Preliminary findings

More from less — material resource efficiency in Europe

2015 overview of policies, instruments and targets in 31 countries

European Environment Agency

This leaflet presents preliminary findings from the 2015 EEA review of policies and approaches to material resource efficiency in 31 European countries. It has been prepared to support the European Commission's (EC) work on resource efficiency by providing information on national contexts, but will also contribute to reflections on the circular economy.

This summary of first findings covers national strategies and plans; drivers of material resource efficiency; priority resources and sectors; the circular economy and closing material loops; targets; indicators; and institutional set-ups. This is followed by a set of policy considerations addressing key concepts; opportunities for synergies; the circular economy; targets and indicators; and institutional arrangements and support.

The full EEA report, including 31 individual country profiles, will be published in the spring of 2016.

The participating countries were:

Austria, Albania, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Iceland, Ireland, Italy, Kosovo*, Liechtenstein, Lithuania, the former Yugoslav Republic of Macedonia, the Netherlands, Norway, Poland, Portugal, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, and the United Kingdom.

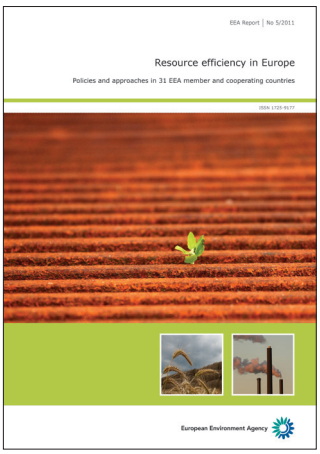
* Under UNSCR 1244/99

For more information please contact:

Paweł Kaźmierczyk
Integrated Environmental Assessments
European Environment Agency
Pawel.Kazmierczyk@eea.europa.eu

Contents

Introduction



In 2011, the European Environment Agency (EEA) conducted a detailed survey to collect, analyse and disseminate information about national experiences in developing and implementing resource efficiency policies. The purpose was two-fold: to help expand the knowledge base on resource efficiency, an emerging priority on the European Union's (EU) policy agenda, and to facilitate the sharing of experience and good practice. The resulting report and 31 individual country profiles provided an overview of resource efficiency policies and instruments in the member and cooperating countries of the European Environment Information and Observation Network (Eionet).

Four years on, additional policies on resource efficiency, the circular economy and closing material loops have emerged. Responding to this, in 2015 the EEA, jointly with Eionet and the European Topic Centre on Waste and Materials in a Green Economy, set out to review national approaches to material resource efficiency and explore similarities and differences in policies, strategies, indicators and targets, policy drivers and institutional set-ups. In contrast to the 2011 work, the current analysis focuses on material resources rather than the more broadly defined natural resources.

Purpose and scope

- Following on its 2011 report, *Resource Efficiency in Europe*, the EEA set out to review policies and approaches to material resource efficiency and to closing material loops in its member and cooperating countries. The main objective was to stimulate the sharing of experience between countries in the development of material resource efficiency policies.

- The work also contributes to broadening the knowledge base underpinning resource efficiency and the circular economy, and increases the understanding of policy approaches taken by countries. The approach and scope of the work were developed in close consultation with Eionet in order to reflect countries' priorities and needs.

The work will result in the publication in the spring of 2016 of:

- **Country profiles** — self-assessments prepared by countries describing the status of their material resource efficiency policies, including their approach to the circular economy and to closing material loops.

- **An analytical report —** *More from less — material resource efficiency in Europe* — prepared by the EEA and the European Topic Centre on Waste and Materials in a Green Economy, presenting an overview of findings from the analysis of information provided by the 31 participating countries (Map 1). In addition, the report will include some considerations

Box 1 The scope of material resources

Following consultation with Eionet, the work focuses on policies and initiatives on material resources. The scope includes material flows entering or leaving the economy (biomass, non-metallic minerals, metal ores, and fossil energy materials) as well as secondary (waste derived) raw materials. Also within the scope are the transformations that materials undergo throughout their full life cycles, including initiatives to close material loops in the context of a circular economy.

for future policies on material resource efficiency and the circular economy.

A standard set of questions was used to elicit information for the country profiles. The analysis in this work is based solely on the information provided by participating EEA member countries through the Eionet National Reference Centres on Resource Efficient Economy (NRCs) and the National Focal Points (NFPs). No claim is made that this report covers all possible facets of material resource efficiency — it is possible that countries have policies, instruments or targets related to resource efficiency in place that remain unreported.

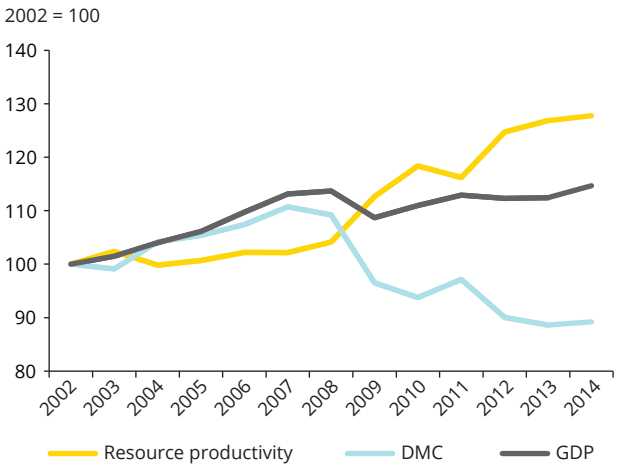
Key trends

- From 2002 to 2014 resource use in the EU-28 fell, both in absolute amounts and per person. Over the same period, resource productivity, measured by relating gross domestic product to domestic material consumption (GDP/DMC), increased by 28 per cent. Thus, absolute decoupling of economic growth and resource use has taken place.

- Almost all the improvements in resource productivity occurred between 2007 and 2014 (Figure 1). This largely reflects the sharp decline in construction activity due to the recession that began in 2008 and led to huge falls in material use, but had much less impact on GDP.

- While recent trends in material use and resource productivity are positive, the key challenge is to ensure that recent gains are sustained, and that the pattern of resource use does not revert to economic growth accompanied by increasing resource use.

Figure 1 **GDP, DMC and resource productivity in EU-28, 2002–2014**



Source: Eurostat, 2015.

Summary of first findings

National strategies and plans

- Only three countries — Austria, Finland and Germany — have dedicated national strategies for material resource efficiency, and there are two dedicated strategies at a regional (i.e. sub-national) level — Belgium-Flanders and UK-Scotland.
- Most countries incorporate material use and resource efficiency in a wide variety of other strategies and policies, including on waste and energy, industrial development, innovation, and national reform programmes, or in national environmental strategies.
- In most countries, key concepts remain undefined, with countries commonly using fairly vague, catch-all notions of resource efficiency, natural resources and raw materials. The intuitive shorthand of doing more with less seems sufficient for policy needs.
- More than half of the countries presented their waste prevention plans and initiatives on the use of secondary raw materials as the core of their national approach to material resource efficiency.
- Some countries reported energy efficiency and the need to increase the use of renewable energy as part of their national policies on material resource efficiency. However, in most countries energy policy is a separate long-standing policy field.
- According to country responses, economic instruments are the most widely used policy instruments for material resource efficiency.

Drivers of material resource efficiency

- The factors and concerns reported by countries as driving their work on material resource efficiency policies fall roughly into three groups: economic interests, environmental concerns and regulatory requirements.
- Although most countries reported a combination of all three categories, economic considerations were the most important in 2015. This seems to indicate that material use and resource efficiency are now core economic and strategic issues, and that the logic of doing more with less has been widely embraced.
- The most recurrent drivers were to increase competitiveness and to secure access to raw materials and energy on the one hand (i.e. economic interests), and the need to lower pressures on the environment and to reduce resource use (i.e. environmental concerns).
- Other frequently mentioned factors were improving production efficiency, the need to reduce dependence on imported resources, and compliance with legislation and targets, followed by the creation of new jobs.
- Only nine countries specifically pointed to the need to reduce greenhouse gas emissions as a driving force of material resource efficiency.

Priority resources and sectors

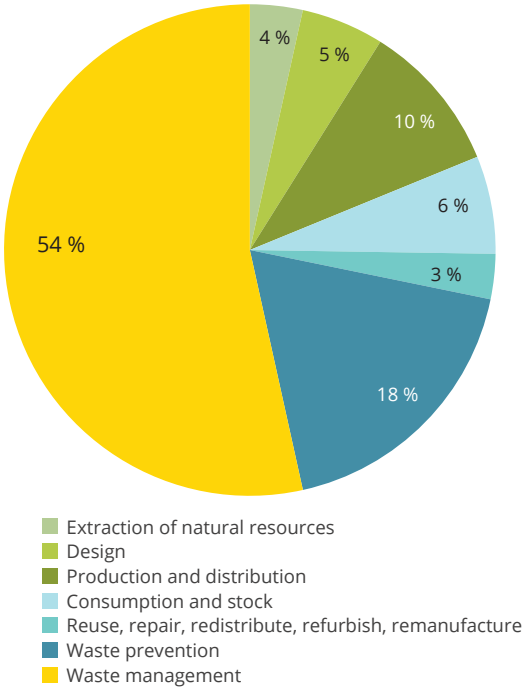
- Countries identified a number of waste streams and secondary raw materials as the most common group of priority materials. Two thirds of the countries mentioned energy carriers as priority resources. Both energy and waste were also top priorities in the 2011 EEA review.
- A number of countries are preparing national raw material strategies. Some, including Denmark, the Netherlands and Switzerland, have already investigated which materials are critical to their economies and competitiveness, while others, including France, Poland and Turkey, are in the process of identifying them.
- The manufacturing industry was singled out most frequently as the key economic sector for material resource efficiency, followed by the construction, agriculture and waste management sectors.
- The service sector was mentioned much less frequently.

- Housing and food and beverages were the two consumption categories most frequently identified as priorities.
- Several countries call for a more systemic approach to material resource efficiency, including the development of a better understanding of material systems, and also for addressing the end-user consumption phase better.
- Examples of good practice reported by countries are dominated by measures for waste prevention and/or recycling.

Closing material loops in a circular economy

- Reflecting on drivers for material resource efficiency, only about a quarter of countries identified the concept of a circular economy. Even fewer countries reported having a dedicated strategy for closing material loops.
- Several countries, however, acknowledged the need to move away from a linear economic model, and stated that a circular economy and closing material loops are already policy priorities. Work on the topic is also taking place at a regional (i.e. sub-national) level.
- Complying with existing waste legislation and targets appears to be the most important driver of initiatives to close material loops. This is a clear illustration of how initiatives at the EU level stimulate national action.
- The majority of the reported policy initiatives focused on waste management, a downstream policy option, rather than on prevention, design or reuse (Figure 2). A few countries explicitly commented that the circular economy needs to go beyond increasing recycling rates and raising the use of secondary raw materials.
- Indicators to monitor the degree of circularity in national economies are missing. A few countries, including Belgium (Flanders) and Germany, have research projects under way to develop such indicators.

Figure 2 **Reported policy interventions to close material loops, by stage in life cycle**



Targets

- The formulation of objectives and targets for material resource efficiency is clearly a challenge, at both the EU and national levels. Countries that have adopted targets for overall material resource efficiency include Austria, Estonia, France, Germany, Hungary, Poland and Portugal. These targets are based on GDP/DMC, the EU's lead resource productivity indicator.
- The two areas for which targets are fairly common are waste and energy. This is clearly driven by EU regulations, though some countries have adopted targets that are more ambitious than those

required by current EU legislation. Some non-EU countries also reported having targets for waste and energy.

- No countries reported having targets for reducing the use of primary materials (metals, minerals or biomass). Targets for increasing the use of renewable energy and for improving energy efficiency were fairly frequent.
- Very few targets were adopted at the economic sector level, or for specific materials — including those on the EU critical materials list.

Indicators

- The indicators most commonly reported as being used to monitor material resource efficiency are those produced by Eurostat based on material flow accounting (MFA). Countries also tend to use indicators on waste generation and management as measures of material resource efficiency. Very few develop their own indicators for material resource efficiency and closing material loops.
- The EU Resource Efficiency Scoreboard was frequently mentioned by responding countries as a common source of indicators on material use and resource efficiency. This indicates that the model bringing together a number of relevant indicators in one place has been well received.
- There is a shortage of indicators to inform material resource efficiency policies beyond energy and waste. Indicators such as domestic material consumption (DMC) used by most countries are sufficient to monitor macro-economic trends, but it was noted by some countries that they are too aggregated to steer material resource efficiency policies.
- A few countries reported considering indicators that take account of resources embedded in international trade, for example raw material consumption (RMC).
- Currently used or available indicators on material use and/or resource efficiency do not seem well suited to measuring the environmental impacts of material use, or the decoupling of resource use and its impacts.

Institutional set-ups

- Almost all countries reported having an institutional structure in place to develop material resource efficiency policies. The most frequently occurring model is a shared ministerial responsibility, typically involving ministries of the environment, economy, energy and agriculture.
- The prominent role of ministries reflects the fact that in the majority of countries material resource policies are developed at the national level. The development and implementation of these policies is then usually supported by one or more specialised agencies.
- Institutional set-ups range from fairly centralised to more decentralised ones, especially in those countries with a devolved responsibility for environmental matters, and where regions play a strong role.
- Stakeholder processes to tackle the topic of material resource efficiency are common, but are organised very differently across countries. Several new and original multi-stakeholder approaches have emerged in recent years.

Policy considerations

This section offers some considerations for the development of future policies on material resource efficiency and the circular economy, drawn from the analysis of information provided by the countries.

Key concepts

- Key concepts, including resource efficiency and the scope of material resources, are not clearly defined either in national policies or at the EU level. Such a vague scope makes it difficult to carry out an insightful assessment of progress towards resource efficiency objectives.

- Several countries recommend the clarification of definitions of the scope of material resources and resource efficiency to help the development of more coherent policy responses. The implementation of the EU circular economy action plan adopted in December 2015 may help reflect on the links between material resource efficiency, waste prevention and recycling, to clarify conceptual problems that have plagued resource efficiency.

Synergy opportunities

- Material resource efficiency and waste management are viewed as very closely related issues. This indicates an opportunity to address both themes together, through, for example, the circular economy, the recovery of secondary materials or industrial symbiosis.

- From a programmatic point of view, energy and resource efficiency are still largely disconnected. This might deserve more attention in future as there are many potential synergies between the two, in line with the 7th Environment Action Plan (7EAP) objective to *turn the Union into a resource-efficient … low-carbon economy*.

- Concerns about health and well-being impacts from resource use — Strategic Objective 3 of the 7EAP — play only a marginal role in driving work on material resource efficiency policies in the reporting countries. The potential for material resource efficiency to benefit human health and well-being may be worth further analysis and become more explicit through the sharing of practical examples.

- Reducing dependence on imports and securing stable access to resources were shown to be some of the most important concerns, but only a handful of countries specifically referred to the EU list of critical raw materials. This may signal a need to intensify efforts to communicate EU initiatives on raw materials.

- Food waste, identified by several countries as a priority, is an interesting example of combining material resource efficiency with climate benefits. It may be worth identifying and highlighting other cases with synergistic co-benefits.

- Manufacturing industry was identified as the priority sector for material resource efficiency by the majority of countries. It would also be useful to further emphasise material efficiency in eco-design policies.

- Few responses identified the service sector, which accounts for two-thirds of most European economies, as a priority, perhaps indicating that the potential role of services in improving material resource efficiency could be explored further.

Circular economy

- Most initiatives are targeted at waste and secondary raw materials and at the abiotic part of the circular economy. Although waste prevention also featured prominently, only a few countries explicitly commented on plans for the circular economy to go beyond merely increasing recycling rates and the use of secondary raw materials. It could therefore be worth considering how policies on the transition to a circular economy can encourage initiatives beyond waste and recycling.

- The closing of material loops in a circular economy is still evolving, but approaches differ between various

stakeholders and countries. It would be useful to demonstrate successful initiatives where the circular economy helps achieve other key policy objectives, such as those related to climate, competitiveness or employment agendas.

- For the majority of countries, compliance with existing legislation is the main driver of any action taken at the national level, which could guide circular economy thinking.

- There are several examples of regional (i.e. sub-national) circular economy initiatives, such as those in Belgium, Denmark, Germany and the Netherlands. Expanding the knowledge base for a circular economy to include successful initiatives at regional and local levels would have merit.

- Measuring the degree of circularity is quite challenging within the established measurement system in Europe, so it may be useful to monitor the progress of on-going experiments in this field, for example in Belgium and Germany.

Targets and indicators

- The resource productivity indicator GDP/DMC and a suite of MFA indicators are regularly updated by Eurostat. Recent progress in analytical methods, such as decomposition and input/output analysis, allows for more advanced, disaggregated uses of MFA-based indicators to help steer policy, for example within economic sectors and for specific materials.

- A few countries are currently working on material- or sector-specific indicators. One possible direction, drawing on Danish and Swiss examples, could be to focus attention on resource efficiency in individual economic sectors or industries.

- Some countries, including Belgium and Denmark, are already carrying out experimental work on the development of indicators that specifically target the transition to a circular economy. This may help to address the challenges of measuring circularity and system change.

Institutional arrangements and support

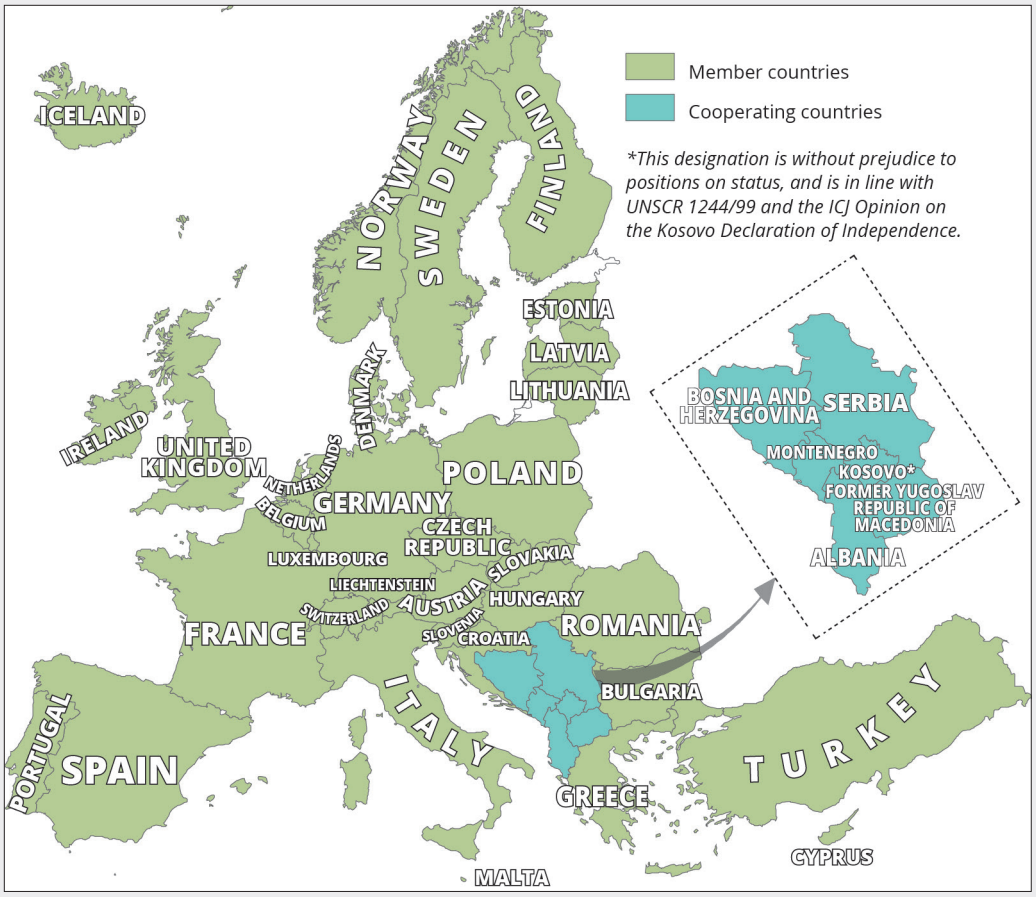
- A wide variety of institutional arrangements are in place to develop and implement policies for material resource efficiency, reflecting national conditions and requirements. In most cases, however, several ministries are involved, with overlapping responsibilities and competencies. Further streamlining of those institutional arrangements in which several ministries are involved could ensure more effective use of capacities and help improve policy coherence.

- Drivers for material resource efficiency have expanded from environmental concerns to include economic interests, so engagement could be strengthened between policy makers from different policy fields, as well as with implementing parties.

- Practically all countries see benefits in exchanging information and good practice on material resource efficiency. They identified a wide variety of institutions that could support such exchanges, with the EC and the EEA mentioned most often. Workshops and conferences were listed as the preferred format, followed by webinars and internet-based information platforms.

About Eionet

The EEA has 33 member and six cooperating countries. The 33 member countries include the 28 EU Member States together with Iceland, Liechtenstein, Norway, Switzerland and Turkey. Cooperating countries from the West Balkans include Albania, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, Montenegro and Serbia, as well as Kosovo under UN Security Council Resolution 1244/99.



The European Environment Information and Observation Network (Eionet) is a partnership network of the EEA and 39 countries. The EEA is responsible for developing the network and coordinating its activities, working closely with National Focal Points (NFPs), typically national environment agencies or environment ministries, which are responsible for coordinating national networks involving many institutions.

The NFPs are responsible for coordinating networks of National Reference Centres (NRCs), bringing altogether around 1 000 experts from more than 350 national institutions and other bodies dealing with environmental information.

The key participants in the work on this report were the NFPs and the NRCs on Resource Efficient Economy.

More information is available at http://www.eea.europa.eu/about-us/countries-and-eionet.

Map 1 **Selected initiatives from country profiles on material resource efficiency**

Albania
- National Energy Efficiency Action Plan, 2011-2018
- Law on Integrated Waste Management

Austria
- Resource Efficiency Action Plan (2012)
- 'Food is Precious' initiative

Belgium
- Plan C, Transition Network for Sustainable Materials Management (Flanders)
- Marshall Plan 4.0 - circular economy (Wallonia)

Bulgaria
- National Development Programme: Bulgaria 2020
- Operational Programme 'Innovation and Competitiveness 2014-2020'

Croatia
- Act on Sustainable Waste Management (2013)
- Act on Mining (2013)

Czech Republic
- Secondary Raw Materials Policy (2014) and Action Plan
- VISION 2024 and Decalogue for circular economy

Denmark
- Circular economy policy toolkit
- Indicators of resource efficiency at the sector level

Estonia
- National Reform Programme 'Estonia 2020'
- Good Public Engagement Code of Practice

Finland
- National Material Efficiency Programme (2013)
- By 2017, all new public buildings should be near-zero-energy buildings

Former Yugoslav Republic of Macedonia
- Strategy for Sustainable Development (2010)
- Ecolabel scheme for tourism facilities

France
- Law on Consumption (2014), addressing lifespan of products
- National Council for Ecological Transition

Germany
- ProgRess: Resource Efficiency Programme
- Closed Cycle Management Act

Hungary
- NETIS: National Environmental Technology Innovation Strategy
- Set of 2020 targets for resource management and efficiency

Iceland
- The Icelandic Recycling Fund
- Waste Prevention Policy

Ireland

- 'Towards a Resource Efficient Ireland' 2014-2020 strategy
- Stop Food Waste Challenge

Italy

- National Plan to Prevent Food Waste (2014)
- GPP Action Plan to promote recycled materials

Kosovo*

*Under the UN Security Council Resolution 1244/99

- Mining Strategy of the Republic of Kosovo 2012-2025
- Funds for environmental protection

Liechtenstein

- Action Plan for Use of Recycled Materials in Public Construction

Lithuania

- National Environmental Protection Strategy 2015
- National Forestry Sector Development Programme

Netherlands

- Circular economy programme "From Waste to Resource" (2014)
- Research studies on materials critical for the Dutch economy

Norway

- By year 2020, 67,5% of total energy consumption should come from renewables
- Branch agreements on EPR regarding packaging waste

Poland

- Strategy for Innovation and Efficiency of the Economy
- Action Plan for Security of Supply of non-energy raw materials

Portugal

- Green Growth Commitment
- Set of targets for material use and resource efficiency

Serbia

- National Strategy for Sustainable Use of Natural Resources and Goods (2012)
- Network of Energy Managers

Slovakia

- Raw Materials Policy (2004)
- The new Waste Act (2015)

Slovenia

- Operational programme for the EU Cohesion policy 2014-2020
- Draft framework programme for green growth

Spain

- National Plan on Waste 2015-2020
- National strategy 'More Food Less Waste'

Sweden

- Generational goal and environmental quality objectives
- Centre for Resource Efficiency CERISE

Switzerland

- Green Economy Dialogue
- LCA-based analysis to identify priority sectors (R'eFF report)

Turkey

- 10th Development Plan and its Priority Transformation Programs
- Valuation of natural resources and ecosystem services

United Kingdom

- Resource Security Action Plan and Pilot Resources Dashboard
- Safeguarding Scotland's Resources 2013

European Environment Agency
Kongens Nytorv 6
1050 Copenhagen K
Denmark

Tel.: +45 33 36 71 00
Web: eea.europa.eu
Enquiries: eea.europa.eu/enquiries

European Environment Agency