



# Global Policy Coherence 2009

## Governance | climate - finance - trade

### “Embodied Carbon in Traded Goods”

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COSBEY, A. “*Trade and Climate Change: Issues in Perspective*”, Copenhagen Conference Summary, IISD, October 2008

#### KEY ISSUES

- The term “embodied carbon” refers to carbon dioxide emitted at all stages of a good’s manufacturing process, from the mining of raw materials through the distribution process, to the final product provided to the consumer. Depending on the calculation, the term can also be used to include other GHGs.
- Important questions in climate change and international trade discussions are linked to embodied carbon. Should emissions be allocated at the point of consumption (meaning a calculation like embodied carbon), or at the point of manufacture (meaning a calculation like those currently performed for the purposes of the Kyoto Protocol)? Should international trade be considered in a future climate change agreement to avoid “carbon leakage” to developing countries?
- These questions have particular implications for a country like China that has experienced phenomenal economic growth, matched by increases in energy use, aggregate GHG emissions and exports. While embodied carbon may be a negotiating issue for China and other rapidly growing developing nations that are under pressure to curb increases in energy use and GHG emissions, there is still a lack of good research results to fully support the discussion.
- Initial research indicates that, in general, Annex B countries are net importers of CO<sub>2</sub> emissions, but there is considerable variation. And the various assessment techniques used to calculate embodied carbon—e.g., life-cycle assessment, ecological footprint and hybrid LCA—face several challenges, including methodology, definition of boundary, data availability and cost.
- The concept of embodied carbon is also important in the discussion of competitiveness issues, whereby those countries implementing emissions reduction policies will have to compete with exports from countries

without mandatory emission reductions, where costs of production may be lower as a result. The basis for trade measures (e.g., border carbon adjustment) to level the playing field could be embodied carbon in products.

- But, is the concept of embodied carbon compatible with the principles of the multilateral system of trade? Specifically, can discrimination based on embodied carbon be accommodated in existing trade law? Given the proliferating number of schemes, both private and governmental, this question is important.

#### CONCLUSIONS AND RESEARCH AGENDA

There are gaps in our understanding of embodied emissions from a climate change and trade perspective, and more research is needed to assist the international community in properly assessing policy options.

One area requiring further work is increasing the number of products analyzed. Embodied carbon calculations have only been undertaken for a limited number of products and wider coverage is needed. Related to this is the need to extend boundary limitations to allow a more systematic analysis of embodied carbon. While product labelling schemes may have only limited value, analysis of carbon emissions throughout some representative supply chains could help educate manufacturers about energy cost saving and emissions reduction opportunities.

Regional analysis is also needed, especially in developing countries where the same products could have very different levels of embodied carbon. And international comparative analysis is essential to understand mitigation potential and links with trade issues.

More research needs to be carried out on the development implications of labelling based on embodied carbon. Economic development in poorer countries can be hurt by shrinking markets for products shipped long distances, but the alternative products do not always have smaller carbon footprints (note the well-known example of cut flowers

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from Kenya vs. those grown in heated greenhouses in northern, cooler climates).

It is also important to begin to examine known trade case law to try to determine whether measures based on embodied carbon—both voluntary and mandatory—might be compatible with the principles of the multilateral system of trade.

Finally, more attention needs to be paid to embodied carbon and its possible impacts on the climate change regime and negotiation process. While this would be a very political analysis, research is needed to extend the debate beyond rhetoric and perceptions of negative impact on competitiveness that are not backed up with solid data. As noted earlier, it is important to begin to examine whether embodied carbon can be accommodated in existing trade law, and whether the concept is compatible with the principles of the multilateral system of trade.

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