

## Reaction of the EIPRO project team on comments by VCI

**1. Extract of comments:** [...1. The goal is overly ambitious. The authors of the study want to develop a method for identifying in the European Union the products and product groups most harmful to the environment. This project fails due to its complexity:

- Products as well as product variations and production processes are too heterogeneous,
- Environmentally harmful effects are too diverse,
- There are significant differences between the European countries,
- The data situation is insufficient.

Also the authors realize that existing studies – equally those based on Input-Output-Analysis – are unsuitable to achieve inter alia this ambitious goal...]

**Reaction:** The project is not too complex. We have chosen such a level of aggregation that we are not assessing the differences that exist within a product category like car A vs. car B. Indeed, the EIOA method at this level of aggregation would not be useful.

Instead the large differences which exist between product categories like car driving vs. building a house are assessed in this study. Thus, differences between completely different economic sectors are assessed.

Indeed the environmental effects caused by economic activities are very diverse. Therefore we have chosen to assess numerous environmental effects that are seen as important by the society. These include: global warming, acidification, eutrophication, etc.

Older IOA studies, as described in the EIPRO report are not equal to the EIPRO study. They have a much higher level of aggregation, and a more uneven or limited data base. By going to a lower level of aggregation the shortcomings of these studies have been remedied...]

**2. Extract of comments:** [...2. Input-Output-Analysis is an unsuitable method. With the Input-Output-Analysis the authors choose a top-down approach, taking aggregates as a basis to draw conclusions for individual products and their environmental impacts. However Input-Output-tables (IO tables) are only conditionally suited to examine the impacts on the environment of individual products and product groups. First, IO tables reflect only product purchases of individual sectors in the production phase. The use and waste phases of a product are not covered. Second, IO tables generally do not reflect emissions and other environmental impacts of products. The general data basis is another problem. IO tables are mostly available in aggregate form only, which does not allow conclusions for individual products. For EU25 there are no IO tables, for EU15 only in highly aggregated form. Therefore the Input-Output-Analysis is an unsuitable method...]

**Reaction:** Standard IO tables do not cover the use phase of a product and have little information on the waste phase of a product. However, we have added the emissions taking place in the use phase of products and services by consumers. Also a complete waste management sector including waste collection and recycling has been added to the IO table. Thus we cover the full life cycle of the product and services acquired by consumers.

Standard IO tables do not contain information about environmental emissions. But the IO tables are easily extended with information about employment or environmental emissions. Making environmentally extended IO tables is an established practice. They are for instance published by the bureau of statistics in the Netherlands (in the form of NAMEA's) and for Eurostat, based on detailed guidelines.

It was not our purpose to assess the impacts of single products (like a specific car). The level of aggregation in this study is chosen in such a way that we can assess the impacts of groupings of products. EIOA is a very suitable method to do so. Similarly IO is a suitable method to assess the contribution of certain industry sector to the income of a country.

**3. Extract of comments:** [...3. The data situation does not allow reliable conclusions. IO tables for EU25 are not provided in the required disaggregated form. Therefore the authors use several aids and assumptions to arrive at statements for EU25. Data and assumptions – and, consequently, the conclusions – are not reliable:

- *The authors transpose US data to EU25. This is because for the USA relatively detailed IO tables are available that are updated regularly. However, also these IO tables include only the production phase. By contrast, there are no comparable data for EU25. The authors assume that there are no major differences between the USA and Europe and between the various European countries, respectively! In fact economic structures, sizes of firms, plants etc differ partly significantly between the USA and the EU and also between the various EU Member States so that it is doubtful whether US data can be transposed to EU25 as a whole. Differences in classification render a transposition even more difficult.*
- *Even for EU15 there are only highly aggregated data. Extending data available for EU15 to the entire EU25 gives rise to considerable doubts, because economic structures are still quite different after all. The assumption of the authors that those differences will be overcome within 10 years is not plausible.*
- *The partly available IO tables for the EU are not regularly updated and originate from 1990! Thus dynamically changing industries are described in a highly distorted manner and no statements at all can be made for individual product groups or even products. This "time lag" for data leads to a situation where results do not show current and real impacts on the environment but provide, at best, a picture from the past.*
- *For the further life cycle of products, various statistics are included that follow systems other than IO tables. For example, data on possible environmental impacts of products for EU25 are taken from only one study (van Oers et al. 2001) that examines emissions in the entire EU25. These data are hardly representative. No control of these data can be furnished...]*

**Reaction:** We do not assume that the structure of the American economy is completely similar to the European economy. Firstly, the US data have been fully adjusted to EU data which however are available at a higher level of aggregation only. Only in detailing these EU data have the US data been used. The method used for forcing the EU data on the US IO tables is the RAS procedure. The use of this method is common practice in the updating of IO tables. Furthermore those sectors known to be different (energy, agriculture) we have adapted the IO table.

The EU IO tables used in the RAS procedure are old indeed but the most recent and consistent available. The structure of the economy is thus those of the 1990's. However, the structure of an economy is not very dynamic except for some specific new service sectors. The environmental emission data are from a much more recent date. The reference for these data is van Oers et al., 2001. This document gives a description of the collection of environmental emission data from hundreds of sources available.

**4. Extract of comment:** [...4. Conclusions. The statement by the authors that data are representative and achieve the goal of singling out product groups with particularly high environmental impacts is wrong. The weak data basis makes conclusions impossible. It is not advisable to develop, on this basis, recommendations for action for the EU Commission regarding IPP.

*The IO tables are unsuitable in their present form. The authors themselves note that*

- *the model can only serve as a basis,*
- *the results do not allow exact conclusions for individual policies,*
- *the adding of other regions of the world would be desirable,*
- *there needs to be more disaggregation,*
- *adequate software is lacking etc.*

*But from our view the analysis must not lead to the conclusion that more data gathering is necessary: Amounts of time and costs required for data gathering would be enormous and out of all proportion to the benefits! And, as a matter of principle, the Input Output Analysis method seems the wrong way to achieve the set goal. The study discussed here shows that studies intended to bring reliable information on environmental impacts of individual product groups are time and cost intensive. It must be observed that such studies would need to be performed repeatedly, because technical progress, product changes, changes in production etc constantly bring changes in environmental impacts. Due to fast advancing technical progress and the time lag of IO tables, results of current studies might be obsolete already at the date of publishing. Consequently, it must be noted that even if a study could identify the products with the strongest environmental impacts this does not automatically mean that those products also have the greatest potential for improvement. It would not be clear, either, how improvements can be brought about most efficiently...]*

**Reaction:** With regard to the data gathering issue, we must note that all basic data are already provided by industry. Emission registration is already compulsory and economic transactions are recorded. The data problem in the EU has more to do with the fragmented way every single country processes such information. If statistical data processing in all EU countries were streamlined (using same classifications and nomenclature etc) it must be possible, just like in the US, to have updated IO tables on a timely basis. Again although technical progress may seem fast, the structure of an economy changes much more slowly. IO tables do not have to be from a very recent date for our purpose. However, the environmental data do have to be from recent date as technical progress is much more reflected in the emission coefficients. Concluding, we don't think that there will be an extra burden on industry if more detailed IOA tables are being published in the EU, and current data give a reasonable view.

**5. Extract of comment:** *[...VCI proposal: The presented study should undergo a critical review by a well balanced, interdisciplinary committee to highlight the limited value of this study and to prevent possible misinterpretations...]*

**Reaction:** Papers with the results of almost all underlying studies used in this project, and all key chapters of this report have been published or have been accepted for publication in reputable, peer-reviewed scientific journals such as the Journal of Industrial Ecology. With on average of 2 to 3 reviewers per paper, this implies that almost two dozen persons have been involved in the validation process of results that are also presented in this report.