

Eionet webinars on resource efficiency policies  
**Webinar on Raw Material Consumption and  
a European target for resource efficiency**

Friday, 5 December 2015, 11:30 - 13:00 (CET)

## Final report

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Documents, presentations and video recordings from earlier webinars on resource efficiency can be found at the Eionet Forum:  
<http://forum.eionet.europa.eu/nrc-scp-waste/library/eionet-webinars/webinars-resource-efficiency>

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# 1 Objectives of the webinar

Webinars on resource efficiency policies and instruments are organized by the European Environment Agency for the Eionet network, to support exchange of information and sharing of experience among national institutions which are responsible for practical implementation of resource efficiency policies at the country level.

The main objectives of the webinars are to keep countries informed about upcoming EU policy initiatives, and to provide a forum where countries themselves can present examples of policy initiatives which they adopt under the heading of resource efficiency.

Previous webinars covered such topics as: national strategies for resource efficiency; targets and indicators; industrial symbiosis; and circular economy.

Raw Material Consumption (RMC) was [recently identified](#) as a candidate for indicator to measure resource productivity. The [European Resource Efficiency Platform](#) called for the adoption of a target based on RMC to encourage further action. In October 2014 the [Council of the European Union](#) embraced that recommendation and stressed that such a target “would provide the much needed link between the measures dealing with economic policies and those addressing natural resource challenges.”

[Eurostat](#) has developed a model to estimate the raw material equivalents (RME) of imported and exported goods for the aggregated EU-27 economy (i.e. extra-EU trade). For 2012, Eurostat estimated the exports in RME to amount to 4.6 tonnes per capita which is almost four times the simple weight of exported products. The import of goods in RME is estimated at 7.2 tonnes per capita which is over twice as much as the simple weight of imported products. While Eurostat has compiled RMC time series for the EU27, it is currently envisaged that national statistical offices will compile national RME and RMC data (in the interim continuing to use Domestic Material Consumption – DMC – to monitor resource productivity). At present, six countries are working to develop - on a pilot basis – RME and RMC national figures. They are: France, Germany, Italy, Netherlands, Switzerland and United Kingdom.

The webinar will begin with a policy update by Mr. Werner Bosmans from the European Commission, covering recent initiatives and outlook for the theme of resource efficiency and circular economy, and in particular discussions related to resource productivity indicators and a target. This will be followed by a presentation by Mr. Stephan Moll from Eurostat, who will introduce the concept of raw material equivalents and the Raw Material Consumption indicator, discuss its policy significance and reflect on trends that emerge when using RMC and DMC. Finally, Mr. Harry Lehmann from UBA will present experience in Germany with using RMC for guiding resource efficiency policies.

As promised during the last webinar, we will now use an upgraded version of Webex webinar software, which allows up to 100 participants to take part. You will no longer need to use the telephone for audio - everything will be run over the internet (VoIP). To participate in the webinar you need a computer with a fast internet connection, and equipped with a microphone and speakers (or a headset). Detailed joining instructions are provided at the end of this document.

## 2 Introduction to Raw Material Consumption

### Policy context

The Europe 2020 Strategy defines the milestones for the EU to become a smart, sustainable and inclusive economy (European Commission, 2010). The strategy is built around seven mutually reinforcing flagship initiatives, one of which has resource efficiency at its core (European Commission, 2011a). As a follow up to this flagship initiative, the Commission adopted the Roadmap to a Resource Efficient Europe in order to set a framework for action that would pave the way towards an EU smart, sustainable and inclusive economy that by 2050 has grown in a way “that respects resource constraints and planetary boundaries, thus contributing to global economic transformation” (European Commission, 2011b, p. 3). The 7<sup>th</sup> Environmental Action Programme also made reference to the role resource efficiency should play in this transformation by including it in one of its thematic priorities, namely to turn the Union into a resource- efficient, green and competitive low-carbon economy (European Commission, 2014a).

More recently, the Commission’s Communication on the Circular Economy acknowledged that moving “towards a more circular economy is essential to deliver the resource efficiency agenda established under the Europe 2020 Strategy for smart, sustainable and inclusive growth. Higher and sustained improvements of resource efficiency performance are within reach and can bring major economic benefits” (European Commission, 2014b, p. 2). A similar message can be extracted from the most recent Council conclusions, which also call for a better integration of resource efficiency in the EU 2020 Strategy (Council of the European Union, 2014).

### Measuring resource efficiency

The European Commission arranged the so-called resource efficiency scoreboard in a three-layered pyramid structure (European Commission, 2011c) to monitor progress towards the objectives of the Resource Efficiency Roadmap:

*First tier: the lead indicator*

The Commission proposed a provisional lead indicator, resource productivity, measured by the ratio of GDP to DMC, (expressed in Euro/tonne) where a higher ratio indicates better performance.

*Second tier: a dashboard of macro-indicators on water, land and carbon*

As the lead indicator is unable to illustrate the complexity of resource use impacts and their interrelations covering only material resources and has a national production perspective, it is complemented with a dashboard of macro consumption and production indicators on water, land and carbon. This dashboard of indicators focuses on clear changes or flows of main resources.

*Third tier: thematic indicators for monitoring policy effectiveness*

The main objective of the third tier of the pyramid is to cover the key thematic areas of the Roadmap measuring performance on the related actions and milestones. The Roadmap included almost 40 indicators for the third layer.

Recent policy discussions on the indicator set and targets for resource efficiency explore a possibility for RMC to complement / replace DMC as the denominator in the headline indicator of resource productivity. Although RMC is not yet fully consolidated in the European environmental accounting system, it seems likely that it will gain higher prominence in the near future (European Commission, 2014b). In this context, the European Resource Efficiency Platform (2014) even called for the adoption of a target based on RMC to encourage further action even if it is at EU level and non-binding. More recently the Council of the European Union (2014, p. 4) embraced that recommendation and stressed that such a target “would provide the much needed link between the measures dealing with economic policies and those addressing natural resource challenges.” The possibility of setting a quantitative goal was specifically addressed in other of the annexes of the circular economy communication (European Commission, 2014c).

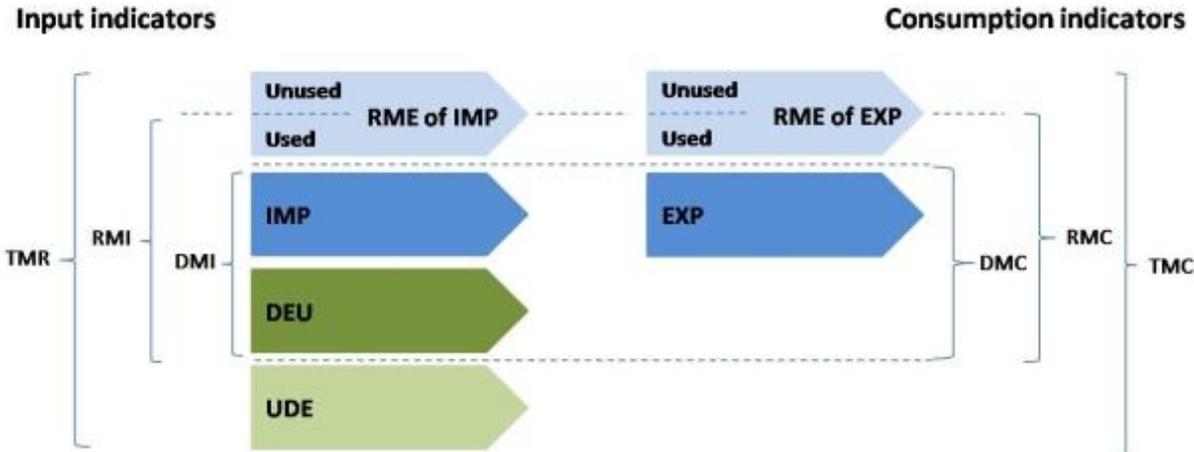
### Raw Material Consumption

As part of the MFA framework, DMC measures the total quantity of materials used within an economic system, excluding indirect flows (Figure 1). DMC is the result of summing the used fraction of domestically extracted materials (Domestic Extraction Used – DEU) and the weight of imports, and extracting the weight of the exported goods.

Thus, DMC is the closest equivalent to aggregate income in the conventional system of national accounts (Lutter and Giljum, 2014) and is often interpreted as an indicator for potential environmental pressures related to domestic material use, as it comprises all materials that are directly used in the domestic economy thereby contributing to a country’s environmental pressures on the material output side in terms of waste and emissions (Femia and Campanale, 2013).

RMC, on the other hand, is equivalent to DMC when the direct and indirect used fraction of material flows of traded goods and services are completely accounted for. This is done by expressing imports and exports in so-called raw material equivalents. RMC is considered a more appropriate indicator to account for the whole production chain of goods and services related to final consumption, since DMC does not properly account for burden shifting between countries.

Figure 1: Material flow indicators

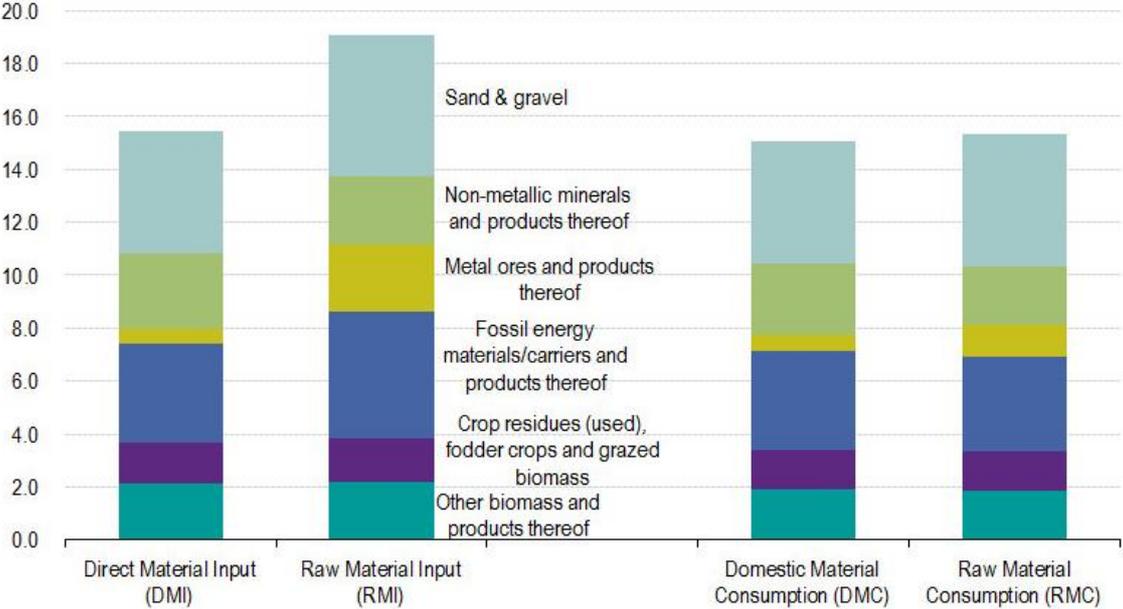


Abbreviations: DEU: Domestic Extraction Used, UDE: Unused Domestic Extraction, IMP: Imports, EXP: Exports, RME: Raw Material Equivalents, DMI: Direct Material Input, DMC: Domestic Material Consumption, RMI: Raw Material Input, RMC: Raw Material Consumption, TMR: Total Material Requirement, TMC: Total Material Consumption

Source: www.materialflows.net

Eurostat has recently implemented a method to estimate the RMC of EU27 (Schoer et al., 2012). Preliminary results show that the main contributor to DMC and RMC is non-metallic minerals (including sand and gravel) (Figure 2). The main differences between both indicators are related to metal ores.

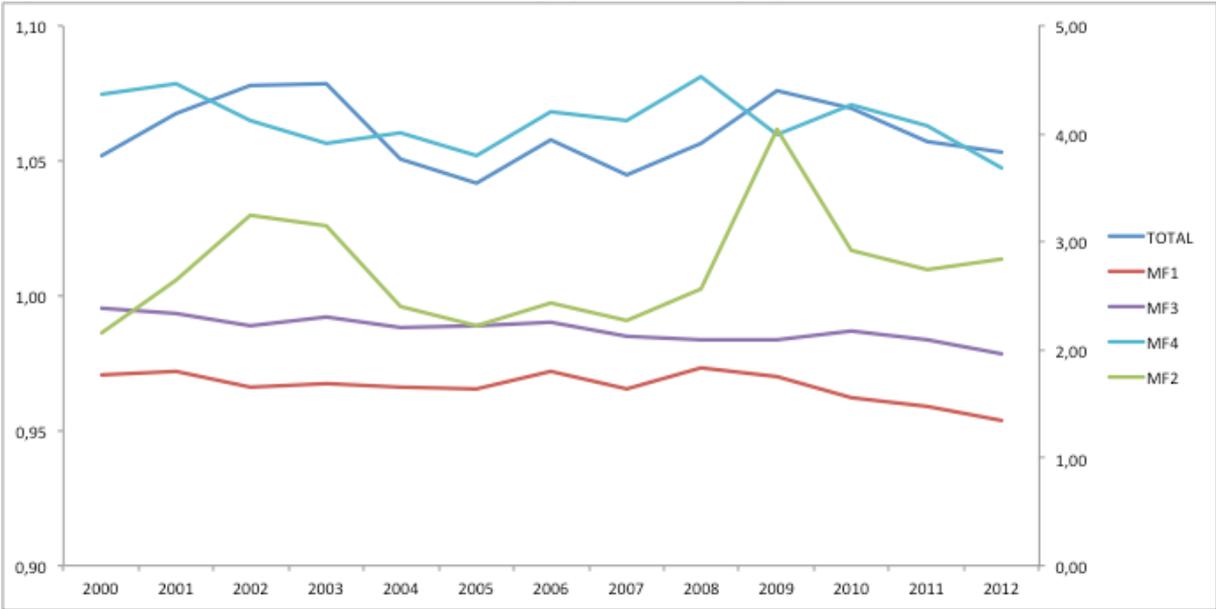
**Figure 2: Contribution of different material categories to selected MFA indicators**



Source : model calculations based on Eurostat (online data code: [env\\_ac\\_mfa\\_demo\\_gind](#))

Over time, the ratio RMC/DMC has varied from 1.04 to 1.08 for EU27 (Figure 3). The ratio by material category remains relatively constant except for metal ores (represented in the right-side y axis). In the latter case, the ratio ranges from 2.16 to 4.05.

**Figure 3: Ratio between RMC and DMC, including by material category**



Notes: The material category MF2 is represented in the right side y axis.  
 Abbreviations: MF1: Biomass, MF2: Metal ores (gross ores), MF3: Non-metallic minerals, MF4: Fossil energy carriers/materials

Source: Based on Eurostat data

Based on the same or similar approaches, several countries (France, Germany, Italy, Netherlands, Switzerland and United Kingdom), have started to make their own estimations. The differences between RMC and DMC trends are more notable than when looking at individual countries than at the EU27 as a whole.

Nevertheless, the calculation of RMC is not limited to national statistical offices. Several researchers are using different tools to do so (see for example (Arto et al., 2012; Tukker et al., 2014; Wiedmann et al., 2013)).

The following links provide more information about Eurostat's activities on material flow accounting:  
[http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php/Material\\_flow\\_accounts](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Material_flow_accounts)  
[http://epp.eurostat.ec.europa.eu/portal/page/portal/environment/material\\_flows\\_and\\_resource\\_productivity](http://epp.eurostat.ec.europa.eu/portal/page/portal/environment/material_flows_and_resource_productivity)

## References

Arto, I., Genty, A., Rueda Cantuche, J.M., Villanueva, A., Andreoni, V., 2012. Global Resources Use and Pollution, Volume 1 / Production, Consumption and Trade (1995-2008), JRC Scientific and Policy Reports.

Council of the European Union, 2014. Council conclusions on Greening the European semester and the Europe 2020 Strategy - Mid-term review, Environment Council meeting. Luxembourg.

European Commission, 2010. Europe 2020. A strategy for smart, sustainable and inclusive growth. COM(2010) 2020 final.

European Commission, 2011a. A resource-efficient Europe – Flagship initiative under the Europe 2020 Strategy. COM(2011) 21.

European Commission, 2011b. Roadmap to a Resource Efficient Europe. COM(2011) 571 final.

European Commission, 2011c. Analysis associated with the Roadmap to a Resource Efficient Europe Part II. SEC(2011) 1067 final.

European Commission, 2014a. General Union Environment Action Programme to 2020 - Living well, within the limits of our planet.

European Commission, 2014b. Towards a circular economy: A zero waste programme for Europe. COM(2014) 398 final.

European Commission, 2014c. Analysis of an EU target for Resource Productivity. Commission Staff Working Document. SWD(2014) 211.

European Resource Efficiency Platform, 2014. Manifesto & Policy Recommendations.

Femia, A., Campanale, R.M., 2013. On Raw Material Equivalents and their correct use in Resource Productivity (RP) indicators, London Group on Environmental Accounting XVIII meeting, November 2013 MFA/Waste Session. London.

Lutter, S., Giljum, S., 2014. Demand-based measures of material flows: A review and comparative assessment of existing calculation methods and data options. Presented at the OECD international expert workshop on "Demand-based measures of material flows and carbon. 2-3 July 2014, OECD Conference Centre, Paris.

Schoer, K., Glegrich, J., Kovanda, J., Lauwigi, C., Liebich, A., Buyny, S., Matthias, J., 2012. Conversion of European product flows into raw material equivalents. Commissioned by Statistical Office of the European Communities – Eurostat; Directorate E – Agriculture and Environmental Statistics; Statistical Cooperation Unit E3: Environment statistics.

Tukker, A., Bulavskaya, T., Giljum, S., de Koning, A., Lutter, S., Simas, M., Stadler, K., Wood, R., 2014. The Global Resource Footprint of Nations. Carbon, water, land and materials embodied in trade and final consumption calculated with EXIOBASE 2.1. Leiden/Delft/Vienna/Trondheim.

Wiedmann, T.O., Schandl, H., Lenzen, M., Moran, D., Suh, S., West, J., Kanemoto, K., 2013. The material footprint of nations. PNAS 201220362. doi:10.1073/pnas.1220362110

### 3 Webinar Agenda

Eionet webinars on resource efficiency policies

#### Webinar on Raw Material Consumption and a European target for resource efficiency

**5 December 2014, 11:30 - 13:00 (CET)**

*Webinar IT platform will be open for joining at 11:00 (CET) - to log in please follow detailed instructions in the next section*

Raw Material Consumption - policy context	
<b>11:30</b>	<ul style="list-style-type: none"> <li><b>Welcome, introduction to the new ETC/WMGC and technical briefing</b> by Paweł Kaźmierczyk (EEA) and Arkaitz Usubiaga (ETC/WMGE)</li> </ul>
<b>11:40 – 12:05</b>	<ul style="list-style-type: none"> <li><b>Policy update from the European Commission: recent initiatives and upcoming work on resource efficiency and circular economy, RMC as a newly proposed indicator to measure resource efficiency</b> by Mr. Werner Bosmans, DG Environment (15 min presentation + 10 min Q&amp;A)</li> </ul> <p><i>Please use the chat function to send your questions directly to the user 'EEA Event/ HOST' who will collect questions and comments during the presentations.</i></p>
<b>12:05 - 12:30</b>	<ul style="list-style-type: none"> <li><b>Raw Material Consumption – Eurostat’s work on a new indicator to measure resource productivity:</b> by Mr. Stephan Moll, Eurostat (15 min presentation + 10 min Q&amp;A)</li> </ul> <p><i>Please use the chat function to send your questions directly to the user 'EEA Event / HOST' who will collect questions and comments during the presentations.</i></p>
Raw Material Consumption in action	
<b>12:30 – 12:55</b>	<ul style="list-style-type: none"> <li><b>National experience with using RME / RMC in Germany</b> by Mr. Harry Lehman, UBA Germany (15 min presentation+ 10 min Q&amp;A)</li> </ul> <p><i>Please use the chat function to send your questions directly to the user 'EEA Event / HOST' who will collect questions and comments during the presentations.</i></p>
Wrap up and closing	
<b>13:00</b>	<b>Wrap-up</b> by Paweł Kaźmierczyk (EEA)

## 4 The presenters

### **Dr. Werner Bosmans, DG Environment, European Commission**

Werner Bosmans, a Belgian national, first graduated as a Bio-engineer at the University of Ghent, Belgium, and then did a Ph.D. in international economics in Montpellier, France. He was the assistant to the Secretary-General of the Belgian and then Flemish Ministry of Agriculture before joining the Directorate-General Environment of the European Commission in 2005 where he is responsible for Resource Efficiency policies.

### **Mr. Stephan Moll, Eurostat**

Stephan Moll is working in Eurostat's unit E.2 'Environmental statistics and accounts; sustainable development'. He is leading the team on 'physical environmental accounts and water statistics'. Beside others he is in charge of Eurostat's data collection related to economy-wide material flows. Prior to joining Eurostat, Stephan worked at the Wuppertal Institute, and the European Environment Agency.

### **Dr. Harry Lehmann, UBA Germany**

Harry Lehmann is head of the division "Environmental Planning and Sustainable Strategies" at the German Federal Environment Agency. After doctorate in physics, he founded Engineering Consultancy "UHL Data." Between 1991 and 2000 he was at the Wuppertal Institute for Climate, Environment and Energy. After that Harry was Director of the Institute for Sustainable Solutions and Innovations, as well as Director of Greenpeace International "Solutions Unit". He was an early member of the Factor 10 Club for resource productivity and sustainable use of natural resources and is currently its president. Since 2011 he is executive Chairman of the World Renewable Energy Council.

# 5 Presentations from the webinar

## Towards a circular economy: A zero waste programme for Europe

Werner Bosmans, DG Environment

**Towards a circular economy: A zero waste programme for Europe**

Werner Bosmans  
DG Environment

Brussels, 5 December 2014

1

**A New Commission: a new Agenda for Jobs, Growth, Fairness and Democratic Change**

- "Ensuring the sustainability of our environment, the preservation of our natural resources [...] are key policy objectives. [...] Protecting the environment and maintaining our competitiveness can go hand-in-hand, and environment policy also plays a key role in creating jobs and stimulating investment"
- Environment and Maritime Affairs and Fisheries to reflect the twin logic of "**Blue**" and "**Green**" Growth
- Contribute to projects coordinated by the Vice-Presidents for Jobs, Growth, Investment and Competitiveness and for Energy Union

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**Towards a circular economy for Europe: policy context**

- **Europe 2020 Strategy for smart, sustainable and inclusive growth**
  - Resource Efficiency Flagship Initiative
  - Roadmap to a resource efficient Europe
  - Mid-term review: pressure on resources and environmental concerns identified as a long-term trend affecting growth
  - Public consultation
- **7th Environment Action Programme**
  - Thematic objective to turn the EU into a resource-efficient, green and competitive low-carbon economy

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**From a linear economy ...**

Raw materials → Production → Distribution → Consumption → Waste

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**... to a circular economy**

Raw materials → Design → Remanufacture → Production → Distribution → Consumption (use, reuse, repair) → Recycling → Raw materials

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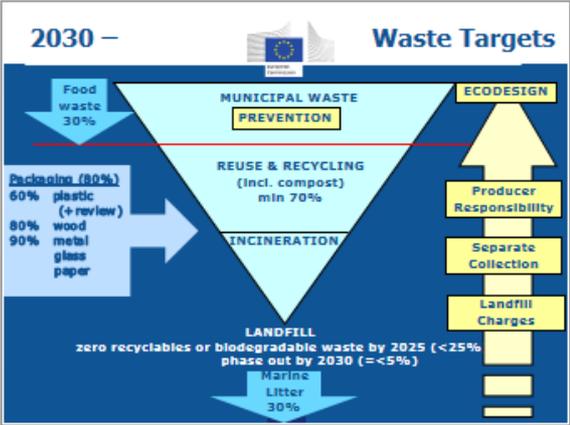
Enabling Framework	Waste target review	Specific waste challenges	Resource Efficiency target
European Resource Efficiency Platform recommendations			
Umbrella Communication • Green Employment Initiative • Green Action Plan for SMEs • Progress Report RE Roadmap	• Legislative proposal • Impact assessment • Fitness check (packaging)	• Sustainable buildings COM • Sustainable food • Marine litter	• Analysis of an EU target for Resource Productivity

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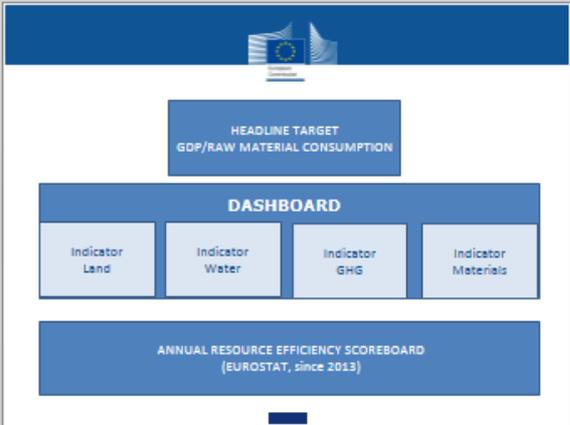
### An enabling framework

- Design and innovation**  
Horizon 2020: large scale innovation projects, skills development, market application and partnership; a coherent product policy, Eco-design; cascading use of biomass
- Unlocking investment**  
Environmental taxation, innovative financial instruments, accounting rules, fiduciary duties; resource stress tests, potential of the bonds market, GPP and European Funds
- Harnessing the role of business and consumers**  
Building on the Environmental Footprint pilots, broad stakeholder cooperation under Horizon 2020, action on SMEs and green employment
- Towards a recycling society – waste as a resource**  
Waste targets review, phasing out landfilling of recyclable waste, work with Member States on implementation, extended producer responsibility, marine litter, food & construction waste
- A resource efficiency target**

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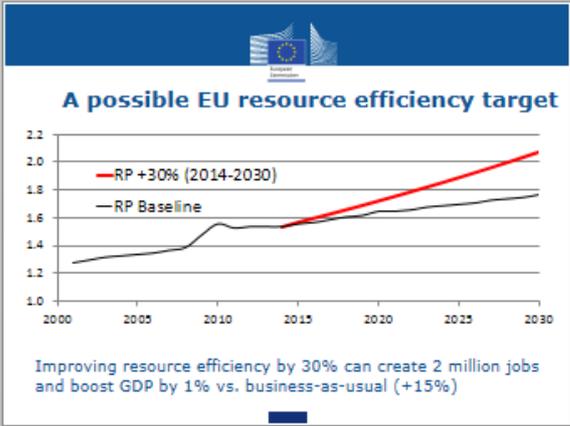
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- 7th EAP:** "A long-term and predictable policy framework ... will help to stimulate the level of investments and action needed to fully develop markets for greener technologies and promote sustainable business solutions. Resource efficiency indicators and targets underpinned by robust data collection would provide the necessary guidance ..."
- EREP, 2014:** "secure at least a doubling of resource productivity as compared with the pre-crisis trend ... equivalent to an increase of well over 30% by 2030"

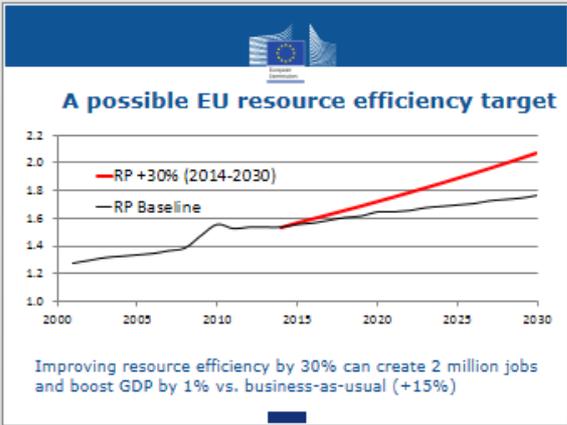
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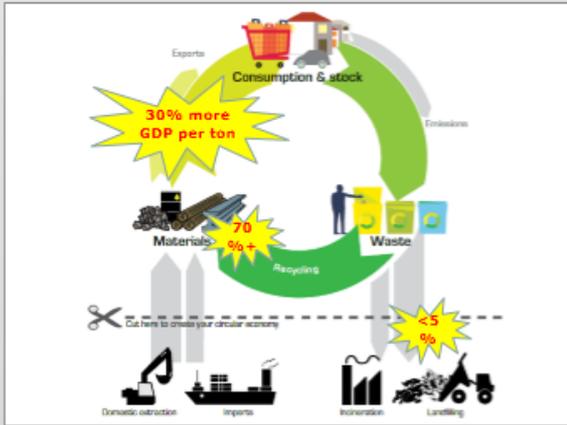
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**Examples of savings for RE & CE**

**McKinsey:** \$3.5 trillion annual gain in improving resource efficiency

**Production costs EU manufacturing:** ±40% raw materials → 20% labour

**Material cost saving opportunities** for EU industry: up to 3.9% of GDP

**EU waste policy:** full compliance has a potential of additional 400.000 jobs

**Waste prevention, ecodesign, re-use...**: net savings of € 600 billion, or 8 % of annual turnover for businesses in the EU, GHG reduction by 2-4 %

**Environmental goods and services sector:** employment ↑ from 3 to 4.2 million jobs (2002-2011), 20% growth in the recession years (2007-2011)

**European water industry:** 1/3 of the world market for water services, 9000 SMEs, 600.000 direct jobs. Compliance with the "water Directives" has a potential of additional 228.000 jobs by 2020

**Natural capital:** implementation of EU Biodiversity Strategy targets on restoration, Green Infrastructure and Natura 2000: 200.000 new jobs

**Better air pollution control** from large industrial facilities could save €59 – 189 billion. Half of this originates in just 1 % of the industrial plants

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**Opportunities for business**

- New businesses: first movers advantaged by creating new markets, new products and adding value for business
- Security against future price fluctuations

*"Winners are those who prepare for resource constraints in a predictable and controlled way, before shortages and price hikes hit"*

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**CIRCULAR ECONOMY**  
saving resources, creating jobs

**Thank you for your attention!**

[http://ec.europa.eu/environment/circular-economy/index\\_en.htm](http://ec.europa.eu/environment/circular-economy/index_en.htm)

[werner.bosmans@ec.europa.eu](mailto:werner.bosmans@ec.europa.eu)

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# Eurostat work on the RMC Indicator,

Stephan Moll, Eurostat



## Eurostat's work on the Raw Material Consumption indicator

Stephan Moll, Eurostat  
EEA webinar on RMC  
5 December 2014

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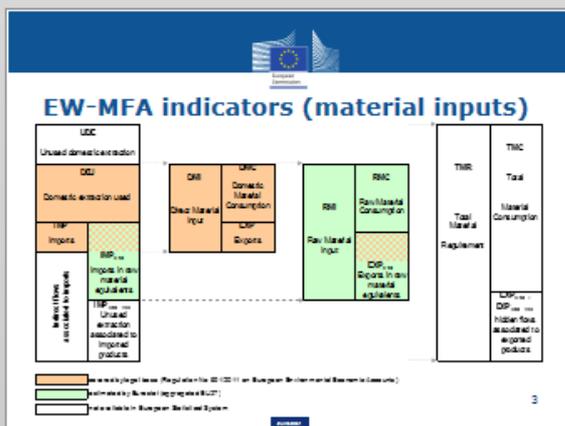


## Overview

1. Economy-wide material flow accounts (EW-MFA) and derived indicators
2. Pros & cons of DMI & DMC ('direct flows')
3. Pros & cons of RMI & RMC ('raw material equivalents')
4. Illustrative examples

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### EW-MFA indicator production

- Eurostat produces DMC, DMI on legal basis (annual questionnaire)
  - Official statistics: data quality can be improved
- RMC, RMI is estimated for EU27 (Eurostat's RME model)
  - No standard estimation method: data quality not assessable
- Five EU Member States work on country level RMC estimates
  - DE, FR, IT, NL (UK excl. fossil energy materials)

4

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### DMI & DMC ('direct') pros

- defined in the same way as other physical production factors (e.g. energy, greenhouse gas emissions)
- portrays 'direct' material flows in the national economy (manageable nationally)
- official statistics (legal base)
- can be compiled timely (early estimates T+9m established)
- accuracy is considered high

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### DMI & DMC ('direct') cons

- 'Asymmetry': countries replacing domestic extraction by imports of semi-manufactured and finished goods are better off (smaller DMC)
- => Country benchmarks: difficult, limited
- no 'footprint'-type indicator: does not show material extractions abroad due to domestic final use of products

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**RMI & RMC ('raw material equivalents') pros**

- 'Symmetric': Imports and exports are measured in the same 'unit' as domestic extraction
- => Country benchmarks: better to interpret
- 'footprint'-type indicator: does show material extractions abroad due to domestic final use of products

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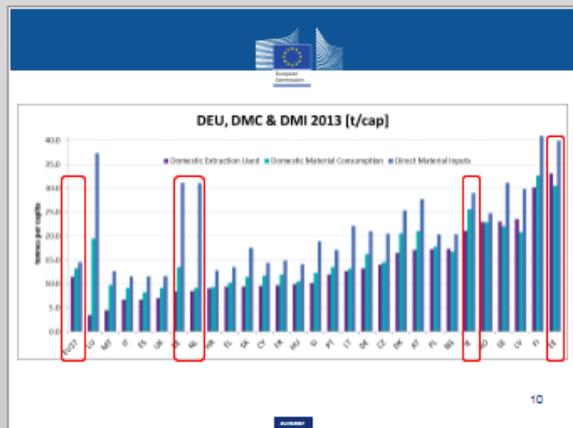
**RMI & RMC ('raw material equivalents') cons**

- portrays partly 'virtual' material flows in the rest of the world (not directly manageable)
- no official statistics (estimates, modelling)
- no standard methodology established
- cannot be compiled timely
- accuracy is low (results vary across estimation methodologies)
- the more disaggregated (geo, material) => lower accuracy

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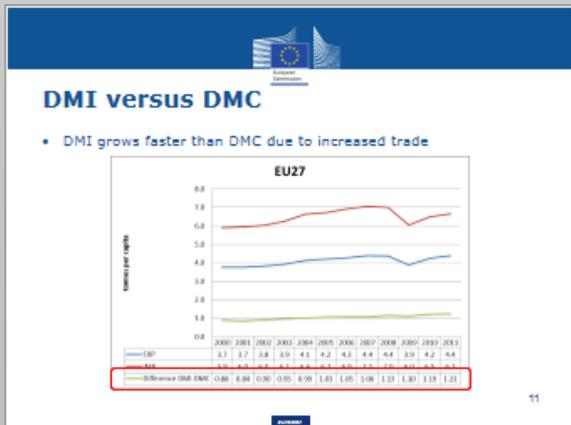
**'Direct' material flow indicators**

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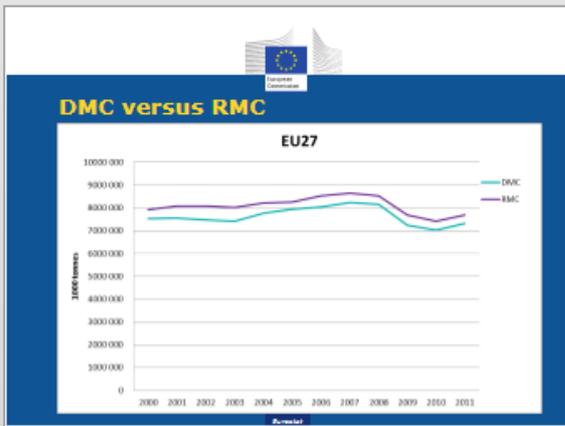


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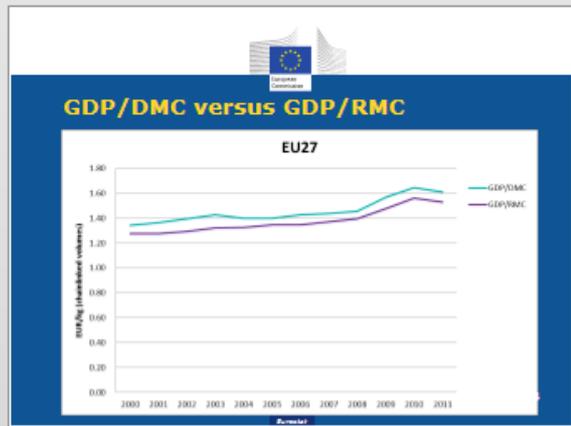
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**'Direct' versus 'raw material equivalents'**

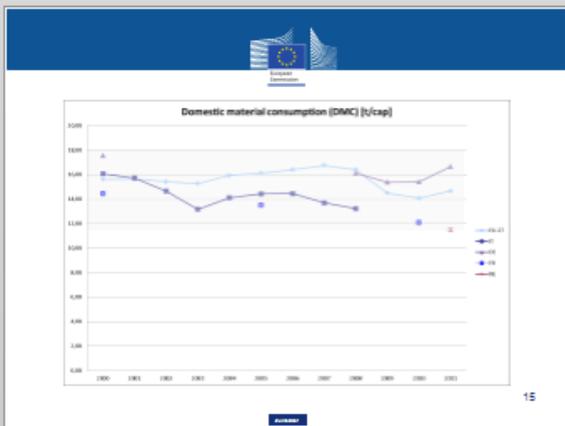
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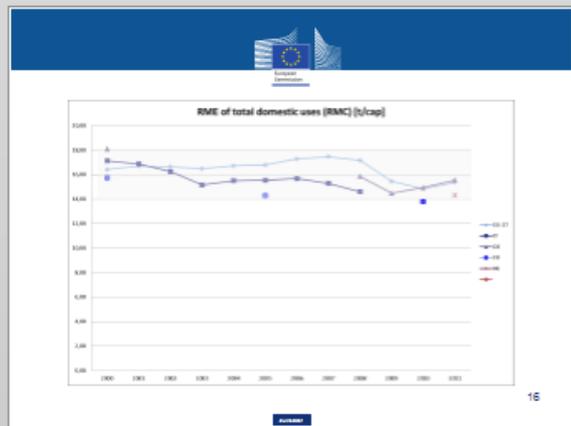
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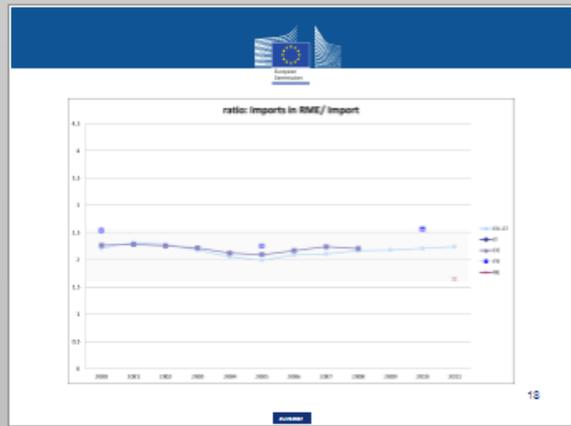
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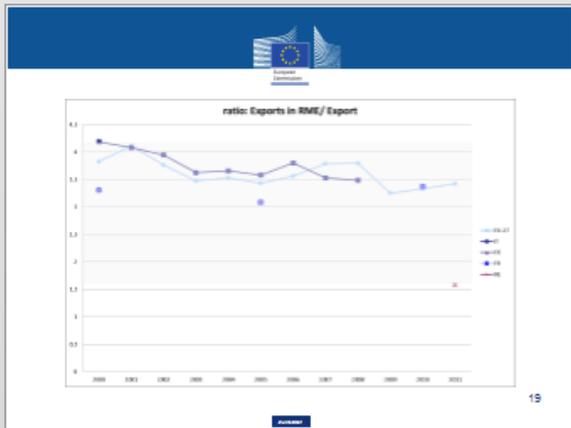


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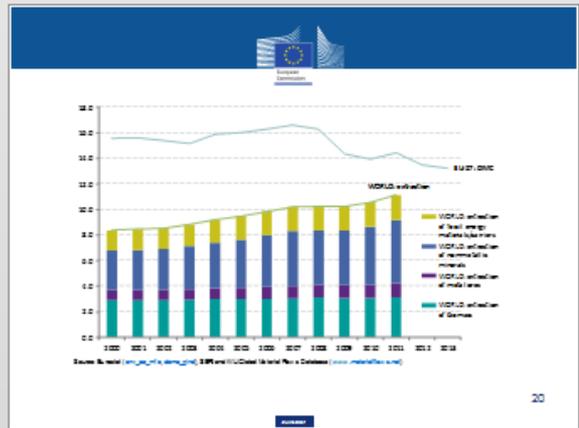


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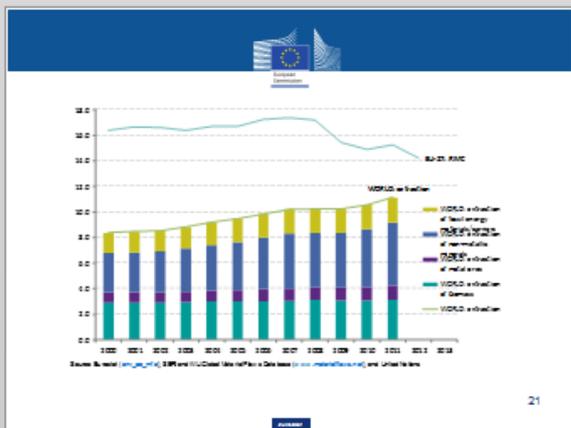




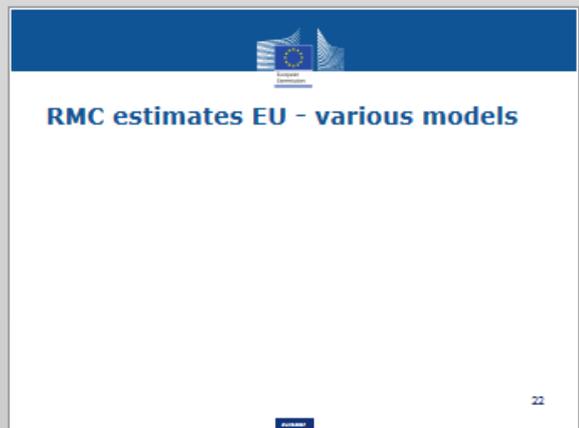
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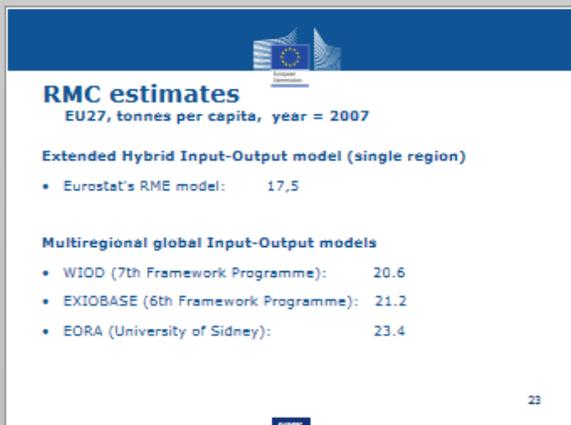
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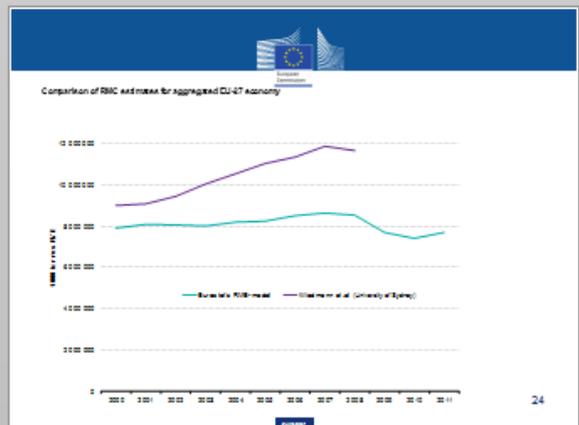
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## Data sources for RME accounts

- IMP\_RME, EXP\_RME, RMC, RMI:
  - EU27: [Eurobase, Eurostat RME model, 2013](#)
  - IT: personal communication Renato Marra, Feb 2014
  - FR: personal communication Jean-Louis Pasquier, Feb 2014 ([French leaflet](#))
  - NL: personal communication Roel Delahaye, Feb 2014,
  - UK: [UK Environmental Accounts, 2013](#) (excl. fossils)
  - DE: personal communication Sven Kaumanns, Jun 2014

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# Using RMC for guiding resource efficiency policies

Harry Lehmann, Federal Environment Agency, Germany

For our Environment

Umwelt Bundesamt

Webinar on RMC

## Using RMC for guiding resource efficiency policies

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### Main questions of resource efficiency policies

- Which global material flows are related to final consumption in a country?
- Which are the policy hot-spots for resource management measures along the whole international supply-chain of products (sectors, source countries, etc.)?

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### Indicator Raw Material Consumption RMC

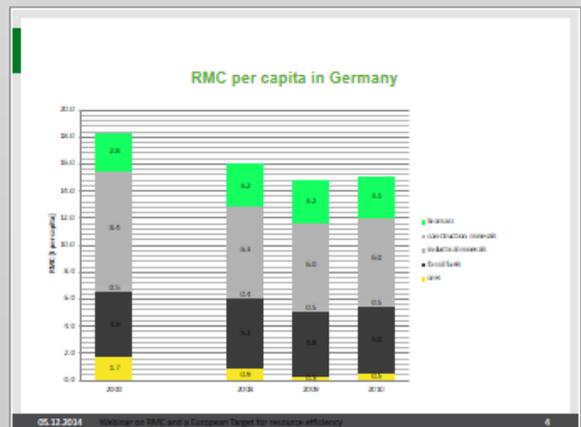
**RMC (Raw Material Consumption)** is the indicator for the domestic primary raw material use.

Raw Material Consumption (RMC) deducts the export plus the RMEs of exports (EXP<sub>RME</sub>) from RMI

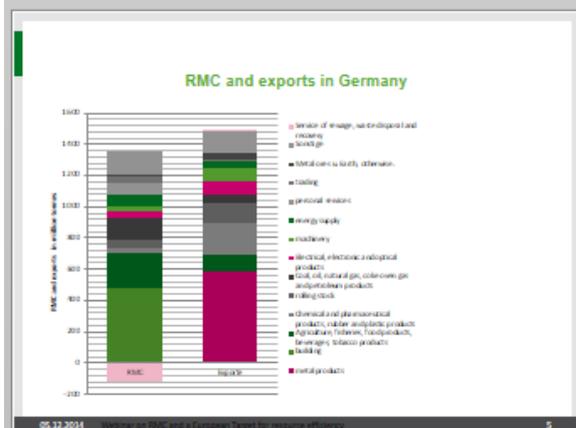
RMC is produced by Eurostat for the EU-28 and on national level so far by only a few Member States, e.g. by Austria, Germany, Italy and the Netherlands

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### Use of RMC for Improved Policy Decisions

The RMC decreased by 18%.

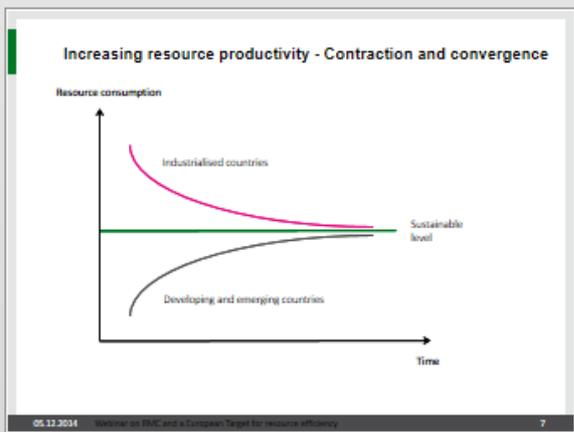
From RMC in 2010 were approximately two-thirds of the consumption of households and government (777 million tonnes) and about one-third (674 million tonnes) on investments.

The per capita primary raw material use declined between 2000 and 2010 by about 18 to 15 t.

Comparing the development of the RMI to the RMC, so there is a clear difference, because the RMI increased between 2000 and 2010 by about 3%. This is due to the fact that in this period, exports have grown much faster than imports.

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Sustainable Resource Use – Strategies and Instruments in Germany

### The German Resource Efficiency Programme (ProgRes)

Adopted 29 February 2012 by entire government Goals:

- Decouple economic growth from resource use
- Reduce environmental impacts of resource use
- Improve the sustainability and competitiveness of the German industry

Along the whole value chain

- raw materials supply
- production and product design
- consumption
- closed cycle management

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Sustainable Resource Use – Strategies and Instruments in Germany

### Resource Efficiency at the Federal State level - Examples

#### Energieeffizienzagentur NRW (EFA NRW)

- EFA NRW was founded 1998 through an initiative of the Ministry of Environment North Rhine Westphalia (NRW)
- Centre for manufacturing SME in NRW, 20 employees, several regional offices
- provides comprehensive strategies and technical improvements concerning the sustainable economy
- With the PIUS-Check (Cleaner Production), the Effizienz-Agentur NRW (EFA) supports companies with a tried and tested instrument for more resource efficiency

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Sustainable Resource Use – Strategies and Instruments in Germany

### Resource Efficiency Activities at Enterprise level

**Centre for Resource Efficiency (VDI-ZRE)**, founded in 2009, aims to reduce the resource consumption in German industries by promoting an integrated use of technologies protecting the environment and natural resources

**National Resource Efficiency Network** intends to bundle know-how and experience in economy, science and politics regarding resource protecting production, products and management

**Federal Association for Information Technology, Telecommunications and New Media (Bundesverband Informationswirtschaft, Telekommunikation und neue Medien e. V. – BITKOM)** established take-back structures for waste management of end-of-life electrical and electronic equipment and created a platform for green procurement of IT ([www.itk-beschaffung.de](http://www.itk-beschaffung.de))

**Federal Association of German Disposal, Water and Raw Materials Industries (BDE):** Commitment to extension of product responsibility ("Berlin Declaration")

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### Good Example:

-80 % Material / -75% Energy / -30% Costs

#### Herstellung von Titangroßbauteilen

Einsparprinzip: • Prozessauswahl

Verlustquellen: • hohes Spanvolumen  
• hohe Zerspanungsabfälle

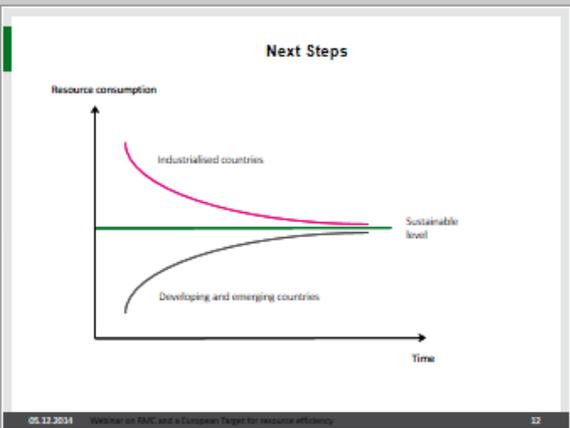
Maßnahmen: • Gießen statt Fräsen aus Vollmaterial

Ergebnisse: • 80 % Materialeinsparung je kg Fertigteil (2 kg statt 10 kg)  
• 75 % Energieeinsparung  
• 30 % Kosteneinsparung  
• weniger Werkzeugverschleiß

Source: Effizienz-Agentur NRW (2009); Darstellung: VDI-ZRE (2011)

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### Targets for raw material consumption in Germany

Raw material productivity (GDP/DMI)  
Double raw material productivity 1994 – 2020

RMC per capita reduction compared to 2010:  
2020 - ?    2030 - ?    2050 - ?  
Long Term – Faktor X

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### Strategic approaches and fields of actions

1. **Securing a sustainable raw material supply**  
(e. g. more environmental friendly extraction of mineral and fossil fuels; improving environmental and social standards during the extraction of raw materials; taking into account ecological limits when assessing the availability of raw materials; etc.)
2. **Raising resource efficiency in production**  
(e. g. developing and disseminating resource-efficient including energy-efficient production and processing)
3. **Making products and consumption more resource-efficient**  
(e. g. national programme sustainable consumption; establishing new product-service-systems through social innovation; etc.)

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### Strategic approaches and fields of actions

4. **Enhancing resource-efficient closed-cycle management**  
(e. g. secondary raw materials from anthropogenic sources/urban mining; phosphorus recycling; etc.)
5. **Sustainable building and urban development**  
(e. g. resource efficient infrastructures; resource efficient development, construction, renovation and usage of buildings, etc.)
6. **Using overarching instruments**  
(e. g. using economic instruments and reducing environmentally harmful subsidies; resource efficient orientation of the financial sector and financial services; etc.)
7. **Interfaces to other environmental policies and policy areas**  
– benefiting synergies and avoiding conflicts
8. **Information**

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### Information: UBA Video "Beyond Climate Change – Flow"



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## 7 Instructions how to join the webinar

Thank you for your interest in the upcoming Resource Efficiency Webinar on RMC and European target for resource productivity. The webinar will take place on Friday 5 December from 11.30 – 13.00 (CET). We will open the webinar for login at 11.00. To participate, you will need to:

- (1) Pre-register for the webinar
- (2) Test before the event that your equipment is configured properly
- (3) Log in on the day of the webinar

Below you will find detailed instructions for each of the steps above.

### **(1) To register for the webinar:**

To register for the Webinar please click the link below and complete the form with the information requested:

<http://forum.eionet.europa.eu/nrc-scp-waste/library/eionet-webinars/webinars-resource-efficiency/5th-webinar-rmc-and-target-european-resource-productivity-5-dec-2014/webinar-raw-material-consumption-and-european-target-resource-efficiency/participants/subscriptions/subscribe>

When you click on the link, you will find two buttons to sign in: one to use if you have an Eionet account, and another if you don't. Please choose the one which is appropriate and follow the instructions.

### **(2) Technical test of your equipment (ahead of the webinar)**

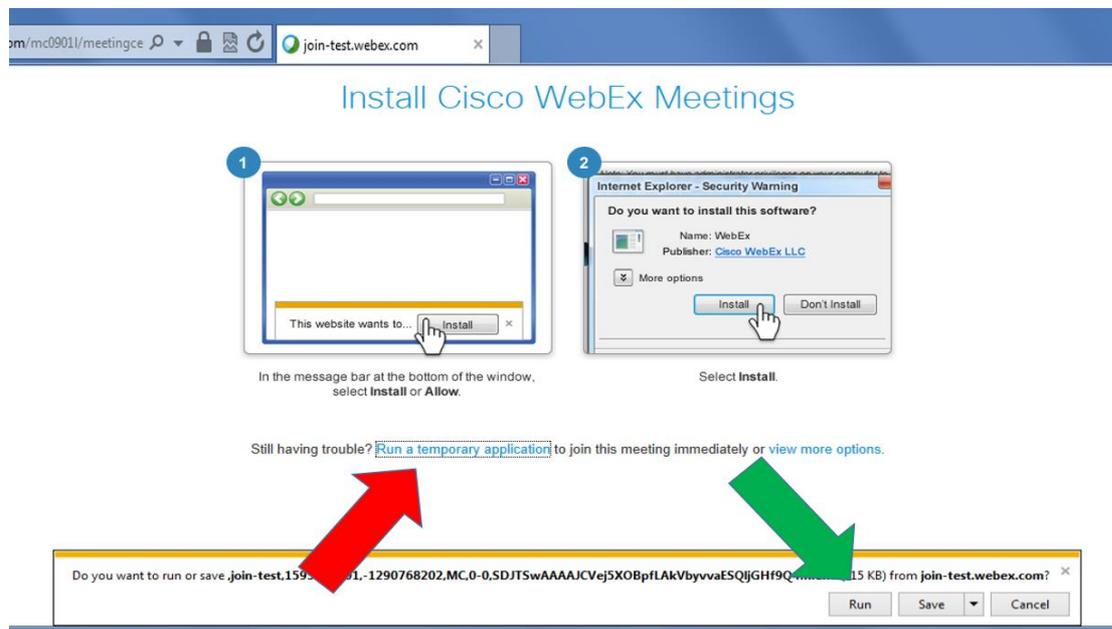
A few days before the event, we kindly ask you to test your equipment (microphone and speakers, or headset etc.) to make sure that everything is in configured properly and in good order.

**To do an interactive test with WebEx (which you can do any time), please click on:**  
<http://www.webex.com/test-meeting.html>

When a welcome screen comes up, we recommend that you don't install anything but instead click on 'run a temporary application' (illustrated with a red arrow on the figure below) and then when another small window pops up, you click on RUN (marked with a green arrow).

The screenshot below shows a dialogue window for Internet Explorer. If you are using a different browser, your window may look different, but there will always be an option to 'run a temporary application'- click on that, and run the file that pops up / downloads.

NB, please remember to do this test using the very computer / equipment which you will be using on the day of the webinar.



After the computer checks the configuration, you should get a message 'Congratulations, your system is now set up properly'

If you experience any technical problems, please contact Mr. Orjan Lindberg:  
[Orjan.Lindberg@eea.europa.eu](mailto:Orjan.Lindberg@eea.europa.eu)

### **(3) To log in (on the day of the Webinar):**

A few days before the beginning of the webinar you will receive, at the email address which you registered with, an email message with the link to join the webinar. On the day of the webinar, starting at 11.00 CET, please click on the link and then on "Join Now".

You will be asked to insert your name and email address. Once done, you will be directed to the page where you can choose how to access to the webinar.

When the browser opens, we advise you to select the **'Run a temporary application'** (identically to the explanation in the previous section). **Using this temporary application you should be able to access the webinar within seconds, and this will not attempt to install anything on your computer (you will not be asked for an ADMIN password).**

For any further questions, please do not hesitate to contact Marco Veneziani ([marco.veneziani@eea.europa.eu](mailto:marco.veneziani@eea.europa.eu)) at any time.