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Wuppertal Institute for Climate, Environment and Energy, Germany. Coordinator. www.wupperinst.org

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TNO, Netherlands Organisation for Applied Scientific Research, Netherlands. www.tno.nl

CERIS, Institute for Economic Research on Firms and Growth, Italy. www.ceris.cnr.it

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UM-MERIT, Maastricht Economic and Social Research and Training Centre on Innovation and Technology, Maastricht University, Netherlands. www.merit.unu.edu



Innovation needs Orientation

INNOVATION NEEDS ORIENTATION

Contact

For more information please contact

Dr. Philipp Schepelmann
Project Manager
Research Group Material Flows and
Resource Management
Wuppertal Institute for Climate, Environment
and Energy

Döppersberg 19

42103 Wuppertal

Germany

E-mail: philipp.schepelmann@wupperinst.org

office: +49 202 2492 242

home office: +49 211 1372038

www.wupperinst.org



Universiteit Leiden



THEME [ENV.2011.3.1.9-3]

[Macro-level Indicators to monitor the environmental impact of innovation]



Background

It is difficult to assess the positive or negative macro-environmental impacts of innovations, because they are not inherent to a technology, but a product of physical, behavioural, social and economic conditions. A “green” car may be an additional car instead of a substitute. Money saved through energy-saving will result in shifted expenditures with low or high negative environmental impacts. Positive micro or meso impacts of eco-innovation may be outweighed at the macro level by larger-scale processes which they may have catalysed.

The European research project EMInInn will track the past development and diffusion through the economy of pervasive innovations that can be expected to have had an appreciable positive or negative environmental impact. The aim of the project is to generate deeper insights into the role of innovation in decoupling environmental impacts from economic growth, helping policy makers to both assess the benefits from past innovations as well as maximize benefits from present and emerging innovations.

Focussing on environmental pressures, the project will analyse macro-environmental impacts of innovations in five sectors: energy, transport, construction, ICT and waste.

The main objectives of EMInInn are to:

- ▶ Deliver accurate and comprehensive information on the environmental impacts of innovation ;
- ▶ Strengthen the science-policy link;
- ▶ Develop physical indicators to monitor the macro-level the ex-post impacts of innovation processes, including diffusion of innovations into society, their economic impacts, and their impacts on key environmental categories;
- ▶ Identification of drivers and barriers relating to eco-innovation, thereby facilitating the full recognition of eco-innovation potential;
- ▶ Support for the decision-making process on policy targets and evaluation.

Concept and methodology

Phase 1: Definitions, measurement and analytical framework

In a first step EMInInn will assemble and set out coherently, on the one hand, macro-indicators and data of environmental impacts and, on the other hand, indicators and data to measure innovations. The definitions and delineations will be the basis for selecting appropriate analytical frameworks to operationalize assessments of environmental impacts associated with innovation on a macro scale.

Phase 2: Innovation impact analysis

Ex-post assessment of the economy-wide environmental impacts of selected pervasive innovations through the application of advanced analytical frameworks.

- ▶ Information and Communication Technologies
- ▶ Transport
- ▶ Built environment and buildings
- ▶ Waste management and recycling

This assessment will be supplemented by a limited amount of scenario work and economic modelling.

Phase 3: Policy implications and dissemination

EMInInn will strengthen the science-policy link through the interaction with experts, stakeholders and policy-makers.

In that context EMInInn will address EU policies, which affect three major fields of environmental impact:

- ▶ resources and waste,
- ▶ energy and climate, as well as
- ▶ land-use and biodiversity.

This assessment will be supplemented by a limited amount of scenario work and economic modelling.

