



European Environment Agency



Eionet webinar on resource efficiency policies

Circular Economy: the concept and practice

Webinar agenda and background paper

Monday, 17 March 2014

11:30-13:00 (CET)

Prepared by:
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Péter Szuppinger, Christian Löwe, and Jens Günther**
European Topic Centre on Sustainable Consumption and Production

ETC/SCP task managers: **Márton Herczeg and Jens Günther**

EEA project manager:
Paweł Kaźmierczyk

Background documents and presentations from all resource efficiency webinars can be found in a password-protected section of the Eionet forum at:
<http://forum.eionet.europa.eu/nrc-scp-waste/library/eionet-webinars/webinars-resource-efficiency>

Please use your Eionet Forum/circa username and password

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1 Objectives of the webinar

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

These 90-minute online webinars are a spin-off initiative from the 2011 [survey of resource efficiency policies](#). Their main objective is to keep countries informed about upcoming EU policy initiatives, and to provide a forum where countries themselves can present examples of relevant policy initiatives they recently adopted under the heading of resource efficiency.

Webinar participants are policy makers from national institutions responsible for the practical implementation of resource efficiency policies which are members of the [Eionet network](#). Given the nature of the topic, invitations to webinars are sent to both National Reference Centres on Waste and on NRCs on SCP and resources. Typically, between 30 and 50 participants from 15 to 20 countries participate in a webinar.

The first webinar - on national strategies for resource efficiency - was organized in February 2013, followed by the June 2013 event on targets and indicators and the webinar on industrial symbiosis initiatives held in December 2013.

The next webinar will be held on 17 March 2014, starting at 11:30 Central European Time, focusing on the emerging policy priority of circular economy. The topic was chosen in light of the upcoming publication of European Commission Communication on Circular Economy, expected in the Spring of 2014.

The webinar will start with a keynote presentation by the Ellen MacArthur Foundation, introducing the concept of circular economy, its basics, scope and economic potential. This will be followed by a policy update from the European Commission on upcoming initiatives in the areas of resource efficiency and circular economy. The second part of the webinar will focus on two relevant national initiatives: the sustainable materials management program in Flanders and the Scottish Circular Economy Program.

2 Introduction to circular economy

2.1 *The Circular Economy Concept:*

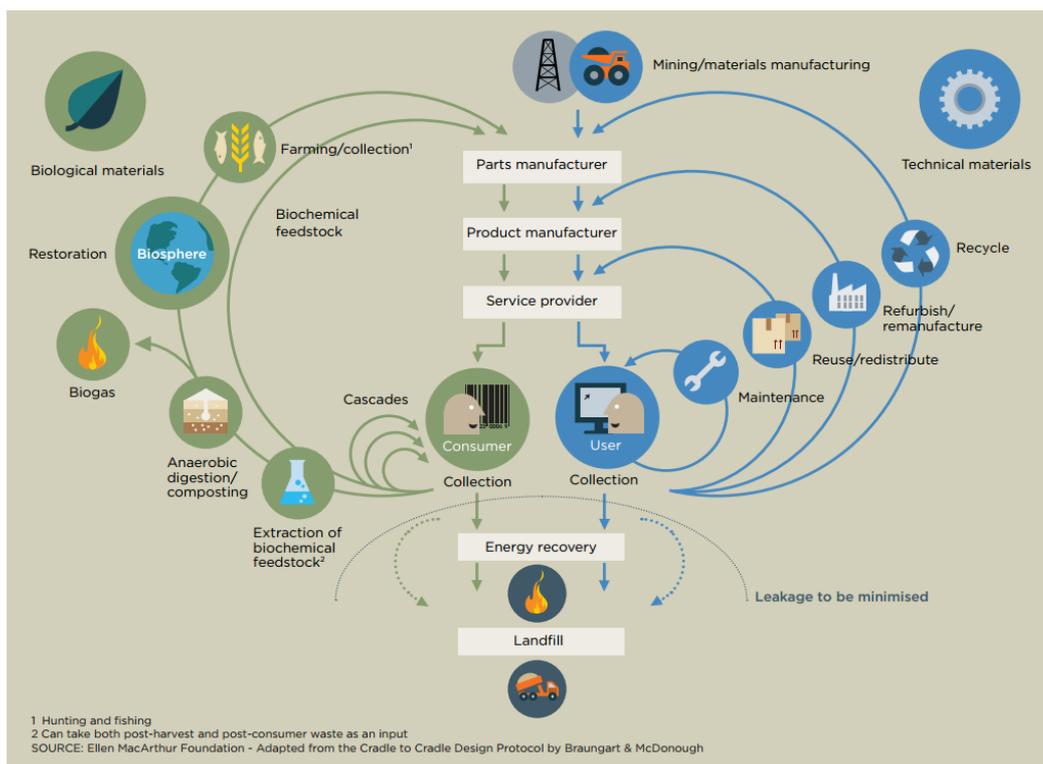
Over the past several decades, the concept of a circular economy that emulates natural systems has attracted the attention of thought leaders in fields from material science to industrial ecology. The Circular Economy provides an alternative vision of our material economy and challenges the “take, make and dispose” model that characterizes much of our current consumption. This model requires vast, easily accessible material and energy resources to continuously feed our consumption, and endless sinks to accept the resultant waste. While improving efficiency can provide environmental and economic benefits and prolong the viability of this model, it does not address the fundamentally finite nature of the resource base on which it depends.

The circular economy is intentionally restorative – that is, the majority of waste generated within the economy, should, ideally, become inputs – and should minimize the depletion of non-renewable and

overuse of renewable resources. More specifically, a circular economy should be fed by renewable energy, minimize, track and ideally eliminate the use of toxic chemicals, and eradicate waste through product and process design that enables biological components to safely re-enter the biosphere, and for non-biological components to be re-used with minimal loss of quality. Such a design philosophy must ensure that products can be as easily separated into component materials as possible.

The circular economy has many commonalities with other current theories of resource and environmental management, including cradle to cradle, industrial ecology and blue ecology, which also call for a cyclic flow of materials in our product and service systems.

The now well-known schematic of the circular economy below illustrates how biological and non-biological materials are imagined to flow around a circular economy:



SOURCE: Ellen MacArthur Foundation

Not only does the diagram illustrate material flows, but also the processes that might be involved in implementing a circular economy. The stronger the outer lobes of the diagram become – with increasing maintenance, reuse, refurbishment and recycling, with better management of biogenic waste, and the less waste going to landfill – fewer virgin resources require.

At its core, a circular economy aims to ‘design out’ waste. Products are designed for disassembly and reuse— in their entirety, or on a material/component level – whilst being supported by a shift towards licensing ‘performance’ over selling ‘products’.

The concept is also in alignment with many existing EU environmental concepts, including the waste hierarchy (with minimization of waste generation and the increased recycling of waste that does occur should reduce the amount of waste for disposal). Indeed, the circular economy concept places an additional layer of consideration that can facilitate the reduction of waste: the rethink and redesign of the products and services themselves.

2.2 Policy Context

The European Commission has recognized the concept of a circular economy as an important tool on the way to achieve a resource efficient Europe. In its “Manifesto for a Resource Efficient Europe”, published in December 2012, the EC stated that "in a world with growing pressures on resources and the environment, the EU has no choice but to go for the transition to a resource-efficient and ultimately regenerative circular economy."

The 2050 vision of the 7th Environmental Action Program foresees that European prosperity and healthy environment will stem from an innovative, circular economy where nothing is wasted and where natural resources are managed sustainably. The 7EAP recognizes that, in light of limited scope of some existing policy instruments relating to production and consumption, *"there is a need for a framework that gives appropriate signals to producers and consumers to promote resource efficiency and the circular economy"*. Furthermore, *"barriers facing recycling activities in the Union internal market should be removed and existing prevention, re-use, recycling, recovery and landfill diversion targets reviewed so as to move towards a lifecycle-driven ‘circular’ economy, with a cascading use of resources and residual waste that is close to zero."*

In 2014 the European Commission will set out new proposals enabling Europe to unlock the potential of the circular economy. The priority of DG Environment will be waste and resource efficiency with a ‘circular economy’ package expected to be presented in the Spring.

National initiatives are also drawing inspiration from the concept of circular economy:

- Scotland is the first country to participate in the Circular Economy100 program, and in October presented *Safeguarding Scotland's Resources - Blueprint for a More Resource Efficient and Circular Economy*.
- The French Circular Economy Institute, founded in February 2013, is an association spanning business, civil society, public institutions and the research community, that seeks to promote a circular economy in the long term by engaging the wide variety of stakeholder and seeking to influence the public debate in France.
- OVAM (the Public Waste Agency of Flanders) runs a transition network “Plan C” for sustainable materials management that draws on the concepts of a circular economy.
- The Waste Prevention Programme for England¹ draws inspiration from the concepts involved in the circular economy.

The Circular Economy concept is also receiving attention at the regional level, for example from ARC+². The Ellen MacArthur Foundation³ is a leading proponent of the circular economy.

¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/265022/pb14091-waste-prevention-20131211.pdf

² <http://www.acrplus.org/index.php/en/events/upcoming-events/event/202-beyond-waste-prevention-towards-circular-economy>

³ www.ellenmacarthurfoundation.org

3 Webinar Agenda

Eionet Webinar on Resource Efficiency Policies Circular Economy: concept and practice

Monday, 17 March 2014, 11:30-13:00 (CET=Berlin, Brussels, Budapest time)

Webinar IT platform will open for joining at 11:00 (CET). Please test your computer beforehand, following detailed instructions in Annex 4

Chairs: Paweł Kaźmierczyk (EEA) and Márton Herczeg (ETC/SCP)

11:00 - 11:30 Login	
11:00 – 11:30	<ul style="list-style-type: none"> • Technical set-up The webinar platform will be open in order to make sure all participants successfully - join in for a precise kick-off at 11:30 . Please follow the detailed instruction sent to participants in annex 4.
	<ul style="list-style-type: none"> • IMPORTANT: you will need an access code which will be sent to you by email a couple of days before the webinar. Please have it to hand when logging in.
The Circular Economy Concept	
11:30 – 11:50	<ul style="list-style-type: none"> • Welcome. Introduction to the topic of the webinar and technical briefing (5 min) by Paweł Kaźmierczyk (EEA) and Márton Herczeg (ETC/SCP) • The concept of circular economy Mr. Jocelyn Bleriot, Ellen MacArthur Foundation, (15 min presentation)
11:50 – 12:00	<ul style="list-style-type: none"> • Clarifications and feedback (10 min) <i>Please use the chat function to send your questions directly to the user 'ETC/SCP' who will collect questions and comments during the presentations. You can also raise hands.</i>
Circular Economy in practice	
12:00 – 12:50	<ul style="list-style-type: none"> • Resource efficiency and circular economy - recent policy developments and upcoming initiatives Mr. Paweł Kaźmierczyk, EEA, (15 min presentation + 5 min Q&A) • Sustainable Materials Management Mr. Jorn Verbeeck, Public Waste Agency of Flanders OVAM, (10 min presentation+ 5 min Q&A) • Scotland Circular Economy Program Mr. Callum Blackburn, Zero Waste Scotland, (10 min presentation+ 5 min Q&A)
Discussion and follow-up	
12:50 – 13:00	<ul style="list-style-type: none"> • Discussion and clarifications <i>Please use the chat function to send your questions directly to the user 'ETC/SCP' who will collect questions and comments during the presentations.</i> • Reflections and wrap-up by Paweł Kaźmierczyk (EEA)

Annex 1 The presenters

Mr. Jocelyn Bleriot, Ellen MacArthur Foundation

Jocelyn Blériot, Head of Editorial and European Affairs of the Ellen MacArthur Foundation, whose academic background drew focus on literature, philosophy and sociology, has spent most of his career in the media industry as a journalist and editor. Having joined Ellen MacArthur in 2007, he was central to the creation of the Foundation and is responsible for effective communication of many of the ideas. He develops written and video content, coordinates academic and professional reports and edits educational resources produced by the Foundation. He represents the Foundation on the European Resource Efficiency Platform (European Commission) and manages the relationship with EU institutions.

Mr. Jorn Verbeeck, Public Waste Agency of Flanders OVAM

With a background in language & literature, Jorn first worked as a journalist. He then worked several years as a political advisor on local, federal and European level, in the last years as an expert in sustainable development, waste and materials. He moved to the Flemish Government in 2010, during the Belgian EU Presidency, with a focus on the EU's resource efficiency flagship and the United Nations Environment Panel. Together with Helen Versluys, Jorn now works as transition manager of the Flanders' Materials Programme, which translates the EU 2020 strategy into a regional vision, research and public-private action plan that aims to achieve a systemic shift towards sustainable materials management.

Mr. Callum Blackburn, Zero Waste Scotland

Callum is the Policy Manager for the Circular Economy within the Scottish Government's Zero Waste Team. Callum is seconded from Zero Waste Scotland (ZWS) to help the Scottish Government develop its circular economy policy over the next two years. He has more than 13 years' experience in policy development in various roles. Before joining Zero Waste Scotland as their Head of Policy Support he was actively involved in developing a range of Scottish business support programmes focused on resource efficiency.

Annex 2 Presentations from the webinar

The concept of circular economy

Jocelyn Bleriot, Ellen MacArthur Foundation

Resource efficiency and circular economy – Recent policy developments and upcoming initiatives

Pawel Kazmierczyk, EEA

Sustainable Materials Management program in Flanders

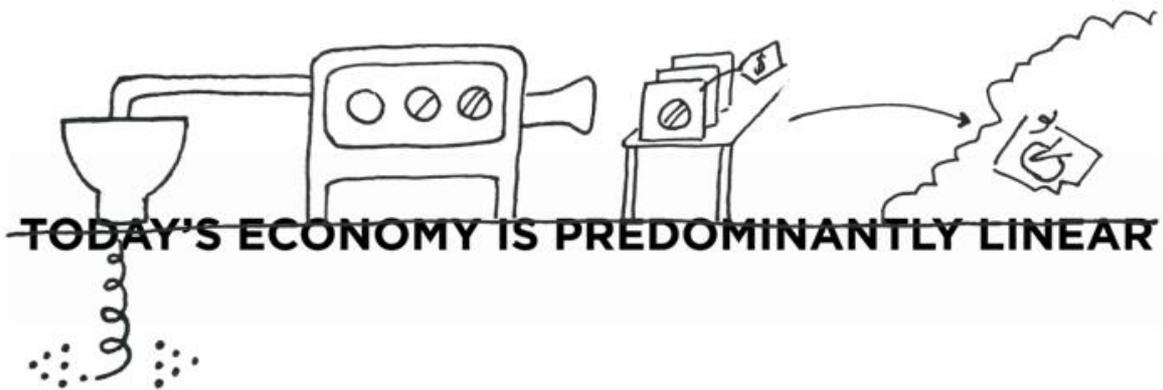
Jorn Verbeeck, Public Waste Agency of Flanders OVAM

Scotland Circular Economy Program

Mr. Callum Blackburn, Zero Waste Scotland



ELLEN MACARTHUR FOUNDATION
Rethink the future



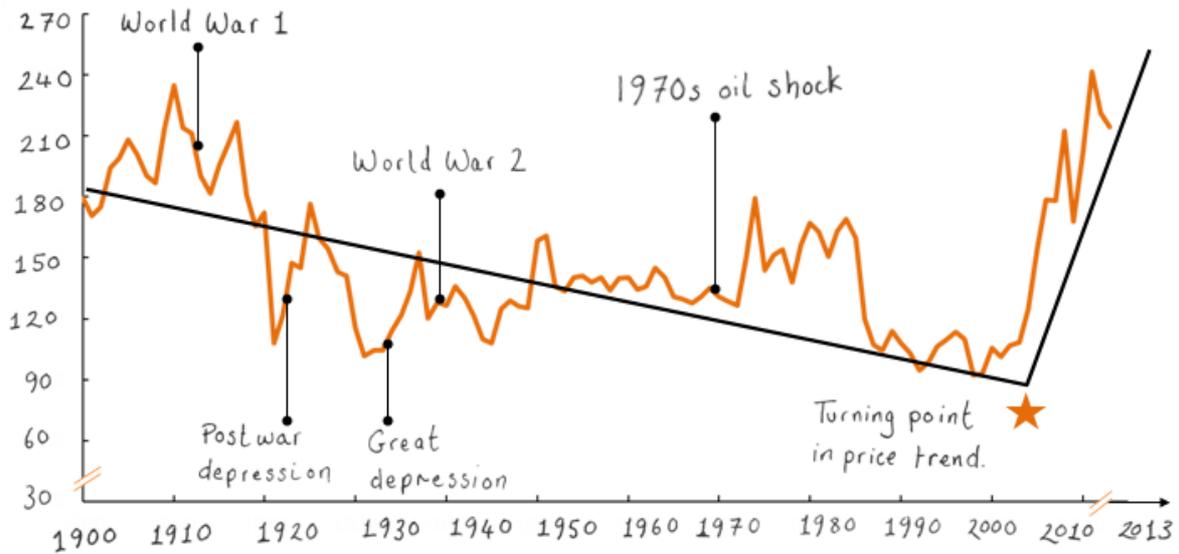


\$ 3.2 trillion
value



\$ 2.7 trillion
lost as waste.

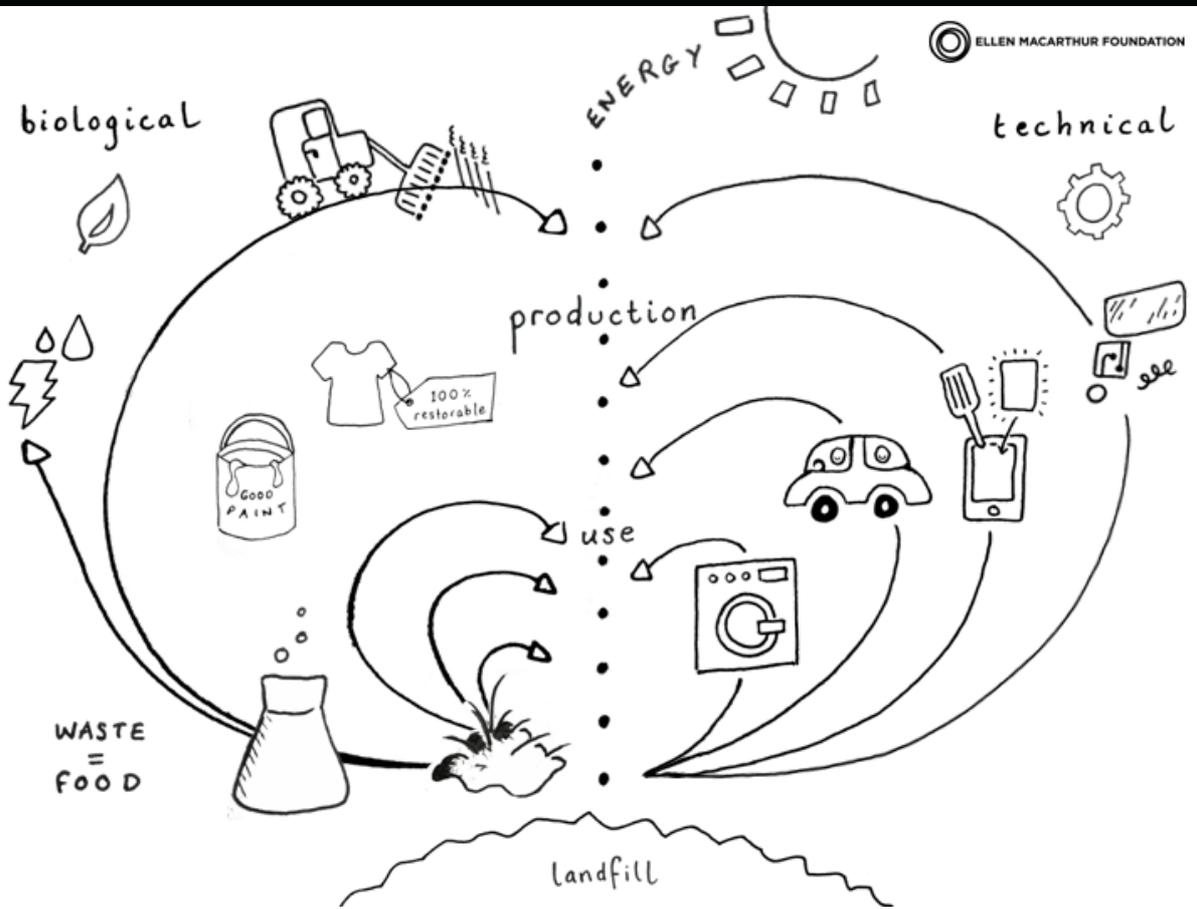
MCKINSEY COMMODITY PRICE INDEX ¹
INDEX: 100 = YEARS 1999 - 2001 ²



¹ Based on the arithmetic average of four commodity sub-indices: food, non-food agricultural items, metals, and energy.

² Data for 2013 are calculated based on the average of the first three months of 2013.

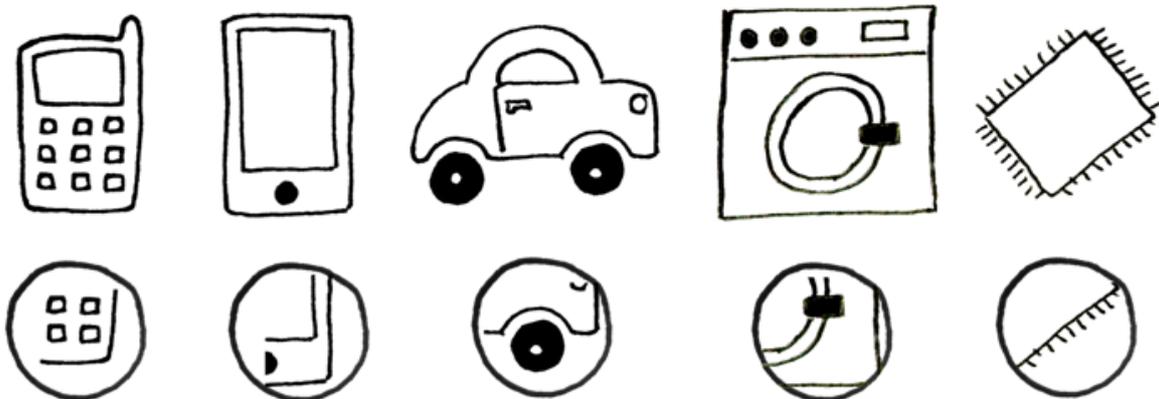
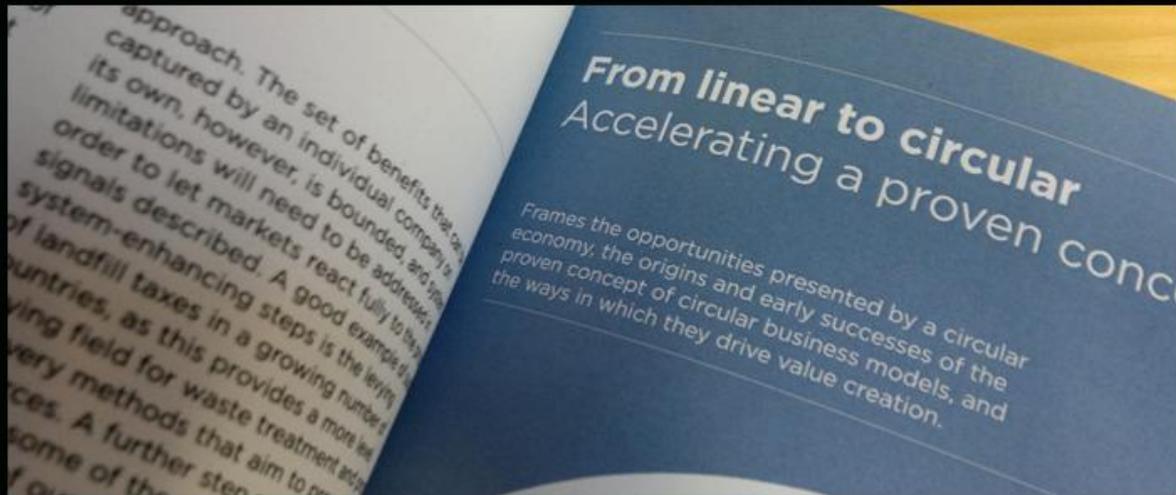
Source: World and Energy Perspectives: World Energy Investment and Monetary Policy; Organization for Economic Co-operation and Development (OECD) statistics; Food and Agriculture Organization of the United Nations (FAO); UN Comtrade; Ellen MacArthur Foundation; McKinsey Global Institute on energy.

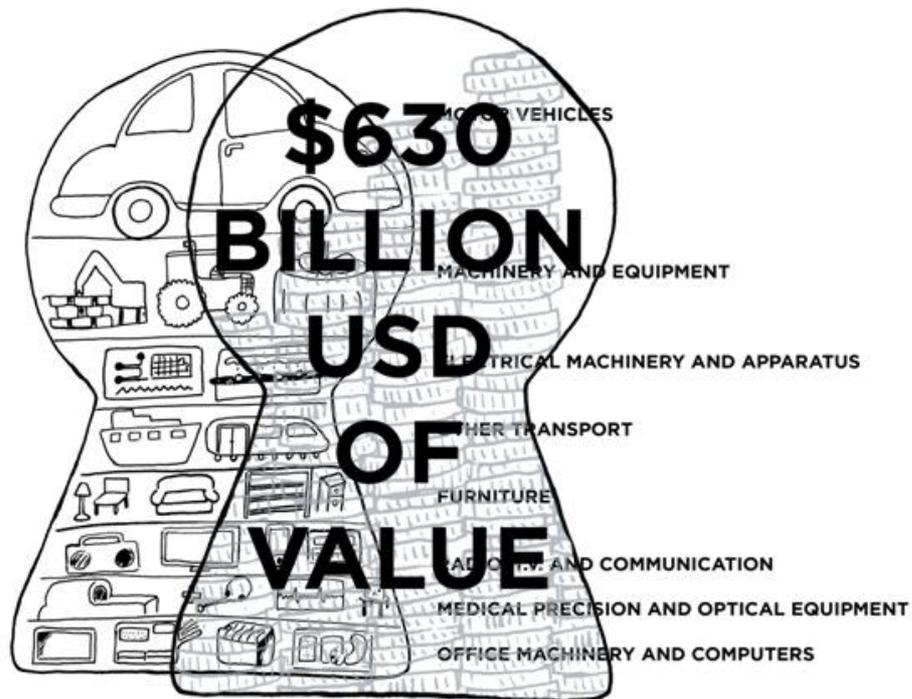


“Towards the circular economy”

A report by the Ellen MacArthur Foundation
Featuring analysis by McKinsey & Co.

Launched at the World Economic Forum, Davos, January 2012





4 main levers...

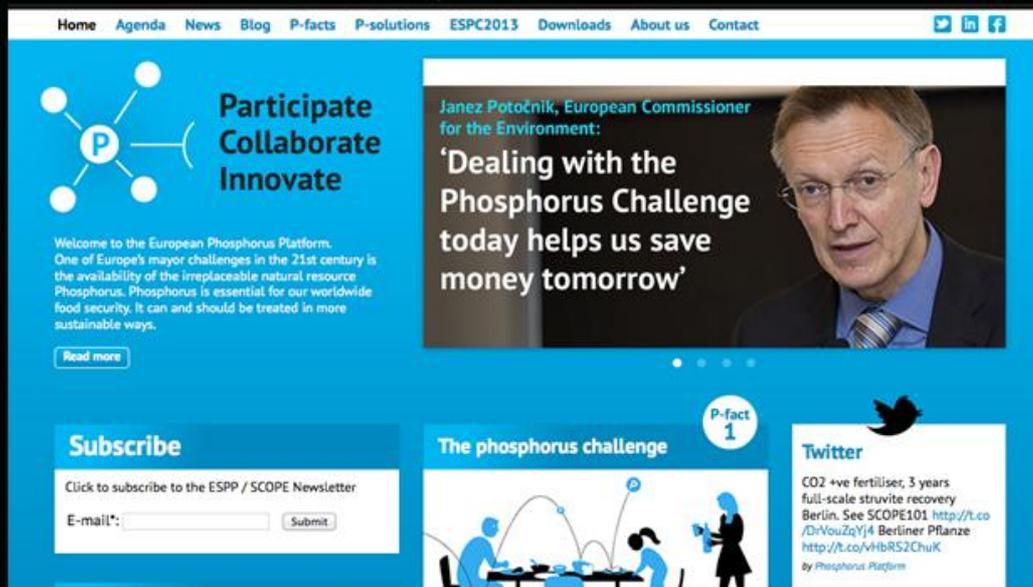
Design for re-use, remanufacture and multiple useful lives

Enabling business models favouring access over ownership

Reverse logistics and associated infrastructure

Cross-sector and cross-industry collaboration





But a number of barriers for SMEs

Acquiring knowledge and building capacity

Flexibility to adapt and trial new designs or business models

System conditions still very favourable to throughput model

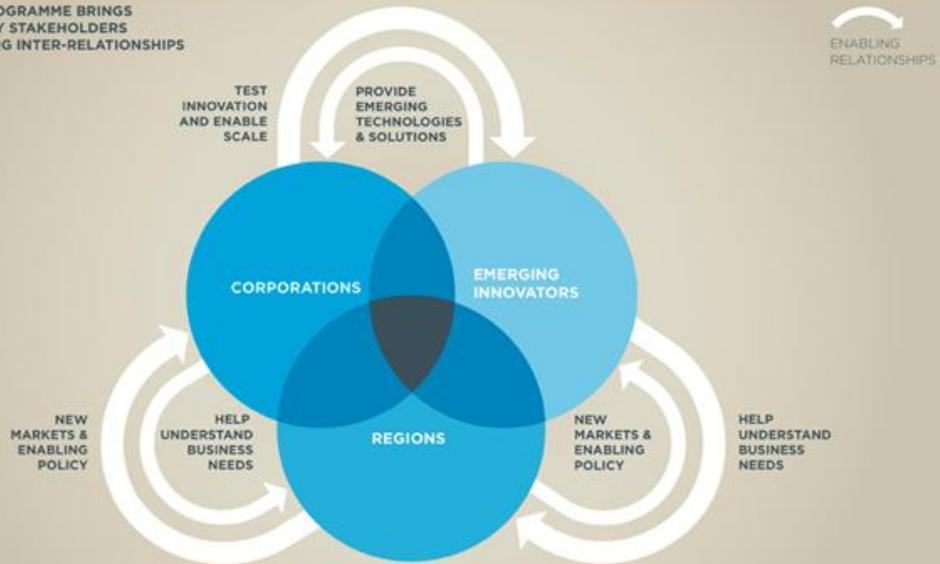
Fragmented innovation, lack of dialogue



CIRCULAR ECONOMY KEY STAKEHOLDERS AND ENABLING RELATIONSHIPS



THE CE100 PROGRAMME BRINGS TOGETHER KEY STAKEHOLDERS WITH ENABLING INTER-RELATIONSHIPS



ENABLING RELATIONSHIPS

Resource efficiency and circular economy

Recent policy developments and upcoming initiatives – an overview

Paweł Kaźmierczyk
European Environment Agency

Eionet Webinar on resource efficiency, 17 March 2014



Europe 2020 Strategy

- Adopted in 2011 in response to the global economic crisis, to boost growth and job creation. (undergoing review in 2014)
- Priority: Sustainable growth: promoting a more resource efficient, greener and competitive economy.
- EU Headline target: The "20/20/20" climate/energy targets should be met (including an increase to 30% of emissions reduction if the conditions are right)

http://ec.europa.eu/europe2020/index_en.htm



Europe 2020: Resource Efficiency Flagship

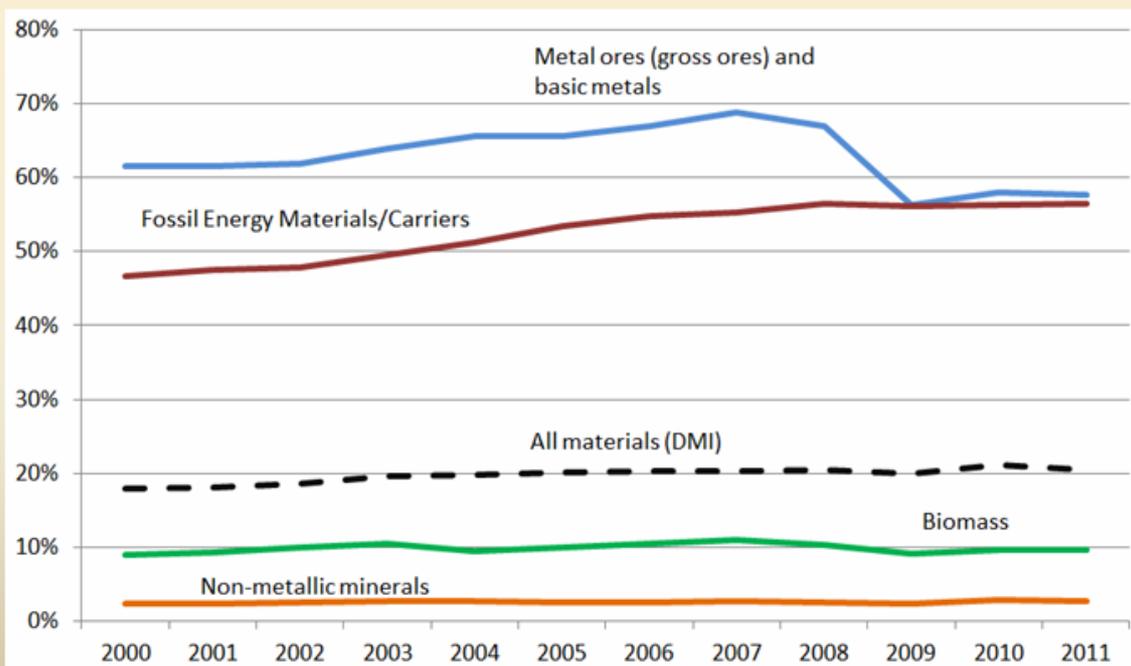
One of seven EU flagship initiatives; aiming to achieve:

- Efficient use of all resources
- Absolute decoupling of economic growth from the use of resources and energy and its impacts,
- Reduced GHG emissions and increase the use of renewables,
- Enhanced competitiveness (via efficiency and innovation)
- Greater energy and resource security

http://ec.europa.eu/resource-efficient-europe/index_en.htm



EU-27 dependence on imports



Europe 2020: Resource Efficiency Flagship /2

A wide spectrum of 'flanking' initiatives

- The EU Strategy on adaptation to climate change
- Energy 2020: A strategy for competitive, sustainable and secure energy
- Energy infrastructure priorities for 2020 and beyond – A Blueprint for an integrated European energy network
- Tackling the challenges in commodity markets and on raw materials
- Low-carbon economy 2050 roadmap
- European Energy Efficiency Plan 2020
- White Paper on the future of transport
- 2020 EU biodiversity policy and strategy
- Revision of the Energy Taxation Directive
- **Roadmap to a resource-efficient Europe**
- Common Agricultural Policy Reform
- Common Fisheries Policy Reform
- Cohesion Policy Reform
- Energy infrastructure package
- Trans-European Networks for Transport (TEN-T) revision
- Energy Roadmap 2050
- Security of energy supply and international cooperation
- Review of priority substances mentioned in the Water Framework Directive
- Strategy for the sustainable competitiveness of the EU construction sector
- Action Plan towards a sustainable bio-based economy by 2020
- Strategic Transport Technology Plan
- Revision of the legislation on monitoring and reporting of greenhouse gas emissions

http://ec.europa.eu/resource-efficient-europe/index_en.htm



The Roadmap to a resource efficient Europe (2011)

Quite broad in scope →

Sets a framework to achieve decoupling of economic growth from resource use and its env. impacts

Spells out a vision for 2050, formulates eighteen milestones for 2020 and identifies about hundred actions to be taken by the Commission and member states



http://ec.europa.eu/environment/resource_efficiency/pdf/com2011_571.pdf



7th Environment Action Programme /1

- Entered into force in January 2014
- Provides a framework which will guide European environment policy until 2020
- Two out of its nine priority objectives directly relate to the use and management of resources:
 - 'to protect, conserve and enhance the Union's natural capital' and
 - **'to turn the Union into a resource-efficient, green, and competitive low-carbon economy'**

NB: also note: "to safeguard the Union's citizens from environment-related pressures and risks to health and wellbeing"

<http://ec.europa.eu/environment/newprg/>



2013 Environmental Indicator Report Natural resources and human well-being in a green economy



Analysis of the links between resource use and human well-being, taking as the entry points basic human needs:

- food
- energy
- water
- housing

<http://www.eea.europa.eu/publications/environmental-indicator-report-2013>



7th Environment Action Programme /2

A long-term vision for the European Union:

“In 2050, we live well, within the planet’s ecological limits. Our prosperity and healthy environment stem from an innovative, circular economy where nothing is wasted and where natural resources are managed sustainably, and biodiversity is protected, valued and restored in ways that enhance our society’s resilience. Our low-carbon growth has long been decoupled from resource use, setting the pace for a safe and sustainable global society.”

<http://ec.europa.eu/environment/newprg/>



7th Environment Action Programme /3

- *There is ‘significant scope for reducing GHG emissions and enhancing energy and resource efficiency in the EU’*
- *EU to ‘...strive towards an absolute decoupling of economic growth and environmental degradation’*
- *‘Progress towards meeting the objectives of the 7th EAP should be monitored, assessed and evaluated on the basis of agreed indicators’.*
- *Need to ‘identify policy gaps where additional targets may be required’.*

<http://ec.europa.eu/environment/newprg/>

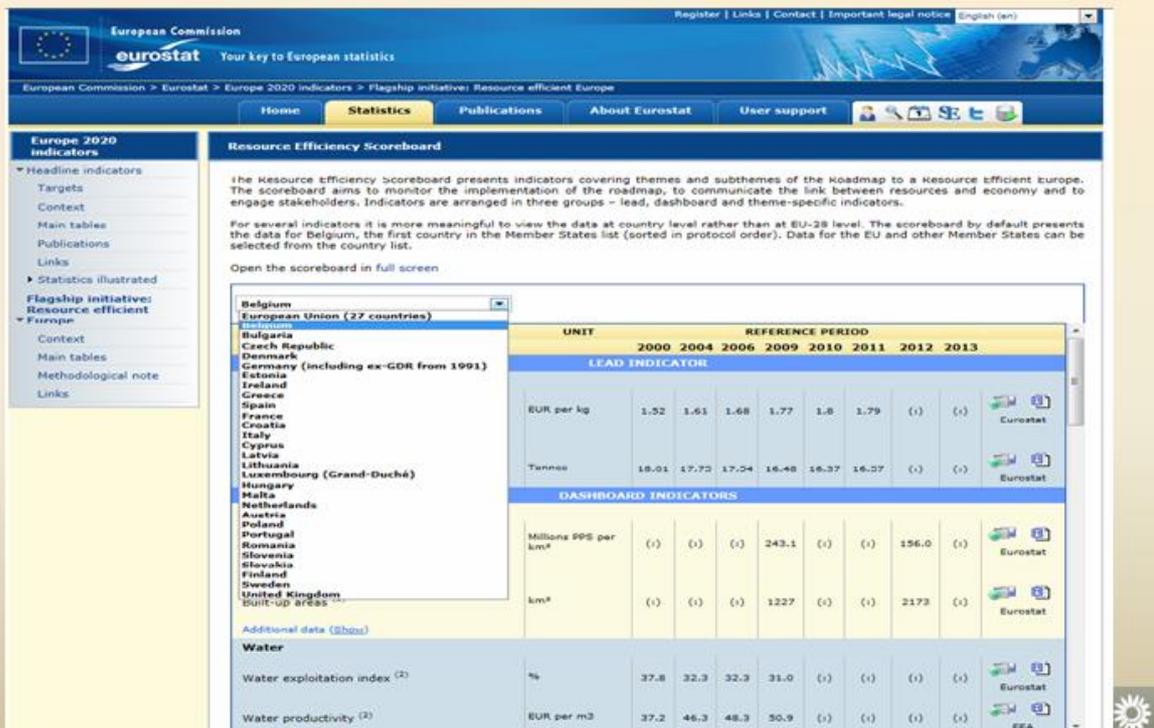


Resource Efficiency Scoreboard

- Launched in December 2013
- Hosted by Eurostat
- Twenty nine indicators (at the moment...)
 - a lead indicator on resources (DMC-based)
 - dashboard of indicators on land, water and carbon; and
 - theme-specific indicators grouped under into 'Transforming the economy', 'Nature and ecosystems' and 'Key sectors'.

http://epp.eurostat.ec.europa.eu/portal/page/portal/europe_2020_indicators/ree_scoreboard

Resource Efficiency Scoreboard



The screenshot shows the Eurostat website interface for the Resource Efficiency Scoreboard. The top navigation bar includes 'Home', 'Statistics', 'Publications', 'About Eurostat', and 'User support'. A sidebar on the left lists 'Europe 2020 indicators' with sub-categories like 'Headline indicators', 'Targets', 'Context', 'Main tables', 'Publications', 'Links', 'Statistics illustrated', 'Flagship initiative: Resource efficient Europe', and 'Europe'.

The main content area is titled 'Resource Efficiency Scoreboard' and contains the following text:

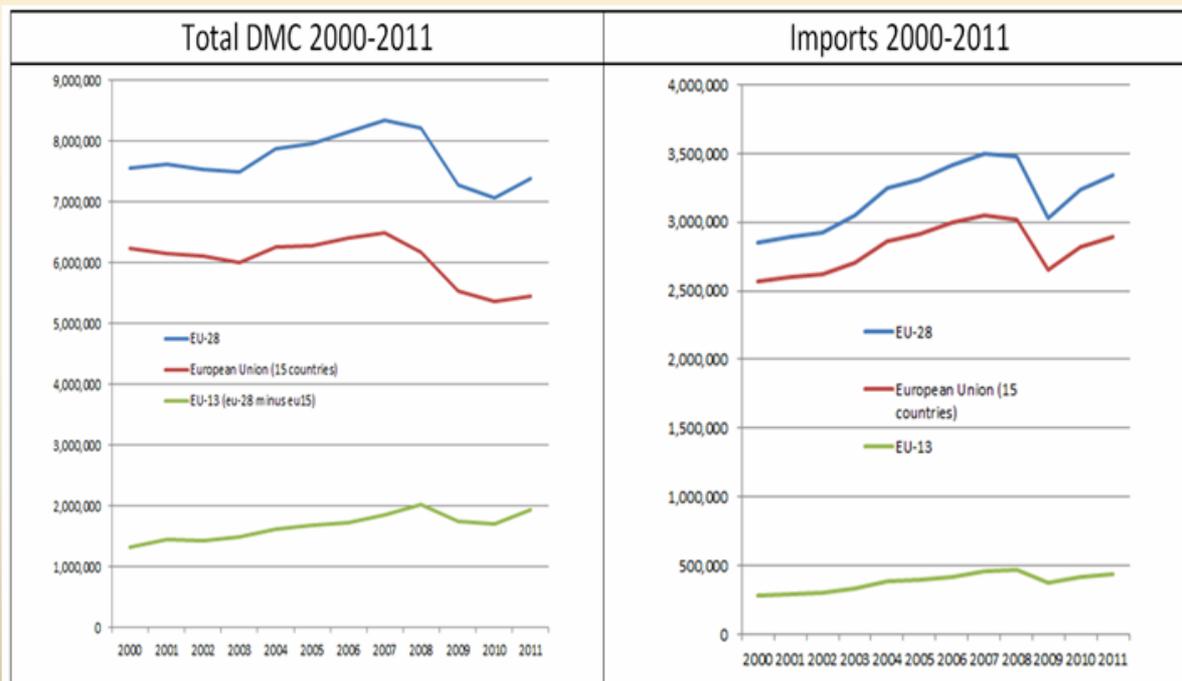
The Resource Efficiency Scoreboard presents indicators covering themes and subthemes of the Roadmap to a Resource Efficient Europe. The scoreboard aims to monitor the implementation of the roadmap, to communicate the link between resources and economy and to engage stakeholders. Indicators are arranged in three groups - lead, dashboard and theme-specific indicators.

For several indicators it is more meaningful to view the data at country level rather than at EU-28 level. The scoreboard by default presents the data for Belgium, the first country in the Member States list (sorted in protocol order). Data for the EU and other Member States can be selected from the country list.

Open the scoreboard in full screen

UNIT	REFERENCE PERIOD						
	2000	2004	2006	2009	2010	2011	2012 2013
LEAD INDICATOR							
EUR per kg	1.52	1.61	1.68	1.77	1.8	1.79	() ()
Tonne	18.01	17.72	17.24	16.48	16.37	16.27	() ()
DASHBOARD INDICATORS							
Millions EPS per km²	()	()	()	243.1	()	()	156.0 ()
km²	()	()	()	1227	()	()	2172 ()
Water							
Water exploitation index ⁽²⁾	%	37.8	32.3	32.3	31.0	()	() () ()
Water productivity ⁽²⁾	EUR per m³	37.2	46.3	48.3	50.9	()	() () ()

Trend in use (and imports) of resources 2000-2011

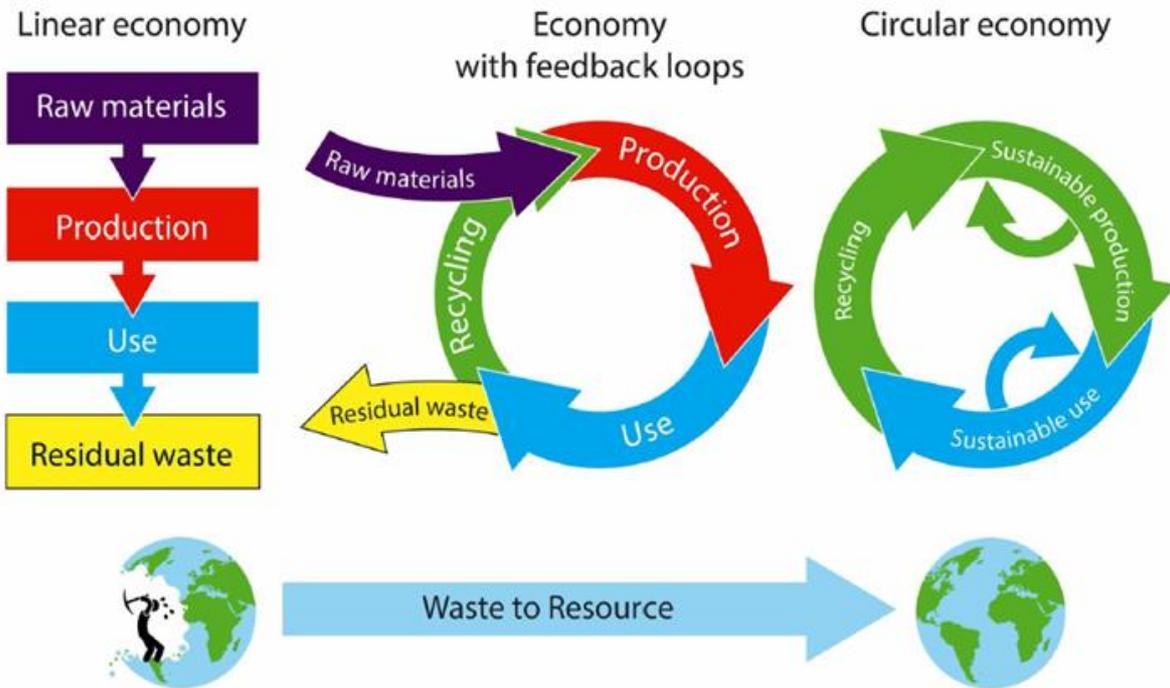


7th Environment Action Programme /4

- *developing measurement and benchmarking methodologies by 2015 for resource efficiency of land, carbon, water and material use and assessing the appropriateness of the inclusion of a lead indicator and target in the European Semester;*
- *targets for reducing the overall lifecycle environmental impact of consumption will be set, in particular in the food, housing and mobility sectors*
- *move towards a lifecycle-driven 'circular' economy, with a cascading use of resources and residual waste that is close to zero.*

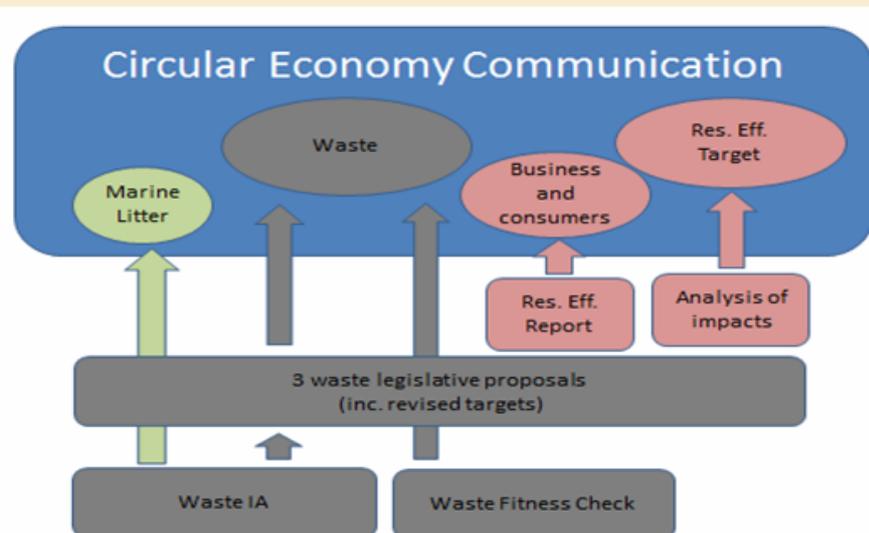
<http://ec.europa.eu/environment/newprg/>

Linear or circular economy?



Communication on Circular Economy

- **Publication expected before the summer**
- **Will complement the RE Roadmap**
- **Fairly strong focus on waste**
- **Concrete targets on resource efficiency and waste**



2014 Resource Efficiency and Waste Package

- **Waste policy and targets review**
 - Review of the targets of the Waste Framework Directive, the Landfill Directive and the Packaging Directive;
 - Fitness check of five directives dealing with separate waste streams;
 - Follow-up to the Green Paper on Plastic Waste.
 - **Resource efficiency indicators (including Raw Material Consumption?) and target setting**
 - **Incentives to business and consumers**
- ⇔ **European Resource Efficiency Platform: Final report and recommendations (31 March 2014)**



European Resource Efficiency Platform

- Advisory body set up in 2012
- Over thirty high-level members
- Provide guidance to the European Commission, Member States and private actors on the transition to a more resource-efficient economy
- A 'manifesto' published in December 2012
- Two sets of recommendations – June 2013 and March 2014

http://ec.europa.eu/environment/resource_efficiency/re_platform/index_en.htm

http://europa.eu/rapid/press-release_MEMO-12-989_en.htm



EREP Recommendations under discussion

– for approval at plenary meeting on 31 March 2014

- Promoting new, resource efficient business models
- Boosting Extended Producer Responsibility
- Enabling consumers to make more sustainable choices
- Developing employment and skills
- Financing to enable the transition
- Speeding up the development and use of indicators

+ discussions on target setting

2014: Other related initiatives

- **EC Communications on:**
 - Job creation in the green economy
 - SMEs and green entrepreneurship
 - Sustainable buildings
 - Sustainable food
 - Rio+20 follow-up
- **Events:**
 - "Let's Clean up Europe" Day: 10 May 2014
 - Green week on the circular economy (3-5 June 2014)

Key EU Institutional dates in 2014

- **22-25 May 2014:** Elections to the European Parliament
- **By November 2014:** nomination of new Commissioners

Useful links for forward looking policy overview:

- http://ec.europa.eu/resource-efficient-europe/index_en.htm
- http://ec.europa.eu/atwork/key-documents/index_en.htm
- http://ec.europa.eu/governance/impact/planned_ia/roadmaps_2014_en.htm#ENV
- http://ec.europa.eu/atwork/pdf/forward_programming_2014.pdf



Vlaams Materialenprogramma

OVAM Flanders' Materials Programme

EEA Webinar on 'Resource Efficiency & Circular Economy' March 17 2014

jorn.verbeeck@ovam.be

Agenda

1.3 short stories to set the scene

2. Transition Management towards a Circular Economy

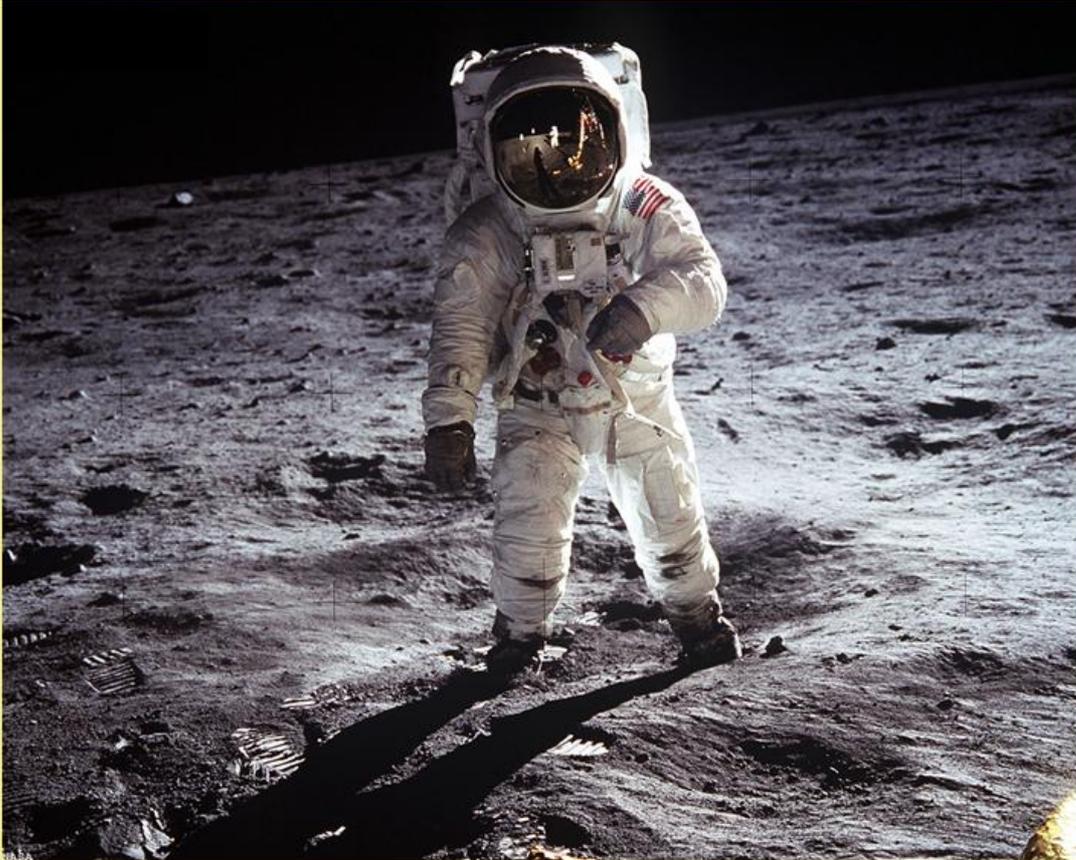
3.4 case examples

- a) Building & construction: modular building**
- b) Bio-economy: the P challenge**
- c) Chemistry: thermosetting plastics**
- d) Metals: end-of-life & 2nd life vehicles**

4. Policy recommendations

- a) Connecting the dots**
- b) Never day 1**
- c) Policy window**
- d) People are key**

3 short stories to set the scene ...



1960s The Goal of Sending a Man to the Moon

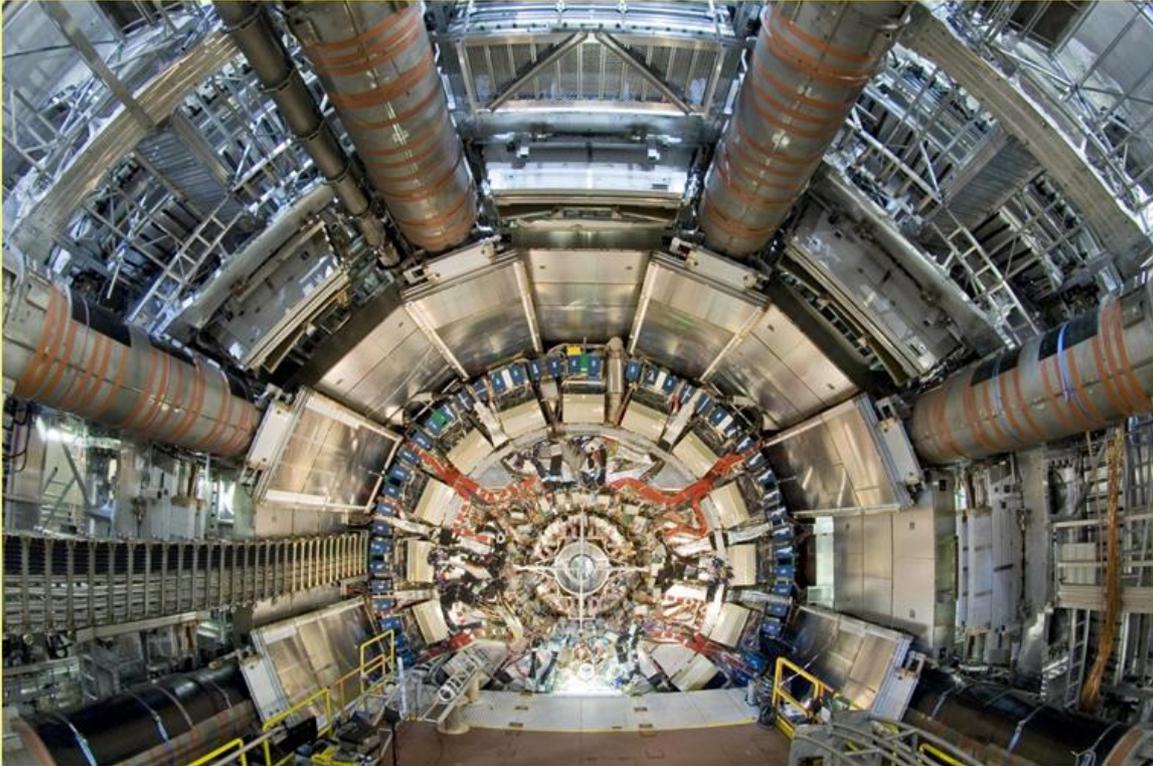
"I believe **we possess all the resources and talents necessary**. But the facts of the matter are that we have never made the national decisions or marshaled the national resources required for such leadership. We have never specified **long-range goals on an urgent time schedule**, or managed our resources and our time so as to insure their fulfillment.

This decision demands a major national commitment of scientific and technical manpower, materiel and facilities, and the possibility of their diversion from other important activities where they are already thinly spread. It means a **degree of dedication, organization and discipline** which have not always characterized our research and development efforts. It means we cannot afford undue work stoppages, inflated costs of material or talent, wasteful interagency rivalries, or a high turnover of key personnel.

New objectives and new money cannot solve these problems. They could in fact, aggravate them further—unless every scientist, every engineer, every serviceman, every technician, contractor, and civil servant gives his **personal pledge** that this nation will move forward, with the full speed of freedom, in the **exciting adventure** of space."

John F. Kennedy, 1961

1960s The Goal of Sending a Man to the Moon



1990s The CERN project

'Mapping the Secrets of the Universe'

- the Large Hadron Collider at CERN is the **most complex** and expensive scientific experimental facility ever built.
- With its sister experiment CMS Atlas endeavoured to detect of the **Higgs Boson**. On July 4 2012 Atlas reported evidence for the particle's existence, capping a 40-year search.
- The ATLAS detector weighs as much as the Eiffel tower, 10 million functional elements. ATLAS involved 3.000 scientists, spread across 173 institutes, in 38 countries.
- Turning ATLAS into a reality was akin to putting together a non-linear, **multi-dimensional puzzle of interdependent pieces** brought together on the basis of fluid and changeable concepts rather than stable and delineated patterns.
- Organisation: 7-page MoU; no CEO only a spokesperson; **embryonic concept and myriad of design options left open**.

Source: P. Vandenbroeck, shiftN / CERN

1990s The CERN project

Rethinking the Economy

Roland Clift and Julian Allwood outline how industrial ecology, applying chemical engineering thinking to the management of material flows in the economy, can point the way to an economy that can work long-term.

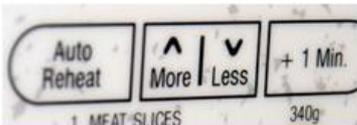


Why waste should be food.

The idea that recycling is a 'good thing' pretty much pervades the formal schooling system, but it may be due for a long overdue rethink. Recent scientific investigations around recycled cardboard packaging made from old news papers has thrown up...

Europe needs to embrace the closed loop model, says Belgian EU Presidency

As part as Belgium's Presidency of the council of the European Union, Flemish Environment Minister Joke Schauvliege...



Services, not Goods

Rethinking our economic model does not only involve a re-organisation of manufacturing processes, the change goes as far as redefining the relationship between objects and consumers.

Principles of the Circular Economy,
Ellen MacArthur Foundation website

2010s The Circular Economy: the Ellen MacArthur Foundation

'Sustainable Materials Management: elements towards a Resource Efficiency Roadmap'

- 2010 **Belgian EU presidency** put Sustainable Materials Management on the EU Agenda and provided building blocks for the 2011 EU Resource Efficiency Roadmap
- In line with the EU 2020 strategy and 7 flagships, the Flemish Government in 2011 selected Sustainable Materials Management as one of 13 **Grand Societal Challenges**.
- Based on the council conclusions and ambitions of the BE EU Presidency the **Flanders' Materials Programme** was set up.
- Belief in long term sustainability via **3P** approach on the crossroads of economic, ecological and the social dimension.
- Focus on **quadruple helix**: government, industry, science and knowledge institutes & civil society.
- Drafting a **dynamic roadmap** in 2013/4: focus, enhancing existing strengths within EU context, targets & actions, and continuous review & redrafting.
- So far the experience in Flanders has been that the **EMAF / CE** has helped to create an understanding between societal actors that we are tackling the same challenge.

2010s The Circular Economy: the Ellen MacArthur Foundation

Transition Management towards Circular Economy

Transition Management towards a Circular Economy

- What do the stories tell us ? Neil Armstrong marked the beginning of the space era; CERN was unseen as a scientific experiment; but how to tackle a **complex societal challenge** with so many actors, parameters and often conflicting objectives (sustainability versus climate agenda, energy goals, economic growth, social welfare, ...) ?
- Based on the theory of transition management, as developed in the Netherlands and Flanders, The Flanders' Materials Programme seeks **levers to achieve a system transition**.
- Within sustainable materials management the **whole value chain** is taken into account, as well as the 3P approach and the **conditions** necessary to move towards a closed loop.
- Based on the experience of the past 3 years the tipping points are to be found at **the intersection between the bottom-up and top-down** approach: in EU context: how do we connect initiatives such as Cradle 2 Cradle, the Ellen MacArthur Foundation, etc ... and the UNEP Panel, the EU Resource Efficiency Strategy, etc. and create a new sustainable system ?
- Circular Economy** can strengthen the RE strategy by acting as go between between economic, ecological and social targets, thereby building on the current political socio-economic agenda... and help to build up a tipping point.

4 cases in the Flanders' Materials Programme based on 'traditional' strong economic clusters.

Case 1: building & construction

•Content:

- Modular building = 'lego' blocks >> more reuse of building elements
- Selective demolition and dismantling >> high quality recycling

•Bottom-up / Top-down: innovative SMEs doing test projects / new urban planning dynamics focusing on qualitative and interlaced layers.

•Transition steps towards a circular economy:

- Traditional sector -> shift in mindset of (small) building companies & citizens
- Green Public Procurement
- New skills needed

2. Bio-economy

•Content:

- Phosphorous
 - = essential for production of crops
 - = growing demand
 - but limited stocks left + monopoly Marocco
- Flanders has unique technology for P-recuperation from waste: manure, waste water, organic waste, incineration ashes

•**Bottom-up / Top-down:** innovative SMEs, scientific spin-offs / waste water, soil quality and manure regulation, ...

•Transition steps towards a circular economy:

- Solving a problem before it becomes manifest: P scarcity not yet reflected in market prices; lacking sense of urgency
- Supply vs demand
- Norms: e.g. P won from waste water via algae > can they be used in pharma-cosmetics ?

3. Chemistry: thermosetting plastics

•Content:

- thermosetting plastics are increasingly used in electronic equipment, cars, aeroplanes, wind turbines, ...

•**Bottom-up / Top-down:** critical mass building up without specific collection targets or flow / EU CO² and energy objectives stimulating renewable energy and lightweight transport, ...

•Transition steps towards a circular economy:

- Upscaling from start-up & innovative SME to solid business: coping with an unadapted subsidizing system
- Green Public Procurement
- Price virgin materials vs recyclates

4. Critical metals

•Content:

- End-of-life vehicles:
 - 500 000 cars exported / year from Port of Antwerp for second or third life in developing countries
 - Are we responsible for ESM end-of-life in developing countries?
 - What about loss of critical metals due to substandard recycling techniques in developing countries?
- WorldLoop for cars:
 - setting up local collection and recycling facilities based on Flemish know-how
 - shipping hazardous elements + parts needing high-tech treatment (e.g. printed circuit boards) back to Flanders

•**Bottom-up / Top-down:** available high-end recycling technology / safeguarding environmentally sound management & critical materials stocks

•Transition steps towards a circular economy:

- Emerging business by combining beginning & end value chain
- Public-private participation
- North-South win-win

Policy Recommendations

Policy recommendations to move towards a Circular Economy

- **Connecting the dots:** as JFK stated 'new objectives and new money cannot solve these problems': complex and large scale challenges need numerous connections between actors and initiatives in times where analysis and specialisation are dominant. Are there enough project calls that allow for embryonic concepts with enough potential?
- **Never day 1:** what are your current strengths in terms of location, education, entrepreneurship, culture, etc. scenario planning and backcastings are nice starting from ideal objectives.
- **Policy window:** how can the combination of elections, societal awareness and pressure, leadership, ... create an opportunity to speed up the transition.
- **People are key:** webinars provide a useful online dissemination platform, but when it comes to matchmaking, valorisation, and project set-up it is the intersection between professional objectives and private engagement where the biggest gains are to be found. What skills need to be introduced in education and on the workflow.
- **Learning journey:** we are welcoming questions, ideas, partnership proposals, ...

Bedankt voor uw aandacht.

Vlaams Materialenprogramma wordt gerealiseerd in samenwerking met:



Het Vlaams Materialenprogramma heeft de ambitie van Vlaanderen een Europese topregio op vlak van duurzaam materialenbeheer te maken. In het Vlaams Materialenprogramma bundelen de bedrijfswereld, de overheid, kennisinstellingen en het maatschappelijk middenveld de krachten en combineren we ambitieuze langetermijn visie-ontwikkeling met beleidsrelevant onderzoek en concrete acties op de korte termijn. In nauw overleg met alle sleutelfactoren in Vlaanderen op het vlak van materialenbeheer, identificeerden we 9 hefboomen die tegen 2020 de basis moeten leggen voor een economie waarin materialen draaien in slim gesloten kringlopen.

Supporting a Circular Economy – Scotland's first steps

Callum Blackburn – Policy Manager for Circular Economy

 The Scottish Government





CE policy perspective

- **Developing CE policy builds on existing Zero Waste and Climate Change aspirations/targets in Scotland**
- **CE approach supports our Low Carbon Economic Strategy and employment opportunities**
- **Increasing joint working across Enterprise and Environment policy areas on resource efficiency and CE opportunities**
- **Ministers willing to be ambitious and pilot new initiatives**
- **Recognition of some limitations due to "devolved" powers - however effective networking and collaboration in a small nation make things happen – a Team Scotland approach**
- **Strength of our traditional workforce skills base (e.g. engineering) an advantage to be utilised in moving to new business models**
- **An understanding that collaboration is required e.g. EMF CE100**



Some new initiatives underway

- **Improving secondary material supply chains:**
 - **Establishing a national "brokerage" for public sector collected recyclate materials to offer them to market**
 - **Joint Task Force with Local Authorities on improving consistency/quality of secondary materials collected**
- **Procurement Reform Bill - measures to require greater innovation (services v products) in public procurement as well as remanufactured options & recycled content to drive demand**
- **Evidence and Engagement Programme during 2014:**
 - **Evidence gathering in five key industry sectors, to identify the opportunities and to inform a policy roadmap for a CE**
 - **Engagement programme with businesses to raise awareness**
 - **Outputs will be used to inform next update of Scotland's Economic Strategy**

Delivery Support

- **Zero Waste Scotland** is the key partner for operational support with the creation of **Resource Efficient Scotland Programme** in April 2013 to support businesses make resource efficiency savings (energy, water, waste and material use).
- **Recycling Loan Fund (£3.8m)** provided by **Scottish Enterprise** for remanufacturing, reprocessing and new business models opportunities
- **Revolve** branding and standards developed for reused products
- **Remanufacturing potential** being explored across sectors via a university collaboration project
- **EMF support** provided to teachers through "Curriculum for Excellence"
- **Successes to date? Example of food waste returned to biosphere:**
 - Provide advice to consumers/businesses on food use/storage to prevent waste
 - Government Regulations requiring separate food waste collection from 1/2014
 - Funding for local authorities and commercial operators to establish food waste collections
 - Capital funding to support a network of Anaerobic Digestion (AD) facilities
 - Development of standards for AD outputs to ensure use by agriculture etc.



Annex 3 List of registered participants

Invited speakers

Presentation 1.	Mr. Jocelyn Bleriot Ellen MacArthur Foundation joss.bleriot@ellenmacarthurfoundation.org
Presentation 3.	Mr. Jorn Verbeeck Public Waste Agency of Flanders (OVAM) jorn.verbeeck@ovam.be
Presentation 4.	Mr. Callum Blackburn Zero Waste Scotland Callum.Blackburn@scotland.gsi.gov.uk

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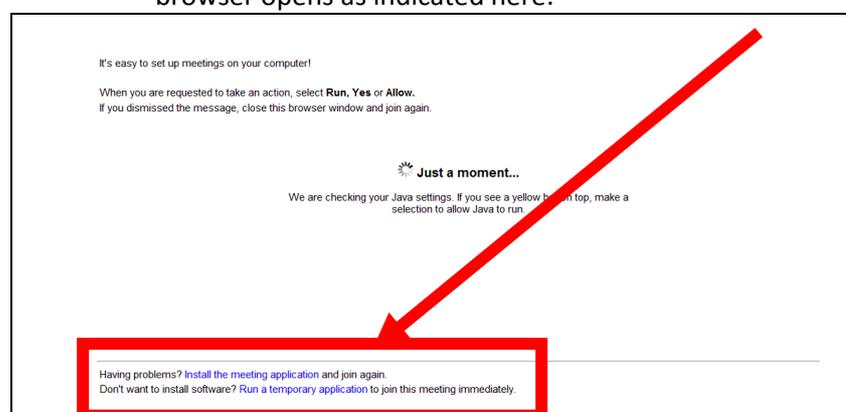
Organizers

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Annex 4 IT technical guidance

A few days before the webinar please check technical compatibility of your computer, as described below

- **Computer with internet** – the presentations and videostream of presenters will run via in your web browser using Cisco WebEx. Optionally, you may use a webcam too, so other participants can see you in case you take the floor to speak. The system automatically uses any webcams properly installed on your computer.
- A few days **BEFORE** the webinar, please **check whether your computer and its settings are ready to run WebEx**. Use the same (!) computer which you will be using and the same web browser: <http://www.webex.com/test-meeting.html>
 - We advise to select the **'Run a temporary application'** as the best option when the browser opens as indicated here:



- Should you face any technical problems, check or ask for your in-house technical support to check browser and system compatibility and required plug-ins here: https://eea.webex.com/docs/T27L/mc08051/en_US/support/xplatform.htm
- **Telephone** - we aim to broadcast all audio through telephone, **NOT through computer audio** which often suffers from interruptions and delays. If more than one person will be following the webinar from the same computer, the telephone should be equipped with a loudspeaker. Should you have no access to direct landline, you may also use a mobile phone. The system will **dial your direct number that you provide when you log in. You will pay no charges for receiving the call - the EEA will cover the cost of the connection.**
IN PRINCIPLE THE SYSTEM CAN PROVIDE AUDIO VIA THE INTERNET AND THE SPEAKERS OF YOUR COMPUTER, BUT WE STRONGLY RECOMMEND PARTICIPANTS NOT TO USE THIS OPTION IN ORDER TO AVOID POOR AUDIO QUALITY.
- **Please do sort out any technical issues a few days BEFORE the webinar as we cannot assist you right before or during the webinar.** Should you have problems which you cannot solve, please contact Örjan Lindberg (Orjan.Lindberg@eea.europa.eu) for help.
- You will receive an email containing a link to the webinar itself before the event. This should be used to join the Webinar.