

Publishable Executive Summary

MethodEx

Sixth Framework Programme
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Methods and data on environmental and health externalities:
harmonising and sharing of operational estimates



Research Area: Crosscutting Issues for Sustainable Development: Methods and Tools.

Topic VIII.1.a. Harmonising and sharing of methods and data in environmental and health externalities evaluation; extraction of operational estimates from existing studies (excluding energy and transport).

Introduction

Most activities, such as electricity generation, transport, agriculture, etc. have environmental and social burdens. These include air pollution, greenhouse gas emissions, waste / water emissions and noise. These burdens lead to economic impacts that are typically not paid for by providers or users, known as external costs or externalities. In order for economic activity to be sustainable, it is essential that these environmental and social externalities are taken into account. Indeed 'getting the prices right' is one of the key indicators of EC sustainability strategy.

Major advances have been made in recent years in the analysis of externalities, particularly through DG Research's **ExternE** Project. This project has involved a large and multi-disciplinary team of experts. The project has advanced a methodology combining life cycle analysis (LCA) and the 'impact pathway approach' for assessing externalities in the energy and transport sectors. The approach evaluates environmental or social effects in terms of physical impacts and then goes on to quantify these impacts in economic costs. The ExternE approach and results have seen very widespread use across Europe in policy making. The methodology has been widely used by DG Environment in looking at cost-benefit analysis of proposed EU legislation. Finally, the environmental costs have started to be used in internalisation strategies, i.e. to correct prices to account for externalities, through the design of taxes, charges or subsidies.

This project has made a major contribution to the development and wider use of externalities in sectors other than transport and energy. This responds to an increasing recognition that externalities in other sectors (waste, agriculture, and industry) have received less attention to date and are important. The study has also deliberately investigated the extension and transferability of externalities to the enlarged EU. Finally, it has improved socio-economic policy tools for sustainable impact assessment, to help to increase the consistency and robustness of decision-making. The project has had two key areas of work:

- Firstly, the project has extended a consistent externalities approach into agricultural, industrial, waste and other sectors, based on the ‘best practice’ used in the transport and energy areas, and demonstrated with policy case studies.
- Secondly, it has provided a policy ‘toolbox’ to allow policy makers to use a consistent and harmonised approach for externality numbers in all areas, ensuring transferability and uncertainty are taken into account, plus a database of previous studies (focusing on applications), as well as a revised database of policy applications.

Study Objectives

The original MethodEx study objectives were to:

- Provide an inventory and critical review of existing externality studies in the sectors of agriculture, industry, waste and other non-transport and energy applications.
- Harmonise the methodologies in these sectors, ensuring consistency with existing best practice approaches and methodologies in the transport and energy sectors, and for the first time providing an integrated and common methodology for all areas of economic activity.
- Undertake additional analysis to improve the methodologies for new sectors and demonstrate applicability with case studies.
- Identify major gaps in current knowledge that limit application of high quality externality studies for these new sectors and put forward research recommendations to fill these gaps.
- Assess the transferability of the results and data, including application to the new member states.
- Engage policy makers to maximise the usefulness of the study output (data and tools for externality assessment).
- Make the key information in the new sectors available in RED (Review of Externalities Data) database (www.red-externalities.net), developed for DG Research.
- Develop a ‘toolbox’ for policy analysis using externalities, with key areas of development in areas of uncertainty and global warming. Provide guidelines for presenting the results of particular studies in standardised format.
- Disseminate the results to stakeholders by electronic communication and by workshops.

The project commenced in January 2004, and ran for 37 months.

MethodEx Participants and consortium

The MethodEx consortium included the following teams:

- AEA Technology Environment, UK (Co-ordinator)
- Association pour la recherche et le développement des méthodes et processus industriels, France
- SWECO, Norway
- EMRC, UK
- The Clean Air Action Group, Hungary
- Institut fuer Energiewirtschaft und Rationelle Energieanwendung (IER), University of Stuttgart, Germany
- Institute of Occupational Medicine, Edinburgh, UK
- Istituto di Studi per l'Integrazione dei Sistemi (ISIS), Italy
- University of Bath, UK
- University of Hamburg, Germany
- University of Warsaw, Poland
- Charles University Environment Center (CUEC), Prague, Czech Republic
- Paul Watkiss Associates, UK.

Plan for using and disseminating study knowledge

The study results and knowledge have been disseminated through the following means:

- Contacting and meeting with policy makers to discuss project outputs and to use these comments to improve the data and key issues for the project, plus dissemination of project findings to a wide list of policy makers across Europe.
- Provision of the RED database on the internet, with open access <http://www.red-externalities.net/methodex> which provides a database of previous studies.
- Case study examples in the study areas for policy makers to use as a reference source.
- Provision of the policy tool on the internet, with open access at <http://www.methodex.org>. This will be posted on relevant DG sites for wider use and dissemination.
- The holding of a workshop with policy makers at the end of the project to provide awareness and guidance on the tools and data.
- Preparation and dissemination of a summary and brochure of the study results.
- Updates on the study through the project web-site, <http://www.methodex.org>
- Dissemination of the study final report and access to the report on the internet.

Work performed, results achieved so far and expected end results

The first year of the study undertook a literature review of the new sectors (agriculture, industry and waste) and found over one hundred relevant studies that would help inform the analysis. The relevant studies were reviewed to help inform the subsequent task on method development in new areas. The task on harmonisation of methods investigated the issues in the transfer of the existing ExternE 'impact pathway' approach to the new sectors, and the study identified potential case studies and started work on the literature review of benefits transfer.

The second year of the study agreed and developed a new and more consistent format for the RED database, which was focused on policy relevant bibliography material, consistent with the objectives of the study towards harmonisation. The relevant

studies identified (in the first year) began to be entered into the revised RED database. The project has also made major methodology developments. The overall methodology and framework for the new sectors was developed and agreed, and the priority impacts identified for all the new sectors. The study agreed consistent and harmonised approaches for air pollutants for application to the new sectors. New priority impact pathways were also developed, including an approach for amenity quantification and valuation for the waste sector. The study reviewed the additional impact pathway approaches for the new sectors, including other health effects and other air pollutants, and water pollution from the agricultural sector, and reviewed the literature on benefits transfer and identified the priority areas for the new sectors and their potential for benefits transfer. It also changed the original proposal to actually undertake new survey work, to directly investigate the transfer of valuation studies for the water sector from Norway to 2 new EU-25 countries, due to a lack of direct material. The case studies were selected and the primary data sources collected. Finally, the study started to compile some policy tools, which were targeted for project team use but also wider dissemination and harmonisation of approaches.

The final year of the study has seen the completion of the methodology, with the development of a consistent approach for considering GHG valuation estimates, whilst communicating the uncertainty in these numbers. The primary benefit transfer studies were completed and analysed. This provides important new primary research in benefits transfer between countries that is relevant for the study and for wider applications (and is now written up and submitted as academic papers). From the review work and primary benefits transfer studies, the guidance on benefits transfer was also completed. The case studies were undertaken and completed. The project includes many policy relevant and interesting studies, with full coverage across all the new sectors (agriculture, waste, industry), and a broad selection of case studies in existing and new EU-10 countries. From a review of the methodology and case studies, a list of research gaps and priorities was compiled. Finally the project undertook several dissemination activities. Meetings were held with policy makers in the DGs to present the interim policy tool outputs (i.e. to allow consistent approach for future studies), and these discussions were used in updating and producing the final policy 'toolbox' from the project. This includes an updated BeTa (Benefits Table) model for consistent air pollution external costs values, a conversion tool, and an accounting framework templates for the major sectors covered by ExternE and Methodex, as well as the GHG valuation and uncertainty analysis. The project findings were disseminated in a policy workshop held in Prague in December, and the project summaries (tools and guidance) have now been written up in a brochure for final dissemination. The project tools are now available on the web.

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