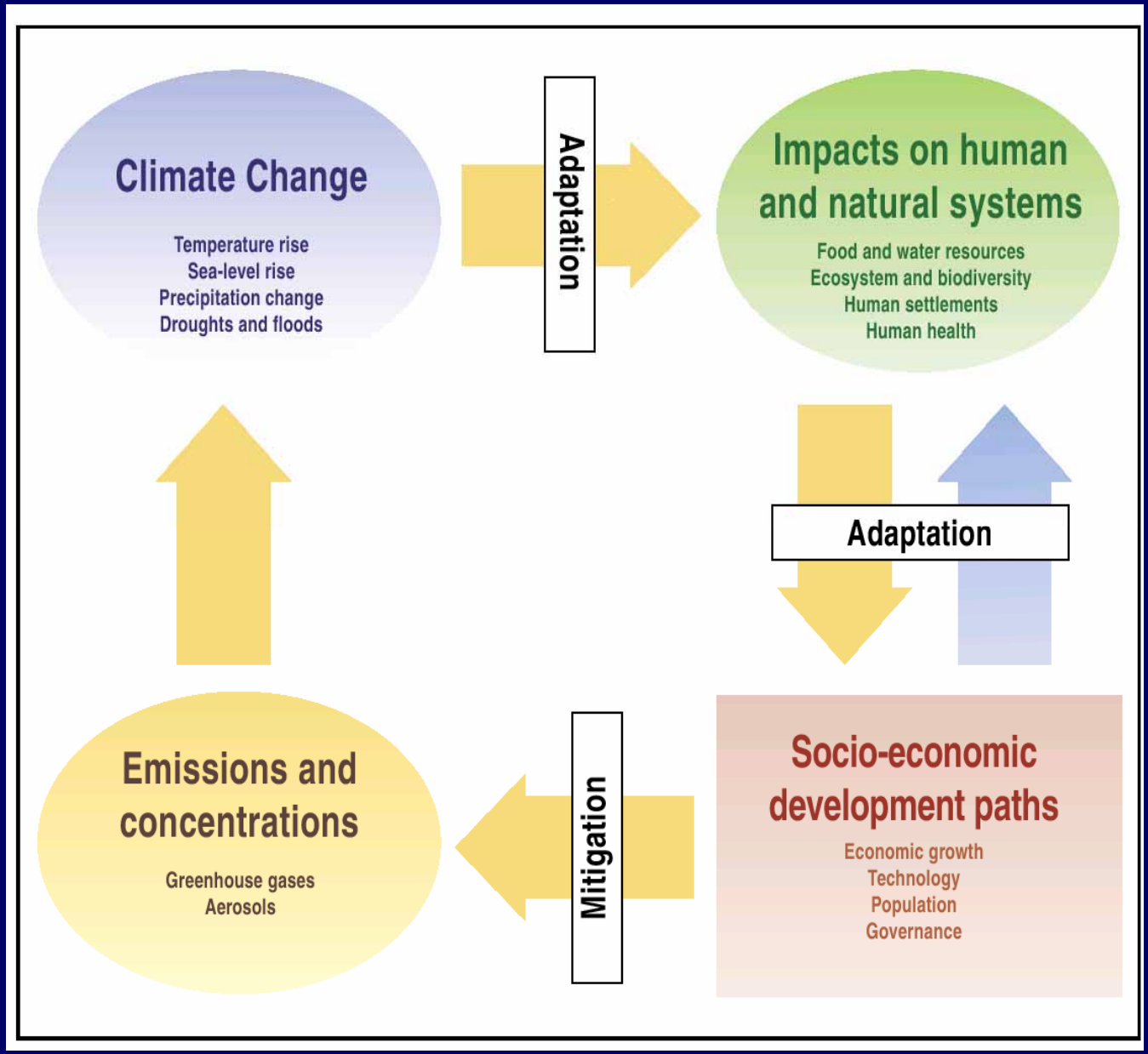
Structure

- Scoping and complexities.
- Sustainable development and climate linkages.
- Sustainable development as an analytical framework.
- How to assess the cost and sustainable development impacts of climate change.
- Study examples.
- Conclusions.


Climate Change
Temperature rise
Sea-level rise
Precipitation change
Droughts and floods
Adaptation
Impacts on human and natural systems
Food and water resources
Ecosystem and biodiversity
Human settlements
Human health
Adaptation
Socio-economic development paths
Economic growth
Technology
Population
Governance
Mitigation
Emissions and concentrations
Greenhouse gases
Aerosols

Sustainable Development

- Sustainable development was initiated by an increasing interest in the 1960's and 1970's about economic growth, ressource consumption and pollution:
  - Limits to growth, Meadows et al, 1972
  - The Bruntland report, 1987.
- Focus on the long term development of manmade capital, natural resources, and social capital:
  - Absolute constraints.
  - Potential substitutions.
- Basic problem that markets and economic development are "blind" to some issues:
  - Environmental impacts (externalities).
  - Long term intergenerational impacts.
- Climate change impacts are one out of many parameters in economic decisions. Examples include power system development, infrastructure, agriculture, and other land use activities.

What is Specific About Analyzing Climate Policies in the Context of Sustainable Development

- A long time frame has to be taken.
- All dimensions should be balanced: Economic, social, and environmental.
- Issues:
  - Intertemporal consumption should be non-declining.
  - Treatment of irreversible changes and abrupt changes.
  - Valuation of resources (pricing and other measures).
  - Inter- and intragenerational equity.
  - Social rate of discount.
  - The role of institutions.

Major SD and Climate Change Activity Areas

- Scenarios for economic development including energy and climate change at global, regional and local level: Long term (up to 100 years), medium term (15 to 50 years), and short term (up to 15 years).
- SD indicators for policy evaluation related to climate change impacts, adaptation, and mitigation.
- SD as a framework for international climate policies (beyond the “environmental agenda”).

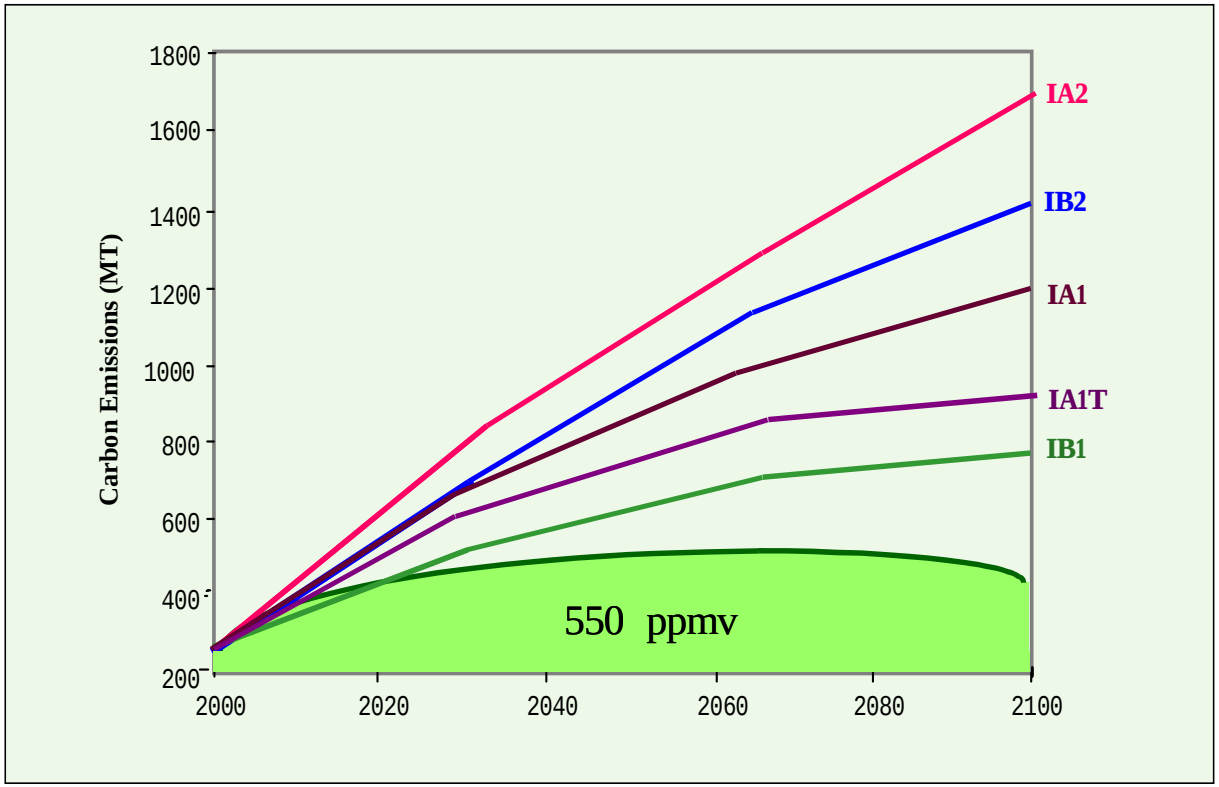
Scenarios

- Long term projections are very difficult to make due to basic uncertainty about economic growth and technological change in particular in fast growing DC's where industry and energy supply are under establishment.
- Key factors in DC's cannot be addressed in the models:
  - Market distortions, informal sector.
  - Current inefficiencies, potential for technological change.
  - Human capacities, poverty alleviation aspects.

URC Activities

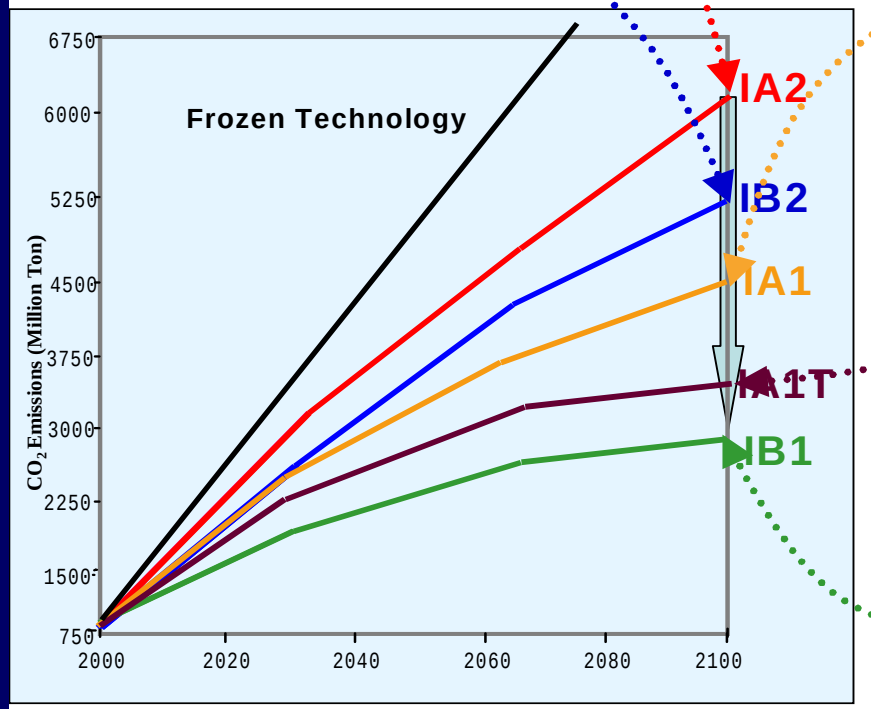
- IEA/UNEP project that aims at a better understanding of large DC's:
  - The role of energy as a key factor in development.
  - Potential for linked development and climate change policies.
  - Modelling and case studies for Brazil, China, India, and South Africa in parallel to the WEO 2006.
- Development, Energy, and Climate funded by Danida:
  - Thematic work on scenarios, policy environment, and infrastructure/adaptation linkages.
  - Guidelines for modelling SD, energy and climate change.
  - Case studies for Bangladesh, Brazil, China, India, Senegal, and South Africa.

Indian Emission Scenarios and Stabilization



Technologies in Scenarios: Long-term

Conventional Technology Paths



- Synfuels, Gas hydrates, Nuclear fission
- Fuel cell vehicle: Carbon-free hydrogen
- Energy efficient appliances/ infrastrucutre
- CO_2 Capture/ Storage, pipeline networks

- Nuclear Fusion, Backstops
- Information highways, High speed trains
- Advanced materials, Nanotechnology

- High share of renewable Energy
- Lifestyle changes, Eco-friendly choices
- Substitution of transport by IT
- Dematerialization, material substitutions
- Sustainable habitats, Public amenities

SD Indicators for Policy Evaluation

Economic • GDP growth • Sectoral development trends • Employment • Foreign exchange • Investments • Regional structure	***Human*** • Education • Health • Capabilities: Freedom, well being, living standards
Environment • Air pollution • Water pollution • Waste discharge • Depletion of exhaustible resources • Biodiversity	***Social*** • Local participation and sharing of benefits • Income distribution • Development of information sharing systems • Institutional capacity building

URC Project Activities

- IEA/UNEP project and Development, Energy and Climate use the indicator framework.
- Approach now also applied in Danish Climate Check Approach.
- Danida has intiated conceptual work and pilot studies in Vietnam, Tanzania, and Mozambique in order to understand how development programmes, MDG etc are influenced by climate change vulnerability and adaptation needs.

Case Examples from Vietnam, 1

- Infrastructure vulnerability and planning options, e.g. related to railways and highways:
  - Long lifetime.
  - Current projects like highways and railway are very vulnerable to climate change.
  - Development of a methodological approach for integrating climate change impacts in environmental and social assessment of infrastructure projects with a particular focus on highways and railways. (based on active projects).
  - Assessment of climate change impacts related to a case example of infrastructure, identification of adaptation options and generation of information about costs, benefits and other impacts.
  - Stakeholder dialogue and workshop.

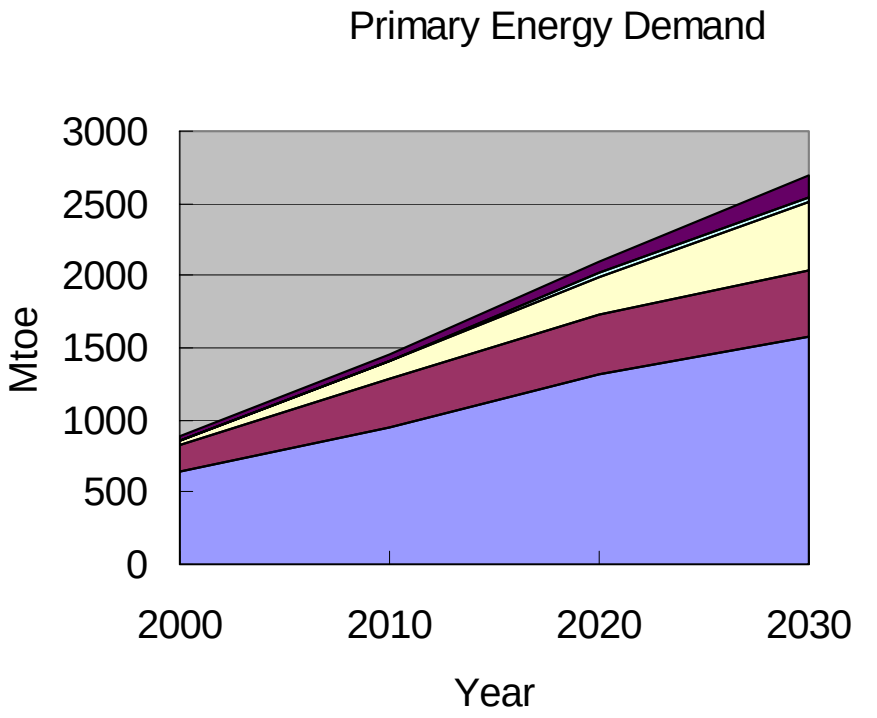
Case Examples from Vietnam, 2

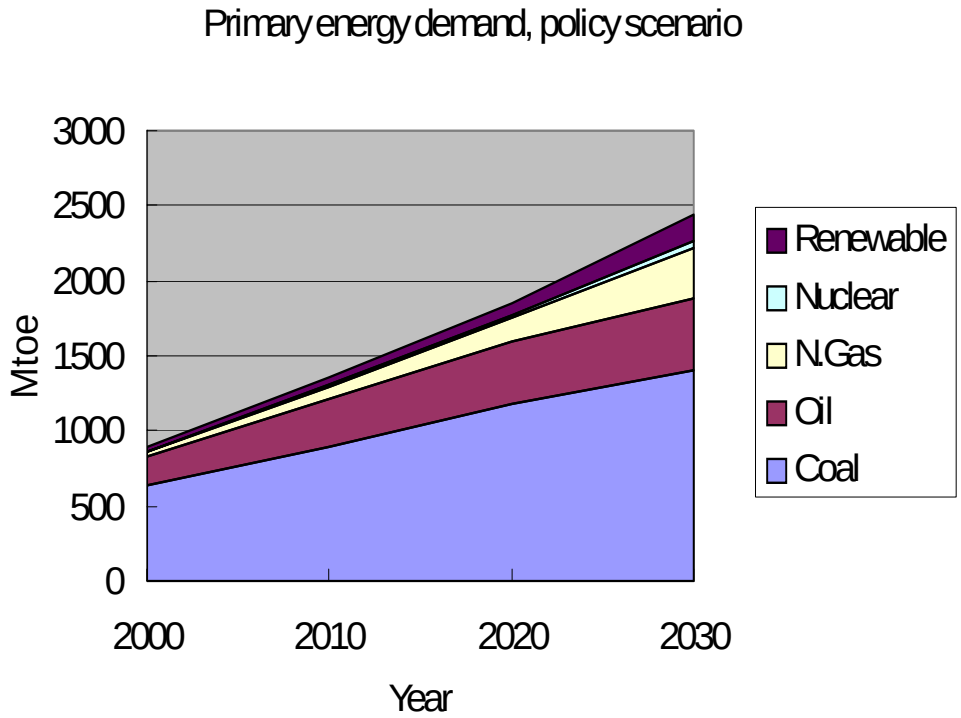
- CC impacts and household coping strategies: Linking technical and socio-economic information systems about household living standards with information about climate impacts and flooding:
  - Generating combined socioeconomic and climate change impact maps at the provincial, district and commune levels.
  - Examining the climate change impacts on poverty and coping strategies including access to information, finance, insurance, and the role of local institutions.
  - Examining the effects of poverty on coping strategies and possibilities.
  - Developing the capacity of Vietnamese institutions to carry out integrated socio-economic and GIS mapping and analysis in the future.
  - To promote collaboration between different ministries as well as donors on crosscutting issues related to climate change adaptation, poverty and development.

International Climate Policies in a SD Framework

- SD in many cases have shown up to be an effective climate change policy framework, but a special effort is needed to get it to be taken into consideration:
  - markets and global development are ”blind” to cc.
  - cc impacts are emerging but are a long term and very uncertain issue.
- Special mechanisms are needed to get climate change integrated in general economic and social development policies. Examples:
  - Short term: Assigning economic values to carbon reductions. Finance for Sustainable development and climate change.
  - Long term: Increasing support to technological development and penetration.

Clean Coal Scenario for China





280 mill tce. decrease in primary energy consumption in 2030 and 160 mill. tce coal saved

Social Issues in the Chinese Coal Scenario

- Energy security to support economic growth.
- Fuel cost savings.
- Employment and social issues in the coal sector.
- Health improvements from improved air quality.
- China as a global leader in clean coal technologies.

Conclusions

- SD and climate cange are close linked, but more insights are still needed on paractical aspects and quantitative results for diferent sectors and countries (energy and development, developing countries, climate change impacts).
- Insights about developing countries are still not well enough represented in international scenarios and modelling work.
- New paradigmes for SD driven climate change policies should be further explored:
  - Financial mechanisms.
  - Carbon markets.
  - Technological change.
  - Links to trade policies.
  - Private sektor interests.