

# CLIMNEG III

## Climate, Coalitions and Technology

DURATION OF THE PROJECT  
Phase 1: 15/12/2005 – 14/12/2007

BUDGET  
204.591 €

KEYWORDS  
Climate negotiations, Technical progress, Environmental constraints, General equilibrium

### CONTEXT

The CLIMNEG project focuses on climate issues under three perspectives : the climate science, the negotiation process and coalition formation and the role of technological progress. It is an interdisciplinary project relying on mathematical modeling, both theoretical and applied.

### PROJECT DESCRIPTION

#### Objectives

The objectives of this project are twofold:

1. to better understand the climate negotiation process and the role of technological progress for severe GHG emission abatements in order to propose policy designs. One crucial element here is to study how potentially stable climate architectures could be influenced by long term R&D-oriented policies and instruments
2. to help decision-makers and relevant stakeholders better understand climate issues, policy questions and scientific backgrounds, both in climate science and economic modeling, in particular by evaluating the effectiveness of potential international climate policies and agreements with numerical simulations

The climate change issue is a so complex and ever-evolving matter that, admittedly, much remains to do in these two fields. One of the ambitions of this project is to narrowly link top academic research and decision-making, both ways. Clearly this requires specific efforts or tasks, and the whole project is designed for this purpose.

#### Methodology

In order to meet the objectives mentioned above the project is organized around four methodological axes:

1. During recent years, considerable progress has been made in theoretical economic analysis of international environmental agreements. Incentives of governments to sign, ratify and implement agreements are relatively well

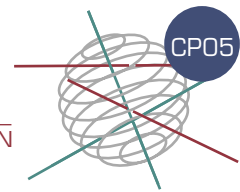
understood in a static game, context in which governments decide to participate once and for all in an agreement or not. The role of transfers and alternative institutional settings has been studied extensively. One dimension that has not been adequately covered up to now is the dynamics of coalition formation, i.e. the question of how cooperation evolves over time in a dynamic context. Typically, real world climate negotiations are a step-by-step process in which consecutive negotiations rounds result in emission targets for consecutive commitment periods

2. Narrowly linked to the previous issue, technological progress has been repeatedly invoked to be the decisive engine to achieve sustainable development, in particular energy-saving technologies. Nonetheless, the possibility to keep emissions under control and to guarantee positive long run growth might be challenged on several grounds. We shall examine all these issues in vintage capital modelling and dynamic general equilibrium theoretical settings to represent the scrapping process of carbon intensive technologies
3. Applied policy results will be provided to policy-makers and stakeholders will be provided in the framework of the CLIMNEG World Simulation model, an integrated assessment model that was successfully developed in the first CLIMNEG contract
4. Coordination, dissemination and policy support will constitute a task *per se* within the project. It covers the following set of activities, interaction with the users' committee and meetings, maintenance of a dedicated website, production and dissemination of working papers, writing and dissemination of *Policy Briefs*, defined as non technical versions of research outcome and contributions to policy debates, organization of regular academic seminars and open workshops

### INTERACTIONS BETWEEN THE DIFFERENT PARTNERS

The partners of the project are economists (CORE-UCL and EHSAL) and climatologists (ASTR-UCL). Interactions are twofold. First, the computational ClimNeg World Simulation





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model (CWS), an integrated assessment model of the economy and climate, contributes to the dialogue through a common language, mathematics. Second, the discussions around climate policy scenarios foster an integrated comprehension of climate issues within the network. Regular internal working seminars constitute a key-stone for such an interdisciplinary research. Link with international programmes

This ClimNeg project has connections, for its part devoted to technological change, with a research project supported by the French Ministry of Research on Technological Change and Sustainable Development (ACI) called “Macroeconomic Modeling of Sustainable Development”.

## EXPECTED RESULTS

1. Detailed theoretical and applied analyses on climate coalitions and the role of technical change for post-Kyoto climate regimes, to be submitted to international peer-review journal
2. Policy recommendations: after exchanges with the Follow up committee, the results of the analyses will directly or indirectly lead to policy recommendations
3. Capacity building
4. Improvement of expertise for the researchers in charge of the project, the members of the Follow up committee and the members of the institutions they belong to
5. Teaching (post-graduate students in environmental economics and doctoral students)
6. Dissemination and sharing of information

## CONTACT INFORMATION

### Contact information

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#### Follow-up Committee

For the complete and most up-to-date composition of the Follow-up Committee, please consult our Federal Research Actions Database (FEDRA) by visiting <http://www.belspo.be/fedra> or <http://www.belspo.be/ssd>

## PARTNERS - ACTIVITIES

### The CORE-UCL team

is the coordinator of the project. It contributes with the development of the computational CWS model, its update and applications. It is in charge of the theoretical developments on technological change and climate. It also contributes to policy insights on climate policies, climate negotiations and markets for emission tradable permits with

applied and theoretical works. EHSAL is involved in coalition theory, but also in the maintenance, the upgrade and the use of the CWS model. ASTR-UCL is responsible for the upgrade of the climatic part of the CWS model, the follow-up of policy debates on climate negotiations, design, and the computation of the CWS model for climate policy scenarios.

