

“Analysis on international policy trend of MFA (Material Flow Accounting/Analysis)”

- based on indicators for resource productivity and the possibility of international cooperation for developing countries”

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Introduction

- By experiencing the recent price fluctuation of resources, sustainable resource management, including waste management and resource circulation, is becoming a renewed policy concern for both developed and developing countries.
- Unless material flows are monitored on a regular basis, it is difficult to design policies for improved resource efficiency at national level and not possible to assess whether such policies are effective. Material Flow Accounts (MFA) is a methodology to meet such needs.

This study tried to identify reasons why MFA and economy-wide resource productivity are given higher priority by some countries than by others. This study consists from three parts of surveys.

First part is a comparative study of the selected OECD countries on the use of MFA in their environmental policy design.

Second part shows the result of more detailed survey to the governmental officials of G8 countries on their opinions on MFA-related indicators and policy target-setting.

Also, the third part of the study assessed the national capacity for MFA in selected non-OECD countries and discusses how this capacity could be enhanced.

Study 1. Comparison of the implementation of EW-MFA based on economic and social perspectives in G8 and Selected OECD countries

The study found the countries that are especially active in developing MFA and using MFA data for policy development are typically characterised by :

- high GDP/capita,
- large trade deficit for natural resources, and
- large exporting-oriented manufacturing sector.

It is logical that countries with these characteristics have strong incentives to manage natural resources efficiently, and the result was in line with our expectations. Germany, Italy and Japan were found to be the three countries with the strongest integration of MFA into governmental policies.

Methodology: literature survey based on a report of OECD (2007) with a combination of on-line data surveys officially available from governmental websites.

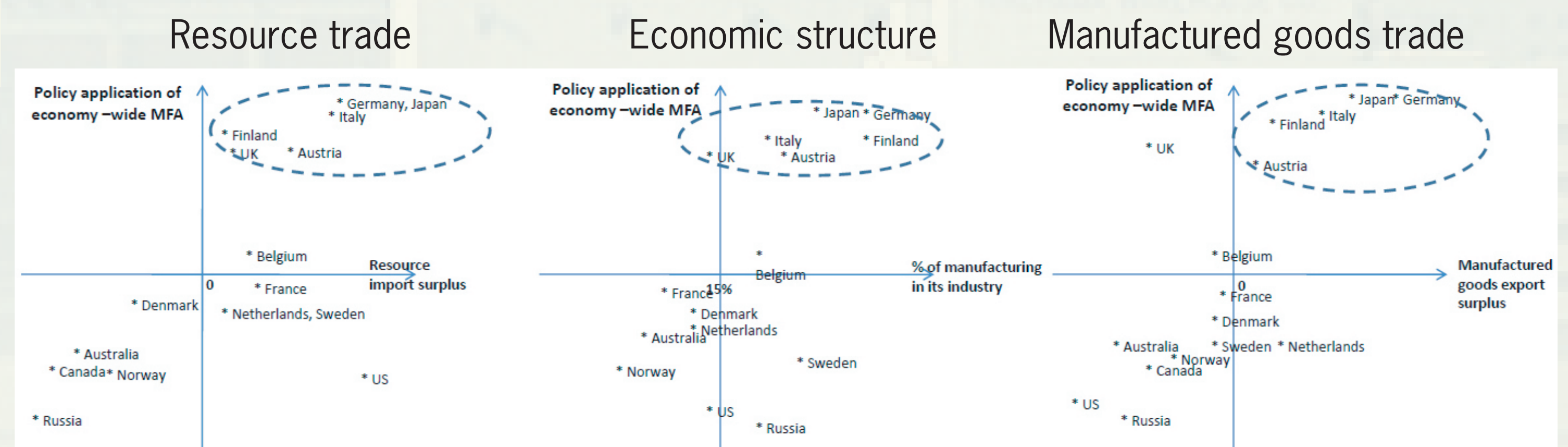


Figure: Adaption of MFA as a function of macro-economic characteristics

Study 2. Indicators and target setting of resource productivity in G8 countries

The perception of MFA-based indicators on resource productivity and target setting of G8 policy makers seems to be significantly influenced by the difference in industrial and economic structure as well as political systems.

Economic structure: Economies with relatively large manufacturing industrial sector are interested in reduction of materials input as well as showing clearly the economies' dependence on resource extracted in other countries.

Political system: political system, especially the relationship between central and local governments, also influences such perception

Methodology: Interview survey to the governmental officials of ministries in charge of 3R-related policies or statistics office or research institutes in charge of development of MFA indicators with a combination of questionnaire, on-line data surveys officially available from governmental websites.

[Findings from the survey]

- Climate change issues are more prioritized in national environmental policy of industrialized countries than resource efficiency issues.
- Resource productivity indicator based on MFA is preferred because it can be better served to show win-win solution between resource conservation and industrial competitiveness.
- EU emphasized the significance of environmental impact indicator for harmonization of development and environmental conservation.
- International target setting based on MFA may be possible among certain countries with a similar economic structure.

Table: Indicators and target setting of resource productivity in G8 countries

		UK	Italy	Germany	France	EC	Canada	US	Japan
MFA Indicator and its position in national policy	MFA Indicator	DMC	TMR	Raw Material Productivity=(DMI-biomass)/GDP	DMC	DMC	x	x	Resource productivity=GDP/DMI, Cyclical Use Rate, Final Disposal Amount of Waste
	Position in national policy	Sustainable Development Indicator	National Strategy for Sustainable Development	National Strategy for Sustainable Development / German Environment Indicators	National Sustainable Development Indicator by IFEN	Sustainable Development Indicator	x	x	Fundamental Plan for Establishing Sound Material Cycle Society
National Target Setting	Target	x	90% reduction of TMR in 2050	Double RMP	x	x	x	x	Resource Productivity:370,000 yen/ton Cyclical Use Rate: 14% Final Disposal Amount: 28 million ton (Target Year: 2010)
	Opinion on target setting	useful but not be set on the basis of MFA	not regarded as the implementation target of government	An indicator for making synergies among different policy areas	no strong emphasis on material use	Energy efficiency is more important, but likely set RP targets.	Local governments would oppose.	Effectiveness of an aggregated indicator is not clear	
Indicators for international hidden flow/environmental burden shifting		interested in environmental burden shifting	necessary to show foreign constrains of resource use	Alternative indicator for RMP is considered.	Considered important at the level of experts	Prefers indicators reflecting environmental burden	No plan to calculate.	interested in methodological development	planning to apply TMR
Linking MFA and environmental impact		Interesting step Methodology development is necessary	x not favor (ISTAT)	One of alternative indicators	strong interest (IFEN)	would like to introduce Environmentally-weighted Material Consumption	no plan to calculate	not opposing to working together for methodology development	Setting conversion factors to be shared internationally
Common target setting for G8	International Target	x	△	○	x	△	x	x	○
	International Indicator	○	○	○	△	△	x	○	○

Study 3. Capacity for Material Flow Accounting (MFA) in Selected Non-OECD Countries

The study found that in the developing countries surveyed:

- a large number of organisations, including governmental bodies and academia, are already collecting statistics relevant to MFA, but
- data collection is fragmented – there is a lack of coordination and it is difficult to get an overview of existing data, and
- awareness among policy makers on the potential benefits of MFA is still limited

Methodology: Questionnaire survey to related Ministry, Statistical office, University, Research Institute and Others



Figure: The vicious circle of low capacity for MFA studies and low utilisation of MFA in policy making

Table: Overview of the main findings of the study

	input data			Output data			Sector data			Use in Public Policy		SFA	
	All	Some	Few	All	Some	Some	No	Unknown	Yes	No	Yes	No	
Brazil		●		●		●			●		●		
China		●		●			●		●		●		
India	●			●		●			●		●		
Indonesia			●		●		●			●		●	
Malaysia		●		●				○		●		●	
Philippines	●			●				○	●		●		
Russia		●		●		●			●		●		
Singapore	●			●			●			●		●	
Thailand	●			●		●			●		●		
VietNam			●	●		●				●		●	

- All countries surveyed seem to have most of the basic input and output related statistics available. Some countries seem to have sufficient data to estimate their DMI and DMC.
- The availability of MFA data in some countries surveyed is not much different from in some OECD countries.
- Existing work on data collection is fragmented and split up among many governmental bodies and research institutes.
- Lack of knowledge and awareness was mentioned as the main cause why material efficiency was not included in national environmental policies.
- There are several ways to try to break the vicious circle.

Conclusion

We recommend increased international collaborative efforts, focusing on the following:

- Establishment of national focal points for coordination of MFA data collection and compilation,
- Development of case studies illustrating how MFA has provided policy makers with an improved basis for policy design,
- Training and capacity development to harmonise data definitions and documentation formats, and
- International collaborative research projects to further develop the capacity of academia and research institutes to analyse MFA data.

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