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Waste prevention in Europe — the status in 2013

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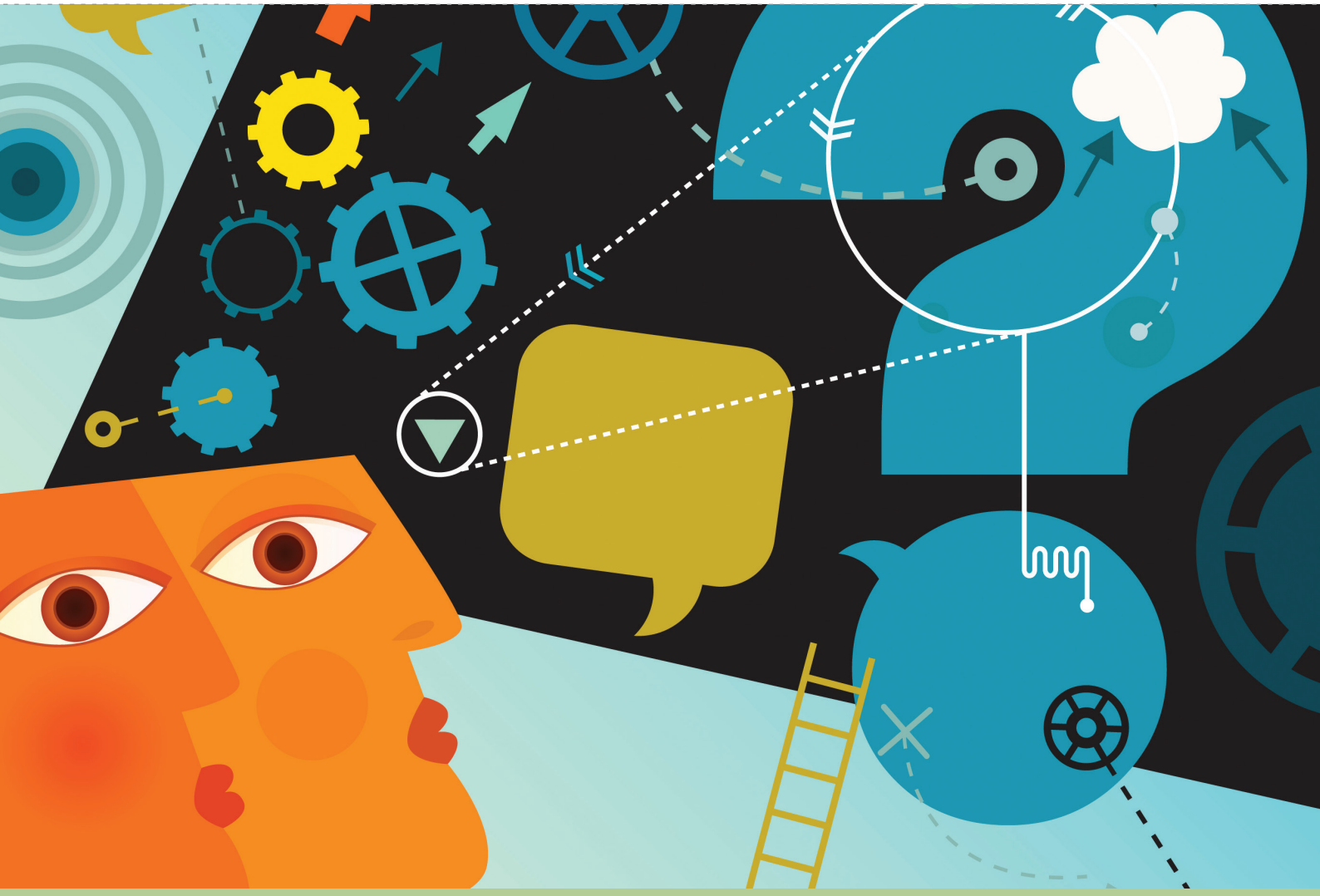

European Environment Agency

Waste prevention in Europe — the status in 2013

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Authors and acknowledgements

The first review covers 20 national and regional waste prevention programmes in Europe that were adopted by the end of 2013. The review was undertaken by the European Topic Centre on Sustainable Consumption and Production (ETC/SCP) for and in collaboration with the European Environment Agency (EEA).

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Executive summary

The Waste Framework Directive sets a legal obligation for European Union (EU) Member States to adopt waste prevention programmes by 12 December 2013. The European Environment Agency (EEA) has been asked to review the progress of the 'completion and implementation of the programmes' annually (EU, 2008). This report presents a first review of waste prevention programmes across Europe.

The waste hierarchy, the guiding framework in EU and national waste policies, gives the highest priority to waste prevention, followed by (preparing for) re-use, recycling, other recovery and disposal. This is reflected in the targets of the Waste Framework Directive (EEC, 1975, revised 2008) and the Thematic Strategy on the prevention and recycling of waste (EC, 2005). Related EU policies such as the Roadmap to a Resource Efficient Europe (EC, 2011) and the EU's 7th Environment Action Programme (7th EAP) (EU, 2013) also recognise the need for waste prevention. The Roadmap to a Resource Efficient Europe states that by 2020 waste generation should be in decline. The recent Communication from the European Commission, *Towards a circular economy: A zero waste programme for Europe*, goes further. It proposes a non-binding target for a reduction in food waste of at least 30 % by 2025, in addition to the development, inter alia, of national food waste prevention strategies (EC, 2014).

This publication is the first in a series of reviews by EEA of the waste prevention programmes in Europe. The review process covers programmes in the 28 EU Member States and three European Free Trade Association (EFTA) countries, namely Iceland, Liechtenstein and Norway. This first review covers the 20 national and regional programmes ([1]) that had been adopted by the end of 2013. Completion of remaining programmes and implementation efforts will be captured in future reviews.

Recognising the variation between national approaches, a flexible analysis method has been applied. On the basis of the national/regional waste prevention programmes, harmonised country/region 'abstracts' have been prepared that facilitate cross-programme comparison. The comparison includes waste prevention programmes' coverage, overall objectives, scope, and targets, indicators, and monitoring systems as the measures to evaluate set objectives and targets. General analysis of the measures and related policy instruments is supported by selected good practice examples from each country and region.

The currently available data do not yet allow an assessment of actual progress in waste prevention at European or national/regional levels. Future reviews will have to be extended to cover concrete implementation measures and their results.

Key findings

- **General:**
  - twenty national and regional waste prevention programmes in 18 countries (out of 31) were adopted by the end of 2013;
  - waste prevention programmes show considerable differences in detail, coverage, objectives and time horizon (four years to indefinite);
  - twelve programmes are dedicated programmes while others are part of wider waste management plans;
  - ten programmes include an evaluation at least every sixth year as required by the Waste Framework Directive; some include the production of regular progress reports;
  - stakeholders have been involved in the development of nine programmes, while

([1]) As some countries have regional rather than national coverage in terms of waste prevention programmes, the number of programmes is higher than actual number of countries (37 programmes).

for implementation the number is twice as high;
  - financial resources are rarely addressed in the programmes.

- **Waste prevention objectives** — the overall objective of decoupling waste generation from economic growth is mentioned in the majority of programmes. Some also target the reduction of harmful substances as part of their overall objectives. Job creation (Hungary) and the development of new business models (England and Wales) are part of the general objectives in three programmes.

- **Waste prevention scope** — programmes cover a variety of sectors and waste types. All cover households and the public service sector, whereas only a few programmes include the agriculture, and mining and raw material sectors. This limited sectoral coverage might be because they are covered by other policy areas or are the responsibility of other institutions. In terms of waste types, municipal/household waste, food waste, construction and demolition waste, waste electrical and electronic equipment (WEEE), packaging waste and hazardous waste are covered by a majority of the programmes.

- **Quantitative waste prevention targets** — eleven of the analysed programmes include quantitative targets ranging from total waste generated to more specific targets for specific sectors or waste types. A few countries have expressed a reluctance to define targets, citing a lack of reliable and relevant data as the reason. The review does not analyse the qualitative targets.

- **Waste prevention indicators** — seventeen programmes include indicators as a means of tracking progress on objectives and targets, and ultimately the effectiveness of waste prevention policies. Comparing the specific indicators chosen by the countries/regions with the objectives mentioned in the programmes, it appears that only a few countries propose indicators to monitor all their objectives.

- **Monitoring systems** for targets and indicators are included in seven programmes. In some cases, monitoring systems are covered in other documents.

- **Waste prevention measures** — the analysis shows a broad range of measures planned to support waste prevention according to Annex IV of the Waste Framework Directive. Most, 51 %, focus on the design, production and distribution phase; 39 % are related to the consumption and use phase; while 10 % focus on the general framework of waste generation.

- **Policy instruments** — the classification of the measures according to policy instrument shows that most, 60 %, are concerned with information and awareness raising; regulatory and economic instruments account for 17 % and 16 %, respectively; and voluntary agreements 7 %.

These elements will guide **future waste prevention review**s. The review process is expected to grow in future to make links between trends in waste generation and its key socio-economic drivers with waste prevention objectives as well as include country/region-wide implementation efforts by waste type or waste-generating sector. Future reviews may also focus on some specific areas, providing more detailed analysis for selected waste types/sectors/measures, such as food waste for which an overall reduction target has been proposed. There will also be efforts made to identify examples of niche innovations in waste prevention practices.

1 Behind waste prevention

According to **the Waste Framework Directive, Article 29 (1)**, 'Member States shall establish … waste prevention programmes not later than 12 December 2013'.

Under **Article 30 (2)**, 'The European Environment Agency is invited to include in its annual report a review of progress in the completion and implementation of waste prevention programmes' (EU, 2008).

The Waste Framework Directive requires Member States to establish waste prevention programmes, but allows them some flexibility on how to implement them.

This publication by the EEA provides a review of the waste prevention programmes in Europe. It does not, however, attempt at this stage to assess progress with the programmes' implementation.

The review is limited to the 20 waste prevention programmes (Section 1.2) that had been adopted by the end of 2013. Future reviews will cover those waste prevention programmes adopted after 1 January 2014 and will also reflect on progress with implementation.

1.1 Policy background

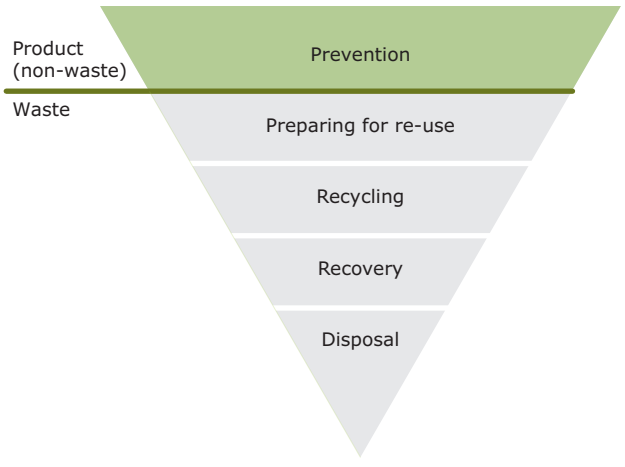
The waste hierarchy presented in Figure 1.1 is the overarching guiding framework of EU and national waste policies. Priority is given to waste prevention, followed by (preparing for) reuse, recycling and other recovery, with disposal the least desirable option. In other words, moving up the waste hierarchy is strived for in waste management practice.

Although importance of waste prevention has been recognised in EU waste legislation for almost 40 years, starting with the 1975 Waste Framework Directive (EEC, 1975) and then the 1994 Packaging Directive (EU, 1994), effective waste prevention measures in the Member States have been lacking.

In 2005, waste prevention was fast-tracked in the Thematic Strategy on the prevention and recycling of waste (EC, 2005). The importance of the waste hierarchy was then further underlined in the Waste Framework Directive, which stated in Article IV that waste prevention measures should be considered a top priority when developing waste policy and legislation in the EU and its Member States. Among the measures incorporated in the Waste Framework Directive is the requirement for all Member States to adopt and implement waste prevention programmes (EU, 2008).

Waste prevention and using waste as a resource is becoming more and more important, not only in environmental policies, but also in industrial and raw material policies, and as a backbone of the transition towards a green economy. In 2011, the Roadmap to a Resource Efficient Europe sets the ambition that waste generation per person should be in absolute decline by 2020 (EC, 2011). Two years

Figure 1.1 The European waste hierarchy



Source: EU, 2008.

later, the EU's 7th EAP recognises the need for additional efforts to reduce waste generation both per person and in absolute terms (EU, 2013).

In 2012, EU-28 Member States discarded 2.5 billion tonnes of waste, of which 4 % was hazardous. Although overall waste generation in Europe declined by 6 % in absolute terms and by 8 % per person (to 4 900 kilogram per person) between 2004 and 2012, the share of hazardous waste is slowly increasing (Eurostat, 2014).

The recent European Commission Communication *Towards a circular economy: A zero waste programme for Europe* (EC, 2014) gives further details, and describes the need for product design approaches that: reduce the quantity of materials required to deliver a particular service; reduce the use of materials that are hazardous or difficult to recycle in both products and production processes; make products easier to maintain, repair, upgrade, remanufacture or recycle; and lengthen a product's useful life. The Communication proposes a number of measures to move the EU in this direction, including addressing resource efficiency in the application of the Eco-design Directive (EU, 2009).

The Communication prioritises, among others, food waste, proposing a non-binding reduction target of at least 30 % by 2025, in addition to the development of national food waste prevention strategies (EC, 2014).

Defining waste prevention

Waste prevention as defined by the Waste Framework Directive (Box 1.1) can be implemented in different ways.

Waste prevention should be considered at the upstream and downstream stages of the production-consumption system (Figure 1.2). Targeting the source of waste reduces its amount and toxicity before recycling, composting, energy recovery or landfilling become options. But waste prevention also encompasses measures to reduce the adverse impacts of the generated waste on the environment and human health.

Waste prevention has both quantitative and qualitative aspects (reducing quantity and toxicity) that should be taken into account in setting targets, selecting indicators and designing measures (Chapter 2).

Quantitative waste prevention can be achieved by reducing the quantity of material used in the manufacture of products and increasing the efficiency with which products, once manufactured, are used. Waste can be avoided by limiting unnecessary consumption and by designing and consuming products that generate less waste. Quantitative waste prevention also encompasses actions that can be undertaken before a product reaches its end-of-life stage; rather than discarding the product as waste, the end user should be able to consider reuse, repair or refurbishment. Extending a product's life or considering options such as reuse before they enter the waste management system are forms of prevention that can be realised through the diversion of waste flows (EC, 2012).

Qualitative waste prevention is defined as reducing its hazardous content (Article 3 (12) of the Waste Framework Directive). This helps reduce human and environmental exposure to hazardous materials (EC, 2012).

The European Commission developed a guidance document in 2012 for helping countries to prepare waste prevention programmes (EC, 2012).

Box 1.1 Waste prevention as defined in Article 3 (12) of the Waste Framework Directive

'... 'prevention' means measures taken before a substance, material or product has become waste that reduce:

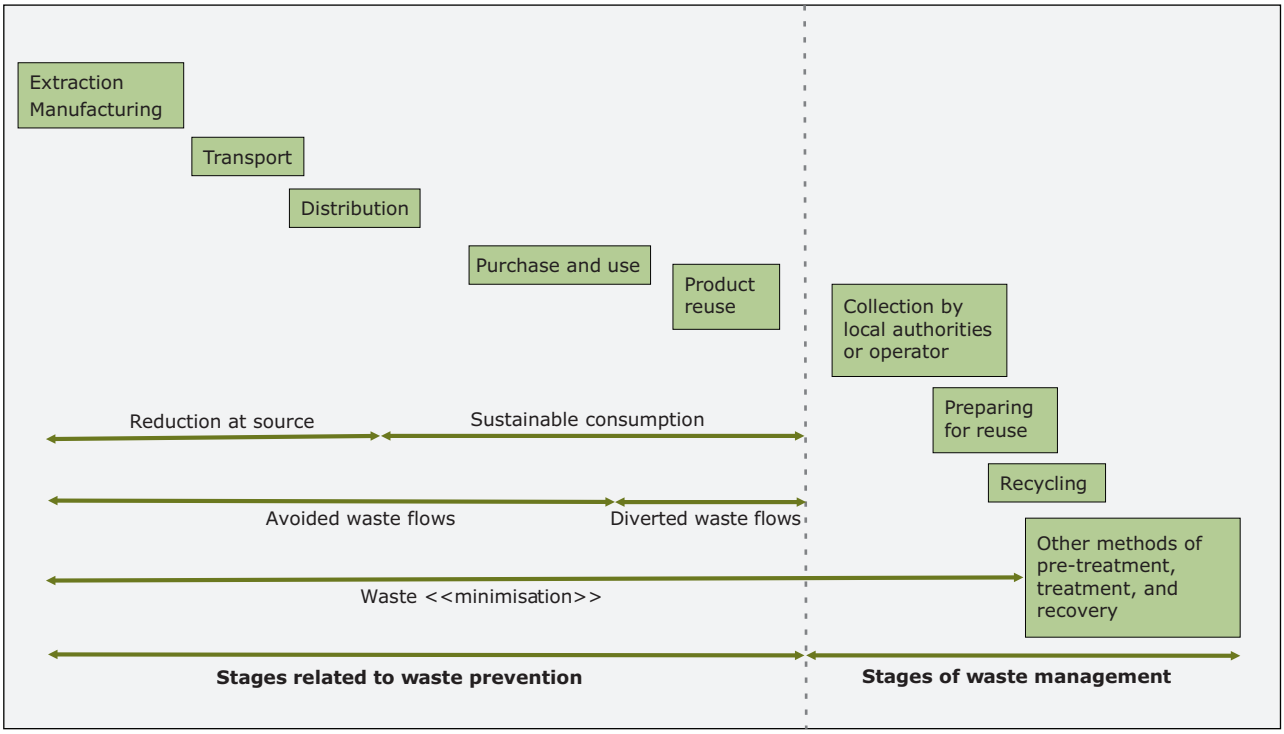
(a) the quantity of waste, including through the re-use of products or the extension of the life span of products;

(b) the adverse impacts of the generated waste on the environment and human health; or

(c) the content of harmful substances in materials and products'.

Source: EU, 2008.

Figure 1.2 Waste prevention in the context of the production-consumption system



Source: EC, 2012.

Policy relevance

Including all the upstream and downstream elements, waste prevention is a cross-cutting policy area that relates and links to a wide range of policy options (Figure 1.3). In the **production phase**, waste can be prevented by: improving material efficiency; using processes that generate less waste; and product and service innovations (EC, 2012).

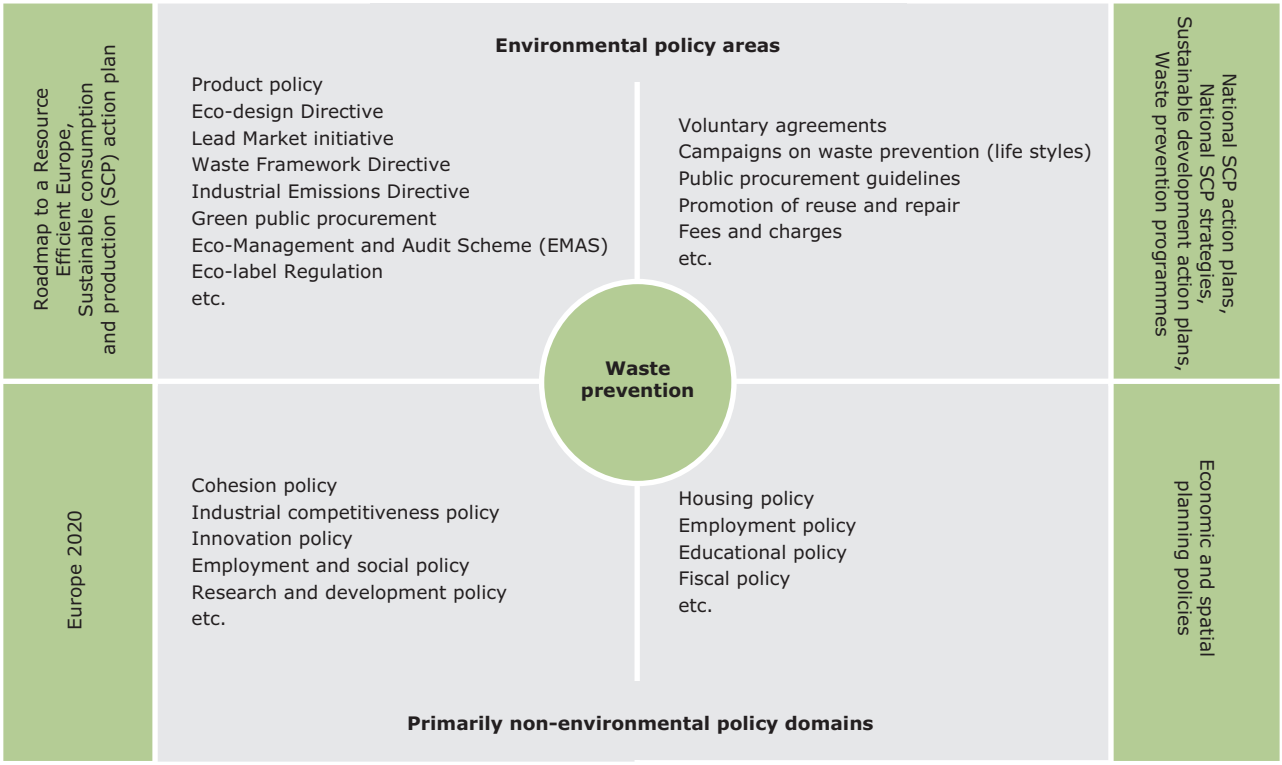
In the **distribution phase**, waste can be prevented by, inter alia, good planning of supply and stocks, through waste-reducing marketing and by choosing less waste-intensive packaging options.

Waste can be also prevented during the **consumption phase**, for example by: choosing products that are less waste intensive over their life cycle; keeping products in use for a longer period; repairing, sharing or hiring products; or through reducing consumption levels (EC, 2012).

Waste prevention interacts with a wide range of environmental and non-environmental policy areas, both at the EU and national/regional levels. Policy on waste prevention may contribute through synergies and coherence to other policies such as manufacturing and technological innovation. However, it can also cause conflicts and trade-offs with other policy areas.

For example, extending product lifespans by re-use and repair 'slows down' product demand and sales, creating a conflict with the prevailing business model of maximising sales.

Figure 1.3 Waste prevention as a cross-cutting policy area



Source: Adapted by authors from EC, 2012.

1.2 Review methodology

The review process covers waste prevention programmes in the 28 EU Member States and 3 EFTA countries, Iceland, Liechtenstein and Norway, which have a legal obligation to implement the Waste Framework Directive. Switzerland and Turkey do not have legal obligations and are therefore not included in this review process; that may change if they develop programmes in the future ([2]).

Twenty, out of a possible 37 ([3]), national and regional programmes that had been adopted by the end of 2013 were considered (Table 1.1) — the remaining 17 will be considered in future reviews. An overview of the status of 37 waste prevention programmes as of 1 November 2014 is provided in Annex 1.

This review is limited to the information extracted from the waste prevention programmes only. It focuses on planned prevention measures covered

Table 1.1 Countries and regions covered by the 2013 waste prevention review

Austria	Hungary	Luxembourg	Scotland *
Brussels *	Ireland	Netherlands	Slovakia
England *	Italy	Norway	Spain
Finland	Latvia	Poland	Sweden
Germany	Lithuania	Portugal	Wales *

Note: * Refers to region.

([2]) It should be noted that all listed countries are EEA-33 member countries.
([3]) As some countries have regional rather than national coverage in terms of waste prevention programmes, the number of programmes is higher than actual number of countries.

by the programmes, rather than evaluating existing prevention measures in the countries/regions. This first review will serve as a baseline for further reviews of the implementation phase.

Process methodology — from survey to review

Survey: A survey was conducted to assess the status of waste prevention programmes. Most were national programmes, while regional programmes have been assessed for Belgium (Brussels, Flanders and Wallonia) and for the United Kingdom (England, Northern Ireland, Scotland and Wales).

The programmes differed in structure and content, and followed specific national procedures for their legal adoption and implementation.

Abstracts: To summarise the contents of the programmes, an abstract of each analysed programme was made, based on a common template ([4]). Drafts of these abstracts were reviewed by the waste prevention experts from the EEA European environment information and observation network (Eionet) ([5]), and, once approved, uploaded to the designated EEA website (EEA, 2014).

Review: The review has focused on the abstracts (Box 1.2), supplemented by waste prevention programmes (Annex 1 ([6])).

In 2012, the EEA conducted a preliminary review of programmes in seven countries and regions: Austria, Brussels, Finland, Ireland, Luxembourg, Poland and Portugal (ETC/SCP, 2012). The current review builds on this approach.

1.3 Future reviews, from 2015 onwards

The purpose of the review is to feed into **relevant policy processes** at European and national/regional levels. The review findings will be relevant for a broad range of actors, including European and national/regional policymakers, the Eionet community, research institutions, international organisations, and many other public- and private-sector players (Figure 1.4).

Box 1.2 Review structure — key elements

Key elements of the waste prevention review include the requirements laid out in Article 29 and Annex IV of the Waste Framework Directive:

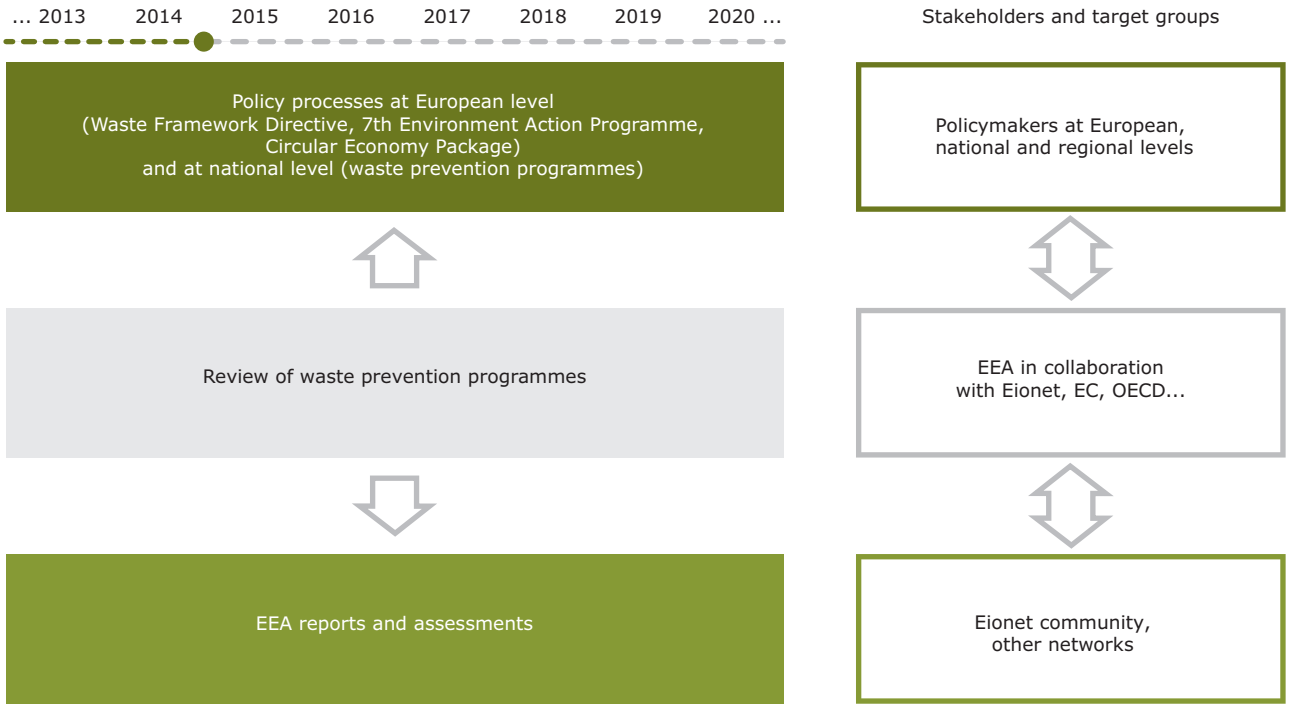
- general information about the programmes (duration, evaluation, stakeholder involvement, funding, etc.);
- objectives of the programmes;
- scope of the programmes (sectoral and waste type coverage);
- targets of the programmes (quantitative);
- indicators of the programmes;
- monitoring systems;
- measures and policy instruments, including good practice examples.

([4]) The template for the abstract can be found in Annex 2, whereas the individual abstracts completed for 21 waste prevention programmes are available at http://scp.eionet.europa.eu/facts/WPP.

([5]) Eionet is a partnership network of the EEA and its member and cooperating countries. It consists of the EEA itself, 6 European topic centres (ETCs) and a network of around 1 400 experts from 39 countries in more than 400 national environment agencies and other bodies dealing with environmental information. These are the national focal points (NFPs) and the national reference centres (NRCs).

([6]) Annex 1 presents both an overview of the status of 37 waste prevention programmes across Europe and references/links to the waste prevention programmes that are subject to this review. Throughout the text it can be found in combination with another reference: EEA, 2014.

Figure 1.4 Waste prevention review process and main actors



Source: EEA.

The findings may also feed into regular EEA reports and assessments, such as the 'European environment — state and outlook' report (SOER). Ultimately, it is anticipated that the review will contribute to a better European-wide knowledge base of waste prevention practice.

The waste prevention policies are expected to **evolve significantly** over time in terms of their implementation, evaluation, improvement and adjustment, and as a result of interaction with other policy areas. This review only reports on the analyses of the programmes themselves; in the future it will also consider implementation efforts in the countries/regions.

From a policy perspective there may also be a need to **extend the level of detail** beyond general waste statistics and to look at specific waste types or fractions more closely, for example in view of the target of reducing food waste by at least 30 % by 2025.

Future reviews will benefit from a more active **role of countries** in the process, allowing for a greater exchange of information and experience, particularly in the implementation phase. Such interactions would help spread up-to-date information on national and regional waste prevention initiatives, as well as break down current language barriers.

2 Waste prevention programmes

This chapter summarises the key findings from the analysis of the 20 national and regional waste prevention programmes that had been adopted by 31 December 2013. It looks at the objectives, scope, targets, indicators, monitoring systems, and policy measures and instruments of the programmes. As such, it should be taken as a compilation of similarities and differences, as well as a methodological framework for future reviews.

This first review does not, however, provide a comprehensive analysis across the listed elements, nor an in-depth analysis of the effectiveness of the measures described.

2.1 Key features

Overview of the programmes

According to **the Waste Framework Directive, Article 29 (1)**, '... programmes shall be integrated either into the waste management plans ... or into other environmental policy programmes, as appropriate, or shall function as separate programmes. If any such programme is integrated into the waste management plan or into other programmes, the waste prevention measures shall be clearly identified' (EU, 2008).

Of the 20 programmes considered, 12 were dedicated waste prevention programmes and 8 incorporated within wider waste management plans. An overview is provided in Annex 3.

Dedicated waste prevention programmes were often linked to national or regional policies and strategies related to other matters. For example:

- in England, the programme is incorporated into a resource efficiency strategy;
- in the Netherlands, the programme is part of a circular economy strategy;
- in Scotland, the programme is part of a strategy for both resource efficiency and the circular economy;
- in Wales, the programme is a part of the Welsh Government's vision for sustainable development;
- in Sweden, the programme is seen in the context of a strategy for sustainable consumption, one of the main objectives of the national environmental policy.

Integration in wider waste management plans has happened in different ways. Austria, Finland, Hungary, Latvia and Norway have a specific chapter/part on waste prevention, while in Brussels waste prevention is integrated in waste management throughout. Luxembourg and Poland address waste prevention in separate waste management plans for different categories of waste, which makes it difficult to get an integral overview of dedicated prevention measures (Annex 1; EEA, 2014).

The extent/length of the programmes varies greatly. The Finnish and Norwegian programmes are only 4–6 pages, while the German and Swedish programmes run to 75–80 pages. While some programmes mainly focus on planned and already implemented measures, others offer also more general explanations of their national approaches for waste prevention (Annex 1; EEA, 2014).

Duration and evaluation

According to **the Waste Framework Directive, Article 30 (1)**, 'Member States shall ensure that the waste management plans and waste prevention programmes are evaluated at least every sixth year and revised as appropriate …' (EU, 2008).

The **duration** of the programmes varies: those for Brussels, England, Luxembourg, the Netherlands, Norway, Scotland and Wales are virtually unlimited, while others range from 4 to 11 years (Slovakia and Poland, respectively) (Annex 1; EEA, 2014).

The approaches to **evaluation** also vary. Some programmes explicitly require evaluation, some every sixth year, others more frequently — Brussels, Ireland and Sweden, for example, require evaluation after three or four years. Additionally, Spain and Ireland's programmes include an annual or biennial reporting cycle.

An example of the development of the waste prevention policy in Ireland is provided in Box 2.1.

An overview of the programme durations and planned evaluations is available in Annex 3.

Stakeholder involvement

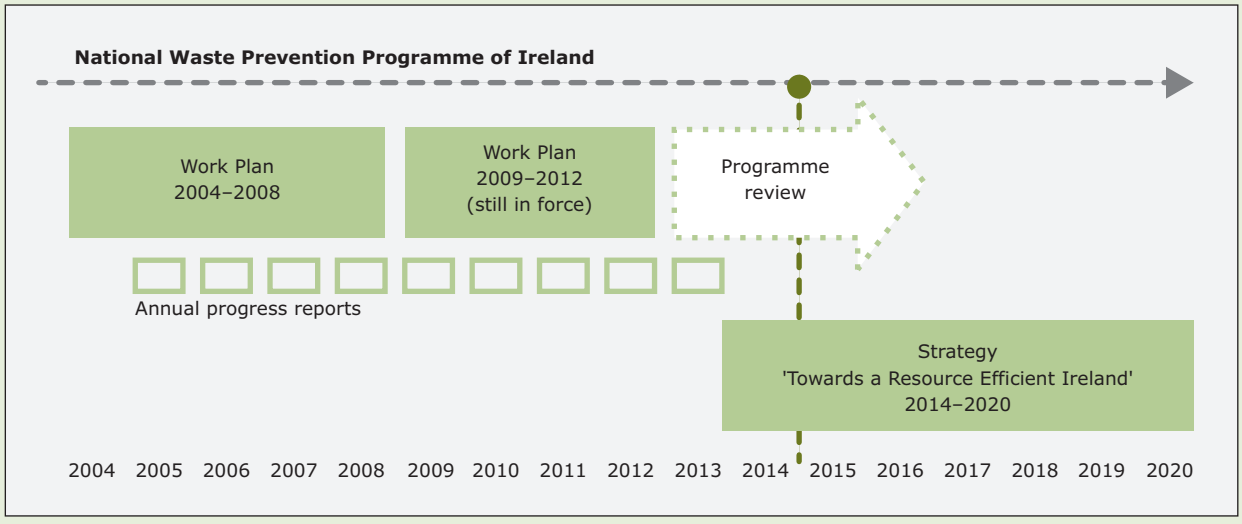
According to **the Waste Framework Directive, Article 31**, 'Member States shall ensure that relevant stakeholders and authorities and the general public have the opportunity to participate in the elaboration of the waste management plans and waste prevention programmes and have access to them once elaborated, in accordance with Directive 2003/35/EC …' (EU, 2008).

The degree of public participation in planning and implementation was assessed on the basis of the information in the programmes. It is beyond the scope of this review, however, to evaluate whether countries fulfilled their obligation according to the Directive on Public Access to Environmental Information (EU, 2003).

Box 2.1 Development of the waste prevention policy in Ireland (Figure 2.1)

In 2004, Ireland was the first EU Member State to adopt a waste prevention programme. Of unlimited duration, this included a 4-year work plan and required annual progress reports. The latest published work plan covers the period 2009–2012 and is still in force. In 2013, Ireland started a review of its programme and adopted a strategy for 2014–2020, Towards a Resource Efficient Ireland, which incorporates the waste prevention programme.

Figure 2.1 Development of the waste prevention policy in Ireland



Source: EEA, based on the National Waste Prevention Programme in Ireland.

Most of the reviewed waste prevention programmes highlighted cooperation with all stakeholders and actors in the value chain as a precondition of success. The programmes involved stakeholders at different stages (Annex 1; EEA, 2014):

- nine out of 20 programmes describe/anticipate involvement of stakeholders in the **development phase**;
- 18 out of 20 programmes envisage stakeholder involvement in the **implementation phase**.

Examples of stakeholder involvement in the development phase:

- Austria and Ireland involved and consulted relevant actors throughout the entire process;
- Sweden established an advisory board representing different stakeholders;
- Finland established a working group with many different stakeholders;
- Poland organised meetings with stakeholders during the development of their waste management plan at which waste prevention issues were discussed.

Examples of stakeholder involvement in the implementation phase:

- Ireland has set up the National Waste Prevention Committee that includes a broad stakeholder group. The Committee meets periodically to provide strategic direction to the Irish Environmental Protection Agency in implementing the waste prevention programme;
- Italy plans to set up a technical round table with different stakeholders to advise on implementation;
- Latvia plans to involve a large number of ministries in the implementation;
- Portugal has a signed collaboration protocol with stakeholders for implementation;
- Sweden's programme aims to inspire and guide stakeholders to prevent waste. The programme suggests measures that different stakeholders can take for each of its general targets and four focus areas.

Financial resources for implementation

Ireland's regular annual progress reports contain information on investments together with details of cost savings achieved by the stakeholders involved in initiatives. Some countries describe how they plan to finance the waste prevention measures, for example, Portugal will do this partly through fees and other financial instruments, while Hungary will charge for landfill (share of revenues from landfill fees will be dedicated to waste prevention). Others, for example Spain and Slovakia, will rely on EU funds to finance their programmes.

Only a few programmes include explicit information on the **financial resources** for implementation of the programmes:

- Brussels has allocated EUR 10.49 million for 2010–2013 for waste prevention, out of which EUR 5.45 million is for household waste prevention;
- England sets out a framework to support waste prevention investments/measures, including investment of up to GBP 5 million (EUR 6.3 million) in collaborative research and development in design innovation;
- Hungary specifies the financial resources needed for managing and prevention of municipal, biodegradable, hazardous, and construction and demolition waste of HUF 155 billion (EUR 0.5 billion), HUF 15 billion (EUR 49 million), HUF 8 billion (EUR 26 million) and HUF 7 billion (EUR 23 million), respectively;
- Lithuania includes preliminary costs and funding sources for different waste prevention measures, supported by implementation deadlines.

For more information, see Annex 4.

2.2 Objectives and scope

Waste prevention objectives

According to **the Waste Framework Directive, Article 29 (2)**, 'The programmes … shall set out the waste prevention objectives ….

The aim of such objectives and measures shall be to break the link between economic growth and the environmental impacts associated with the generation of waste' (EU, 2008).

The stated objectives and goals of the programmes were analysed against the definition provided by the Waste Framework Directive (Box 1.1). A wide range of objectives is mentioned in the programmes, from more general ones to those linked to specific waste types, sectors or benefits. The general objectives, as analysed here, define the direction of programmes, their level of ambition and their potential for evolution within predefined timeframes.

The general waste prevention objectives in the programmes vary (Annex 1; EEA, 2014):

- **breaking the link between economic growth and the environmental impacts** associated with the generation of waste is included in half of the reviewed documents, in particular in Austria, Germany, Hungary, Ireland, Italy, Latvia, Norway, Poland, Sweden and Wales;
- **shifting towards a circular economy** is mentioned explicitly by two programmes (the Netherlands and Scotland);
- **improving material efficiency** (Finland), **resource efficiency in use of natural resources** (Portugal) and **decoupling of resources use from economic growth** (Hungary) are covered in the respective programmes;
- **the reduction of harmful substances** is included in eight of the programmes (Finland, Germany, Ireland, Latvia, Portugal, Spain, Sweden and Wales);
- **new business models** appear in two programmes (England and Wales), whereas **job creation** is mentioned in only one (Hungary);
- **contributing to a reduction of marine litter** is only mentioned in Spain's programme.

The review of objectives is not intended at this stage to provide a comprehensive overview, but rather to show the variety and range of different national factors that contribute to waste prevention. More information on objectives is provided in Annex 5.

Waste prevention scope

Sectoral coverage
The reviewed programmes cover a variety of **sectors** (Table 2.1). General conclusions are that (Annex 1; EEA, 2014):

- all programmes cover household and public service sectors;
- all programmes, except Latvia, cover the construction/infrastructure sector;
- most programmes cover private service activities/hospitality, manufacturing, and the sale, retail and transport sectors;
- programmes in Germany, Hungary, Ireland, Italy, Lithuania, the Netherlands, Spain and Sweden include the agriculture sector. Agriculture is mainly mentioned in the context of preventing food waste;
- only six programmes, those in Finland, Germany, the Netherlands, Poland, Slovakia and Spain, include mining and raw material processing.

The country-by-country analysis reveals that only three countries (Germany, the Netherlands and Spain) cover all the listed sectors.

Stating that the programme covers a sector does not necessarily mean that specific initiatives or measures on waste prevention are included. For example, the number of waste prevention measures for the agriculture, and mining and raw material processing sectors is very low. Where not covered, the agriculture, and mining and raw material sectors may be dealt with in other policies and by other ministries.

Generic action on resource efficiency can be expected to encompass other sectors as it reduces demand for primary resources. For example, prevention of construction waste might reduce demand for quarrying of new aggregate/stone in the mining sector.

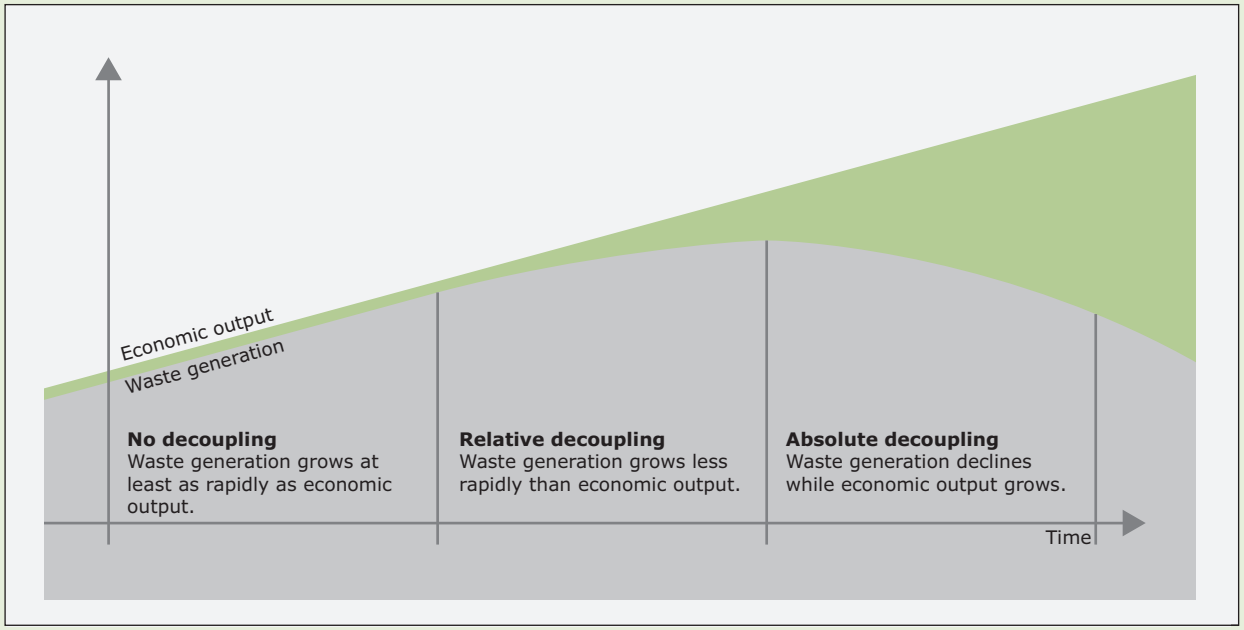
Box 2.2 Understanding decoupling and drivers behind waste generation

The waste prevention challenge is often framed in terms of 'decoupling' economic output from environmental inputs or pressures (Figure 2.2).

Decoupling can take, inter alia, several forms:

- **relative decoupling** is achieved when an environmental pressure (e.g. resource use, emissions or waste generation) grows more slowly than the relative economic activity (e.g. sectoral gross value added (GVA) or gross domestic product (GDP));
- **absolute decoupling** is achieved when an environmental pressure remains stable or decreases while economic activity increases (EEA, 2015).

Figure 2.2 Decoupling demystified



Source: Adapted from EEA, 2015 (forthcoming).

As trends in population, income levels/wealth, and the structure of a national economy (production and consumption activities) are the main drivers of waste generation, relating waste generation to economic output and demographics is currently the closest approximation available to measure quantitative waste prevention.

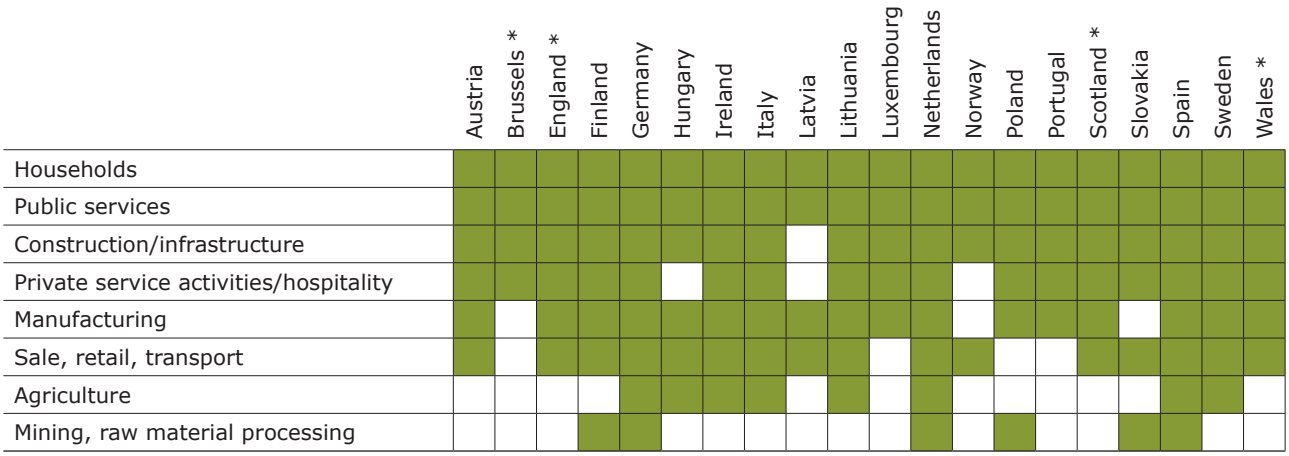
Waste type coverage

Different wastes are covered by different programmes, with each programme covering 5–10 **waste types** (Table 2.2), but as initiatives for a specific sector might cover a large range of wastes that are not explicitly mentioned, programmes could cover more waste types than those listed here. The fact that a programme covers different wastes, however, does not necessarily mean that it includes specific initiatives or measures for its prevention (Annex 1; EEA, 2014).

A country-by-country comparison reveals that six countries and regions (Brussels, England, Ireland, Lithuania, the Netherlands and Spain) cover all listed waste types. Preliminary findings indicate that:

- hazardous waste is covered in all but the Portuguese programme. The number of measures, however, is very low;
- household/municipal waste is mentioned as a category in all programmes other than those of

Table 2.1 Scope of the waste prevention programmes by sector



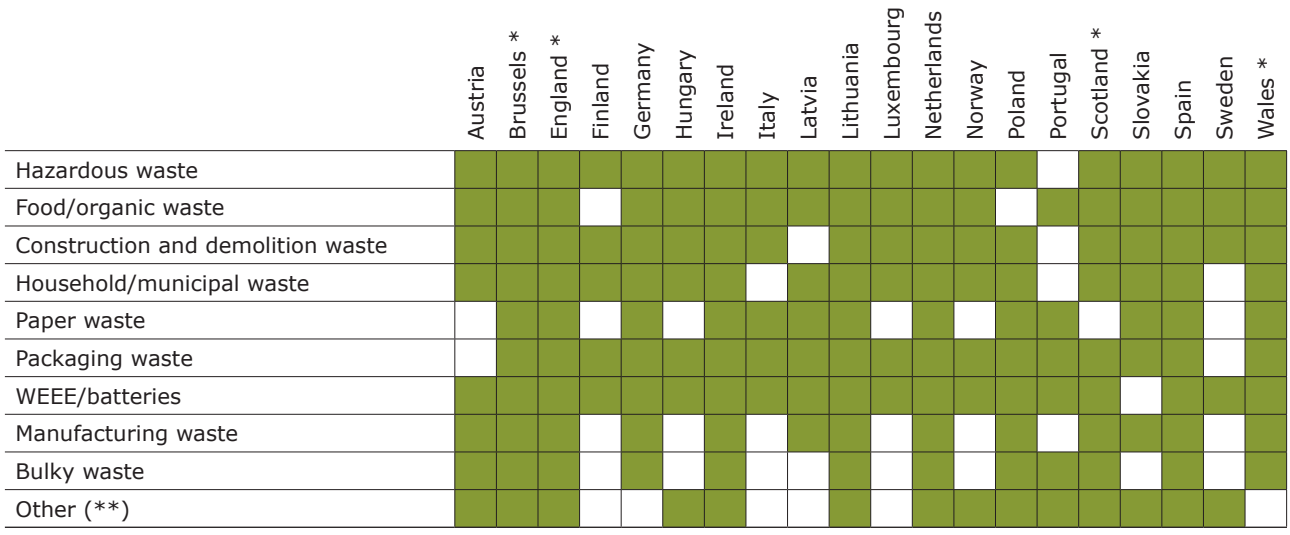
Note: * Refers to region.

Sources: Annex 1; EEA, 2014.

Italy, Portugal and Sweden. Nevertheless, these countries address specific wastes from municipal sources, such as food, packaging or paper waste, separately;

- some countries have selected focus areas for their programmes and measures are concentrated around these; for example:
  - Italy includes biodegradable waste, paper, packaging and WEEE;
  - Sweden covers food, WEEE, construction and demolition, and textile wastes.

Table 2.2 Scope of the waste prevention programmes by waste type



Note: * Refers to region.

** Other waste types include textiles, tyres, garden waste, vehicles and nappies.

Sources: Annex 1; EEA, 2014.

2.3 Targets, indicators and monitoring

According to **the Waste Framework Directive, Article 29 (3)**, 'Member States shall determine appropriate specific qualitative or quantitative benchmarks for waste prevention measures adopted in order to monitor and assess the progress of the measures and may determine specific qualitative or quantitative targets and indicators …' (EU, 2008).

Member States may set specific qualitative or quantitative targets that provide the basis for evaluating waste prevention measures and for facilitating dialogue with policymakers, and public and private stakeholders.

Quantifying waste prevention is difficult since it often amounts to measuring what is not there (Arcadis, 2010). In this review, therefore, waste generation related to demographics or economic activity, as well as, waste generation as such are considered the closest approximation for measuring quantitative waste prevention.

Quantitative waste prevention targets

Twelve ([7]) of the programmes include some form of quantitative targets — the current analysis does not include information on qualitative ones.

Within the programmes, quantitative targets vary from those linked to total waste to more specific ones linked to particular sectors or waste types (Table 2.3). The targets are sometimes expressed in absolute terms, per person or per unit of GDP or GVA, to name just a few.

Total waste in absolute terms is targeted by programmes in the Netherlands, Scotland, Spain, Sweden and Wales — in different ways, and all targets are modest (Annex 1; EEA, 2014):

- The Netherlands is limiting the increase in waste generation to 1.5 % a year over nine years;
- Scotland has set reduction targets of 7 % by 2017 and 15 % by 2025, both against a 2011 baseline (corresponding to around 1.2 % annually);

Table 2.3 Overview of the selected quantitative targets covered by the waste prevention programmes

	Brussels *	England *	Finland	Italy	Latvia	Netherlands	Portugal	Spain	Sweden	Scotland *	Wales *
Total waste						■		■	■	■	
Household/municipal waste	■		■	■	■		■				■
Food waste	■	■				■			■		
Hazardous waste				■	■				■		
Construction and demolition waste									■		■
Industrial waste											■
Commercial waste											■
Textile waste						■			■		
Non-hazardous waste				■							

Note: * Refers to region.

Countries that are not listed in this table have not set quantitative targets within their programmes.

Sources: Annex 1; EEA, 2014.

([7]) The targets for Slovakia relate mainly to the Landfill Directive (EU, 1999) and are not considered as targets for waste prevention.

- Spain has set a target of 10 % reduction between 2010 and 2020 (corresponding to 1 % annually);
- Sweden has set a target of total generation in 2018 being below 2010 levels, but excludes mining waste;
- Wales aims for a reduction of 27 % by 2025 and 65 % by 2050 compared to 2007 (equivalent to about 1.7 % and 2.4 % annually).

Municipal waste targets, too, have been set in five countries/regions:

- Italy: 5 % reduction waste generated per unit of GDP between 2010 and 2020 (corresponding to 0.5 % annually);
- England: 5 % reduction of household food and drink waste by 2015 from a 2012 baseline (equivalent to 1.7 % annually);
- Finland: stabilise annual waste generation to 2.3–2.5 million tonnes and to further reduce the trend by 2016;
- Latvia: has not set a reduction target, but an upper limit of 400 kilograms on the amount of municipal waste generated per person in 2020**;**
- Portugal: by 2016, a reduction of 10 % per person compared to 2007 (equivalent to 1.2 % per year);
- Wales: annual reduction of 1.2 % compared to 2006/2007 until 2050.

Targets for reduction of **food waste** have been set in Brussels, England ([8]) and the Netherlands, while Sweden proposed a numerical target to increase resource efficiency in the food supply chain (by separating and treating at least 50 % of food waste by 2018, among others).

Wales has set waste reduction for a number of other economic sectors.

The amount of **hazardous waste** has been targeted in Italy and Latvia, while a reduction of hazardous substances content in materials and products has been targeted in Sweden (Box 2.3).

Sweden also has targets for WEEE, textiles and construction, but not numerical ones.

Many countries have decided not to include quantitative targets for the time being. Germany, for example, considers that it is premature to set such targets due to the poor data quality and problems associated with defining indicators and establishing evaluation mechanisms.

More information on quantitative targets by country/region is provided in Annex 6.

Indicators and monitoring mechanisms

Indicators and benchmarks are crucial for monitoring progress against objectives and targets in the waste prevention programmes. Indeed, the programmes reviewed show a broad range of indicators concerning their characteristics, number and feasibility, but there is little clarity about which of these indicators will either be further researched or practically implemented. Additionally, some of the countries appear to have core or key indicators that are prioritised for monitoring, while the other/possible indicators are not.

Box 2.3 Reduction of hazardous substances in materials and products in Sweden

The Swedish waste prevention programme includes a general target on the reduction of the content of hazardous substances in materials and products, but this is not a quantitative one. However, the Swedish programme does include quantitative targets for more and better information about chemicals in the textiles and electronics supply chains. It is an interesting attempt to set targets for qualitative waste prevention. It is the only programme that has set such a specific target. More details are available in Annex 6.

Source: Annex 1.

([8]) The waste prevention programme in England supports voluntary action focused on food waste, including the Hospitality and Food Services Agreement, the Product Sustainability Forum, and the Courtauld Commitment. Phase 3 of the Courtauld Commitment aims to reduce household food and drink waste by 5 % by 2015 from a 2012 baseline (Annex 1). Due to the voluntary nature of these targets, they are treated distinctively in this analysis from obligatory targets set elsewhere.

For example, Austria describes a set of core indicators and additional indicators. The core indicators shall be determined regularly (if possible, annually), whereas additional indicators shall be updated at least once until 2017 (Annex 1; EEA, 2014).

Waste prevention indicators
Based on previous work by the Organisation for Economic Co-operation and Development (OECD, 2003) on indicator types, this review focuses on four general groups:

- **output-based indicators** that relate to the success of waste prevention with regard to specific waste types (total generation, generation per person, collection, etc.);
- **decoupling indicators** that relate output indicators to waste generation per unit of GDP or other economic variables;
- **response indicators** that relate to the process of waste prevention (number of measures or institutions, existence of guidelines, etc.);
- **indicators** that do not relate to the aggregated effects of the programme, but to **specific waste prevention measures** such as cost/benefits.

Table 2.4 provides an overview, by this grouping, of waste prevention indicators that are included in the programmes of 17 countries. It should be noted that only 12 of the 17 ([9]) defined some form of quantitative targets. A more comprehensive, but not exhaustive, list of indicators is included in Annex 7.

All countries, with the exception of Italy, include output-based indicators, ranging from the generation of total or specific wastes, such as household/municipal, food, hazardous, industrial, construction and demolition wastes, to shares or rates of the reuse of materials in construction, electronic products, and so on. Portugal also has indicators defining annual reduction rates per person for different waste types.

Eight countries include decoupling indicators. These usually include the waste intensity of specific sectors or waste types, for example, the generation of total waste, construction and demolition, or hazardous waste, expressed per unit of GDP or GVA.

Response indicators are included in seven waste prevention programmes and include a wide range of indicators, for example:

- number of (accredited) reuse centres (Austria, Hungary);
- number of second-hand products sold (Austria);

Table 2.4 Overview of the waste prevention indicators

	Austria	England *	Germany	Hungary	Ireland	Italy	Latvia	Lithuania	Netherlands	Poland	Portugal	Scotland	Slovakia	Spain	Sweden **	Wales *
Output-based indicators	■	■	■	■	■		■	■	■	■	■	■	■	■	■	■
Decoupling indicators		■	■		■			■				■	■	■		■
Response indicators	■		■	■	■	■					■			■		
Specific waste prevention measures indicators			■		■							■				

Note: * Refers to region.

** Further development of indicators.

This compilation should be viewed with caution, as the programmes include a large number of indicators, but in different formats. This overview only shows commonly used indicators. Countries/regions not listed are yet to set waste prevention indicators.

Sources: Annex 1; EEA, 2014.

([9]) Although the Finnish waste prevention programme does not include specific indicators, the Ministry of the Environment and the Finish Environment Institute will draw up a monitoring programme for the assessment of the implementation and impacts of the plan. The programme will list the indicators to be monitored in connection with the most important steering instruments (Annex 1).

- number of permits for industrial facilities that include waste prevention aspects (Germany);
- number of homes or communities contacted by different waste prevention programmes or participating in waste prevention or recycling (Ireland);
- number of information campaigns related to household food waste and the production of a handbook for reducing household food waste (Italy);
- list of actions implemented per qualitative target (Portugal);
- number and economic value of research and development, and innovation projects annually implemented related to waste prevention and sustainable consumption (Spain).

Indicators linked to specific waste prevention measures were only considered by three programmes:

- Germany measures the share of citizens with pay-as-you-throw fees;
- Ireland looks at the quantity of waste prevention (before and after intervention);
- Scotland considers the carbon impact of waste — the whole-life-cycle impacts of waste, including the benefits of prevention and recycling.

The impression is that a consistent framework for indicators is generally lacking. Given the current framework conditions it will probably be very difficult to interpret and compare results of the implementation of the specific waste prevention programmes across countries and regions in the future.

Monitoring systems
It should be noted that not all the indicators will actually be implemented. Many are mentioned only as possible indicators, and many waste prevention programmes refer to a need for further research in order to identify appropriate ones.

As a result, only seven programmes, those in Austria, England, Hungary, Italy, Poland, Spain and Sweden, stipulate a specific monitoring system for the indicators, and the responsible actors for monitoring are explicitly mentioned in only a few cases (in Italy, Spain and Sweden). In some countries, monitoring might be part of the general evaluation of programmes, while others, for example Poland, have monitoring programmes or more extended monitoring systems that are not specifically mentioned in the waste prevention programme.

Additional details on monitoring systems are provided in Annex 8.

2.4 Measures and policy instruments

According to **the Waste Framework Directive, Article 29 (2)**, '… Member States shall describe the existing prevention measures and evaluate the usefulness of the examples of measures indicated in Annex IV or other appropriate measures.

The aim of such objectives and measures shall be to break the link between economic growth and the environmental impacts associated with the generation of waste' (EU, 2008).

For the purpose of this review, the analysis focused on planned or future measures, although many programmes also describe measures that have successfully supported waste prevention practice in the past. More than 300 waste prevention measures in accordance with Annex IV of the Waste Framework Directive have been identified.

The review is supported by a brief analysis on related policy instruments and good practice examples from each programme.

Waste prevention measures

Annex IV of the Waste Framework Directive categorises the examples of waste prevention measures into 16 measures addressed in three areas (Box 2.4; Annex 9):

- area 1: Framework conditions related to the generation of waste;
- area 2: Design, production and distribution phase;
- area 3: Consumption and use phase.

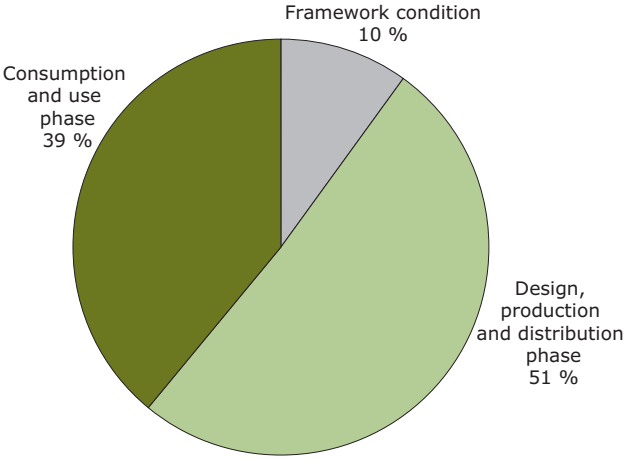
The analysis shows that all programmes include at least one measure for each of the three areas. The majority, 51 %, focus on the **design, production and distribution phase**; 39 % relate to the **consumption**

and use phase; and 10 % focus on the **general framework of waste generation** (Figure 2.3) (Annex 1; EEA, 2014).

As some countries/regions explicitly focus on one example per category, the total number of measures per country/region cannot be used as an indicator for the level of ambition of their programme. Furthermore, not all measures in the programmes could be categorised according to Annex IV of the Waste Framework Directive.

The analysis shows a bias towards quantitative waste prevention. Only six programmes mention measures on qualitative prevention at all and only 5 % of the measures can be linked to it — mainly hazardous waste prevention and eco-design regulations, including bans of toxic materials.

Figure 2.3 Availability of measures for the different areas according to Annex IV of the Waste Framework Directive



Sources: Annex 1; EEA, 2014.

Box 2.4 Waste prevention measures according to the life-cycle approach

Annex IV of the Waste Framework Directive categorises the examples of waste prevention measures into 16 measures that are addressed in three areas:

Framework conditions related to the generation of waste:

1. supporting efficient use of resources;
2. promotion of research and development;
3. development of indicators;

Design, production and distribution phase:

4. promotion of eco-design;
5. provision of information on waste prevention techniques;
6. organising training to include waste prevention in permits;
7. prevention of waste production at installations;
8. use of awareness campaigns and other support to businesses;
9. helping businesses to establish their own waste prevention plans, etc.;
10. promotion of environmental management systems;

Consumption and use phase:

11. introducing economic instruments (subsidies, charges) to prevent waste;
12. provision of information for consumers;
13. promotion of eco-labels;
14. agreements with industry;
15. integration of environmental and waste prevention criteria into calls for tenders and contracts;
16. promotion of reuse and repair.

Policy instruments

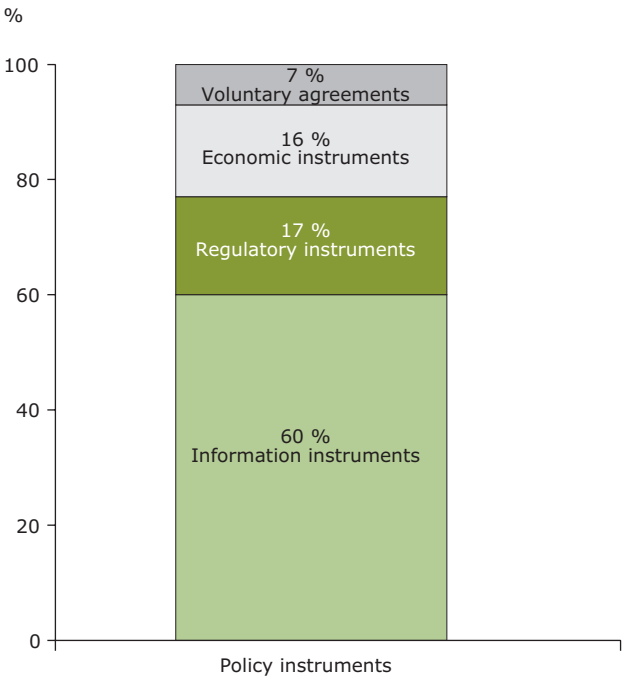
The existing waste prevention programmes contain a great variety of policy instruments, and the review identified four main types:

- information instruments,
- regulatory instruments,
- economic instruments,
- voluntary agreements.

Due to the rather short descriptions of measures in the programmes, the categorisation is not always completely clear.

Figure 2.4 shows that the prevailing type of policy instruments, 60 % of all those listed across 20 waste prevention programmes, are **information/promotion instruments**. Labels, awareness-raising campaigns and pilot projects fall into this category.

Figure 2.4 Distribution of policy instruments for the measures in Annex IV of the Waste Framework Directive



Sources: Annex 1; EEA, 2014.

Regulatory instruments account for about 17 % of policy instruments. Typically, regulatory instruments set binding standards and norms.

Economic instruments represent around 16 % of all analysed policy instruments. These include tax incentives, green public procurement and direct subventions.

Voluntary agreements are the least represented category with about 7 % in the total mix ([10]). Nevertheless, voluntary agreements with clear and measurable targets, mainly initiated by business associations, seem to be a preferred instrument in some countries and regions; in particular in Italy, Lithuania, Luxembourg, Norway, Spain and Wales.

The shares differ significantly across the 16 categories (Box 2.4; Annex 9). As shown in Figure 2.5, some of these categories have a clear focus on one of the policy instruments — often due to the nature of the category, for example, category 13 on eco-labels — for others, countries have chosen very different types of instrument.

Policy mixes in the countries

The comparison of policy mixes shows significant differences in the approach to preventing waste generation:

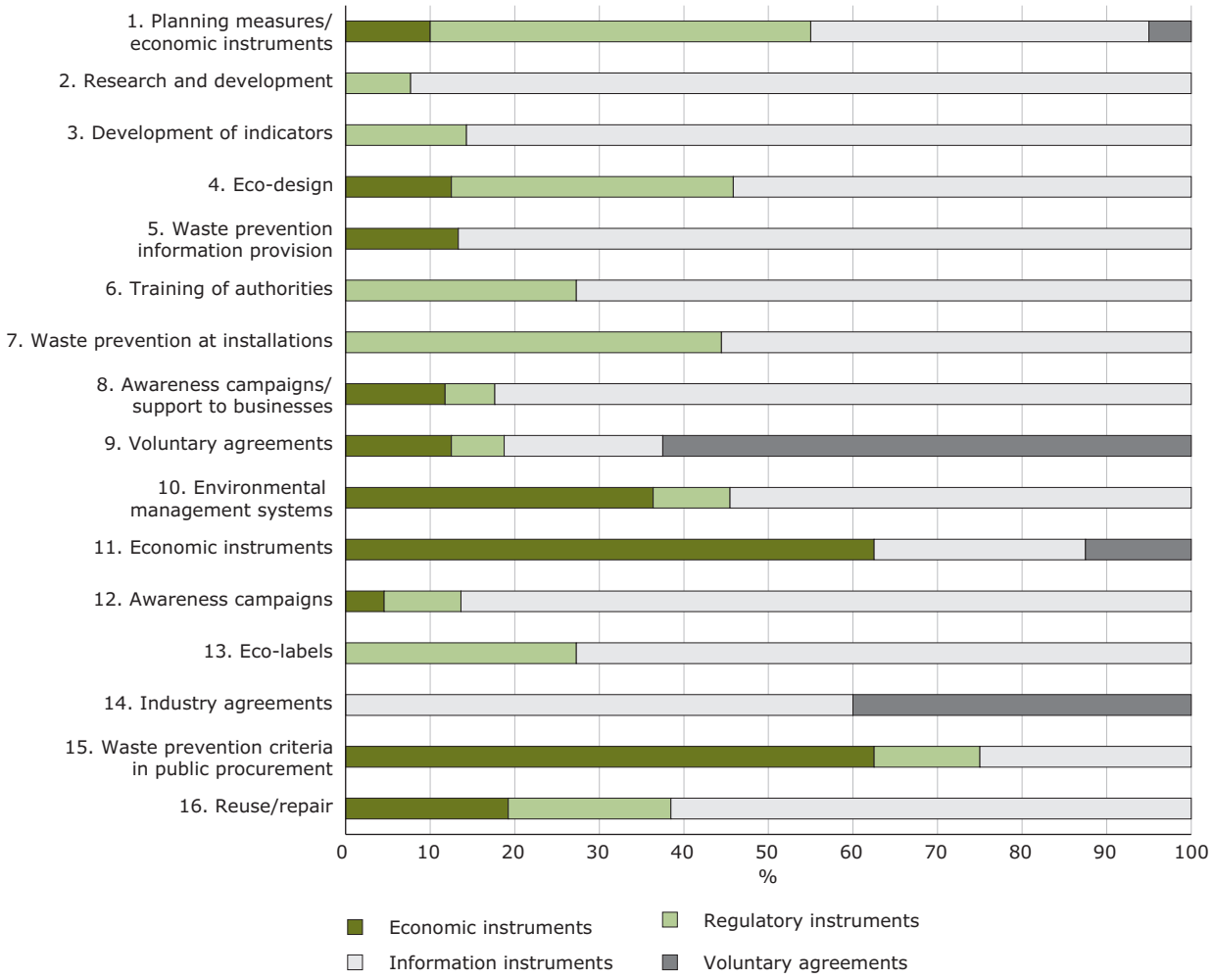
- some countries/regions, such as Brussels, Ireland and Sweden, focus on information incentives that highlight cost savings or influence consumption patterns;
- other countries/regions, including England, Finland and Italy, have chosen a mix of instruments combining economic, regulatory and information instruments with voluntary agreements.

Good practice examples

Table 2.5 provides examples of good practice for all 16 categories in Annex IV of the Waste Framework Directive. The examples were selected by the authors in cooperation with Eionet countries. The page numbers refer to the specific national waste prevention programmes; in some cases additional information is given based on publicly available information.

([10]) In some countries, more than one example of such voluntary agreements exist, so the absolute number of voluntary agreements could be higher.

Figure 2.5 Policy instruments by category indicated by the measures in Annex IV of the Waste Framework Directive, based on authors' interpretation



Note: Category 11 includes measures like the introduction of charges for carrier bags based on a voluntary agreement in Scotland.

Sources: Annex 1; EEA, 2014.

Prevention measures beyond the Waste Framework Directive, Annex IV

Several measures go beyond Annex IV of the Waste Framework Directive, such as the clarification of responsibilities and funding of waste advisory services or the support of waste prevention and resource efficiency activities beyond national borders. A number of countries/regions such as Austria, Finland, Germany Hungary, Ireland, Italy, Lithuania, Malta, the Netherlands, Spain and Wales include specific waste prevention measures in their programmes. Examples of such measures ([11]) include:

- development of packages for reuse organisations in Austria (p. 236);
- support for the recently established international natural resource panel in Finland (p. 13);
- stakeholder consultations on the implementation of the waste prevention programme, including a conference on this topic in Germany;
- promotion of the use of lower-quality food for charitable purposes in Hungary (p. 260–261).

([11]) The page number(s) in brackets refer to the national waste prevention programmes listed in Annex 1.

Table 2.5 Good practice examples according to Annex IV of the Waste Framework Directive

Measure	Example(s)
Measures that can affect the framework conditions related to waste generation	
1. The use of planning measures, or other economic instruments promoting the efficient use of resources.	**Austria: 'Building material passes'** The Austrian waste prevention programme contains a bundle of measures related to 'building material passes' as a planning instrument to support repair, reuse and high-quality recycling in the construction sector. The plan is to develop standards for these building passes and to incorporate core information into the central building register run by Statistics Austria. In the future, the details of the material composition and the contents of potentially hazardous substances will be recorded (p. 230). **Slovakia: Producer responsibility for promotion materials** In Slovakia an amendment to the Act on Advertising will be prepared to reduce the amount of waste from promotional materials by prohibiting the delivery of materials other than to designated mailboxes. It also sets additional incentives by placing economic responsibility on companies for the collection and handling of their own advertising materials when they become waste (p. 43–44).
2. The promotion of research and development into cleaner and less wasteful products and technologies and the dissemination and use of the results.	**Hungary: Coordinating body for prevention of construction and demolition waste** After a significant increase of construction and demolition waste over the last 10 years in combination with a rather low recycling rate, the Hungarian waste prevention programme will create a coordinating body for the prevention of construction and demolition waste. The main purpose of this new institution will be to support research and development activities in the field and to exploit synergies between the different ongoing research projects more efficiently (p. 253).
3. The development of effective and meaningful indicators of the environmental pressures associated with the generation of waste aimed at contributing to its prevention at all levels, from product comparisons at Community level through action by local authorities to national measures.	**Norway: Food waste indicators** Based on statistical data, generated over several years by the research project ForMat, the Norwegian waste prevention programme announced the development of indicators for food waste by the environmental and statistical authorities. These will relate to official waste accounts and will be reported annually. Retailers and the food industry will also contribute to the initiative (p. 37).
Measures that can affect the design, production and distribution phase	
4. The promotion of eco-design (the systematic integration of environmental aspects into product design with the aim of improving the environmental performance of the product throughout its life cycle).	**Finland: Environmental classification system for buildings** In Finland, the waste prevention programme promotes aspects of waste prevention and material efficiency in the construction phase of new buildings by applying an environmental classification system. The aim is to put an increased emphasis on building convertibility, durability of structures, prevention of water and module damage, and the updatability of building automation when designing, constructing and supervising buildings (p. 14). **Portugal: Minimising packaging design** Portugal is promoting the development and use of minimalist design for packaging with a special focus on ensuring reusable or recyclable characteristics. It also supports the availability of family- or retail-size packed products and the replacement of one-way packaging with reusable alternatives — for example, take-away meals in reusable packaging (p. 76).

Table 2.5 Good practice examples according to Annex IV of the Waste Framework Directive (cont.)

Measure	Example(s)
5. The provision of information on waste prevention techniques with a view to facilitating implementation of best available techniques by industry.	**Scotland *: Resource Efficient Scotland** This programme brings together expertise on managing energy, water and materials costs. The new service makes it easier for businesses and organisations to access practical, on-the-ground support to cut waste and use resources more efficiently, making savings and improving competitiveness. Its comprehensive advice and support service includes a helpline, web-based tools, training materials, workshops and one-to-one on-site support. Alongside this core service, Resource Efficient Scotland provides sector-focused activities targeting the biggest potential savings. It aims to help public bodies, including the Scottish Government, lead by example on resource efficiency (p. 13). **Luxembourg: *SuperDrecksKëscht*** *SuperDrecksKëscht* is a brand for building sites that was developed as part of Luxembourg's waste management strategy. It is the responsibility of *SuperDrecksKëscht* to use and implement the newest know-how to introduce high-quality sustainable resource management in both the ecological and economic sense. In order to obtain the label, a general agreement has to be signed between the client, who can be an owner, building site manager or building contractor, and *SuperDrecksKëscht* (p. 334).
6. Organise training of competent authorities on the waste prevention requirements in permits under the Waste Framework Directive and Directive 96/61/EC.	**Latvia: Waste prevention by permit regulations for polluting activities** In Latvia, the Regulation for Polluting Industrial Activities (CM 30.11.2010. Nr. 1082 of 'Procedure for A, B and C categories of polluting activities') requires inclusion of waste prevention in permits for industrial facilities. Specifically, a description of the intended measures for the prevention or reduction of waste caused by the industrial facility needs to be delivered. Latvia intends to continue the application of these regulatory requirements and to train the competent authorities (p. 122).
7. The inclusion of measures to prevent waste production at installations not falling under Directive 96/61/EC.	**Ireland: Capacity development for waste prevention** The Local Authority Prevention Network (LAPN) in Ireland aims to develop capacity in prevention in all local authorities to assist commercial and community initiatives. A key output from the programme is a fully searchable online catalogue (http://repository.localprevention.ie/) drawing together, amongst others, all waste prevention/resource efficiency tools, techniques, materials, templates and case studies developed by the Local Authority Prevention Demonstration (LAPD)/LAPN and an associated toolkit to assist any local authority looking to implement waste prevention initiatives (p. 13).
8. The use of awareness campaigns or the provision of financial, decision-making or other support to businesses. Such measures are likely to be particularly effective where they are aimed at, and adapted to, small and medium-sized enterprises and work through established business networks.	**Lithuania: Product of the year** Every year, the Confederation of Lithuania Industrialists, which includes the strongest industrial companies of the country, runs a Product of the Year competition. The Lithuania waste prevention programme now includes requirements for waste prevention in the selection process for Product of the Year. Additionally, in order to raise public awareness, a competition with an attractive prize will be set up for outstanding achievement in the field of waste prevention (p. 3). **The Netherlands: Tax incentives for green investments** In the Netherlands, the Random Depreciation of Environmental Investments (VAMIL) and the Environmental Investment Allowance (MIA) (http://ec.europa.eu/environment/sme/pdf/vamil_mia_en.pdf) are two ways in which companies purchasing new environmental technologies can reduce their overall cost. VAMIL facilitates the affordability of an environmental technology by allowing the purchaser to determine the rate of depreciation. The use of the MIA incentive is a pure tax deduction tool, allowing a partial write-off of an investment in environmental technology. The Environmental Technologies List is the key supporting document for these measures and includes a series of waste prevention aspects (p. 19).

Table 2.5 Good practice examples according to Annex IV of the Waste Framework Directive (cont.)

Measure	Example(s)
9. The use of voluntary agreements, consumer/ producer panels or sectoral negotiations in order for the relevant businesses or industrial sectors to set their own waste prevention plans or objectives or to correct wasteful products or packaging.	**Spain: Voluntary agreements on waste prevention** The Spanish waste prevention programme has a clear focus on voluntary agreements. It aims to promote them in a variety of different sectors, for example to prevent food losses during the production and distribution phases of the supply chain, use of reusable industrial packaging and to promote the reduction of the consumption of single-use bags. Furthermore, voluntary agreements are developed to apply the best available technology oriented towards the substitution of harmful substances in the chemical industry and to accelerate the substitution of heavy metals and other toxic substances in vehicles, tyres and batteries, as well as to give encouragement to the eco-design of WEEE to facilitate repair and extension of product life (p. 28–31).
10. The promotion of creditable environmental management systems, including EMAS and ISO 14001.	**Brussels *: Labels for ecodynamic companies** As part of the waste prevention programme in Brussels, the Ecodynamic Company label is official recognition of good environmental management practices of public and private Brussels companies. It rewards their environmental dynamism and progress in waste management, energy consumption and the rational use of raw materials. It also encourages the introduction of an environmental management system — the EMAS or ISO 14001. The label has a 3-star rating, depending on the level of environmental performance within the organisation.
Measures that can affect the consumption and use phase	
11. Economic instruments such as incentives for clean purchases or the institution of obligatory payment by consumers for articles or elements of packaging that would otherwise be provided free of charge.	**Scotland *: Charge on single-use carrier bags** Facing a use of 750 million bags per year, the Scottish Government introduced legislation that requires all retailers to charge a minimum requirement of 5 p for each single-use carrier bag, including those made of paper and plant-based materials, from 20 October 2014. The requirement to charge applies for in-store or online shopping where goods are sold in or delivered to Scotland. Zero Waste Scotland (http://www.zerowastescotland.org.uk/carrierbagchargescotland) published a retailer guidance document that provides a detailed explanation of single-use carrier bags; exemptions are based on, for example, size or product type sold, including pharmaceutical drugs and raw meat.
12. The use of awareness campaigns and information provision directed at the general public or a specific set of consumers.	**Sweden: Living Life project** Based on the Swedish waste prevention programme, a feasibility study will investigate the possibilities scaling the *Leva Livet* (Living Life) project. In 2010, the *Leva Livet* project in Gothenburg challenged eight families to try out a new, more pleasurable green lifestyle for one year, helped by coaching from municipal experts. As far as wastes were concerned, the families reduced their food waste by a quarter, newspaper waste by a tenth and regular waste by approximately 40 %. A central objective was to learn how to introduce sustainable living to ordinary people (p. 26).
13. The promotion of creditable eco-labels.	**Poland: Eco-labelling for packaging** The Polish waste prevention programme is supporting the development and implementation of an eco-labelling scheme for packaging that allows consumers to identify products that meet ecological criteria, including performance criteria and restrictions on the use of hazardous substances in packaging. The underlying rationale is to provide consumers with information on waste prevention when making a purchase (p. 37).
14. Agreements with industry, such as the use of product panels like those being carried out within the framework of Integrated Product Policies or with retailers on the availability of waste prevention information and products with a lower environmental impact.	**Wales *: Agreement on the use of recycled materials in buildings** The Welsh Government will encourage designers/architects to design for the end-of-life of buildings. This will ensure that materials used in the construction contain a high percentage of recycled materials and that throughout the life of the building the materials can be either reused or recycled. This agreement aims to raise awareness of the importance of the end-of-life of buildings and to create a market for material-efficient constructions and recycled materials and products (p. 52).

Table 2.5 Good practice examples according to Annex IV of the Waste Framework Directive (cont.)

Measure	Example(s)
15. In the context of public and corporate procurement, the integration of environmental and waste prevention criteria into calls for tenders and contracts.	**Germany: Guideline development for green public procurement** The competence centre for sustainable procurement of the German Ministry for the Economy will develop practical guidelines to integrate resource efficiency and waste prevention into public procurement regulations (p. 31). **Italy: Targets for green public procurement** The Italian National Action Plan for Green Public Procurement, which was adopted in 2008 and updated in 2013, includes the objective for green procurement to make up more than 50 % of total procurements of any type (p. 15).
16. The promotion of the reuse and/or repair of appropriate discarded products or of their components, notably through the use of educational, economic, logistic or other measures, such as support to or establishment of accredited repair and reuse centres and networks especially in densely populated regions.	**England *: Pilot action for leasing and hiring schemes** The English waste prevention programme includes several research trials of take-back for resale and leasing/hiring schemes. A support scheme for communities will be set up to promote innovative waste prevention, reuse and repair actions. As a specific tool, a postcode locator will be developed to enable households to find their local reuse and repair service (p. 6 and p. 23).

Note: * Refers to region.

The page number(s) in brackets refer to the national waste prevention programmes listed in Annex 1.

Sources: Annex 1; EEA, 2014.

3 Key findings and prospects

3.1 Key findings

In terms of **general findings**, the review found the following.

- Twenty waste prevention programmes were adopted by the end of 2013, covering 18 countries.
- Twelve programmes are dedicated stand-alone documents, whereas the remaining eight are integrated into waste management plans. However, the stand-alone programmes are often linked to other non-waste–related national policies and strategies.
- The duration of programmes varies. Seven programmes are of unlimited duration, whereas 13 programmes range from 4 to 11 years.
- Half the programmes explicitly include requirements for evaluation, at least every sixth year as required by the Waste Framework Directive. Six out of 20 programmes have, in addition, requirements for regular progress reports (annual or biennial).
- Most programmes stress that cooperation with all stakeholders and actors in the value chain is a precondition of success. The programmes, however, have different levels of stakeholder involvement — nine describe how stakeholders have been involved in the programme's development, in addition to public consultation. 18 programmes describe, in general terms, how stakeholders will be involved in their implementation.
- Only four programmes specify a budget or financial schemes for the waste prevention measures.

Waste prevention objectives are formulated in different ways. Half the programmes have as their overall objective breaking the link between economic growth and environmental impacts. Eight of the programmes include the reduction of harmful substances as part of their overall objectives. Other objectives include the creation of jobs and new business models.

Most countries/regions claim to have laid out how their programmes will break the link between economic growth and the environmental impacts, but the actions to be taken are not always clear.

Waste prevention coverage (scope) in terms of sectors and waste types varies across the programmes. All programmes cover household and public services sectors, whereas the agriculture, and mining and raw material sectors are only included in eight and six programmes, respectively. Waste types such as municipal/household, food, construction and demolition, packaging and hazardous wastes as well as WEEE are largely covered by the programmes, although a number of programmes have focused their measures on fewer sectors or waste types.

Quantitative waste prevention targets are included in eleven of the waste prevention programmes. The targets range from those linked to total waste to more specific targets linked to specific sectors or waste types, and are either expressed as waste generation in absolute terms, or per person or as waste intensity. Some countries show caution in defining quantitative waste prevention targets, indicating the importance of having reliable base-year data and an indicator framework. Targets on qualitative waste prevention were not covered by this review.

Waste prevention indicators figure in 17 programmes as a means of tracking progress on objectives and targets, and ultimately effectiveness. Comparing the specific indicators chosen by the countries/regions with the objectives mentioned in the programmes, it emerges that only a few countries/regions have all objectives covered by indicators — Latvia, Portugal, the Netherlands, Spain, Scotland and Wales. So far, Brussels and Luxembourg have set waste prevention targets,

but no indicators to monitor them; while Austria, Germany, Hungary, Lithuania and Poland have set indicators, but no targets. Slovakia has set targets regarding the decrease of landfilled biodegradable municipal waste ([12]), while indicators are only proposed with regard to total waste generation.

Monitoring systems for waste prevention targets and indicators are included in seven programmes. In some cases, monitoring systems are not mentioned specifically in the programmes, but exist in other documents.

More than 300 **waste prevention measures** (according to Annex IV of the Waste Framework Directive) were found in the programmes. The majority of these measures are related to the design, production and distribution phase, followed by the consumption and use phase.

An analysis of the measures with regard to their classification as **policy instruments** shows that the vast majority are concerned with, among other issues, the provision of information, education and awareness raising.

Nevertheless, the choice of policy mixes differs significantly between the countries. Some have a clear focus on information instruments; while others have chosen a mix of information, administrative and economic instruments, sometimes in combination with voluntary agreements.

3.2 Prospects

Decoupling economic growth from waste generation is the main objective of recent waste policies across Europe. Overall for 2004–2012, EU-28 Member States have reduced their waste generation by 6 % in absolute terms and by 8 % per person, and the share of hazardous waste in total waste, 4 % in 2012, is slowly increasing.

Although the importance of waste prevention has been acknowledged, the majority of EU Member States lacked effective waste prevention measures. It seems that the cross-cutting character of waste prevention imply the need to address design, production and consumption aspects that go beyond the typical competencies of public authorities have hampered the establishment of national (and in some cases, regional) policies. The inclusion to the Waste Framework Directive of an obligation for Member States to adopt waste prevention programmes has led to a perceptible shift towards prevention; it is revealing that in most Member States, waste prevention programmes have been adopted some months before or after the deadline established by the Waste Framework Directive (end of 2013). This drive has been strengthened by the recent European Commission Communication *Towards a circular economy: A zero waste programme for Europe* and related proposals to strengthen, inter alia, the Waste Framework Directive, which have both prioritised the prevention of food waste, proposing the development of national food waste strategies and the introduction of a non-binding target for the reduction of food waste of at least 30 % by 2025.

The waste prevention review process is still in its infancy and is expected to increase in its intensity and complexity over the coming years. The purpose of the review process is to:

- feed into the evolving EU and national/regional policies and strategies linked to waste prevention and resource efficiency, and to support careful design of waste prevention policies, including targets and indicators;
- support cooperation efforts between a broad range of national and international actors, including Eionet, and across multiple sectors, in order to strengthen the European knowledge base on waste prevention;
- support the European Commission in evaluating progress achieved in the implementation of the waste prevention programmes (Article 30 and 37 of the Waste Framework Directive), based on Member States' triennial reports on the implementation of the Directive ([13]);
- provide inputs to the EEA reports and assessments.

The **future waste prevention reviews** are expected to advance to make links between trends in waste generation and its key socio-economic drivers

([12]) This is an indirect measure and the (home) composting is a recycling operation, hence home composting is not a genuine prevention measure although it has environmental benefits.

([13]) In the legislative proposal on the review of waste targets (EU, 2014), the European Commission has proposed to abolish the triennial reporting on implementation.

with waste prevention objectives; in addition to following country/regional-wide implementation efforts by waste type or waste-generating sector. Future reviews may also focus on specific areas, providing more detailed analysis for selected waste types, sectors or measures. The example is the food waste for which an overall reduction target has been proposed. The long-term review process may also look at the specific waste prevention niches with innovative approaches to waste prevention.

Such an approach would benefit from the involvement of a large number of waste prevention **stakeholders and actors**, from policymakers at European and national/regional levels to the public and private sectors, civil society, academia and EEA Eionet partners that might have active roles in the process. That would allow access to up-to-date and accurate information on waste prevention, and would contribute to overcoming language barriers. The review process, however, is not intended to evaluate the effectiveness of the measures set by waste prevention programmes.

Such a complex process is not without **challenges**. There are two main issues that could hinder this process:

- the availability and quality of waste data;
- the lag between data availability and waste prevention implementation dynamics.

Monitoring and evaluation of the quantitative targets for waste prevention rely on easily accessible, accurate and reliable base-year data and indicators. In other words, in the absence of these, it will be difficult to track progress. Indicators for analysing progress towards waste prevention objectives as well as the effectiveness of specific measures can be a central research area to support efforts to move up the waste hierarchy. The development of adequate indicators also requires consideration of what amount of waste that would have been generated without the measure. This is challenging as it is linked to complex structures, dependencies and interrelations such as production systems and consumption patterns.

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Annex 1 Status of the waste prevention programmes in Europe as of 1 November 2014

Country/region	Programme adopted by 1 November 2014	Title and link to the programme If programme is not ready, status of the programme
Austria	Yes	Abfallvermeidungsprogramm (http://www.bundesabfallwirtschaftsplan.at/dms/bawp/vermeidungsprogramm/BAWP_Band-1_Kap-6-1-/BAWP_Band%201_Kap%206%5B1%5D.pdf) Waste prevention programme (chapter 6 of the Federal Waste Management Plan 2011) (http://www.bundesabfallwirtschaftsplan.at/dms/bawp/BAWP_Band_1_EN.pdf)
Belgium		
Brussels *	Yes	Plan de Prévention et de Gestion des Déchets (http://documentation.bruxellesenvironnement.be/documents/Plandechets_2010_FR.PDF) Plan voor de preventie en het beheer van afvalstoffen (http://documentatie.leefmilieubrussel.be/documents/AfvalPlan_2010_NL.PDF) Waste Prevention and Management (non-official English translation) (http://www.bruxellesenvironnement.be/uploadedFiles/Contenu_du_site/Professionnels/Formations_et_séminaires/Conférence_Pre-waste_2011_(actes)/w-brusselsenvironment-wasteplanEN.pdf?langtype=2060)
Flanders *	No	Under development
Wallonia *	No	Drafted in 2012 and currently under political discussion.
Bulgaria	No	No information.
Croatia	Special Agreement with the European Commission	New waste management plan that will include the waste prevention programme will be prepared no later than 2016.
Cyprus	No	Public consultations were finalised on 23 December 2013. Adoption is expected in 2014.
Czech Republic	Yes	Program Předcházení Vzniku Odpadů ČR (http://www.mzp.cz/c1257458002f0dc7/cz/predchazeni_vzniku_odpadu_navrh/$file/oodp-ppvo-2014_10_27.pdf)
Denmark	No	Under development; to be delivered in 2014
Estonia	Yes	Jäätmetekke vältimise programm 2014-2020 (https://www.osale.ee/konsultatsioonid/files/consult/256_Lisa%203%20Jaatmetekke%20valtimise%20programm.pdf)
Finland	Yes	Kohti kierrätysyhteiskuntaa. Valtakunnallinen jätesuunnitelma vuoteen 2016 (http://www.ym.fi/fi-FI/Ymparisto/Jatteet/Valtakunnallinen_jatesuunnitelma) Mot ett återvinningssamhälle Riksomfattande avfallsplan fram till år 2016 (http://www.ym.fi/sv-FI/Miljo/Avfall/Den_riksomfattande_avfallsplanen) Towards a recycling society. The National Waste Plan for 2016 (http://www.ym.fi/en-US/The_environment/Waste/The_National_Waste_Plan)
France	Yes	Programme national de prévention des déchets 2014-2020 (http://www.developpement-durable.gouv.fr/IMG/pdf/Programme_national_prevention_dechets_2014-2020.pdf)
Germany	Yes	Abfallvermeidungsprogramm des Bundes unter Beteiligung der Länder (http://www.bmu.de/fileadmin/Daten_BMU/Download_PDF/Wasser_Abfall_Boden/Abfallwirtschaft/abfallvermeidungsprogramm_bf.pdf)
Greece	No	The waste prevention programme is under development. Adoption is expected in 2014.
Hungary	Yes	Országos Megelőzési Program (Országos Hulladékgazdálkodási Terv 2014–2020) (http://www.szelektivinfo.hu/iparfejlesztes/uj-uton-a-hazai-hulladekgazdalkodas/az-orszagos-hulladekgazdalkodasi-terv-es-az-orszagos-megelozesi-program)

Country/region	Programme adopted by 1 November 2014	Title and link to the programme If programme is not ready, status of the programme
Iceland	No	The waste prevention programme is expected in 2015. Implementation of the Waste Framework Directive is in process.
Ireland	Yes	National Waste Prevention Programme — Prevention Plan 2009–2012 (http://www.epa.ie/waste/nwpp)
Italy	Yes	Programma Nazionale di Prevenzione dei Rifiuti (http://www.minambiente.it/sites/default/files/archivio/normativa/dm_07_10_2013_programma.pdf)
Latvia	Yes	Atkritumu apsaimniekošanas valsts plans 2013.–2020.gadam (http://polsis.mk.gov.lv/view.do?id=4276)
Liechtenstein	No	No information.
Lithuania	Yes	Dėl Valstybinės Atliekų Prevencijos programos Patvirtinimo (http://www.litlex.lt/scripts/sarasas2.dll?Tekstas=1&Id=173128)
Luxembourg	Yes	Plan général de gestion des déchets (http://www.environnement.public.lu/dechets/dossiers/pggd/pggd_plan_general.pdf)
Malta	Yes	Waste Management Plan for the Maltese Islands — A Resource Management Approach, 2014-2020 (http://msdec.gov.mt/en/Document%20Repository/Waste%20Management%20Plan%202014%20-%202020%20-%20Final%20Document.pdf)
Netherlands	Yes	Afvalpreventieprogramnd (http://www.lap2.nl/sn_documents/downloads/07%20Afvalpreventieprogramma/Afvalpreventieprogramma%20NL%20final%202013.pdf)
Norway	Yes	Forebygging av avfall (Chapter 4 in the waste management plan Fra avfall til ressurs) (http://www.regjeringen.no/pages/38416619/T-1531_web.pdf)
Poland	Yes	Krajowy plan gospodarki odpadami 2014 (Kpgo 2014) (http://monitorpolski.gov.pl/mp/2010/s/101/1183/1) National Waste Management Plan 2014 (http://www.mos.gov.pl/artykul/3340_krajowy_plan_gospodarki_odpadami_2014/21693_national_waste_management_plan_2014.html) National Waste Prevention Programme (was adopted by the Council of Ministers on 26 June 2014 as separate document) (http://www.mos.gov.pl/g2/big/2014_10/a400f6bb998e8fbc1bc8451fe5c41b11.pdf)
Portugal	Yes	Urban Waste Prevention Program - Programa de Prevenção de Resíduos Urbanos (http://www.apambiente.pt/index.php?ref=16&subref=84&sub2ref=106&sub3ref=268) (Click Anexos in bottom left corner)
Romania	No	Romania will start a project to develop a waste prevention programme in 2014.
Slovakia	Yes	Program predchádzania vzniku odpadu SR na roky 2014 – 2018 (http://www.minzp.sk/sekcie/temy-oblasti/odpady-obaly/program-predchadzania-vzniku-odpadu)
Slovenia	No	The waste prevention programme is under development. Adoption is planned for 2014.
Spain	Yes	Programa estatal de prevencion de residuos 2014-2020 (http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/planes-y-estrategias/Programa_de_prevencion_aprobado_actualizado_ANFABRA_11_02_2014_tcm7-310254.pdf)
Sweden	Yes	Tillsammans vinner vi på ett giftfritt och resurseffektivt samhälle — Sveriges program för att förebygga avfall 2014–2017 (http://www.naturvardsverket.se/Miljoarbete-i-samhallet/Miljoarbete-i-Sverige/Uppdelat-efter-omrade/Avfall/Avfallsforebyggande-program)
United Kingdom		
England *	Yes	Prevention is better than cure — The role of waste prevention in moving to a more resource efficient economy (https://www.gov.uk/government/publications/waste-prevention-programme-for-england)
Northern Ireland *	Yes	The waste prevention programme for Northern Ireland — the road to zero waste (http://www.doeni.gov.uk/waste_prevention_programme_for_ni_2014-2.pdf)
Scotland *	Yes	Zero Waste: Safeguarding Scotland´s Resources: Blueprint for a more resource efficient and circular economy (http://www.scotland.gov.uk/Publications/2013/10/6262)
Wales *	Yes	Towards Zero Waste One Wales: One Planet The Waste Prevention Programme for Wales (http://wales.gov.uk/topics/environmentcountryside/epq/waste_recycling/prevention/waste-prevention-programme/?lang=en)

Note: * Refers to region.

☐ The 20 waste prevention programmes that are the subject of this review.

Annex 2 Abstract template for the waste prevention programmes

An abstract template was developed by a team of experts in the European Topic Centre on Sustainable Consumption and Production (ETC/SCP), and used for this review of the national/regional waste prevention programmes.

An abstract was drafted based on the national or regional waste prevention programme, then was consulted and approved by waste prevention experts from and beyond the Eionet National Reference Centres (NRCs). Upon finalisation of the process, the abstract was uploaded to the designated publicly available EEA website (EEA, 2014).

Template abstracts version 2014

Draft for template of abstract: The abstract is for the waste prevention programme and, therefore, has to be written using the national waste prevention programme document ONLY. If other sources are relevant please note them and make comments under 'other comments', i.e. ongoing activities.

Please make a reference to page number in the waste prevention programme in the template.

Country/region	
1. Coverage	□ National □ Regional If regional name of region: ……..
2. Type of programme	□ Separate programme □ Part of waste management plan □ Part of other environmental policy programmes
3. Title of programme and link to programme	
4. Duration of programme	
5. Language	
6. Contact person in the country/region	
7. Waste prevention objectives of the programme *Remember page number*	[Objective: something that one's efforts or actions are intended to attain or accomplish. For difference in the definition between objective and target see below. Objectives/aims/goals]
8. The means used to break the link between economic growth and the environmental impacts associated with the generation of waste. *Remember page number*	Are the measures/means specifically mentioned in the WPP? Yes/no If yes, please indicate the main elements

Country/region	
9. Sectors covered	[Please mark the sectors covered with 'X'. Sectors specifically mentioned in the programme] Agriculture Mining, raw material processing Construction and infrastructures Manufacturing Sale, retail, transport Households Private service activities/Hospitality Public Services
10. Prevention of waste types	[Please mark the types covered with 'X'. Waste types specifically mentioned in the programme] Food/organic Construction and demolition waste Hazardous waste Household/municipal waste Paper Packaging WEEE/batteries Manufacturing waste Bulky waste Other
11. Quantitative targets *Remember page number*	[Target — a detailed performance requirement, which arises from the objectives and that needs to be set and met in order to achieve those objectives. For difference between objective and target see below] [Please include specific sectors/waste types]
12. Measures on quantitative prevention *Remember page number*	[Measures that relate mainly to part a) of the definition of waste prevention. **Waste prevention** is defined in Article 3 (12) (2008/98/EC) as follows: '…'prevention' means measures taken before a substance, material or product has become waste that reduce: a) the quantity of waste, including through the re-use of products or the extension of the life span of products; b) the adverse impacts of the generated waste on the environment and human health; or c) the content of harmful substances in materials and products'.] [Please include specific sectors/waste types]
13. Measures on qualitative prevention *Remember page number*	[Measures that relate mainly to parts b) and c) of the definition of waste prevention. **Waste prevention** is defined in Article 3 (12) (2008/98/EC) as follows: '…'prevention' means measures taken before a substance, material or product has become waste that reduce: a) the quantity of waste, including through the re-use of products or the extension of the life span of products; b) the adverse impacts of the generated waste on the environment and human health; or c) the content of harmful substances in materials and products'. **Qualitative prevention** is defined as follows: 'Reducing the hazardous content of waste, rather than impacting the total volume of waste, is considered as qualitative waste prevention and contributes to reducing human and environmental exposure to hazardous materials' (European Commission, 2012, Preparing a Waste Prevention Programme — Guidance document). Specific sectors/waste types]

Country/region	
14. Prevention measure covered according to 98/2008 Annex IV (1–16) *Remember page number*	[For example: 1, text explaining the initiative xxxxxxxxxxx 6, xxxxxxxxxx 10, xxxxxxxxxxx Please specify the sectors and/or the waste types included in the initiative]
15. Other prevention measures not covered by Annex IV *Remember page number*	
16. Indicators proposed *Remember page number*	Does the programme define indicators for waste prevention? Yes/no information. If yes, please specify. How are the indicators monitored?
17. Evaluation and monitoring of programme *Remember page number*	[Evaluation of programme in addition to the requirement for evaluation every 6th year (WDF Article 30)] Is the programme evaluated (midterm, etc.)? Yes/no information. If yes, please specify. How is the programme monitored?
18. Target groups *Remember page number*	
19. Involvement of stakeholders *Remember page number*	[Involvement of stakeholders in addition to a public consultation, which is obligatory] Does the WPP describe involvement of stakeholders in the development of the programme? Yes/no information. If yes, please specify. Does the WPP describe involvement of stakeholders in the implementation of the programme? Yes/no. If yes, please specify.
20. Other comments *Remember page number*	Cost of waste prevention measures. Are the costs/savings of waste prevention measures stated in the programme? Yes/no information. If yes, please specify. Other comments:
22. Author of abstract	

Difference between objective and target

As a part of developing and implementing an ISO 14001 Environmental Management System, a facility will set objectives and targets. This process can be difficult without a clear understanding of the difference between the two, as defined in the standard. They are defined as follows:

- environmental objective — an overall environmental goal, consistent with the environmental policy, that an organisation sets itself;
- environmental target — a detailed performance requirement, applicable to the organisation or parts thereof, that arises from environmental objectives and that needs to be set and met in order to achieve those objectives (ISO, 2008).

Annex 3 Key features of the waste prevention programmes

Country/region	Duration	Part of the waste management plan	Evaluation
Austria	2011–2017	Yes (Chapter 6, pp. 207–239)	Core waste indicators are determined annually. The evaluation of the waste prevention programme 2011 is scheduled for 2015/2016 as starting point for the design of the waste prevention programme 2017.
Belgium			
Brussels *	2010– intermediate duration	Yes (Main part of the Waste Management Plan)	2013 and reporting every second year (p. 60).
Finland	2008–2016	Yes (Aim I, pp. 11–15)	Interim report on implementation in 2010 and 2013.
Germany	2013–2018	No (Stand-alone)	No information available.
Hungary	2014–2020	Yes (Chapter 4, pp. 227–272)	No information on evaluation.
Ireland	2004– Work Plan 2009–2012	No (Stand-alone)	Every 4th year and annual reporting.
Italy	2013–2020	No (Stand-alone)	No information available.
Latvia	2013–2020	Yes (Chapter 6, pp. 85–87 and Appendix 5, pp. 116–128)	The Latvian Waste Management Plan shall be revised in 2017 (p. 88).
Lithuania	2014–2020	No (Stand-alone)	The effectiveness of the programmes will be evaluated biennially (even years).
Luxembourg	2010–	Yes (Integrated in different chapters)	No information available.
Netherlands	2014–	No (Stand-alone)	No information available.
Norway	2013–	Yes (Chapter 4, pp. 33–38)	No information available.
Poland	2011–2022 Revision no later than 2016	Yes (Integrated in different chapters)	Annual report on implementation of waste management plan (Chapter 8) (no specific report on waste prevention is foreseen).
Portugal	2010–2016	No (Stand-alone)	The progress of the programme will be monitored through annual reports (pp. 76–80)
Slovakia	2014–2018	No (Stand-alone)	Foreseen year for the evaluation is 2017 (pp. 48–49).

Country/region	Duration	Part of the waste management plan	Evaluation
Spain	2014–2020	No (Stand-alone)	The programme's results will be monitored biennially, with 2014 as the reference year. The information of the evaluation will be made available in the annual report that the Ministry of Agriculture, Food and Environment publishes, starting in 2014 (p. 37).
Sweden	2014–2017	No (Stand-alone)	A new programme will be developed in 2018 (p. 9).
United Kingdom			
England *	2013–	No (Stand-alone)	No information.
Scotland *	2013– (targets for 2017 and 2025)	No (Stand-alone)	No information on evaluation.
Wales *	2013–	No (Stand-alone)	No midterm evaluation is foreseen.

Note: * Refers to region.

The page number(s) in brackets refer to the national waste prevention programmes listed in Annex 1.

Sources: Annex 1; EEA, 2014.

Annex 4 Financial resources related to waste prevention

Country/region	Information available on the budgetary issues
Belgium	
Brussels *	In Appendix 1, the budget allocated for 2010–2013 (4 years) for total waste prevention is EUR 10.49 million, out of which EUR 5.45 million is allocated for the prevention of household waste.
Lithuania	Waste prevention measures with their preliminary costs, funding sources and implementation deadlines are given in the programme Annex (pp. 1–5).
Hungary	The programme sets out: • minimum financial resources needed for municipal waste management, including activities targeting increased re-use rates, are specified at HUF 155 billion (nearly EUR 0.5 billion); • for reducing landfilled biodegradable municipal waste to 35% of the total quantity in 1995 is specified as HUF 15 billion (approximately EUR 49 million); • minimum financial resources needed for increase the recycling rate of hazardous waste, to reduce pollutant emissions is specified at HUF 8 billion (approximately 26 million); • for the re-use of construction and demolition waste, the minimum financial resources needed are specified as HUF 7 billion (approximately EUR 23 million) (p. 205, 212, 216 and 217).
United Kingdom	
England *	The programme sets out a framework of support investments in waste prevention initiatives/measures, for example: • investment of up to GBP 5 million (EUR 6.3 million) in collaborative research and development in design innovation; • GBP 900 000 (EUR 1.1 million) for a programme of the Action Based Research pilots and trials of take-back and leasing/hiring schemes; • GBP 800 000 (EUR 1 million), for a 2-year scheme to support communities to take forward innovative waste prevention, reuse and repair action in their local areas, working in partnership with local businesses, authorities and civil society groups; • continuing support to the GBP 1.5 million (EUR 1.9 million) Waste Prevention Loan Fund.

Note: * Refers to region.

The page number(s) in brackets refer to the national waste prevention programmes listed in Annex 1.

Sources: Annex 1; EEA, 2014.

Annex 5 Waste prevention objectives

Country/region	Objective(s)
Austria	The objectives of the programme are aimed at: • decoupling economic growth from the environmental life-cycle effects of Austrian waste (including all upstream chains); • reducing emissions; • minimising the dissipation of hazardous waste; • reducing pollutants; • resource conservation, particularly with respect to raw materials and energy sources (p. 225).
Belgium	
Brussels *	The programme's objectives are to: • minimise food, paper and organic wastes, superfluous packaging and unnecessary purchasing; • pursue an ambitious sustainable purchasing policy; • promote re-use practices; • promote waste prevention and sustainable consumption in offices, shops, hotels, restaurants, cafes and schools; • aid businesses to better manage and reduce their waste; • develop an integrated eco-construction approach.
Finland	Objectives of the programme target: • improving material efficiency in the main product categories; • improving material efficiency in industry and mineral extraction; • extending the useful life of buildings; • private consumption with a focus on eco-efficient products and services, while the generation of household waste will be reduced; • use of certain hazardous chemicals that will be reduced and be replaced with less hazardous alternatives.
Germany	General objective is to decouple environmental impacts on humans and the environment from economic growth. It aims at the quantitative and qualitative prevention of waste if this leads to a reduction of negative impacts on humans and the environment (p. 19 and 22). In addition, the programme describes: • operative goals such as: - reduction of waste generation; - reduction of environmentally harmful impacts; - reduction and substitution of hazardous substances; • specific sub-goals like: - reduction of waste generation in relation to GDP, number of employees and population; - information and sensitisation of different target groups; - in-plant closed substance cycles, low-waste product design; - extending lifespan of products; - support of re-use of products; - increasing use intensity of products (pp. 20–21).

Country/region	Objective(s)
Hungary	The programme sets objectives to: • promote the efficient use of resources and decoupling from reasonable economic growth; • reduce material use and waste generation; • contribute to the realisation of a more efficient resource management; • promote the application of solutions that have the lowest impact on the environment during their life cycle; • promote job creation (p. 249).
Ireland	General objectives of the programme are set to break the link between economic growth and environmental impacts: • increase awareness of the environmental impact of excess consumption and waste; • reduce the use of material, water and energy resources in order to reduce waste generation; • increase the diversion of biodegradable municipal waste from landfills; • reduce the use of hazardous substances and the generation of hazardous waste; • take the principles of resource efficiency and waste prevention into account in the design and implementation of all projects under the programme's operational heading; • bring about measurable improvements in resource efficiency and waste generation at organisational and sectoral levels; • generate case studies to actively demonstrate the opportunities and cost savings possible from resource efficiency and waste prevention; • promote the important role of resource efficiency in a green economy and green growth opportunities; • disseminate the principles of resource efficiency and waste prevention throughout the public and private sectors to encourage uptake of best practice in relation to internal practices and influence on the public and clients.
Italy	The programme sets objectives aimed at decoupling economic growth from the environmental impacts generated by waste (p. 7).
Latvia	The objectives of the programme are to: • break the link between economic growth and waste generation and the associated impacts on the environment; • reduce the volumes of waste by promoting product re-use or extended use; • reduce the hazardous quantities used in the production of materials and products (p. 85).
Lithuania	The aim of the programme is to provide an analysis of the current state of waste prevention, including identification of priority waste types, objectives, tasks and measures for their implementation. As a result, in accordance with the waste hierarchy, the highest priority has to be given to waste prevention, promoting sustainable consumption, and a responsible use of materials and resources (p. 1). Waste prevention objectives are set to: • avoid the generation of waste; • reduce the amount of generated but not recovered waste; • reduce the amount of harmful substances in materials and products; • re-use products or to extend the lifespan of products (p. 6). Objectives of the 2014–2020 programme are to: • achieve, in a growing economy, a slower increase of waste generation from manufacturing, construction and other sectors, and that the amount of waste generated does not exceed the average of EU Member States; • achieve, in a growing economy, a slower increase of municipal waste generation, including packaging, WEEE and biodegradable waste, and that the amount of municipal waste does not exceed the average of EU Member States (p. 6).
Luxembourg	The aim of the programme is to guide consumers towards product longevity or multiple use (p. 29).

Country/region	Objective(s)
Netherlands	The programme sets a shift towards a circular economy, which handles natural resources as efficiently as possible and ensures the lowest possible environmental impacts. The circular economy entails: • optimal use of resources; • no waste, and no emissions; • sustainable resource use (p. 8–9). Three forms of practical action are proposed: • better design — less material use, fewer harmful substances, more recycled material, longer life; • less waste in the production phase — less material/material loss, fewer harmful substances, closed material cycles; • conscious consumption — increased awareness on prevention by informing and encouraging deliberate choices, less waste and more re-use (p. 10).
Norway	The programme objective aims at relative decoupling of economic growth and waste generation (p. 33).
Poland	One of the main objectives of the National Waste Management Plan 2014 is maintaining the trend of decoupling waste generation from economic growth, expressed by GDP.
Portugal	The aim of the programme, in broader terms, is to create conditions for articulation with the National Waste Management Plan and the implementation of the Waste Framework Directive, in particular Article 29. The aim is also to act progressively on the products consumed in order to reduce: • the intensity of natural resources used — material by waste prevention, re-use, recycling; energy through conservation and energy recovery — with consequent benefits in natural resource management, management of space, deflecting waste from landfill and the reduction of greenhouse gas emissions (CO_2, CH_4) associated with waste management; • the presence of hazardous substances (products, materials and waste) (p. 7651).
Slovakia	The main objective of the programme is a shift from material recovery, declared as a priority in the Waste Management Programme of the Slovak Republic in 2010, to waste prevention. This means that in 2018 waste management in Slovakia will be in line with the waste hierarchy as it is referred to in paragraph 3 of the amendment to the Law on Waste (Act No 223/2001 Coll. on waste and on amendment of certain acts, published in the Collection of Laws of the Slovak Republic) (p. 32). Unlike the Waste Management Programme, which sets out the quantitative and qualitative objectives in the areas of recycling and recovery of selected waste types, the Waste Prevention Programme is not only an instrument for planning objectives and defining measures, rather it is a process of continuous assessment of the effectiveness of measures taken (p. 31). There are several specific objectives, formulated in a very general manner with concrete measures to meet each objective, for specific waste types.
Spain	The main objective of the programme is to reduce the amount of waste produced by 10 % by 2020, expressed in tonnes, relative to 2010 and to contribute to reducing marine litter from terrestrial sources (p. 25). The programme emphasises four strategic outlines: • reduce the quantity of waste, increase re-use and extend product lifespan; • reduce the hazardousness of substances in products; • reduce environmental impacts; • reduce impacts on human health (p. 25). The implementation of environmental management systems in public administration and business should be a priority in adopting adequate prevention measures (p. 25–26).

Country/region	Objective(s)
Sweden	The aim of the programme is to guide and inspire Swedish stakeholders so that environmental goals are achieved, less waste is generated and products are hazardous-substance–free, irrespective of how much the economy grows (p. 8).
United Kingdom	
England *	The objectives of the programme are to: • encourage business to contribute to a more sustainable economy by building waste reduction into design, offering alternative business models, and delivering new and improved products and services; • encourage a culture of valuing resources by making it easier for people and businesses to find out how to reduce their waste, use products for longer, repair broken items and enable re-use by others; • help businesses recognise and act upon potential savings through better resource efficiency and preventing waste to realise opportunities for growth; • support action by central and local government, businesses and civil society to capitalise on these opportunities (p. 13). The aim of the programme is to improve the environment and protect human health by supporting a resource efficient economy, reducing the quantity and impact of waste produced while promoting sustainable economic growth (p. 13).
Scotland *	The objectives of the programme are to prevent waste, increase resource efficiency and enable a shift towards a more circular economy (p. 11). This overall aim will be supported by the following objectives: • helping businesses use resources more efficiently; • stimulating innovation and business opportunities in the re-use, refurbishment and remanufacturing sectors; • promoting sustainable product design; • improving producer responsibility and reducing the impacts of packaging; • improving access to information on materials and their significance to the economy or business; • stimulating a culture of resource efficiency by influencing behaviour through awareness raising, education and skills development (p. 11).
Wales *	The primary objective of the programme is to decouple economic growth from the environmental impacts of waste generation (p. 3). This overall aim will be supported by the following objectives: • helping householders and businesses to reduce the quantity of waste through re-use or the extension of product life (p. iv); • reducing the content of harmful substances in materials and products (p. iv); • stimulating a culture change towards a resource efficient society by influencing behaviour through awareness raising, education and skills development (p. 16–17); • helping businesses use resources more efficiently by promoting eco-design and exchange of resources; • promotion of new and alternative business models to improve producer responsibility and sustainable procurement (p. 37).

Note: * Refers to region.

The page number(s) in brackets refer to the national waste prevention programmes listed in Annex 1.

Sources: Annex 1; EEA, 2014.

Annex 6 Quantitative waste prevention targets

Country/region	Quantitative target(s)
Belgium	
Brussels *	The plan contains detailed objectives on prevention of different waste types, integrating waste prevention targets to be achieved by 2013 and 2020 (only the 2020 targets are listed here): • reduce annual waste generation (compared to a 2005 baseline); • households: – reduce food waste by 5 kg/inhabitants/year; – reduce paper waste by 7 kg/inhabitants/year; – reduce household packaging waste by 10 kg/inhabitants/year; – reduce the consumption of gadgets by at least 2 kg/inhabitants/year and reduce waste from disposable nappies by 1 kg/inhabitants/year; – reduce garden waste via home composting by 12 kg/inhabitants/year; – selectively collect and return 6 kg/inhabitants/yr of additional reusable items to the market; • businesses: – reduce paper waste by 30 kg/worker/year; – reduce food waste by 6 kg/worker/year; – reduce packaging waste by 1 kg/worker/year; • schools: – reduce paper waste by 2.5 kg/student/year; – reduce packaging waste, and in particular drinking carton waste, by 1 kg/student/year; – reduce food wastage by 3 kg/student/year; and other qualitative objectives.
Finland	The waste prevention target is to stabilise the amount of municipal waste at the level of the early years of this century (2.3–2.5 million tonnes annually) and ensure that the trend will be downwards by the year 2016. There was not enough information available on industrial waste categories and therefore no quantitative objectives have been set. The plan envisages that individual industrial sectors will develop their own material efficiency agreements and set targets for reducing the amounts of specific waste volumes (p. 10).
Italy	The programme sets the following targets to be achieved by 2020, based on 2010 levels: • 5 % reduction in the ratio of generated municipal solid waste/GDP; as a monitoring measure, the ratio of municipal solid waste/household consumption will be considered as well; • 10 % reduction in the ratio of generated special hazardous waste/GDP ([a]); • 5 % reduction in the ratio of generated special non-hazardous waste/GDP ([a]). The programme stipulates that these targets could be changed into targets for single streams of waste types (p. 7).
Latvia	Waste prevention targets are: • by 2020, not more than 400 kg per person of municipal solid waste generated; • by 2020, not more than 650 000 tonnes of total municipal solid waste generated; • by 2020, not more than 50 000 tonnes of total hazardous waste generated. Targets are related to the indicators presented on p. 87.

Country/region	Quantitative target(s)
Netherlands	The National Waste Management Plan states that total waste generation may not exceed 68 million tonnes in 2015, and 73 million tonnes in 2021, compared to 60 million tonnes in 2006 (p. 12). Waste type specific targets include: • food waste: the goal is to decrease food losses by 20 % in 2015 compared to 2009. To achieve this, waste should drop between 276 000 tonnes and 522 000 tonnes or between 17 kg per person and 31 kg per person (p. 13); • textile waste: by the end of 2015, the amount of textile waste discarded in residual waste will be reduced by 50 % compared to 2011 (p. 13).
Portugal	The programme analyses the implications of four scenarios: • optimistic, • moderate, • PERSU II — Strategic Plan for the Management of Municipal Solid Waste, • business-as-usual. The moderate scenario is considered the most realistic, and is regarded as the driving force of the programme. It envisions a 10 % reduction in the waste generated per person in 2007 by 2016, which is considered as an overall target.
Slovakia	The only quantitative targets are specified under the objective for biodegradable municipal waste: • decreasing the amount of landfilled biodegradable municipal waste by 40 % of the amount generated in 1995 — 944 000 tonnes (p. 41); • decreasing the amount of biodegradable municipal waste sent to landfills by involving communities and households in increasing composting as follows: – 54 % of the municipalities with less than 1 500 inhabitants to be involved in community composting; – 47 % of households to participate in home composting (p. 42). The deadline for both targets is 2018.
Spain	The main objective of the programme is to reduce the amount (by weight) of waste produced in 2010 by 10 % by 2020 (p. 25 and 37).
Sweden	The programme includes eight targets: • the amount of waste shall be reduced continuously compared to 2010 (p. 25); • the content of hazardous substances in materials and products shall be reduced (p. 25); • waste in the entire food chain shall decrease compared to 2010. The Swedish Environmental Protection Agency has been mandated by the government to develop a numerical target for reducing food waste by January 20144 (p. 33); • textile waste from households shall decrease compared to 2010. The Swedish Environmental Protection Agency has been mandated by the government to develop a numerical target for textile and textile waste by January 2014 (p. 46); • the proportion of second-hand goods in total textile sales shall increase compared to 2014 (p. 46); • the knowledge on use and content of hazardous substances in textiles will increase no later than 2018 in the textile sector compared to 2014 (p. 46); • in 2020 waste generation per built m^2 will decrease, compared to 2014 (p. 56); • by 2020 pre-processors and recyclers of WEEE must have greater access to useful information on the composition of products and their content of hazardous substances compared to 2014 (p. 66).
United Kingdom	
Scotland *	The target is to reduce waste by 2017 by 7 % against the 2011 baseline of 13.2 million tonnes. The longer-term vision is to achieve a 15 % reduction by 2025 (p. 6).

Country/region	Quantitative target(s)
Wales *	The overarching target is a significant reduction in waste, 27 %, by 2025 and by 2050 a reduction of 65 %, both compared to 2007 (p. 2). Specific targets include: • household waste: – reduction of 1.2 % every year to 2050 based on a 2006/2007 baseline — this equates to 18 869 tonnes per year of household waste (p. 14); • industrial waste: – reduction of 1.4 % every year to 2050 based on a 2006/2007 baseline (p. 25); • commercial waste: – reduction of 1.2 % every year to 2050 based on a 2006/2007 baseline (p. 25); • construction and demolition waste: – reduction of 1.4 % every year to 2050 of waste treated off-site based on a 2006/2007 baseline (p. 44).

Note: * Refers to region.

([a]) Special waste, according to Article 184, paragraph 3 of Italian legislative decree 152/2006, includes: waste from agriculture and the agro-industry; waste resulting from demolition, construction and excavation activities; waste from industrial processes; manufacturing waste; waste from commercial activities; waste resulting from the activities of recovery and disposal of waste, sludge from treatment of water and waste arising from sanitary activities.

Countries that are not listed in this table have not set quantitative targets in their waste prevention programmes.

The page number(s) in brackets refer to the national waste prevention programmes listed in Annex 1.

Sources: Annex 1; EEA, 2014.

Annex 7 Waste prevention indicators

Country/region	Indicator(s)
Austria	Core indicators include the following: • generation of waste from households and similar institutions per person; • generation of residual waste; • generation of industrial waste; • generation of hazardous waste; • generation of construction and demolition waste (excluding excavation); • amount of separately collected packaging waste; • amount of separately collected problematic materials. Additional indicators include: • for residual waste: mass of hazardous waste, mass of food (packed, unused, etc.); • for re-use: number and turnover of re-use organisations, number of second-hand products sold; • for the degree of consumer awareness: surveys on knowledge about different aspects of waste and waste prevention; • for construction and demolition waste: recycling rates, landfilled waste, mass of hazardous waste.
Belgium	
Brussels *	No specific indicator is mentioned.
Finland	No specific indicator is mentioned, but the Waste Prevention and National Waste Plan requires the drawing up of a monitoring programme for the assessment of its implementation and impact. The programme lists the indicators to be followed.
Germany	• Share of reused electronic products in relation to WEEE generation per category; • re-use quota for packaging; • number of banned hazardous substances; • number of permits for industrial facilities that include waste prevention aspects; • number of companies with environmental management systems; • number of educational measures for waste prevention in specific regions; • share of inhabitants with pay-as-you-throw fees; • waste intensity of specific industrial sectors; • raw material productivity.
Hungary	The amount of annually generated municipal waste (in tonnes); • the increase in the amount of separately collected municipal waste compared to the total amount generated (%); • the re-use rate of materials originating from construction and demolition waste (%); • number of accredited re-use centres; • the size of the population served by the reuse centres (number of individuals); • amount of second-hand products transferred to accredited reuse centres;

Country/region	Indicator(s)
Hungary (cont.)	• the proportion of marketed second-hand products compared to the amount transferred to accredited reuse centres; • the proportion of green elements compared to all other criteria of public procurement (%); • number of companies introducing ISO 14001; • number of companies introducing EMAS; • number of students participating in courses on waste prevention; • number of events related to waste prevention.
Ireland	The amount of resources conserved (tonnes of material, m^3 of water, kWh of energy) — as measured before and after intervention; • the quantity of waste prevented — measured as tonnes of waste generated before and after intervention; • money saved — the monetary difference in waste/water/energy costs before and after intervention or change; • production of residual waste per person; • cost of projects — such as waste prevention and treatment projects and timescale; • number of businesses contacted by the different waste prevention programmes, or participating in waste prevention or recycling; • number of homes or communities contacted by the different waste prevention programmes, or participating in waste prevention or recycling; • number of personnel involved in the waste industry who have completed prevention courses; • number of waste prevention officers operating in local authorities.
Italy	• Number of decrees or guidelines related to food industry by-products; • number of signed agreements among communities, government bodies in charge of waste management, large-scale distribution companies, volunteer organisations and charities for the redistribution of excess food products generated in the distribution phase of the supply chain; realisation of guidelines (yes/no) and quantity of redistributed excess food products; • number of ethical procurement groups created — groups of consumers who cooperate to buy food and other commonly used goods directly from producers at a price that is fair to both parties; • drafting guidelines (yes/no) for environmental quality certification in the food service sector; and number of applications to this certification over the total amount of operators; • the number of informative campaigns related to household food waste, and production of a handbook for household food waste reduction (yes/no); • number of stickers distributed for mailboxes indicating no junk mail, and number of agreements with the marketing industry to dematerialise publicity; • number of agreements with utilities to promote online communication with their clients, and number of utilities that adhere to online services; • guidelines for public and private offices (yes/no), number of paper orders in offices, and number of public and private offices that adopted the computer protocol; • number of signed agreements to promote points-of-sale for loose/in-bulk products, and number of businesses that sell loose/in-bulk products; • number of information campaigns promoting the consumption of tap water rather than bottled water, number of programme agreements to use tap water and number of installed public water fountains; • number of awareness campaigns to encourage consumers to select/acquire less waste-intensive electrical and electronic goods, use them correctly and use recycling/reuse mechanisms; • number of products that enter and leave a reuse centre, and number of visits made to reuse centres.

Country/region	Indicator(s)
Latvia	• Municipal solid waste generated (kg/person); • total municipal solid waste generated (tonnes/year); • total amount of hazardous waste generated (tonnes/year); • total amount of municipal solid waste recycled (%); • total amount of hazardous waste recycled (%); • total amount of manufacturing waste recycled (%); • total amount of municipal solid waste landfilled (%); • total amount of manufacturing waste landfilled (%); • total amount of hazardous waste landfilled (%).
Lithuania	• Manufacturing, construction and other sectors of the economy are assessed resulting from the amount of waste per unit of GDP; • municipal and other specific waste collected and the amount which could be prepared for reuse; • the amount spent on the domestic market for packaging (tonnes and kilograms per person) and the number of packages ready for re-use (tonnes, in circulation during the year in the domestic market for packaging in percentages); • collected WEEE (in tonnes and kilograms per person), and the amount of it prepared for reuse (in tonnes per year of WEEE generated in percentages); • collected biodegradable municipal waste (both in separately collected waste fractions and biodegradable waste that is emitted into the mixed municipal waste stream) (tonnes and kilograms per person per year).
Luxembourg	No specific indicator is mentioned.
Netherlands	• The progress in the implementation of three quantified objectives of the National Waste Management Plan serves as indicators: • overall reduction of waste; • reduction of food waste; • decrease in the amount of textiles discarded.
Norway	No specific indicator is mentioned.
Poland	Indicators of waste generated — for total waste and specific waste type.
Portugal	• Reduction of municipal solid waste generated per person per day expressed as: % municipal waste reduction/person = (kg municipal waste/person day) ref. year — (kg municipal solid waste/person day) target year)] / (kg municipal solid waste/person day) ref. year; • reduction of biodegradable municipal waste generated per person per day expressed as: % reduction of biodegradable municipal waste waste/person = [(kg biodegradable municipal waste/person day) ref. year — (kg biodegradable municipal waste/person day) target year] / (kg biodegradable municipal waste/person day) ref. year; • reduction of packaging waste generated per person per day expressed as: % reduction of packaging waste/person = (kg packaging waste/person day) ref. year; • reduction of paper and paperboard waste generated per person per day expressed as: % reduction of paper and paperboard waste/person = [(kg paper and paperboard waste/person day) ref. year — (kg paper and paperboard/person day) target year] / (kg paper and paperboard/person day) ref. year; • reduction of other fractions waste generated per person per day expressed as: % reduction of other fractions waste/person = [(kg packaging waste/person day) ref. year — (kg other fractions/person day) target year] / (kg other fractions/person day) ref. year; • list of the actions implemented per qualitative target.
Slovakia	• Total waste production; • waste production per unit of GDP; • waste production per person.

Country/region	Indicator(s)
Spain	• Amount of generated waste/year; • amount of generated waste per economic sector (activity); • amount of generated waste/year/GDP; • amount of municipal waste/year; • amount of hazardous waste/year/industrial GDP (GVA); • amount of construction and demolition waste/year/GDP (GVA); • amount of packaging waste/year; • amount of WEEE/year; • amount of end-of-life vehicles/year; • amount of end-of-life tyres/year; • amount of waste from batteries and accumulators/year; • number and economic value of research and development, and innovation projects annually implemented related to waste prevention and sustainable consumption; • number of waste prevention awareness campaigns/year; • number of voluntary agreements reached/year. Affected sectors; • number of operative reuse centres and number of associated employees; • total number of audited registrations to EMAS and other environmental management systems; • Green Public Procurement share on total public procurement in relation to the total number of tenders; • Green Public Procurement share on total public procurement in relation to the total price of tenders realised.
Sweden	• Total waste generation, excluding mining waste; • indicators for the four focus areas (food, textile, construction and demolition, and WEEE) will be further developed.
United Kingdom	
England *	• Waste arising (Mt) per unit of household economic activity; • waste arising (Mt) per unit of GVA in constant price (volume) terms.
Scotland *	• Total amount of waste produced by sector — household, commerce, industry, and construction and demolition; • amount of waste produced by sectors per unit of GVA; • carbon impact of waste — the whole-life impacts of waste, including the benefits of prevention and recycling.
Wales *	• Total amount of waste produced by sector — household, commerce, industry, and construction and demolition; • amount of waste produced by sectors — except households — per unit of GVA.

Note: * Refers to region.

Sources: Annex 1; EEA, 2014.

Annex 8 Waste prevention monitoring systems

Country/region	Monitoring system
Austria	The core indicators shall be updated regularly, if possible annually; the additional indicators at least once before 2017, if possible.
Hungary	The indicators need to be measured annually in order to monitor the implementation of the programme.
Italy	Indicators will be monitored through a technical round table, made up of public officers and the stakeholders involved in the achievement of programme measures.
Poland	Information on the monitoring of indicators (waste generation in every year and others) will be included in three-year reports.
Spain	To monitor the indicators, the information available from the following will be used: • National Statistics Institute; • Ministry of Economy and Competitiveness; • Ministry of Industry, Commerce and Energy; • Ministry of Agriculture, Food and Environment; • autonomous communities; and • local entities.
Sweden	The Swedish Environmental Protection Agency and the Swedish Chemicals Agency are responsible for monitoring the indicators. However, a number of indicators need to be further developed.
United Kingdom	
England *	Monitoring of individual actions, voluntary agreements and tracking of key indicators (including total amount of waste produced by sectors, amount of waste produced by sectors per unit of GVA, carbon impact of waste) to judge the success of the programme as a whole is envisaged in the programme. By the end of 2014, a suite of metrics will be developed to help monitor progress on waste prevention, enabling consistent measurement of, for example, financial, environmental and social impacts, and levels of engagement.

Note: * Refers to region.

Sources: Annex 1; EEA, 2014.

Annex 9 Waste prevention measures referred to in Article 29 of the Waste Framework Directive

In the Waste Framework Directive, Annex IV, the following is provided:

Examples of waste prevention measures referred to in Article 29

Measures that can affect the framework conditions related to the generation of waste

1. The use of planning measures, or other economic instruments promoting the efficient use of resources.

2. The promotion of research and development into the area of achieving cleaner and less wasteful products and technologies and the dissemination and use of the results of such research and development.

3. The development of effective and meaningful indicators of the environmental pressures associated with the generation of waste aimed at contributing to the prevention of waste generation at all levels, from product comparisons at Community level through action by local authorities to national measures.

Measures that can affect the design and production and distribution phase

4. The promotion of eco-design (the systematic integration of environmental aspects into product design with the aim to improve the environmental performance of the product throughout its whole life cycle).

5. The provision of information on waste prevention techniques with a view to facilitating the implementation of best available techniques by industry.

6. Organise training of competent authorities as regards the insertion of waste prevention requirements in permits under this Directive and Directive 96/61/EC.

7. The inclusion of measures to prevent waste production at installations not falling under Directive 96/61/EC. Where appropriate, such measures could include waste prevention assessments or plans.

8. The use of awareness campaigns or the provision of financial, decision making or other support to businesses. Such measures are likely to be particularly effective where they are aimed at, and adapted to, small and medium sized enterprises and work through established business networks.

9. The use of voluntary agreements, consumer/producer panels or sectoral negotiations in order that the relevant businesses or industrial sectors set their own waste prevention plans or objectives or correct wasteful products or packaging.

10. The promotion of creditable environmental management systems, including EMAS and ISO 14001.

Measures that can affect the consumption and use phase

11. Economic instruments such as incentives for clean purchases or the institution of an obligatory payment by consumers for a given article or element of packaging that would otherwise be provided free of charge.

12. The use of awareness campaigns and information provision directed at the general public or a specific set of consumers.

13. The promotion of creditable eco-labels.

14. Agreements with industry, such as the use of product panels such as those being carried out within the framework of Integrated Product Policies or with retailers on the availability of waste prevention information and products with a lower environmental impact.

15. In the context of public and corporate procurement, the integration of environmental and waste prevention criteria into calls for tenders and contracts, in line with the Handbook on environmental public procurement published by the Commission on 29 October 2004.

16. The promotion of the reuse and/or repair of appropriate discarded products or of their components, notably through the use of educational, economic, logistic or other measures such as support to or establishment of accredited repair and reuse-centres and networks especially in densely populated regions.

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