

Options for International Financing of Climate Change Mitigation in Developing Countries

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This paper compares alternative scenarios for international action to reduce greenhouse gas emissions up to 2020, using the Worldscan applied general equilibrium model developed by the Netherlands Bureau for Economic Policy Analysis. The paper assesses the theoretical potential of sectoral crediting mechanisms and incentives for participation of developing countries in financing climate change actions. Following the outcome of the UNFCCC conference in Copenhagen, it makes no specific assumptions about the future international climate regime. The analysis is based on CO₂ emissions and does not account for REDD and LULUCF as abatement options. No use is made of excess Assigned Amount Units (AAUs) from the first commitment period of the Kyoto Protocol to meet the 2020 emission reduction targets. As described in more detail in the paper, all policy scenarios consider the emission pledge for the EU at 20% reduction below 1990 emission levels by 2020. The analysis is consistent with and builds on the approach taken in the Impact Assessment accompanying the European Commission's January and September 2009 Communications "Towards a comprehensive climate change agreement in Copenhagen" and "Stepping up international climate finance: A European blueprint for the Copenhagen deal".

Increasing financial flows to developing countries, to help them adapt to the consequences of climate change, and to enable them to implement effective policies to limit their own contribution to climate change, will be a key element in future international co-operation to tackle climate change. To attract higher levels of private capital through the carbon market, developing countries will need support from public funds to put in place effective climate change policies. However, mechanisms for delivering this public support are outside the scope of the paper. Accordingly, when comparing the estimated financial flows reported in this paper with other estimates, possible differences in the scope should be kept in mind: this paper reports only on financial flows to developing countries through the carbon market.

Effective global action to prevent dangerous climate change requires moving beyond the provisions of the Kyoto Protocol to the UNFCCC, which requires action only from developed countries, which account for less than half of world greenhouse gas emissions. In addition, delivering the large scale emission reductions that are needed will not be feasible with the current project-by-project approach of the Clean Development Mechanism (CDM) of the Kyoto Protocol, which allows developed countries to meet their targets by funding emission reduction projects in developing countries. Critics argue that the projects funded under the CDM are excessively concentrated in a small number of wealthier developing countries, and would in most cases have gone ahead anyway, so that the mechanism has contributed little to either development or reducing emissions.

To remedy these defects, the EU has proposed a move away from the CDM towards sectoral crediting mechanisms, under which more advanced developing countries would only earn credits for emission reductions that go beyond an agreed "do something" baseline. This would stimulate own climate change action by developing countries and reorient CDM

projects towards less advanced developing countries. By focussing on reductions at a sector-wide level, these sectoral approaches should facilitate the scaling up of financial flows through the carbon market. They could also be the first step on the road towards cap-and-trade systems and, in the longer-term, a fully-fledged global carbon market.

To examine these issues a number of scenarios are developed and analysed. A “global carbon market” scenario is presented as a cost-efficient reference against which other scenarios are compared. In this scenario developed and developing countries meet their targets through participation in a common emissions trading system. Relative to the baseline in 2020, global emissions fall by more than 24% at a cost of 0.3% of world Gross Domestic Product (GDP). However, this loss of output is unevenly distributed: the fall in GDP relative to 2020 baseline in developing countries reaches 0.8%, compared to 0.2% in developed countries. Financial flows through the carbon market from developed to developing countries amount to €32 billion in 2004 prices, out of which China receives some €28 billion. At the opposite to this scenario is one in which the architecture of the Kyoto Protocol remains in place up to 2020 – only developed countries take targets, and the CDM remains as currently. Compared with the reference scenario, emission reductions roughly halve in 2020 and carbon market flows to developing countries are reduced by about 20% in the CDM scenario.

Two further scenarios aim to throw light on the possible impacts of a move towards sectoral approaches and enhanced climate change action by developing countries. In the first, the climate change mitigation by developing countries is simulated by assuming that they place a tax on their emissions at a level of about half of the prevailing carbon market price in developed countries. Emission reductions they undertake beyond the level resulting from such a tax may be sold to developed countries through the carbon market. A variant of this approach is to assume that developing countries impose a higher tax – at 90% of the international carbon price – on emissions in the electricity sector. The economic and environmental reasoning behind this is that the electricity sector is both a large emitter and has many relatively low-cost abatement opportunities. Moreover, by raising electricity prices in developing countries, such a tax may help to alleviate concerns about the possible relocation of energy-intensive industries from developed to developing countries under the influence of aggressive greenhouse gas reduction policies in developed countries. These two scenarios deliver almost as much in terms of emission reductions by 2020 as the “global carbon market” scenario – 19% and 20% respectively, at approximately the same cost in terms of global GDP. Moreover, compared to the “global carbon market” scenario, the impact of requiring some own actions by developing countries causes a notable change in the destination of these flows: China’s share roughly halves, from about 80% to 40%.

A detailed analysis of the environmental and economic effects of different policy scenarios shows that the environmental prospects systematically improve in a transition from the CDM towards a global carbon market, while the opposite is foreseen for the economic costs. The improved environmental outcome comes foremost from enhanced participation of developing countries that start to take on targets. The more of a carbon market we have when moving from the project-based CDM to sectoral crediting mechanisms and internationally linked cap-and-trade, the more finance the carbon market will channel to developing countries. A final scenario considers the impact of the current economic crisis on the achievement of the EU’s global emission reduction objectives. To the best of our knowledge, this is the first attempt at incorporating the effects of the economic slowdown in climate change modelling scenarios. Unsurprisingly, it shows that the additional cost of achieving the 2020 targets is less: lower levels of economic activity in the post-crisis scenario compared with the pre-crisis baseline reduce the volume of emission reductions that is needed by about 6 percentage points. In this scenario, the carbon price is also some 40-50% lower than in the pre-crisis scenario. This relatively low carbon price is a concern for the longer-term, as it gives a relatively weak incentive for the development and deployment of the low emission technologies that will be needed to deliver the deep emission cuts needed to prevent dangerous climate change.