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**OECD work on material flows and resource productivity: Updated
Information Note**

Paper prepared by the OECD

(for information)

OECD work on material flows and resource productivity

Updated Information Note

prepared for the third meeting of the
United Nations Committee of Experts on Environmental Economic Accounting
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The **OECD work programme on material flows (MF) and resource productivity (RP)** supports the implementation of (i) the OECD Council recommendation on Material Flows and Resource Productivity adopted in April 2004, and the OECD Council recommendation on Resource Productivity adopted in March 2008.

The **purpose** is to develop a better understanding of the physical resource base of member countries' economies, including its international and environmental dimensions, to foster the implementation of effective policy mixes that improve resource productivity, reduce negative environmental impacts of materials and product use, and promote integrated life-cycle oriented approaches to natural resource, waste and materials management (e.g. 3R policies (Reduce, Reuse, and Recycle), sustainable materials management, sustainable manufacturing).

1. Main outputs: a series of guidance documents

From 2005 to 2007, work has been concentrating on the measurement of MF and RP and the establishment of a knowledge base to enable sound, fact-based material flow analysis and to inform related policy debates.

This was done by providing **guidance** on how to measure material flows and resource productivity, paying attention to the "supply side", i.e. how material flow accounts and related indicators can be constructed in a coherent framework that countries can easily implement and further adapt to their own needs, and the "demand side", i.e. how material flow indicators can be selected to suit policy needs and how they can be interpreted and used.

The work has benefited from a **sequence of workshops** hosted by member countries (Helsinki, June 2004; Berlin, May 2005; Rome, May 2006; Tokyo, September 2007), that brought together environmental administrations, statistical services, material flow experts and researchers.

Main outputs include a **series of guidance documents on Measuring material flows and resource productivity** that have been drafted in a joint effort by a group of experts from OECD countries led by the OECD Secretariat¹. They have benefited from contributions by members of the OECD Working Group on Environmental Information and Outlooks and the Working Group on Waste Prevention and Recycling, the Eurostat Task Force on Material Flows, and the London Group on Environmental Accounting.

The guidance documents reflect the **state of the art** concerning experience with material flow analysis and related indicators in member countries. They are expected to help achieve greater **convergence** of already existing initiatives and to facilitate wider dissemination and **uptake** of existing experience and guidance. The documents may evolve in future as ongoing efforts on methodologies and measurement systems will show results and as more feedback from policy uses will become available (Box 1).

¹ Experts and consultants: Mr. Derry Allen, Mr. Stefan Bringezu, Mr. Aldo Femia, Mr. Tomas Hak, Mr. Jan Kovanda, Mr. Yuichi Moriguchi, Mr. Heinz Schandl, Mr. Karl Schoer, Mr. Eric Turcotte, Ms Aya Yoshida. OECD Secretariat: Ms Myriam Linster. Financial and in-kind support: Czech Republic, Finland, Germany, Italy, Japan, Luxembourg, the United States.

Box. 1 Measuring Material Flows and Resource Productivity
A series of guidance documents by the OECD

The **guidance** documents on Measuring material flows and resource productivity are part of the **OECD work programme on material flows (MF) and resource productivity (RP)** that supports the implementation of the OECD Council recommendation on MF and RP adopted in April 2004. They provide **guidance on methodological and measurement** issues related to material flow analysis (MFA), including the development of accounts and indicators. Emphasis is on tools that can be used by country governments to support the development and implementation of **national policies** and related **international work**.

The guidance documents include:

- **Volume I. The OECD guide.**

Volume I describes the full range of MF approaches and measurement tools, with a focus on the national level and emphasis on areas in which practicable indicators can be defined. It is targeted at a non expert audience. It includes (i) an overall framework for material flow analysis (MFA), (ii) a description of different kinds of measurement tools, (iii) a discussion of those issues and policy areas to which MFA and material flow indicators can best contribute, and (iv) guidance on how to interpret material flow indicators. It is illustrated with a selection of practical examples from countries' experience and is complemented with a glossary.

- **Volume II. The accounting framework.**

Volume II provides a theoretical description of the concepts and methodologies of MF accounting. It is targeted at an expert audience. It draws upon the Handbook on national accounting - Integrated Environmental and Economic Accounting (the SEEA handbook), developed jointly by the United Nations, the European Commission, the IMF, the OECD, and the World Bank and on the guide published by Eurostat in 2001 Economy-wide material flow accounts and derived indicators - A methodological guide. It has benefited from co-operation with Eurostat and with the London Group on Environmental Accounting, and consultations with the UNSD and its Committee of Experts on Integrated Environmental Economic Accounting.

- **Volume III. Inventory of country activities.**

Volume III takes stock of activities related to the measurement and analysis of natural resource and material flows in place or planned in OECD countries and in selected non members. It describes the main features that characterise such activities and the extent to which information on material resources is used in environmental reporting and in decision making. It is designed to provide a factual basis for the further exchange of experience and information, and for sharing lessons at international level.

- **Volume IV. Implementing national MF Accounts** (forthcoming Q4 2009, prepared jointly with Eurostat).

Volume IV provides practical guidance to assist countries in implementing national material flow accounts. It is targeted at practitioners of MF accounting. It is constructed in a modular way to reflect several levels of ambition and completeness of accounts, and is being developed stepwise. The first edition will focus on the establishment of simple MF accounts building on a set of core tables tested and used by Eurostat.

The guidance documents are complemented by a **synthesis report** that summarises the work carried out, takes stock of progress made, and adds selected examples from applications of MFA. They are published on the responsibility of the Secretary General of the OECD.

2. Volume II. The Accounting Framework

Volume II. The Accounting Framework has been drafted by Mr Aldo Femia (Istat) with the assistance of a team of experts².

Purpose and scope

This document presents a **coherent theoretical framework** that (i) links the concepts of system analysis and integrated environmental economic accounting, (ii) is applicable to the different accounting tools of the MFA family whatever their level of aggregation and application is, and (iii) recommends the use of physical supply-use and input-output tables as a general accounting framework for establishing MF accounts in line with the SEEA. It describes how this accounting framework can be applied at the national level to construct step-by-step a comprehensive system of material flow accounts, and makes proposals on how to integrate economy-wide MF accounts into such a system by using bridge tables as appropriate.

It is seen as **work in progress** that will evolve as ongoing efforts on methodologies, definitions and classifications will show results, and as work on the revision of the SEEA led by the UNCEEA will progress. It has not been designed to become a statistical standard. The spirit was rather to provide elements of guidance to countries and to contribute to the SEEA revision by providing a **basis for discussion and further development** and methodological work.

Development process

Earlier drafts and elements of this document were discussed by the **OECD Working Group** on Environmental Information and Outlooks (WGEIO, Vienna, Oct. 2006), the **London Group** on Environmental Accounting (New York, June 2006; Johannesburg, March 2007; Rome, Nov. 2007), and the **Eurostat Task Force** on Material Flows (Luxembourg, Dec. 2006, Nov. 2007).

The document was made available at the OECD-UNEP Conference on Resource Efficiency (23-25 April 2008, www.oecd.org/environment/resourceefficiency) and is being submitted to the **OECD Committee on Statistics**.

The debates taking place as part of the **revision of the SEEA** might in turn lead to further developments in the accounting framework presented in the document (terminology, system boundaries, treatment of economy-wide accounts) and ultimately to an updated version of volume II.

3. Work plan for 2009-2010

Work in 2009-2010 will concentrate on the implementation of the **2008 OECD Council Recommendation on Resource Productivity** and provide inputs into the G8 3R (reduce, reuse, recycle) initiative and Action Plan³. It will consolidate and expand work carried out since 2005 on the measurement of material flows and resource productivity and deepen work on integrated waste and materials management and on trade in recyclable materials. It will include:

- A.** The further development of an **information base** on MF within and among countries and on resource productivity (accounts, data, indicators), and the development of methods for assessing environmental impacts and costs of resource use. Emphasis will be on key materials that are of economic and environmental importance, on physical trade flows, including flows of recyclable materials and waste, and on indirect flows. The work will encompass (i) a **policy dialogue on MF and RP indicators** and a review of **government and business applications** for indicators that assess the efficiency of material use at various scales and for various

² Document drafted by Aldo Femia (ISTAT, Italy) with inputs from Heinz Schandl (IFF-Vienna, Austria), Karl Schoer (DESTATIS, Germany), Ole Gravgard (Statistics Denmark) and members of the Eurostat Task Force on Material Flows.

³ Recommendation adopted by the Council in March 2008; noted and welcomed by OECD Environment Ministers in April 2008. 3R (reduce, reuse, recycle) Action Plan adopted by Environment Ministers of G8 countries (Kobe, 24-26 May 2008).

materials, and (ii) **fact-based analysis** of material flows and resource productivity in important areas (e.g. structural changes and shifts in material resource flows in the global context, environmental consequences (impacts, costs, benefits), interactions with supply security, resource productivity and competitiveness).

B. Policy evaluation and guidance on resource productivity and sustainable materials management. This includes (i) a **review of existing policies and practices** in the field of resource productivity, including sustainable materials management, and sustainable manufacturing, and (ii) the elaboration of common **principles and policy guidelines**.