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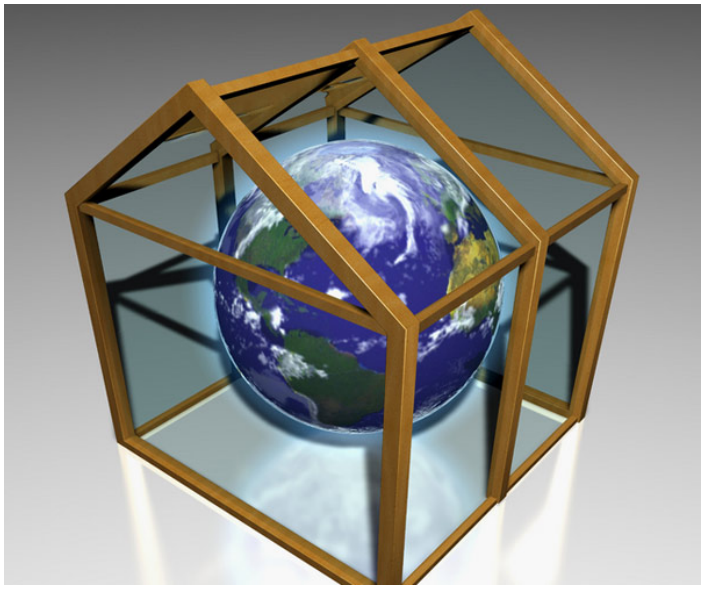
Environmental economic model for agriculture



Key external stakeholders:
Policy makers, state agencies, agricultural interest groups

Practical implications for stakeholders:
The research has produced an updated model capable of projecting greenhouse gas (GHG) emissions from Irish agriculture. This model is integrated as part of the ESRI's Sustainable Development Research Model for Ireland (ISUS).

Main results:
The model is capable of undertaking analysis to project emissions of greenhouse gases and ammonia from agriculture over a ten year forward basis and the results can be integrated with the wider ISUS model.

Opportunity / Benefit:
The model's scenario capacity will be of interest to policy makers and other researchers working in this area.

Collaborating Institutions:
Economic and Social Research Institute (ESRI)

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1. Project background:

The political desire to reduce our impact on the climate has now come to the fore both in Ireland and in the EU generally. GHG emission reduction targets have been established for Ireland and other Member States as part of the effort sharing agreement reached in Brussels in December 2008. For Ireland, at a minimum, the target is a reduction of 20% by 2020 in overall GHG emissions from all sectors of the economy, relative to the 2005 level. The reduction target would increase to 30% if a successor agreement to the Kyoto protocol is achieved.

This study addresses the issue of agricultural greenhouse gas (GHG) emissions from an economic standpoint. A range of policy strategies to abate emissions are examined. The capacity of technical abatement strategies is examined against the possible reduction requirements that could emerge. Detailed consideration is given to the economic impact of reducing the level of agricultural activity in order to further reduce GHG emissions from agriculture.

2. Questions addressed by the project:

- How could policy makers approach the issue of GHG abatement in agriculture ?
- What are the types of economic GHG abatement policies that could be used ?
- How much of a limit on agricultural activity would be required to deliver a 30% reduction in GHG emissions from the agricultural sector?

3. The experimental studies:

The GHG model was developed in a manner consistent with the EPA GHG emissions inventory and projections model. The model was then used to run particular GHG reduction scenarios.

4. Main results:

Agricultural policy and market returns will give rise to reduction in GHG emissions from agriculture over the next decade. However, even with such reduction, the level of emissions from agriculture in 2020 is likely to be well off a 30% GHG emission reduction target. The results form this project illustrate the dramatic impact which meeting a 30% GHG emission reduction target could have on the Irish beef production. Ireland's 2020 GHG emission targets are onerous, given the limited extent to which the country has moved towards meeting the relatively benign GHG emission targets that were set under the EU Burden Sharing Agreement for the Kyoto Protocol.

5. Opportunity/Benefit:

This research is of benefit to stakeholders seeking a better understanding of the implications of potential future constraints on agricultural GHG emissions in Ireland.

6. Dissemination:

Main publications:

Breen J., Donnellan, T. and Hanrahan, K. (2009) 'Greenhouses gas reduction targets: An Economic Assessment of the challenges for Irish Agriculture' *Plenary paper in the Proceedings of the Agricultural Research Forum*: 162 – 167.

Popular publications:

Donnellan T. and Hanrahan K. 'Competing on a World Stage', TResearch, Summer 2009, Teagasc http://www.teagasc.ie/publications/2009/15/15_tresearch200905.pdf [accessed on 5th March 2012]

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