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ENVIRONMENT DIRECTORATE
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Working Group on Environmental Information and Outlooks

OECD WORKSHOP ON MATERIAL FLOW INDICATORS AND RELATED MEASUREMENT TOOLS

Chair's Summary

23-24 May 2005
Berlin, Germany

This document summarises the results of the OECD WGEIO workshop on material flow indicators and related measurement tools (Berlin, 23-24 May 2005).

It was prepared by the Chairman of the workshop and of the WGEIO, Mr. Yuichi Moriguchi (Japan) jointly with the rapporteur of the workshop, Mr. Heinz Schandl (Austria), and in co-operation with the OECD Secretariat.

It has benefited from the support of session rapporteurs and from comments received from workshop participants.

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OECD

Working Group on Environmental Information and Outlooks

BERLIN WORKSHOP ON MATERIAL FLOW INDICATORS AND RELATED MEASUREMENT TOOLS

23-24 May 2005

CHAIR'S SUMMARY

WGEIO

The workshop was part of a sequence of events organised by the OECD to support the implementation of the OECD Council recommendation on material flows and resource productivity and to contribute to the its programme on sustainable development. It was hosted by the German Federal Statistical Office (DESTATIS) in co-operation with the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) and the German Federal Environment Agency (UBA,) and held back to back with a Eurostat Training Session on Material Flow Accounts.

The workshop was chaired by Mr. Yuichi Moriguchi, chairman of the WGEIO. It was attended by about 70 participants, including national delegates from the Working Group on Environmental Information and Outlooks (WGEIO) and the Working Group on Waste Prevention and Recycling (WGWPR), Eurostat, the EEA, experts from research institutes, and observers from EU countries (Latvia, Malta) and industry (BIAC).

AIM OF THE WORKHOP

The aim was to develop guidance on how to construct material flow accounts and indicators in a coherent framework that countries can easily implement and further adapt. The focus was on methodological and measurement issues and on supporting convergence among countries in implementing measures of material flows (MF) and resource productivity (RP).

SUMMARY OF WORKSHOP DISCUSSIONS

Countries shared a wide variety of experiences with MFA and indicators and discussed the major points to be included in the guide and the brochure. They further elaborated on the approach to be taken to structure guidance so as to effectively support member countries efforts and help them make their work on MF operational for national policies. Main outcomes are as follows:

- Agreement to link guidance on methodological and measurement aspects to policy uses and users' needs, keeping in mind the relevance of MF information for both environmental and economic decision making.
- Agreement to construct guidance in a modular and flexible way, covering different measures at different levels of aggregation that countries can adapt and develop to suit their own circumstances and needs. This will be done by:
  - offering a menu of options and recommendations, not prescriptions,
  - showing how different measures and indicators can be useful in different policy situations and contexts,
  - explaining methods that have been developed by various sources, building on the Eurostat guide, on the SEEA handbook, and on countries' experience,
  - pointing out those areas in which standardisation of methods is recommended so that results are coherent and can be used to support core work within the OECD, keeping in mind that cross-country comparisons require careful interpretation.
- Agreement to select MF and RP indicators on the basis of their policy relevance, analytical soundness, and measurability, and to further explore the significance of various types of indicators for economic policies and for specific environmental issues.
- Agreement to identify a combined set of indicators for international use, rather than a few highly aggregated indicators.
- Proposal by Italy to host the next OECD workshop on the interpretation and use of MF and RP indicators in Rome (Q2 2006).

The results will be used to:

- prepare a guide to the measurement of MF and RP.
- prepare a brochure targeted at "customers" and illustrating the uses of material flow analysis and indicators and the links to policy concerns.
- identify MF and RP indicators for international use and support future OECD discussions on Sustainable Materials Management indicators.

The results of the workshop will be followed up by the WGEIO (Cancùn, 30 Nov.- 1 Dec. 2005) in co-operation with the WGWPR and international partners (Eurostat, UNSD). They will be reported to the OECD Working Party on Environmental Performance, the Working Party on National Environmental Policies (Washington, 16-17 June 2005), the Annual Meeting of Sustainable Development Experts (Paris, 3-5 Oct. 2005), and the OECD workshop on sustainable materials management (Seoul, 28-30 Nov. 2005).

First drafts of the guide and the brochure, and proposals for a set of international indicators will be available for comments in October 2005.

THEME 1: OVERALL FRAMEWORK FOR MATERIAL FLOW ANALYSIS (MFA)

The discussion under Theme 1 focused on the issues and policy areas to which MF analysis and related indicators contribute best, and on the general architecture of MF approaches, placing them in the broader context of environmental accounting and establishing a structural and analytical link with other measurement tools.

The aim was to help link methodological and measurement work (supply side) to policy uses (demand side), and to provide a basis for the preparation of a chapter on "Purposes and uses of MF analysis and related approaches" of the guidance manual and of a brochure on MFA and related indicators targeted at users of MF information.

POLICY USES AND USERS' NEEDS

The discussion was supported with the opening statements by the host country and the OECD, and with presentations by Germany, Japan and the United States. Participants underlined the importance of putting MF work in the broader policy context, looking at the information needs for decision making, and discussed the different users' perspectives. According to the views expressed and experience so far in member countries, there are three broad public policy areas to which MFA and related indicators can usefully contribute, and that should be considered in the guide and in the brochure:

- Economic policies, policies related to trade and national security, and technology and innovation policies.
- Natural resource policies: minerals, forest products, fossil fuels, etc.
- Environmental policies: pollution control and waste management, materials-based and product-based environmental strategies, management of chemicals and hazardous substances, etc.

The discussions stressed the need for information that supports integrated approaches to materials management cutting across policy areas and different levels of implementation, with special reference to the "Reduce, Reuse, Recycle" 3R initiative endorsed by the G8 (Sea Island, June 2004) and launched by the Government of Japan (Tokyo, April 2005), to the OECD project on "sustainable materials management" and to similar initiatives encouraging a "circular economy". Reference was made to the usefulness of MF information for modelling and scenario development to support longer term policy decisions. Reference was also made to environmental policy developments that are specifically directed at minimising negative environmental impacts from resource use (e.g. the EU strategy on sustainable use of resources, dematerialisation strategies) and that call for information that can answer questions such as: what are the priority materials and/or the priority sectors for policy intervention? could objectives and targets be set?

It was acknowledged that, while there are potentially diverging interests between material producing and consuming countries, these countries also have converging interests in reducing uncertainties in the supply of materials and in related prices, in effectively managing negative environmental impacts from material resource use, and in promoting technology developments.

It was a shared view that the policy use of MF indicators at national level stands at the beginning and that more needs to be done to focus MF work on questions from the policy arena. The communication between the producers of MF information (researchers, statisticians) and users (policy makers, the public) should be given more emphasis and be supported with the planned brochure on MFA. It was mentioned that in Europe, the Thematic Strategy for the Sustainable Use of Natural Resources of the EU could also serve as a useful framework for steering such a dialogue.

It was recommended that, in order to be useful to a majority of countries, the guidance manual should help them make their work on material flows and resource productivity operational for national policies. It should build on a clear articulation of the purposes and uses of MFA, and explain how the different measurement tools of the MFA family, including accounts and indicators, can be best used to address different policy questions, covering aspects related to both the economic efficiency and the environmental effectiveness with which material resources are used.

The brochure is expected to be developed along similar lines. It should illustrate the questions "why do resource flows matter?" and "how do they relate to current policy concerns?", picking up practical applications and examples, and not just present a collection of tools. It should be ambitious, short, and accessible to a broad audience.

OVERALL ARCHITECTURE OF MFA AND LINKS TO OTHER MEASUREMENT TOOLS

The discussion took into account the different types of MF measurement tools and the different levels of implementation (macro-meso-micro links), and was supported by two presentations showing:

- An example of how different physical MF accounts can be placed within the system of economic and environmental accounting (the German system of physical flow accounts). The system starts with MIOTs (Monetary Input Output Tables) and groups together a number of physical satellite accounts to the SNA. These sub-accounts, updated on a yearly basis, provide information that feeds into PIOTs (Physical Input Output Tables). The PIOTs, updated less frequently, report about the physical interactions within the economy. [for details see ENV/EPOC/SE/RD(2005)6]
- An overview of the strengths and limitations of different MF tools for environmental policy making and of the policy questions that can be answered based on MF information (based on a paper by the European Environment Agency).

While the usefulness of a limited number of indicators to raise awareness and guide the general policy debate was recognised, there was a shared understanding that policy intervention requires indicators and information at several levels of concreteness. The overall MF framework should allow for preparing information at all these levels according to the policy questions to be addressed. In this context the usefulness of setting up a system of accounts over selected accounts for certain priority materials was stressed as well as the importance of generating information that can be connected to both the production and the consumption side.

It was agreed that the overall framework for MFA to be used in the guidance manual should comprise the full range of tools that form the MFA family, describe their strengths and limitations for different policy purposes and uses (environmental, natural resource, and economic policies) and point at the complementarities and synergies with other environmental and economic information tools. A structure similar to the one used in Germany could be used as a starting point for developing the core of the framework focusing on MF accounts with explicit links to the system of national economic accounts and highlighting macro-meso-micro links. This structure would need to be complemented with a description of other tools. In this context, the analytical link with other environmental and economic measurement tools will need to be explored in greater depth.

Some participants underlined the didactic or instructive nature of the general structure of MF accounting that should not be perceived as being imposed on countries. Though flexibility was seen as important, it was agreed that the methodological and measurement guidance should also support convergence among countries and ensure some comparability of core results. There was strong support for the proposed modular approach offering a menu of options and recommendations rather than prescriptions.

It was mentioned, that the development of the framework for the OECD guidance manual could also benefit from the scientific work presented in the context of ConAccount (last meeting at ETH Zurich, 2004) and around the International Society for Industrial Ecology (in their journal).

USE OF MF INFORMATION IN MODELLING AND OUTLOOK WORK

The use of MF data and information in modelling and scenario development raised a lot of interest and was seen as a powerful tool to inform decision making. A presentation of the Panta Rhei model showed one approach for modelling MF in a multi-sector economy-environment model. It was stressed that for addressing certain questions, e.g. those linked to dematerialisation policies, information from accounts on direct MF would not suffice, and that information on the Raw Material Basis of an economy may be required (i.e. integrating direct/used flows and the Raw Material Equivalent of imports) to trace shifts of certain resource use related pressures between national economies. The presentation of the Panta Rhei model referred to total material requirement (TMR) equivalents. [ENV/EPOC/SE/RD(2005)4].

THEME 2: GUIDANCE FOR DEVELOPING COMMON MF AND RP INDICATORS

The discussion focused on aspects that need to be addressed to provide harmonised guidance on how to select, define and calculate economy-wide MF and RP indicators at various levels of detail or aggregation. The aim was to provide a basis for the preparation of a chapter on "Material flow and resource productivity indicators" of the guidance manual, and to make initial proposals for a list of practical MF indicators for OECD and other international use, with emphasis on indicators that OECD countries agree to develop together through joint efforts.

The discussion was supported by a background paper on material flow and resource productivity indicators [ENV/EPOC/SE(2005)1]. It focused on indicators that can be derived from economy-wide MF accounts, because these belong to the 'core work' of the OECD as identified in the Helsinki workshop [ENV/EPOC/SE(2004)2] and in the OECD approach and work plan for MF and related indicators [ENV/EPOC/SE(2004)3/FINAL].

DEVELOPMENT OF GENERAL GUIDANCE

Participants underlined the importance of developing guidance that distinguishes between the different purposes for which different types of indicators can be used, and that takes into account the complementarities and synergies that exist between MF indicators and other indicators and information tools (e.g. natural resource indicators, waste indicators, economic indicators), as well as between aggregated MF indicators and indicators on individual flows/resources and for individual sectors.

The participants reviewed the criteria that should be applied to select MF and RP indicators and to validate their choice. They agreed to build on those used for environmental indicators (policy relevance and utility for users; analytical soundness; measurability) and to further adapt them to the specificities of material flow indicators. Important elements mentioned in the discussion included: the possibility to disaggregate the indicators (by type of material, by sector) to enable further analysis, the possibility to add up information for different countries (additivity across countries), cost arguments for data compilation (feasibility), and the scope of the indicator's relevance (which problems are reflected by an indicator).

The participants explored in detail the pros and cons of major economy-wide MF indicators already in use, with emphasis on DMC (Domestic Material Consumption) and DMI (Direct Material Input), and underlined that different indicators are of different value for different countries and different economic situations. It was recognised that differences between economies could make it necessary to use both indicators, because economies with a large extractive sector and also economies relying heavily on imports would show a rather high DMI which, after deducting for exports, would result in a comparably lower DMC. Such differences, among others, would be captured if a group of indicators would be used to reflect a country's resource use and productivity profile. Guidance should take this into account and describe the value added of different types of indicators for different national contexts (economic and industrial structure, endowment in natural resources, trade patterns).

More comprehensive aggregated indicators such as TMR (Total Material Requirement) and TMC (Total Material Consumption) were perceived as useful for monitoring the possible externalisation of the environmental burden to other economies due to a certain import structure, as well as for monitoring additional pressures occurring with extraction (i.e. unused extraction). It was however recognised that for these indicators data availability and quality remain weak and the methodology for data generation has to be improved and further harmonised.

Some participants, however, doubted whether highly aggregated MF indicators alone would be sufficient to guide environmental policy formulation. They pointed at the risk of misinterpretation of highly aggregated MF indicators if used in isolation and without appropriate contextual documentation. It was recommended that such indicators should be used as appropriate in conjunction with other indicators (e.g. disaggregated MF indicators, environmental indicators, economic indicators). Reference was made to a study commissioned by the Netherlands Ministry of Housing, Spatial Planning and the Environment*, combining MF information with LCAs to construct an indicator on Environmentally-weighted Material Consumption

* S.M. de Bruyn et al., Economy-wide material flows and environmental policy, Delft, December 2004.

(EMC) that monitors trends in the cradle-to-grave environmental impact associated with the consumption of 21 materials (estimated to cover 90% of the environmental impact of material use in the Netherlands).

Guidance on the interpretation and use of the indicators should be delivered together with methodological and measurement guidance. This discussion is one of the main objectives for the 2006 workshop. In order to support these discussions, it would be desirable to have some countries volunteering in data work to illustrate the applicability of different indicators and underlying accounts in different contexts.

Among the aspects that require further work are: further examination of the complementarities and level of correlation among various types of indicators; detailed evaluation of the various MF indicators and development of descriptive implementation sheets; the development of guidance for applying productivity measurement to material resources at aggregate and industry level and correspondence of RP indicators to other productivity measures (labour and capital productivity, multi-factor productivity).

DEVELOPMENT OF PRACTICAL MF INDICATORS FOR INTERNATIONAL USE

In line with the discussion on general guidance for MF indicators, participants supported the development of a set of MF and RP indicators for international use, composed of a balanced combination of economy-wide indicators (core and key indicators) and more specific indicators monitoring MF of particular concern to OECD countries and monitoring resource productivity in major economic activity sectors.

The identification of the indicators that are most appropriate to support international work will build on the results of Berlin workshop, including written comments on the background document [ENV/EPOC/SE(2005)1, Part VI] and be further discussed by the WGEIO at its next meeting.

THEME 3. GUIDANCE FOR DEVELOPING COMMON MATERIAL FLOW ACCOUNTS TO SUPPORT THE CALCULATION OF SIMPLE MF INDICATORS

The discussions focused on the technical guidance that is required to help countries prepare national material flow data under a common accounting framework that allows the derivation of a core set of practical MF indicators. The aim was to provide a basis for the preparation of a chapter on "Developing material flow accounts" in the guidance manual, and in particular of the didactic part aimed at beginners and newcomers setting up a MFA activity in their country.

The discussion was supported by two presentations:

- a presentation by Eurostat of first results of work undertaken by the Eurostat Task Force on MFA which met in November 2004, including a draft set of simplified standard tables that are to be complemented by a guide for beginners based on the 'Economy-wide Material Flow Accounts and Derived Indicators - A Methodological Guide' (Eurostat, March 2001). [document ENV/EPOC/SE/RD(2005)5].
- a presentation by Germany showing how Primary Material Flow Accounts (PMFA) can be used to complement the headline indicator "raw material productivity" of the German Sustainable Development by providing additional data in a NAMEA-type breakdown (by production and consumption activities) and thus establishing links to economic activities and drivers. [document ENV/EPOC/SE/RD(2005)6].

It was a shared understanding that the standards agreed upon in the European Union will influence work at OECD level. Hence, OECD work should not only benefit from the Eurostat guide and the results of the Task Force on MFA, which is seen as a starting point, but also strive for OECD wide convergence and for coherence with other accounting systems. The importance of ensuring coherence between the OECD material flow accounting framework and both the Eurostat guide and the SEEA 2003 handbook was underlined. OECD work is expected to provide consolidated guidance, supplemented with guidance on the interpretation and use of MF information.

There was general support for proposing in the guidance manual a system with several levels of accounts:

- a set of simple economy-wide MF accounts and balances to allow newcomers to join in and that allow the derivation of selected economy-wide indicators that help measuring overall progress and performance, with some breakdown by major economic activity sectors and selected material flows to increase policy relevance and ease interpretation;

  The set could be composed of harmonised core tables, supplemented by additional tables, which would reflect the structure of the economy by disaggregating by economic activities, and materials (see Eurostat proposal that is to be further reviewed). Three stages in the economic process should be considered: domestic extraction of materials (used), supply of primary materials, disaggregation of direct material inputs by type of material and economic activity. The tables will focus on accounts (not indicators) and will be defined in a way, which acknowledges the average data availability in OECD countries.

- more detailed meso-level and/or country specific accounts that facilitate the establishment of links with economic indicators and information systems, and enable further analysis.

Reference was made to the "Tiers" approach of the IPCC guidelines for GHG emissions that could inspire work on MF.

Countries will be encouraged to compile information in this common framework, with a focus on the harmonised core tables. However, no mandatory reporting is planned at OECD level. For the data compilation itself, it was recommended that the guide should favour the most disaggregated way. For doing this, a decision about the system boundaries for the accounting work is essential, building on the international standardisation that has already been achieved (i.e. the system boundary reflects the environment/economy border and the border between different economies). This would allow the OECD and its member countries to calculate harmonised economy-wide indicators without loosing the richness of the more disaggregated country-specific approaches.

THEME 4. GUIDANCE AND BEST PRACTICES FOR IMPLEMENTING MF ACCOUNTS AND INDICATORS

The discussions focussed on the development of practical guidance on how to implement MF accounting at national level. The aim was to provide a basis for (i) the preparation of a chapter on "Implementing MF accounts" in the guidance manual based on a menu of options, accompanied by a set of implementation sheets and examples of good practice, and (ii) the preparation of a glossary of MFA and RP terms for inclusion in the guidance manual.

The discussions were supported by a series of presentations on practical experiences with MF accounting in Austria, Canada, Italy, Japan and the United States (roles of different institutions/partners, type of co-operation in place/planned, resource requirements and data compilation cost, data sources and methods, etc.). [documents ENV/EPOC/SE/RD(2005)7 and ENV/EPOC/SE/RD(2005)8].

IMPLEMENTATION MENU AND DECISION TREE

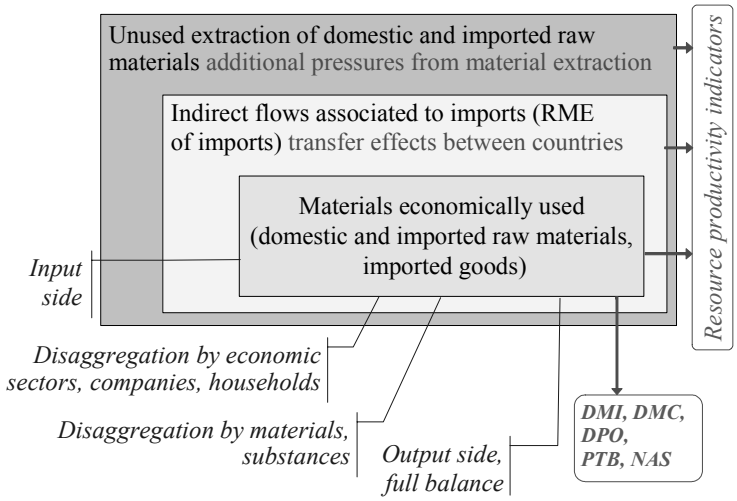
Participants strongly supported the development of a modular menu of options, based on a "decision tree", that helps identify the approaches and measurement tools that are most appropriate for a given purpose and with given resources, and is designed to guide MF related initiatives in countries and at international level.

This implementation menu is to be accompanied with a set of implementation sheets building on the accounting structure discussed under theme 3, describing the different types of accounts (purpose and uses, information that can be derived from them, links to indicators, etc.) and providing guidance and practical examples on how to compile data for the accounts (data sources and methods, quality issues, conversion factors, statistical challenges, etc.).

In line with the general framework for MFA (theme 1), it was agreed that the implementation part of the guide should place policy questions at the centre. It should be made clear which policy issues could be adressed once the accounts are complete. These policy questions should appear up-front, and be easy to be understood by policy makers. Depending on their own needs and priorities, countries can then identify the most appropriate tools and the level of ambition/detail required.

In order to structure the discussion about an implementation tree for MF accounting, the following example of a hierarchy for economy-wide material flow accounts was given.

Figure. The core and periphery of MF accounting as presented at the workshop



The proposed hierarchy distinguishes between core and peripheral elements of MF accounting, as agreed at the Helsinki workshop in 2004. It starts with the feasibility of the accounts and puts the definition of the system boundary, and its stepwise enlargement, in the centre of the picture. The system boundaries, as presented, tend to reflect the average availability and quality of data. The link to policy issues, as discussed under theme 1, will be brought in at a later stage. While the core of the accounts in principle refers to

aggregated economy-wide MF accounting, it establishes a link with disaggregated approaches, i.e. the lines departing from the core show different ways to deal with the core.

It was a shared view that for the further development of the hierarchy of the implementation tree, two criteria, namely policy relevance and measurability (feasibility) are of major importance. For example: disaggregation by material categories and single materials is relatively easy to implement, and could form a first implementation step; also information on outputs that is useful to establish a full balance, can build on existing data and could be part of a second implementation step. Links of MF information to economic activities that are essential for the policy relevance, are less easy to achieve. Hence the economic link could be tackled as a third step, followed by all other tasks, which would be done at a later stage of development of the accounting system.

It was mentioned that in addition to mass, the quality and velocity of material flows should be considered when developing MF accounts. This is however a more ambitious task, and priority should first be given to the size (in physical terms) of the economic process before considering quality aspects.

COMMON LANGUAGE AND TERMINOLOGY

Participants supported the development of a coherent terminology and definitions concerning MFA and RP, building on a common language and a common understanding of concepts, building on the OECD document ENV/EPOC/SE/RD(2005)2. It was agreed that this item would be handled under written procedure (see deadlines below). Aspects to considered include: What terms and definitions are missing? Which terms and definitions are redundant or irrelevant? Which definitions require further refinement, and what would the appropriate wording be? It was noted that in some cases, it might be appropriate to refer to several definitions.

NEXT STEPS AND TIME LINES

- A brief summary of the workshop will be prepared and sent to participants for a quick round of comments before being made available through the OECD Olisnet.
- Documents and presentations will be made available on the OECD Olisnet and on the password protected site of the WGEIO, and will also be sent to participants by e-mail.
- The deadline for additional comments on (i) the background paper on material flow and resource productivity indicators [ENV/EPOC/SE(2005)1] and (ii) the Draft glossary of terms related to MFA and RP [ENV/EPOC/SE/RD(2005)1] has been set to June 24, 2005.
- A first draft of the brochure on MFA and related indicators will be sent out for comments in September, and will be further discussed at the WGEIO's 36th meeting (30 November-1 December 2005).
- The guidance manual on the measurement of material flows and resource productivity (main product) will be developed during the third quarter of 2005 and coordinated by Heinz Schandl with the OECD Secretariat; further country contributions about practical experiences with MFA (institutional arrangements, data sources and methods, resource requirements) can be sent to the OECD Secretariat, preferably before end of July 2005; a draft will be available for comments early October and will be further discussed at the WGEIO's 36th meeting (30 November-1 December 2005).
- 2006 OECD workshop on "Interpretation and use of MF and RP indicators": to support the workshop preparations and to make the indicators work operational in the practical setting of public policies, it is suggested that volunteering countries prepare pilot studies on the application of MF and RP indicators in their national context. Interested countries should contact the OECD Secretariat.
- Preparation of a preliminary data set for non-EU OECD countries: it was proposed that the OECD will expand the existing Eurostat data sets to other OECD countries building on existing OECD and international data sources and on selected national sources, as a pilot effort to support the 2006 OECD workshop on the interpretation and use of MF and RP indicators and to contribute to the OECD's programme on sustainable development.

Updated sequence of supporting events (2004-2006)

Date	Event	Purpose and topics	Outputs
2004			
June 17-18	**WGEIO workshop** (Helsinki, Finland)	Definition of scope and orientations of joint work within the OECD on material flows and related indicators	➡ Chair's summary (June 2004) ENV/EPOC/SE(2004)1
July-Sept	**Survey of MF activities** (jointly with EEA)	Compile an inventory of MF related activities in OECD countries and beyond.	➡ Draft inventory (Q4 2005)
Sept/Oct	**Annual meeting of Sustainable Development Experts** (AMSDE) (Paris, France)	Sustainable resource use Report on Helsinki workshop	
October 13-15	**35th WGEIO meeting** (Paris, France)	Discussion of draft scoping paper Exchange of experience on "demands for MFA"	➡ Final scoping paper (Q1 2005) ENV/EPOC/SE(2004)3Final ➡ Final inventory (Q1 2005) ENV/EPOC/SE(2004)3Final/Add
November 8-9	**Eurostat TF-MFA** (Luxembourg)	Review of Eurostat methodological guide and identification of next steps; development of simplified MF accounts	➡ Draft amended methodological guide (basis for OECD guide) (timing tbd)
2005			
February 9-10	**7th WGWPR meeting**	First discussion of OECD work on sustainable materials management	
May 23-24	**WGEIO workshop** (Berlin, Germany) back to back with Eurostat training session (25 May)	Standard framework for MFA and bold vision; review of methodological and measurement issues; selection criteria and definition of MF indicators; related guidance to countries	➡ Chair's summary (June 2005) ENV/EPOC/SE(2005)2 ➡ Draft guide on methodological and measurement issues (October 2005) ➡ Draft brochure on MFA (October 2005)
October 3-5	**Annual meeting of Sustainable Development Experts** (AMSDE)	Sustainable resource use Report on Berlin workshop	
November 28-30	**WGWPR workshop** (Seoul, Korea)	Sustainable materials management	
November 30 – December 1	**36th WGEIO meeting** (Cancun, Mexico)	Review of draft guidance document; of draft brochure Discussion of MF indicators for OECD use	➡ Final guide on methodological and measurement issues (Q1 2006) ➡ Final brochure (Q1 2006) ➡ Preliminary set of MF indicators for OECD use
2006			
2nd quarter	**WGEIO workshop** (Rome, Italy)	Interpretation and use of MF indicators; links with other accounting tools and indicators; best practices and successful applications; could cover SMM indicators Update of survey on MF activities in OECD countries (focus on indicators)	➡ Draft guidance on the interpretation and use of MF indicators (Q3 2006)
Sept/Oct	**Annual meeting of Sustainable Development Experts** (AMSDE)	Sustainable resource use Report on Rome workshop	
4th quarter	**37th WGEIO meeting** (location to be defined)	Review of draft guidance document on interpretation and use of MF indicators; Review of draft report assessing progress with MFA and related indicators in OECD countries	➡ Final guidance document on interpretation and use of MF indicators (Q4 2006) ➡ Final progress report (Q4 2006/ Q1 2007)

OECD

Working Group on Environmental Information and Outlooks

BERLIN WORKSHOP ON MATERIAL FLOW INDICATORS AND RELATED MEASUREMENT TOOLS
23-24 May 2005
AGENDA

WGEIO

Chair: Mr. Yuichi Moriguchi
Rapporteur: Mr. Heinz Schandl

First day: Monday 23 May 2005

Opening session

a. Welcome — *Kôji Ueda, Japanese-German Center Berlin*
b. Opening statements
   - Federal Statistical Office — *Walter Radermacher*
   - Federal Ministry for the Environment, Nature Conservation and Nuclear Safety — *Peter Franz*
   - Federal Environment Agency — *Harry Lehmann*
   - OECD — *Christian Avérous*
c. Introduction and practical arrangements — ENV/EPOC/SE/A(2005)1/REV, ENV/EPOC/SE/RD(2005)1, ENV/EPOC/SE/RD(2005)3

Work session 1: Overall framework for material flow analysis

a. Purposes and uses of MFA: users' perspectives and needs
   - Overall framework for MFA – View of an environment agency — *Harry Lehmann (Germany)*
   - MFA as tool to support the 3Rs — *Yuichi Moriguchi (Japan)*
   - Uses of MFA and links to policy concerns — *Derry Allen (USA)*
   - Other uses and needs
b. Main types of MF measures and links to other measurement tools[1]
   - Introduction — *Karl Schoer (Germany), Aldo Femia (Italy)*
   - Discussion
c. Use of MF information in modelling and outlook work
   - Modelling MF in multi-sector economy-environment models [ENV/EPOC/SE/RD(2005)4] — *Christian Lutz (GWS Osnabrück)*
   - Discussion

Session rapporteurs: Derry Allen, Stefan Bringezu

Work session 2: Material flow and resource productivity indicators

a. Background and main issues: purposes & uses, selection criteria, definitions & calculation methods, drawbacks & limits [ENV/EPOC/SE(2005)1] — *Tomas Hak, Jan Kovanda (CUEC)*
   - Country views — *Alison Clark-Milito (Canada)*
   - Discussion
     - Overall guidance
     - Practical MF and RP indicators for international use

Session rapporteurs: Tomas Hak, Jan Kovanda

Reception hosted by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

[1] *This item will address the overall architecture of MFA work (economy-wide accounts, individual flow accounts, PIOTs, NAMEAs, etc.) and how it relates to other accounts, indicators, information systems (other natural resource accounts, economic accounts, environmental indicators, PRTRs, etc.).*

Second day: Monday 24 May 2005

Work session 3: Material flow accounts to support the calculation of simple MF indicators

a. Simple economy-wide MF accounts and balances
   - ♦ A proposal by Eurostat [ENV/EPOC/SE/RD(2005)5] *Jörg-Alexander Hanauer (Eurostat)*
   - ♦ Discussion

   – Links with economic accounts: input-output and NAMEA-type approaches
   - ♦ Primary material flow accounts by branches and by material categories [ENV/EPOC/SE/RD(2005)6] *Stefan Schweinert (Germany)*
   - ♦ Discussion

Session rapporteurs: J.A. Hanauer, Karl Schoer

Work session 4: Implementation and measurement: guidance and best practices

a. Statistical sources and methods, institutional arrangements and resource requirements
   - ♦ Country experiences: [ENV/EPOC/SE/RD(2005)7 & 8] *Sacha Baud (Austria), Alison Clark-Milito (Canada), Aldo Femia (Italy), Seiji Hashimoto (Japan), Derry Allen (United States)*
   - ♦ Discussion

   – Implementation menu (based on decision tree)
   - ♦ Introduction *Heinz Schandl, Aldo Femia*
   - ♦ Discussion

   – Terminology and glossary: for discussion and further written comments ENV/EPOC/SE/RD(2005)2

Session rapporteurs: Heinz Schandl, Aldo Femia

Concluding session

a. Next steps and time lines: including priorities for further methodological and statistical developments and empirical case studies
b. International co-ordination and co-operation
C. Closing statements

Groupe sur l'Information et les Perspectives Environnementales / Working Group on Environmental Information and Outlooks

ATELIER OCDE SUR LES INDICATEURS DE FLUX DE MATIÈRES ET LES OUTILS DE MESURE AFFÉRENTS
WORKSHOP ON MATERIAL FLOW INDICATORS AND RELATED MEASUREMENT TOOLS
23-24 May 2005, Berlin

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