

Alain Haurie, Philippe Thalmann and Marc Vielle

**TECHNOLOGY-ORIENTED COOPERATION AND STRATEGIES IN
INDIA AND CHINA TO MITIGATE CLIMATE CHANGE**

Alain Haurie: ORDECSYS / C-ORDEE, Geneva

Email ahaurie@ordecsys.com

Philippe Thalmann: EPFL University of Technology, Lausanne

Marc Vielle: EPFL University of Technology, Lausanne

We will report on an international research project aimed at assessing climate change mitigation options in China and India and the conditions for a strategic cooperation on RD&D and technology transfer with EU. This project, which started in January 2007, will identify and assess technology options that might significantly reduce greenhouse gases (GHG) emissions in China and India in key sectors (i.e. power generation, transport, agriculture, and heavy industry). It will also define the necessary institutional and organizational architecture that would stimulate technological cooperation.

The research will be structured around the use of an ensemble of models that will be coupled together via advanced large scale mathematical programming techniques: (i) World and regional (i.e. China and India) MARKAL/TIMES bottom-up techno-economic models permitting a global assessment of technology options in different regions of the world; (ii) a CGE multi-country and multi-region model of the world economy (GEMINI-E3) that includes a representation of developing countries' economies (i.e. China and India) permitting an assessment of welfare, terms of trade and emissions trading effects; (iii) a multi-region integrated model (WITCH) representing the effect on economic growth of technology competition in a global climate change mitigation context; (iv) a game theoretic framework that will be implemented to analyze self-enforcing agreements (i.e. agreements that the signatories stick to even in the absence of a higher authority able to deter non-compliance) regarding abatement commitment and technological cooperation.