

Development of an Integrated Assessment System for the Impact, Mitigation and Adaptation Options of the Global Warming – Project PHOENIX 2005

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This paper presents the outline and the current activities of Project PHOENIX for the assessment of global warming impacts, mitigation and adaptation options. The project PHOENIX consists of three major targets: (1) the development of an integrate assessment procedure to deal with the long-term, uncertain and irreversible abrupt events and middle term policy and technology options. Mitigation options and adaptive possibilities are also taken into account. (2) Development of an energy-economic model which can evaluate the industry structural changes as well as the scenario of the energy systems, and (3) development of an warming impact assessment mainly based on the literature including an model development for the evaluation of agricultural production potential. Firstly we extract some acceptable IPCC-SRES based GHG emission pathways whether the shutdown of the thermohaline circulation, a case of abrupt events, can be avoided. Secondly, the pathways are again evaluated from regional possible impacts. GIS based model is applied. Other technological and economic options are then assessed using multiple models. For the near term economic analysis, we have developed a multi-sectoral, multi-regional dynamic model, named DEARS base on GTAP data base. We also developed a GIS based model to evaluate the impacts on agricultural potential production. These outputs as well as the information in the literature are then summarized in a "scoreboard table" to compare the scenarios from multiple views including monetary term. The policy and technological questions on the climate change issues are addressed quantitatively in the PHOENIX project.

Keywords:

integrated assessment, global warming, multi-sectoral and multi-regional model, energy and economic model