Letters to the Editor

The Resource Debate Needs to Continue

Stewart M, Weidema B (2005):
A Consistent Framework for Assessing the Impacts from Resource Use. Int J LCA 10 (4) 240–247

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In several recent reviews it has been concluded that there is currently no consensus on methodologies for impact assessment of resource use (Lindeijer et al. 2002, Pennington et al. 2004). It has also been noted that in several weighting methods, for example the EPS system (Steen 1999) and the Ecoindicator 99 (H-version) (Goedkoop and Spriensmaa 1999), resource use is often very important for the overall results. It is thus clear that the topic needs more research and discussion. The recent paper by Stewart and Weidema (2005) is therefore a welcome contribution.

Stewart and Weidema advocate an approach, in which impacts from resource use should be assessed as environmental impacts from future extractions of resources which occur as a consequence of the resource use in the product system under study. This approach is in line with several other earlier papers (Weidema 1991, Steen and Ryding 1992, Steen 1999, Müller-Wenk 1999, Goedkoop and Spriensmaa 1999). Common to all these methods is the assumption that current resource use leads to future resource extractions having other environmental impacts. In order to model the future extractions, different types of assumption have to be made.

The approach is interesting but it does not solve the problem of how to handle resource use in the life cycle impact assessment. If the approach is to be used, it should instead be a part of the inventory analysis. Since the future resource extractions are assumed to occur within the technical system as a consequence of the product system under study, these future extractions should by definition be modeled in the inventory analysis. Just like emissions and extractions from any processes occurring in the technical system, the interventions should by definition be modeled in the inventory analysis.

Does it matter if the interventions from future extractions are modeled within the inventory analysis or the impact assessment phase of an LCA? Yes, I believe it does. If the future extractions are modeled within the inventory analysis, the question how to handle resource extractions in the impact assessment remains.

One question that should be asked is why we include resource use in LCA at all? Environmental impacts from resource extraction should of course be handled in parallel to other environmental impacts. But why should resources be included as an impact category? I think this is one of the questions that need more discussion.

To me it is clear that resource use and competition have impacts on human welfare in a broad sense. For example, resource competition is one reason behind a number of conflicts in the world, with both local and global implications. The prices of resources can also have impacts on both local and global economies as illustrated, for example, by the effects of the increased oil prices on employment and inflation in many countries during the 70's. These types of impacts are not considered if only the environmental impacts of current and/or future resources extractions are included. Resource depletion and resource competition are therefore impacts that are of concern in addition to the environmental impacts.

It may of course be argued that LCA is not the proper place to handle resource issues. If so, it can be excluded in the goal and scope definition. On the other hand, LCA may be a very useful tool for discussing both environmental and resource aspects of products in a life cycle perspective, which suggests that it should be included.

I think the issue of how to handle resource use and competition in LCA deserves much more attention. I believe that the approach for impact assessment suggested by Stewart and Weidema (2005) and included in several impact assessment methods such as EPS (Steen 1999), Ecoindicator '99 (Goedkoop and Spriensmaa 1999) and Impact 2002+ (Jolliet et al. 2003), is conceptually wrong and should not be used in the present version. Instead, interventions from future extractions should, if wanted, be included in the inventory analysis in parallel to other interventions, and other approaches should be used in the impact assessment. The discussion is of extra relevance since LCIA methods are not only used in LCA but also in other contexts such as Strategic Environmental Assessment (e.g. Nilsson et al. 2005), Cost-Benefit Analysis and Life Cycle Cost analysis (e.g. Carlsson Reich 2005).

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