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Waste prevention in Europe — the status in 2014

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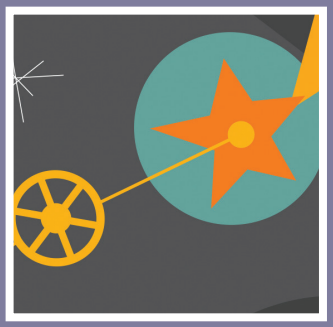

European Environment Agency

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European Environment Agency
Kongens Nytorv 6
1050 Copenhagen K
Denmark

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

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Abbreviations and acronyms

ADEME	French Environment and Energy Management Agency
EAA	Environment Agency Austria
EC	European Commission
EEA	European Environment Agency
EEE	Electrical and electronic equipment
Eionet	European Environment Information and Observation Network
EMAS	Eco-Management and Audit Scheme
EMS	Environmental management system
EPA	Environmental Protection Agency, Ireland
ETC	European Topic Centre
EU	European Union
GDP	Gross domestic product
GVA	Gross value added
ISO	International Organization for Standardization
LED	Light emitting diode
MOR	Portuguese Organised Waste Market
NIEA	Northern Ireland Environment Agency
OECD	Organisation for Economic Co-operation and Development
OVAM	Public Waste Agency of Flanders
RACE	Realisation of Acceleration towards a Circular Economy
SCAP	Sustainable Clothing Action Plan
SEPA	Swedish Environmental Protection Agency
SME	Small and medium-sized enterprise
UBA	Federal Environment Agency, Germany
UEEE	Used electrical and electronic equipment
VAT	Value-added tax
WEEE	Waste electrical and electronic equipment

Authors and acknowledgements

The second review covers 27 national and regional waste prevention programmes in Europe that were adopted by the end of 2014. The review was undertaken by the European Topic Centre on Waste and Materials in a Green Economy (ETC/WMGE) for and in cooperation with the European Environment Agency (EEA).

Lead authors

Henning Wilts, Arnold Mona from the ETC/WMGE and Jasmina Bogdanovic from the EEA.

Contributions

Jock Martin, Ybele Hoogeveen, Almut Reichel, Stefan Speck, Pawel Kazmierczyk, Ana Jakil, Catherine Ganzleben, Marco Veneziani (all EEA), Gunther Wolff, Nuria Cases Sampere (European Commission), Peter Borkey (OECD), Nadja von Gries, Lieze Cloots, Bart Ullstein (all ETC/WMGE).

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- Support and feedback from all of these experts with whom we have consulted throughout the process.

About this review

This is the second in a series of annual reviews of waste prevention programmes in Europe, as stipulated in the European Union (EU) Waste Framework Directive. It covers 27 (out of 36) national and regional waste prevention programmes that had been adopted by the end of 2014. It highlights key features and describes the first implementation measures.

In comparison with the previous report, this second edition includes:

- a revised policy development in light of discussions on the Circular Economy Package;
- a review of seven additional programmes that were adopted during 2014 (for Bulgaria, Czech Republic, Estonia, Flanders, France, Malta and Northern Ireland);
- a review of the update of the Polish waste prevention programme;
- updated national and regional data, information and examples of good practice.

Future reviews will include those waste prevention programmes adopted after 1 January 2015 and will also reflect on the progress of implementation for selected waste types or specific waste-generating sectors. As of December 2014, there were still nine countries and regions that needed to adopt waste prevention programmes.

Executive summary

This publication is part of a series of reviews by the European Environment Agency (EEA) of waste prevention programmes in Europe. The review process covers programmes in the 28 European Union (EU) Member States and the three European Free Trade Association (EFTA) countries, namely Iceland, Liechtenstein and Norway (Table 2.1). This second review covers the 27 national and regional programmes ([1]) that had been adopted by the end of 2014.

The Waste Framework Directive (EEC, 1975, revised 2008) set a legal obligation for EU Member States to adopt waste prevention programmes by 12 December 2013. The EEA has been invited to review annually the progress towards the 'completion and implementation of the programmes' (EU, 2008).

The waste hierarchy, the guiding framework for EU and national waste policies, gives the highest priority to waste prevention, followed by (preparing for) reuse, recycling, other recovery and disposal. This is reflected in the targets of the Waste Framework Directive and in 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 (EU, 2013) also recognise the need for waste prevention. The Roadmap to a Resource Efficient Europe states that waste generation should be in decline by 2020.

A new overarching framework for waste policy and resource efficiency is emerging, as the European Commission (EC) presented an ambitious Circular Economy Package on 2 December 2015. The aim of this package is to transform Europe into a more competitive sustainable resource efficient economy, addressing a range of economic sectors, including waste. It is fully aligned with the priorities of the EC, and implemented in line with the jobs and growth agenda. A stronger emphasis on the reuse, repair, refurbishing, re-manufacturing and recycling of existing materials and products is accentuated (EC, 2015a).

As for the report published in 2014, the analysis of waste prevention initiatives is based on harmonised country/region 'abstracts', which facilitate cross-programme comparison. The comparison includes the coverage of waste prevention programmes, as well as the scope, overall objectives, targets, indicators, monitoring systems as well as the approach to evaluating objectives and targets. A general analysis of the measures and related policy instruments is supported by selected examples of good practice from each country and region. In addition, links and synergies between the ongoing EEA waste prevention reviews and the Organisation for Economic Co-operation and Development (OECD) process on the review of waste prevention policies in OECD countries have been established in the report.

The actual results of the waste prevention programmes cannot yet be assessed. Future waste prevention reviews will include information on implementation and will also attempt to link actual waste generation with key socio-economic drivers, waste prevention objectives and targets. Future reviews may also focus on specific areas, providing more detailed analyses of selected waste types/sectors/measures, such as food waste, hazardous waste, construction and demolition waste or reuse systems. Efforts will also be made to identify examples of niche innovations in waste prevention practices.

Key findings

- **General:**
  - Twenty-seven national and regional waste prevention programmes in 24 countries (out of 31) were adopted by the end of 2014;
  - waste prevention programmes show considerable differences in detail, coverage, objectives and time horizons (four years to indefinite);

([1]) As some countries have regional rather than national coverage in terms of waste prevention programmes, the number of programmes is higher than the number of countries (36 programmes), as explained in Chapter 2.

  - seventeen programmes are dedicated programmes, whereas ten are part of wider waste management plans;
  - twelve programmes include 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 13 programmes, whereas 23 programmes indicate their involvement in the implementation phase;
  - financial resources are rarely addressed in the programmes.

- **Waste prevention scope:** The programmes cover a variety of sectors and waste types. All cover households and all but one cover the public service sector, whereas only a few programmes include the agriculture and mining and raw material processing sectors. This limited sectoral coverage might be because they are covered by other policy areas or because they are the responsibility of other institutions. In terms of waste types, food/organic waste, waste electrical and electronic equipment (WEEE) and batteries, packaging waste, hazardous waste and municipal/household waste are covered by the majority of the programmes. In one programme (Poland), waste from thermal processes for energy generation was mentioned.

- **Waste prevention objectives:** Most programmes mention the overall objective of decoupling waste generation from economic growth. Improving material efficiency and resource efficiency, decoupling resource use from economic growth and preventing the use of primary materials are listed in several programmes. An explicit objective to shift towards a circular economy is mentioned in two programmes (the Netherlands and Scotland). Programmes also target the reduction of harmful substances as part of their overall objectives. Job creation, development of new business models and behavioural change are also mentioned in several programmes.

- **Quantitative waste prevention targets:** A total of 17 of the programmes analysed include quantitative targets ranging from total waste generated to more specific targets for particular sectors and waste types with a range of time horizons. A few countries have expressed a reluctance to define targets, citing a lack of reliable and relevant data.

- **Waste prevention indicators:** Twenty-four programmes specify indicators for tracking progress on objectives and targets and, ultimately, on the effectiveness of waste prevention policies. A comparison of the specific indicators chosen by the countries/regions with the objectives and targets mentioned in their programmes reveals that only a few propose indicators to monitor all their objectives and targets.

- **Monitoring systems:** Ten programmes include monitoring systems. In some cases, monitoring is covered in other documents than waste prevention programmes.

- **Waste prevention measures:** The analysis highlights a broad range of planned measures to support waste prevention in accordance with Annex IV of the Waste Framework Directive. A total of 39% focus on the design, production and distribution phase; 40% are related to the consumption and use phase; and 21% focus on the general framework of waste generation.

- **Policy instruments:** 63% of the measures concern information and awareness raising; economic and regulatory instruments account for 16% and 14%, respectively; and 7% voluntary agreements.

1 The policy context

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).

1.1 Policy background

In 2012, EU-28 Member States discarded 2.5 billion tonnes of waste, of which close to 4% was hazardous. Although rates of overall waste generation in Europe have declined between 2004 and 2012 by more than 1% in absolute terms and more than 3% per person (to close to 5 tonnes per person), the share of hazardous waste is slowly increasing (Eurostat, 2015).

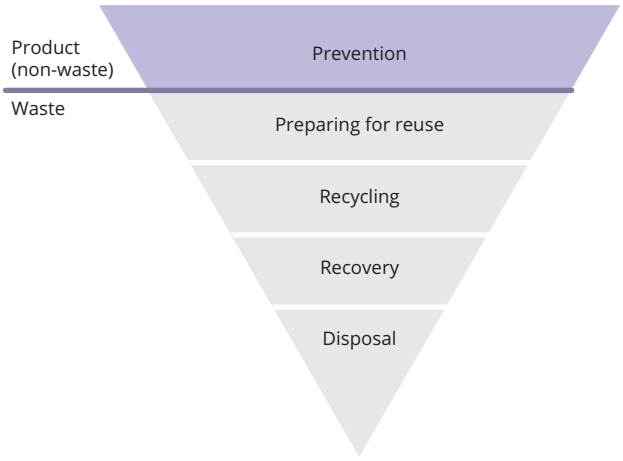
The Waste Framework Directive requires EU Member States to establish waste prevention programmes, but it allows some freedom in terms of implementation. The European Commission (EC) developed a guidance document in 2012 to help countries prepare their waste prevention programmes (EC, 2012).

The waste hierarchy (Figure 1.1) is the overarching principle behind EU and national waste policies. Priority is given to waste prevention, followed by (preparing for) reuse, recycling and other recovery, with disposal being the least desirable option.

Although the importance of waste prevention has been recognised in EU waste legislation for almost 40 years, from the 1975 Waste Framework Directive (EEC, 1975) and the 1994 Packaging and Packaging Waste Directive (EU, 1994), effective waste prevention measures in EU Member States have not been developed.

In 2005, waste prevention was fast-tracked in a Thematic Strategy on the prevention and recycling of waste (EC, 2005). The importance of the waste hierarchy was then further emphasised in the updated Waste Framework Directive, which stated in Article 4 that waste prevention measures should be considered a top priority when developing waste policy and legislation in EU 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). The directive is currently under revision (EC, 2015a).

Figure 1.1 The waste hierarchy



Source: EU, 2008.

Waste prevention and the use of waste as a resource are becoming more and more important, not only in environmental policies, but also in industrial and raw material policies and form a key element of the transition towards a circular economy. In 2011, the Roadmap to a Resource Efficient Europe set the target that waste generation per person should be in absolute decline by 2020 (EC, 2011). In 2013, the EU's 7th Environment Action Programme recognised the need for additional efforts to reduce waste generation both per person and in absolute terms (EU, 2013).

The EC has published on 2 December 2015 an ambitious Circular Economy Package with an emphasis on reusing, repairing, refurbishing and

recycling existing materials and products. In essence, it aims 'to look beyond waste' and to include more efficient management of all resources throughout their life cycle. The ultimate goal is to transform Europe into a more competitive, resource efficient economy, in line with the EC's priorities of boosting economic growth and providing new job opportunities (EC, 2015a).

1.2 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 upstream and downstream stages of the production-consumption system (Figure 1.2), in combination with waste management options. Targeting the source of waste reduces its amount and toxicity before recycling, composting, energy recovery or landfill become options. However, waste prevention also covers measures to reduce the adverse impacts of waste on human health and the environment.

Waste prevention has both quantitative and qualitative aspects that should be taken into account when setting targets, selecting indicators and designing measures (Chapter 3).

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:

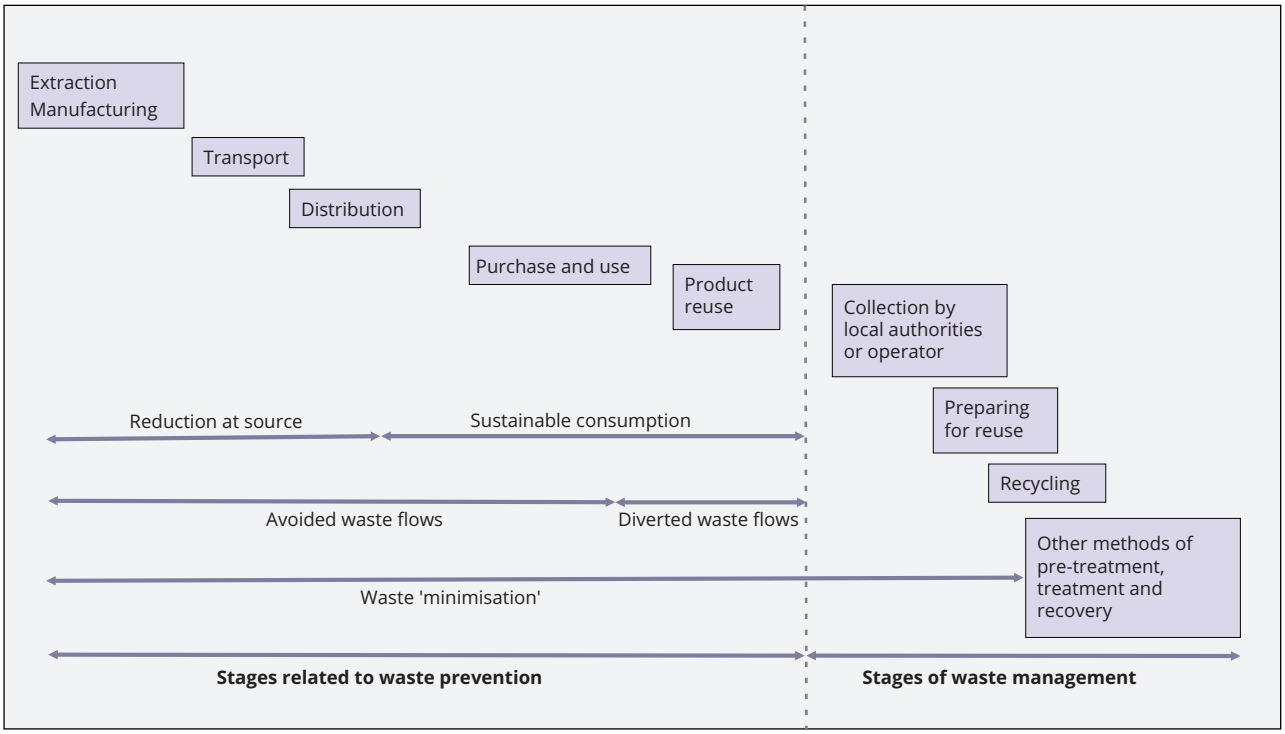
(a) the quantity of waste, including through the re-use of products or the extension of the life span of products;

(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 and management in the context of the production–consumption system



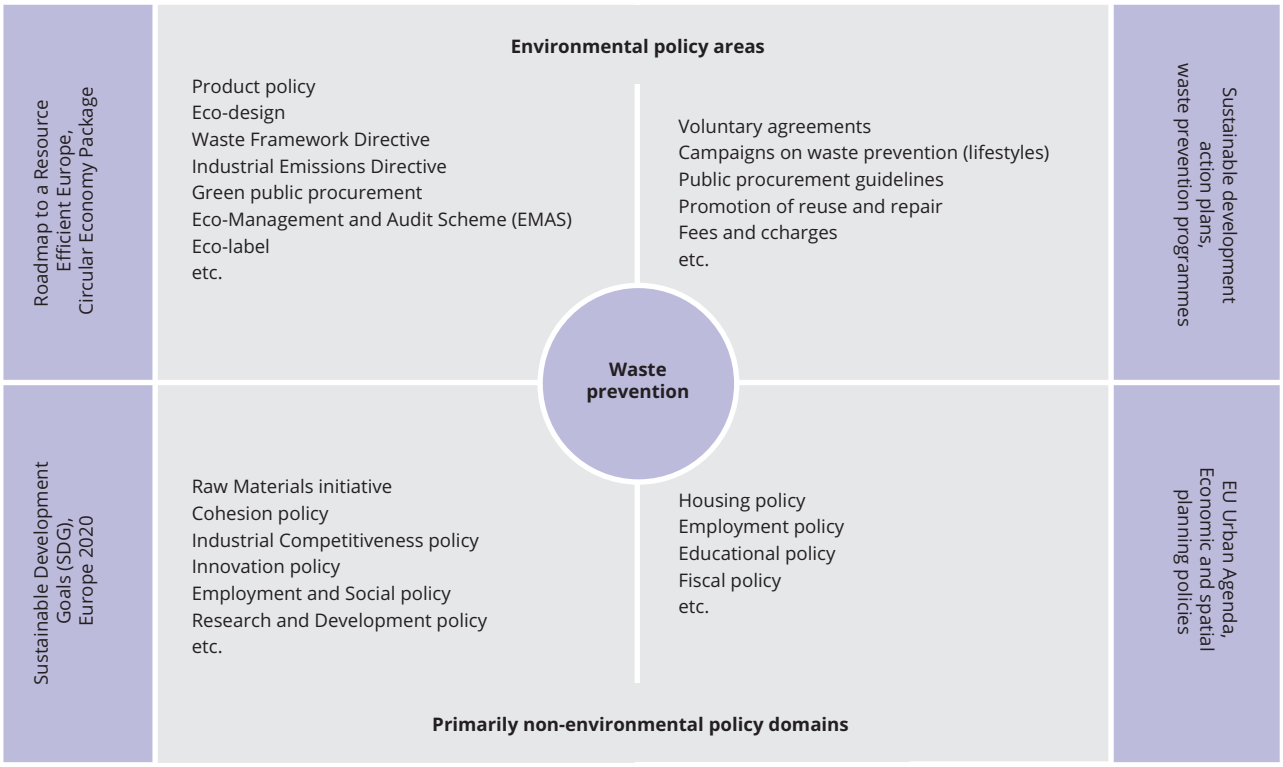
Source: EC, 2012.

Quantitative waste prevention is achieved by decreasing the quantity of materials used in products and by increasing the efficiency with which they are used. Waste can also be avoided by limiting unnecessary consumption and by designing and consuming products that generate less waste. Quantitative waste prevention also covers action that can be taken before a product reaches the end-of-its life through repair, refurbishment or reuse (EC, 2012).

Qualitative waste prevention is defined as reducing the hazardous content of waste (Article 3 (12) of the Waste Framework Directive). This helps to reduce human and environmental exposure to hazardous materials (EC, 2012). Reducing or restricting the use of hazardous substances is also a prerequisite for establishing a circular economy. It enables material loops, simplifies the process of establishing industrial symbiosis ([2]) and can also lower the costs of collecting and recycling post-consumer waste (EC, 2013).

An example is the EU's restriction on the use of six hazardous materials in electrical and electronic equipment (EEE), which is the subject of two EU Directives ([3]).

Figure 1.3 Waste prevention as a cross-cutting policy area



Source: Adapted from EEA, 2014.

([2]) Industrial symbiosis occurs when one company or sector uses the by-product(s) of another company or sector. In this context, by-products refer to energy, water and materials (EC, 2015d).

([3]) The Directive on Restriction of Hazardous Substances (RoHS) (2002/95/EC) with its recast RoHS2 (2011/65/EC) restricts the use of six hazardous materials and ensures coherence with more recent policies and legislation linked to the chemicals in and marketing of products in Europe (EC, 2015c; RoHS, 2015). The Waste Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC) with its recast Directive (2012/19/EC) sets measures to reduce the generation of WEEE and to increase rates of collection, reuse, recycling and recovery and introduces a series of legally binding targets for collection, reuse/recycling and recovery (EC, 2015b).

Box 1.2 Flanders: the evolution of the reuse sector

In the early 1990s, the *'kringloop'* reuse sector emerged in Flanders and today has 31 centres and 118 stores. Centres belong to the umbrella organisation KOMOSIE, a federation of social enterprises which focus on the environment (De Kringwinkels, 2015; OVAM, 2015).

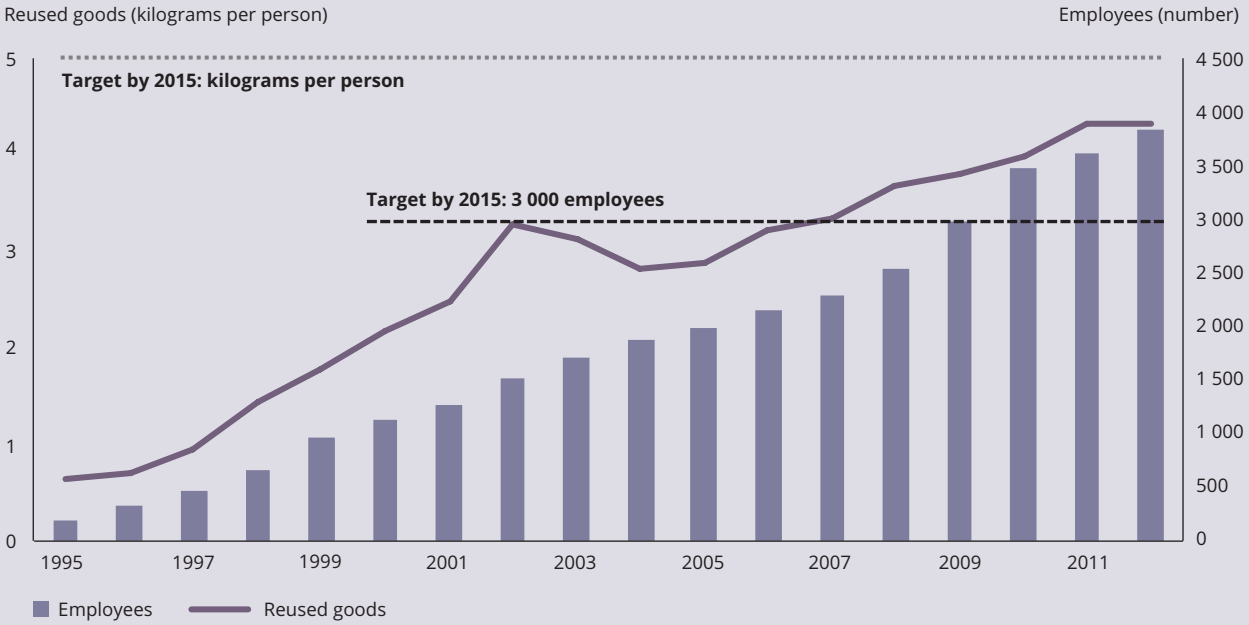
The core economic activity of the centres is to collect, sort, repair and resell products including clothes, electronics, furniture, books, toys and bicycles. The centres also have an important social function, providing training and jobs for people who have experienced difficulties in finding employment (Cools and Oosterlynck, 2015; De Kringwinkel, 2015; OVAM, 2015).

The success of the scheme is linked to governmental support provided in the form of subsidies. In order to monitor the scheme's progress, the government of Flanders, in cooperation with the Public Waste Agency of Flanders (OVAM), has set the following targets to be achieved by 2015 and to be monitored/reported on by OVAM annually (Figure 1.4; OVAM, 2015):

- to collect five kilograms of reusable goods per person per year, based on the population of Flanders;
- to offer full-time employment to 3 000 people;
- to reach four million customers (based on the reported revenues in the shops and the local population).

The scheme seems to be on target in terms of the volume of reusable items collected — in 2012 around four kilograms of reusable items were collected per person while close to 4 000 people were fully employed by the scheme, about 80% of whom were either long-term unemployed workers or people with limited education (Cools and Oosterlynck; OVAM, 2015).

Figure 1.4 Progress in the reuse sector in Flanders since 1995



Note: Number of employees refers to full-time employees. OVAM only takes staff paid by the centres into account. Volunteers and employees with other forms of contract are not taken into account for the target.

Sources: Cools and Oosterlynck, 2015; De Kringwinkel, 2015; OVAM, 2015.

1.3 Waste prevention in a wider context

Waste prevention is a cross-cutting policy area that relates and links a wide range of policy options (Figure 1.3). In the **production phase**, waste can be prevented by improving material efficiency, by using processes that generate less waste, and by product and service innovation (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 also be prevented during the **consumption phase**, for example by choosing products that are less waste-intensive over their life cycle, by keeping products in use for longer, by repairing, sharing or renting products, or by reducing levels of consumption (EC, 2012).

However, reuse and repair contradict the traditional 'take-make-consume-dispose' approach for which most waste regulations were designed. Waste prevention can thus cause conflicts and trade-offs with other policy areas. For example, extending product life by repair and reuse 'slows' demand and sales, which conflicts with prevailing business models of maximising sales. Nevertheless, there is clear evidence of economic, environmental and social benefits from reuse. In fact, reusing products and components is seen as one of the key elements in the transition to a circular economy.

In contrast to recycling, reuse extends the useful life of products and thus conserves the physical assets of raw materials as well as their embodied energy. Innovative approaches and waste reduction are important 'by-products' of reuse activities. One successful policy intervention for reuse is to link it to social employment policies, offering jobs to lower skilled or long-term unemployed workers. These kinds of synergies are demonstrated, for example, in the well-established *'kringloop'* ([4]) sector in Flanders (Box 1.2) and highlight the cross-cutting nature of waste prevention.

([4]) '*Kringloop*' is Dutch for 'life cycle'.

2 Review methodology

2.1 Coverage

Twenty-eight EU Member States plus the three European Free Trade Association countries, Iceland, Liechtenstein and Norway ([5]), are legally obliged to adopt a waste prevention programme under the Waste Framework Directive.

As some countries have regional rather than national waste prevention, the total number of programmes (36) is higher than the number of countries (31). This review covers the 27 programmes that had been adopted by the end of 2014 (Table 2.1); the remaining nine programmes will be considered in future reviews. An overview of the status of all waste prevention programmes as of 1 December 2015 is provided in Annex 1. Given the status of the various programmes, this review focuses on scope, objectives and planned measures rather than implementation and results.

2.2 Approach

The review process is illustrated in Figure 2.1. The first step is an annual **survey** to assess the status of waste prevention programmes after which an **abstract**, based on a common template (Annex 2) ([6]), is drafted for each programme. These are then reviewed by the waste prevention experts from the EEA's European Environment Information and Observation Network (Eionet) ([7]), and, once approved, are uploaded to the EEA website (EEA, 2015). The abstracts will be updated to reflect the national and regional implementation efforts following pre-defined structure/questions (Annex 3), as well as examples of good practice.

The **review** is based on these abstracts, and is supplemented by details drawn from the waste prevention programmes (Annex 1 ([8])). The final results of the process are shared and discussed with Eionet and other partners, including the EC and the OECD.

Table 2.1 Countries and regions covered by the 2014 waste prevention review

Austria	Flanders ([a])	Lithuania	Portugal
Brussels ([a])	France	Luxembourg	Scotland ([a])
Bulgaria	Germany	Malta	Slovakia
Czech Republic	Hungary	Netherlands	Spain
England ([a])	Ireland	Northern Ireland ([a])	Sweden
Estonia	Italy	Norway	Wales ([a])
Finland	Latvia	Poland	

Note: ([a]) Refers to region.

([5]) Switzerland and Turkey do not have the same obligation.

([6]) The individual abstracts completed for 29 waste prevention programmes are currently being processed and will be available on the EEA website (EEA, 2015).

([7]) Eionet is a partnership network of the EEA and its member and cooperating countries. It consists of the EEA itself, six European topic centres (ETCs) and a network of more than 1 800 experts from 39 countries in more than 400 national environment agencies and other bodies dealing with environmental information. These include the national focal points and the national reference centres.

([8]) Annex 1 presents both an overview of the status of the 36 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, 2015.

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

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

2.3 Target audience and stakeholder process

The purpose of this review is to contribute to relevant policy processes at European, national and regional levels, including support to the review of the 7th Environment Action Programme and recently presented Circular Economy Package. for example.

The review findings will be relevant to a broad range of actors, including the EC, national and regional governments, the Eionet community, research institutions, international organisations (e.g. OECD, United Nations) and many other public and private sector players.

The findings will feed into regular EEA reports and assessments, such as the 'European environment — state and outlook' in 2020 or the new series on the circular economy reports. Ultimately, it is anticipated that the review will contribute to a better European-wide knowledge base of waste prevention practices.

The need to improve the coherence of theme-specific EEA and external processes has been recognised. To this end the waste prevention review process attempts to integrate data and information from various other EEA exercises that focus on waste management, resource efficiency and chemicals. Additionally, the EEA review takes into account findings from other processes such as the review of waste prevention policies in OECD countries (Box 2.1).

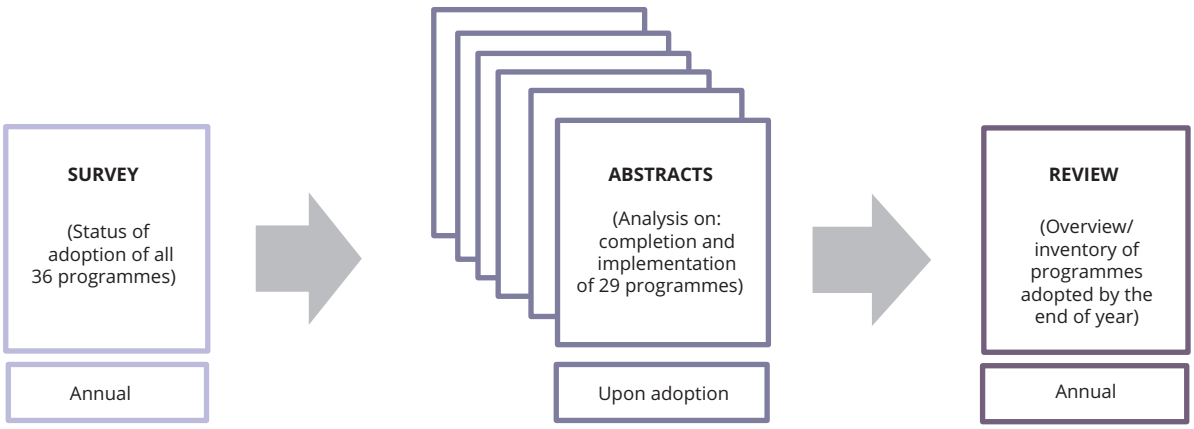
2.4 Development perspective

Waste prevention policies are expected to evolve significantly over time in terms of their implementation, evaluation, improvement and adjustment and as a result of interactions with other policy areas. This review reports only on the analyses of the programmes themselves. However, future reviews will also consider implementation efforts with a focus on how countries prioritise working areas, waste streams, and sectors.

From a policy perspective, there may also be a need to extend the level of detail beyond general waste statistics and to look more closely at specific

Figure 2.1 Waste prevention from survey to review

Obligation for review: Article 30, Waste Framework Directive



Source: EEA, 2015.

Box 2.1 Strategic partnership with the OECD on waste prevention

The OECD's Working Party on Resource Productivity and Waste has identified the need to re-initiate activities in the area of waste prevention. In the first half of 2015, a review of waste prevention policies in OECD countries was conducted. The work was carried out in cooperation with the EEA, and the questionnaire disseminated to OECD countries was based on the EEA abstract format. The draft summary report is due by the end of 2015 (OECD, 2015).

The OECD–EEA partnership functions under the auspices of the EC's work on waste prevention (EC, 2015e). The aim of the partnership is to promote national efforts in this area at global, European and national/regional levels; to exchange experiences and examples of good practice; to feed into waste prevention processes; and ultimately to avoid any overlaps or waste of resources. A series of joint activities is planned under this partnership in the coming years.

waste types such as hazardous waste, food waste or construction and demolition waste or at specific activities such as reuse. The need to develop a guide for the evaluation of waste prevention measures that support implementation efforts at European and national and regional levels and the definition of suitable waste prevention indicators are areas that need further investigation. Information on the national and regional institutional frameworks that provide the context for the development, implementation and monitoring of waste prevention policies could feed into a broader analysis in future reviews.

Future reviews would benefit from countries taking a more active role in the process, which will allow for a greater exchange of information and experience, particularly in the implementation phase. Such interactions would help to disseminate up-to-date information on and to promote the national and regional waste prevention initiatives, as well as help to break down current language barriers. Greater collaboration with the international networks that deal with such themes/sectors as hazardous waste, chemicals, agriculture, and food industry and food waste could help link prevention with management and other issues.

3 Waste prevention programmes

This chapter summarises the key findings from the analysis of the 27 national and regional waste prevention programmes that had been adopted by 31 December 2014. It looks at the objectives, scope, targets, indicators, monitoring systems and policy measures and instruments of the programmes, including examples of good practice. As such, it should be taken as a compilation of similarities and differences, as well as a methodological framework for future reviews.

3.1 Key features

3.1.1 Status, duration and evaluation

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).

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).

Of the 27 programmes considered, 17 ([9]) were dedicated waste prevention programmes and 10 were incorporated within wider waste management plans. An overview is provided in Annex 4.

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

- France, the programme is part of a wider strategy on circular economy, with provisions on circular economy included in the recent energy transition law. The programme will also be included under a wider national waste plan;
- Ireland, the programme is incorporated into a resource efficiency strategy;
- the Netherlands, the programme is part of a circular economy strategy;
- Northern Ireland, the programme is intended to help the region move along the 'Road to Zero Waste' (i.e. to drive waste up the waste hierarchy and to deliver resource efficiency);
- Scotland, the programme is part of a strategy for both resource efficiency and the circular economy;
- Wales, the programme is part of the Welsh Government's vision for sustainable development.

Integration in wider waste management plans has occurred in different ways. Austria, Estonia, Finland, Flanders, Hungary, Latvia, Malta and Norway have specific sections in their programmes on waste prevention. In Brussels waste prevention is fully integrated in the waste management plan. Luxembourg addresses waste prevention in separate waste management plans for different categories of waste, which makes it difficult to obtain an integral overview of dedicated prevention measures (Annex 1; EEA, 2015).

The length and duration of the programmes vary greatly. The Finnish and Norwegian programmes are summarised in just 4 to 6 pages, whereas the detailed Bulgarian programme runs to almost 200 pages. Although some programmes focus on planned and implemented measures, others offer more general explanations of their national approaches (Annex 1; EEA, 2015).

([9]) The Polish waste prevention programme adopted in 2011 was part of the waste management plan. Nevertheless, the programme was adopted as separate document in 2014. For that reason, Poland's waste prevention programme is classified in this report as a dedicated waste prevention document.

The durations of the programmes in Brussels, England, Ireland, Luxembourg, the Netherlands, Northern Ireland, Norway, Scotland and Wales are virtually unlimited, while others range from 4 to 11 years (Annex 1; EEA, 2015).

The status and duration of each programme is presented in Table 3.1. Information on the waste prevention targets and indicators is provided in Sections 3.3 and 3.4.

The approaches to evaluation also vary. Some programmes explicitly require evaluation: some require evaluation every sixth year, others require more frequent evaluation. Austria, Brussels, Finland, France, Ireland, Poland, Slovakia and Sweden, for example, require evaluation after 3 or 4 years. In addition, the Irish, Lithuanian, Portuguese and Spanish programmes include an annual or biennial reporting cycle.

An overview of programme durations and planned evaluations is available in Annex 4.

3.1.2 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 or not countries fulfilled their obligation according to the Directive on Public Access to Environmental Information (EU, 2003).

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, 2015):

- thirteen of 27 programmes describe/anticipate the involvement of stakeholders in the **development phase**;
- twenty-three of 27 programmes envisage stakeholder involvement in the **implementation phase**.

Examples of stakeholder involvement in the development phase include the following:

- Austria and Ireland involved and consulted relevant actors throughout the entire process.
- Finland established a working group with many different stakeholders.
- Malta involved stakeholders in an initial month-long consultation process in which they had the opportunity to submit proposals.
- Northern Ireland arranged a stakeholder forum for waste prevention and envisaged the formation of a number of working groups that will report on the future reviews of the programme.
- Poland organised meetings with stakeholders during the development of their waste management plan at which waste prevention issues were discussed. Meanwhile, the country drafted a dedicated national waste prevention programme that was subject to consultations with relevant stakeholders.
- Sweden held workshops with stakeholders on developing targets and measures and established an advisory board to represent different stakeholders.

Examples of stakeholder involvement in the implementation phase include the following:

- Bulgaria involved municipalities, economic and scientific entities, non-governmental organisations and households as key stakeholders in the development and implementation of their programme.
- The Flanders programme describes specific groups of key stakeholders for specific fields of activities intended to, inter alia, maintain, strengthen, develop and innovate the network of reuse centres.
- France conducted a wide consultation exercise with representative organisations of stakeholders for the development of their programme. Implementation of the programme is foreseen, among others, in the form of voluntary agreements with relevant stakeholders.
- Ireland has set up the National Waste Prevention Committee, which includes a broad stakeholder group. The Committee meets periodically to provide strategic direction to the Irish Environmental Protection Agency (EPA) in the implementation of the waste prevention programme.

Table 3.1 Status and duration of 36 waste prevention programmes running in Europe by 1 December 2015

No	EEA member countries	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
1	Austria																						
	Belgium																						
2	Brussels (a)																						∞
3	Flanders (a)																						
4	Wallonia (a)																						
5	Bulgaria																						
6	Croatia (b)																						
7	Cyprus																						
8	Czech Republic																						
9	Denmark																						2027
10	Estonia																						
11	Finland																						
12	France																						
13	Germany																						
14	Greece																						
15	Hungary																						
16	Iceland																						
17	Ireland																						∞
18	Italy																						
19	Latvia																						
20	Liechtenstein																						
21	Lithuania																						
22	Luxembourg																						∞
23	Malta																						
24	Netherlands																						∞
25	Norway																						∞
26	Poland																						
27	Portugal																						
28	Romania																						
29	Slovakia																						
30	Slovenia																						
31	Spain																						
32	Sweden																						
	United Kingdom																						
33	England (a)																						∞
34	Northern Ireland (a)																						∞
35	Scotland (a)																						∞
36	Wales (a)																						∞

Note: (a) Refers to region; (b) indicates a special agreement with the EC.

- Programme covered by 2014 review.
- No programme.
- No information.
- Duration/coverage of the programme.
- ∞ Virtually indefinite duration.
- Quantitative targets.
- Indicators.

Sources: Annex 1; EEA 2015.

- 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 implementation.
- Malta is considering setting up a Waste Management Stakeholders Group for the regular engagement of interested stakeholders.
- Northern Ireland established a Waste Programme Board as a non-statutory advisory committee comprising representatives from a wide range of stakeholder groups.
- Portugal has a signed collaboration protocol with stakeholders for implementation.
- Sweden's programme aims to inspire and guide stakeholders to prevent waste and suggests measures that different stakeholders can take for each of its general targets and four focus areas.

In Estonia stakeholders are generally involved in waste management activities, although there is no specific information on the topic of waste prevention.

Examples of how Germany has engaged stakeholders over the issue of waste prevention are described in Box 3.1.

3.1.3 Financing

Only a few programmes include explicit information on the financial resources for the implementation of the programmes (Table 3.2).

Some countries describe how they plan to finance waste prevention measures. Portugal, for example will do this partly through fees and other financial instruments, whereas Hungary will charge for landfill, a share of which will be dedicated to waste prevention. Estonia, Spain and Slovakia, will rely on EU funds to finance their programmes. For more information, see Annex 5.

Ireland's regular annual progress reports contain information on investment, as well as details of cost savings achieved by the stakeholders involved in the waste prevention initiatives (Box 3.2).

Although the programme for Northern Ireland does not explicitly include information on economic costs or savings, it cites research conducted as part of the Green Home Programme (NIEA, 2015). This estimates an overall household expenditure saving of 25% for all Green Home-participating households to be around EUR 325 per household per year or EUR 1.6 million in total per year (Table 3.8; Annex 5).

Box 3.1 Germany: engaging stakeholders

One of the main concerns of the waste prevention programme in Germany was consulting and involving public and private stakeholders to support the implementation phase (Annex 1; EEA, 2015).

In May 2014, the German Federal Environment Agency (UBA) organised a symposium to promote the programme, facilitate adoption of the recommendations and provide a platform for the exchange of information between stakeholders (UBA, 2015).

Theme-specific discussions on the selected measures were organised within working groups covering three aspects of product-related waste prevention (UBA, 2015):

- production — with a focus on reparable and durable products;
- reuse — with a focus on collection, repairing, updating and ensuring quality standards of used products;
- trade in used goods — with a focus on more effective and sustainable forms.

In addition, the UBA initiated a research project focused on the drafting of a communication strategy to identify stakeholders in each area of work and to facilitate a professional exchange between actors, decision-makers and experts in order to develop specific action guidelines.

Table 3.2 Examples of financial resources for implementation

Country/region	Amount(s) allocated	Specifications
Brussels ([a])	EUR 10.49 million (EUR 5.45 million)	For 2010–2013 for waste prevention (for household waste prevention)
England ([a, b])	GBP 5 million (EUR 6.3 million)	For the prevention and management of: • municipal waste • biodegradable waste • hazardous waste • construction and demolition waste
Flanders ([a])	EUR 1.78 million	Costs for prevention and reuse measures in 2015
Hungary ([b])		For the prevention and management of:
	HUF 155 billion (EUR 0.5 billion)	• municipal waste
	HUF 15 billion (EUR 49 million)	• biodegradable waste
	HUF 8 billion (EUR 26 million)	• hazardous waste
	HUF 7 billion (EUR 23 million)	• construction and demolition waste
Poland	PLN 94.8 million (EUR 22.79 million)	Overall budget estimated for 14 strategic actions

Note: ([a]) Refers to region; ([b]) figures for England and Hungary include both prevention and management and, therefore, funding volumes are not comparable with other countries/regions.

Sources: Annex 1; EEA, 2015.

Box 3.2 Ireland: waste prevention in numbers

The Irish National Waste Prevention Programme (NWPP), in place since 2004, initiated several waste prevention activities (EPA Ireland, 2015):

- The Green Hospitality Programme provides a step-by-step approach to environmental management within the hospitality and catering sectors.
- Green Business Initiative is a resource efficiency service for all small and medium-sized enterprises (SMEs). The initiative aims to support businesses by providing recommendations for resource efficiency savings. A key element of the initiative is Smart Farming, which involves the dissemination of best practices in resource management. The average cost saving identified was EUR 6 600 per farm per year.
- The Green Healthcare aims to improve resource efficiency and to help prevent and reduce waste and emissions from healthcare facilities.
- The SMILE Resource Exchange is a service for businesses that encourages the exchange of resources between members to save money, reduce waste going to landfill and develop new business opportunities.
- Green Homes is an environmental programme that provides participants with practical tips and information on ways to save money on household bills and help to protect the environment.

The volumes of NWPP annual funding for each initiative are presented in Table 3.3 along with the savings realised or expected in 2012.

Table 3.3 Overview on the cost-benefits for selected waste prevention initiatives in Ireland

Initiative (programme)	NWPP investment (EUR millions)	Annual and potential savings in 2012 (EUR millions)	Investment return
Green Hospitality Award	0.366	6	16×
Green Business Initiative	0.34	c. 3	9×
Green Healthcare	0.148	5.29	36×
SMILE	0.15	0.675	5×
Green Homes	0.2	1.6	8×

Source: EPA Ireland, 2015.

3.2 Scope and objectives

3.2.1 Sectoral coverage

The reviewed programmes cover a variety of sectors. Only six countries: France, Germany, the Netherlands, Poland, Scotland and Spain cover all sectors (Table 3.4). General conclusions are as follows (Annex 1; EEA, 2015):

- all programmes cover the household sector;
- all programmes, except for Northern Ireland, cover the public services sector and all programmes, except those for Bulgaria and Latvia, cover the construction/infrastructure sector;
- most programmes cover manufacturing, private service activities/hospitality and the sale, retail and transport sectors;
- programmes in France, Germany, Hungary, Ireland, Italy, Lithuania, the Netherlands, Poland, Scotland, Spain and Sweden include the agriculture sector. Agriculture is mentioned primarily in the context of preventing food waste;
- ten programmes, in the Czech Republic, Estonia, Finland, France, Germany, the Netherlands, Poland, Scotland, Slovakia and Spain, include mining and raw material processing.

Stating that a programme covers a particular 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 by a specific programme, the agriculture and mining and raw material sectors may be dealt with in other policies and by other ministries.

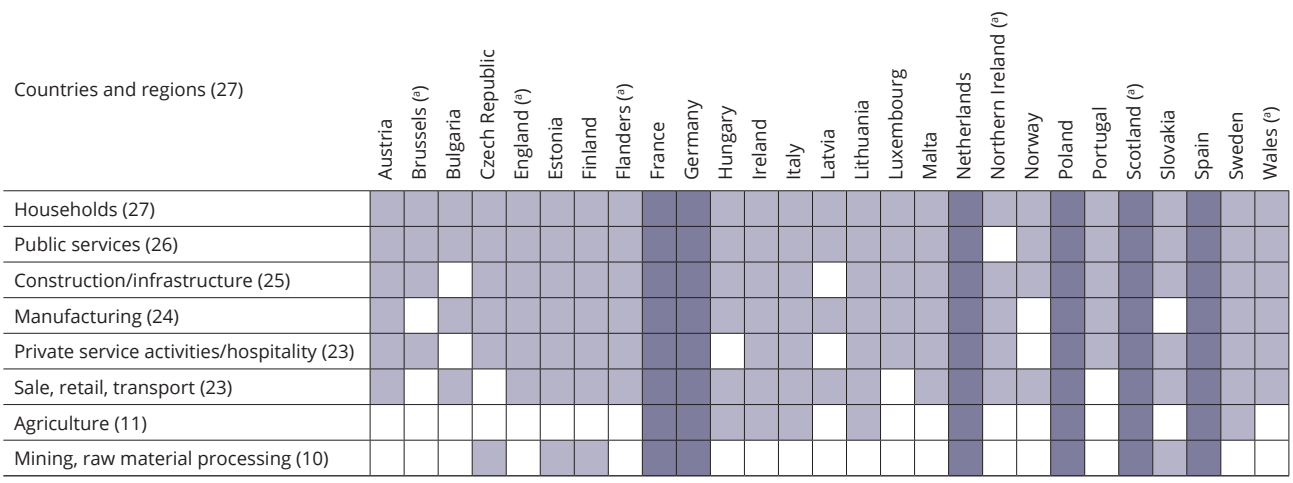
Generic action on resource efficiency can be expected to encompass other sectors, as it reduces the demand for primary resources. For example, prevention of construction waste might reduce demand for the quarrying of new aggregate/stone in the mining sector.

Austria is an example of how prioritising the sectors, for example construction and infrastructure can lead to successful long-term waste prevention (Box 3.3).

3.2.2 Waste type coverage

Different types of waste are covered by different programmes, with each programme covering 5–10 waste types (Table 3.5), 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 are listed here. Ten countries and regions: Brussels,

Table 3.4 Waste prevention programmes by sector



Note: (a) Refers to region.

All sectors covered. Some sectors covered.

Sources: Annex 1; EEA, 2015.

England, Estonia, France, Ireland, Lithuania, Malta, the Netherlands, Scotland and Spain, cover all listed waste types. The fact that a programme covers different types of waste, however, does not necessarily mean that it includes specific initiatives or measures for its prevention (Annex 1; EEA, 2015).

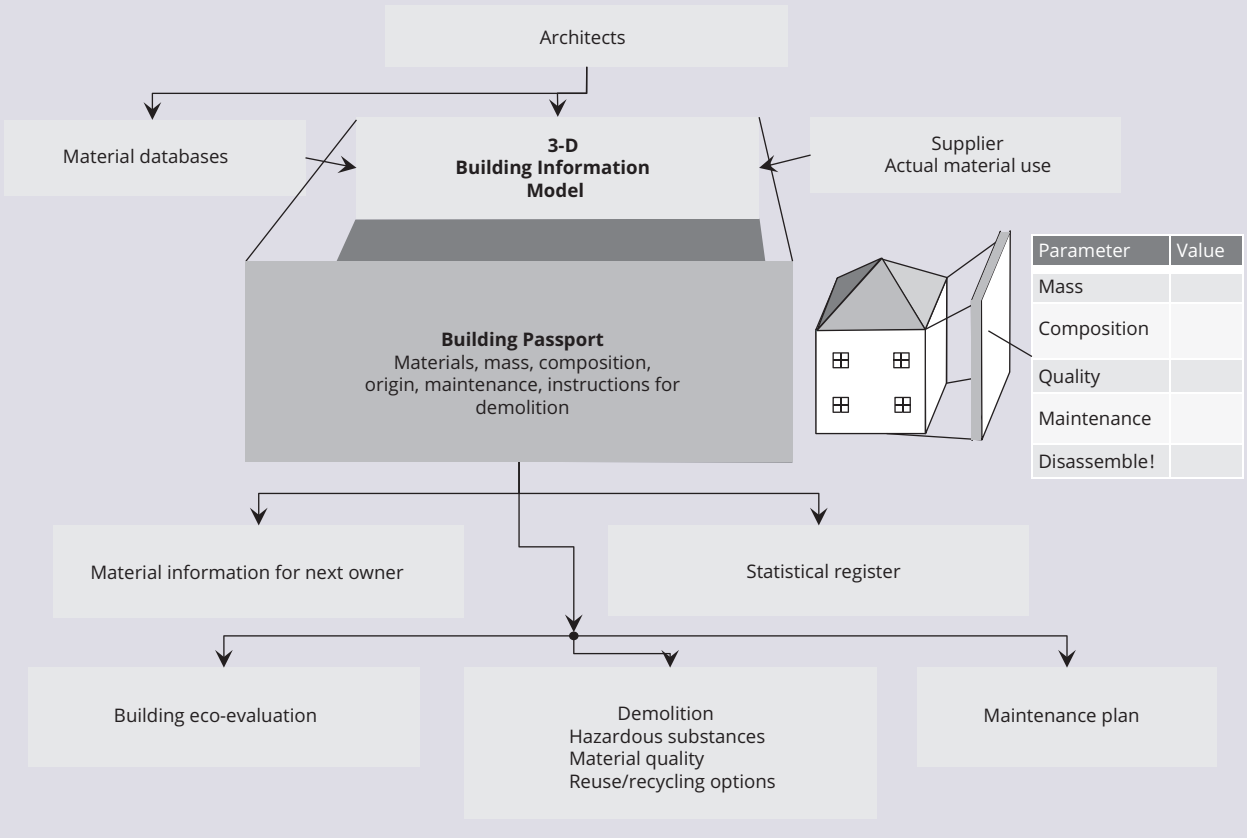
Box 3.3 Austria: a case study from the construction and infrastructure sectors

Austria prioritised the construction and infrastructure sectors for waste prevention and introduced a 'building passport' as part of a building material information system. The passport is kept with the building's documentation throughout its life cycle (Figure 3.1).

The passport aims to connect the architect, suppliers and statistical registers to enable: the careful, selective demolition of buildings; the reuse and high-quality recycling of building materials, and the prevention of waste by extending the use of houses through improved maintenance schemes.

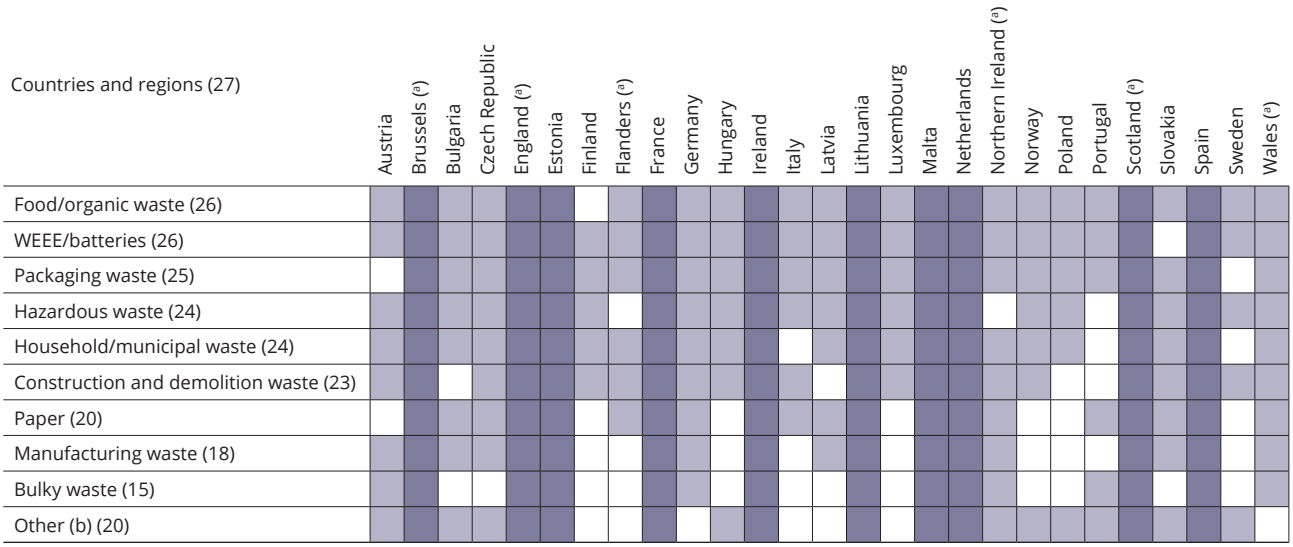
The passport includes all necessary information for the waste-light operation of buildings, and records all building activities, incorporated materials and technical equipment. Following several pilot projects, the Austrian waste prevention programme is now working to standardise the passport and increase its use. The concept was developed as part of a research project initiated by the Ministry of Agriculture, Forestry, Environment and Water Management for the implementation of the waste prevention programme (EAA, 2015).

Figure 3.1 Schematic presentation of a building material information system in Austria



Source: EAA, 2015.

Table 3.5 Waste prevention programmes by waste type



Note: (a) Refers to regions; (b) other waste types include textiles, tyres, garden waste, vehicles and nappies.

All waste types covered. Some waste types covered.

Sources: Annex 1; EEA, 2015.

Box 3.4 Poland: case study on mining waste

The Polish waste prevention programme prioritises waste types according to the following criteria: waste that has a considerable share in the total quantity of annually generated waste; waste that has a considerable share of hazardous waste specifically chemical industry waste and waste chemical agents; waste for which prevention options already exist, for example municipal waste, packaging waste, food waste and WEEE (Annex 1; EEA, 2015).

Poland is one of the European countries with relatively high volumes of mining waste. According to the Polish Central Statistical Office, mining waste represented more than half the total waste generated by weight in 2012. Therefore, the Polish waste prevention programme introduced a series of good waste prevention practices specifically targeting the mining sector, including (Annex 1):

- using, were possible, extractive methods instead of open-pit mining, enabling waste reduction at the source;
- reducing, if possible, the mining of 'thin' seams ([10]) using old mining technology, which often results in the inefficient exploitation of deposits; using deposits with higher concentrations of minerals and ores is recommended instead;
- ensuring the efficient and accurate use of powered wall supports and shearers (cutters), enabling the accurate exploitation of mineral seams while minimising waste;
- greater use of gluing of roof rocks to eliminate dropped rocks in walls and gangways, which leads to waste generation.

([10]) Seam refers to a comparatively thin stratum; a bed, as of coal.

Preliminary findings indicate that:

- food or organic waste is covered in all but the Finnish programme;
- household/municipal waste is mentioned as a category in all programmes other than those of Italy, Portugal and Sweden. Nevertheless, these countries address specific types of waste from municipal sources, such as food, textiles, packaging or paper waste, separately;
- hazardous waste is covered in all but the Flemish, Northern Irish and Portuguese programmes. The number of measures, however, is very low;
- construction and demolition waste is covered in all but the Bulgarian, Latvian, Polish and Portuguese programmes;
- some countries have selected focus areas for their programmes, and measures are concentrated around these; for example:
  - Italy sets a focus on biodegradable waste, paper, packaging and WEEE;
  - Sweden focuses on food, WEEE, construction and demolition, and textile wastes;
  - Poland specifically includes waste from thermal processes.

3.3.3 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 objectives and goals of the programmes were analysed against the Waste Framework Directive definition (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 potential for evolution within predefined timeframes.

The general waste prevention objectives vary (Annex 1; EEA, 2015).

- **Breaking the link between economic growth and the environmental impacts** associated with the generation of waste is included in more than half of the programmes, in particular those of Austria, Bulgaria, Estonia, France, Germany, Hungary, Ireland, Italy, Latvia, Malta, Northern Ireland, 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), Estonia, Northern Ireland, Poland and Portugal; **decoupling of resource use from economic growth**, Czech Republic and Hungary; and **preventing the use of primary materials**, Flanders are covered in the respective programmes.
- **The reduction of harmful substances** is included in 15 of the programmes: Bulgaria, Czech Republic, Estonia, Finland, Flanders, Germany, Ireland, Latvia, Lithuania, the Netherlands, Poland, Portugal, Spain, Sweden and Wales. More information on qualitative waste prevention objectives is provided in Box 3.5.
- **New business models** appear in four programmes: England, France, Northern Ireland and Wales, whereas **job creation** and **behavioural changes** are each mentioned in one, Hungary and Malta, respectively. Examples of new business models include the development of a product-service system, France, and models designed to assist reuse businesses and promote reuse assurance standards throughout supply chains, Northern Ireland.
- **Contributing to a reduction of marine litter** is mentioned only in Spain's and France's programmes.

The review of objectives shows the variety and range of different national activities that contribute to waste prevention. More information on objectives is provided in Annex 6.

Box 3.5 Qualitative waste prevention objectives

Several programmes include the qualitative aspects of waste prevention, for example those that aim at reducing the content of harmful substances in materials and products, as defined in Article 3 (12) of the Waste Framework Directive (Annex 1; EEA, 2015):

- Bulgaria aims to reduce the content of harmful substances in materials and products;
- Czech Republic is working to stabilise volumes of hazardous waste with a view to reducing it in the coming years;
- Estonia has a strategic goal of preventing and reducing the generation of its waste, including its toxicity;
- Finland foresees a reduction in the use of certain hazardous chemicals and their replacement with less hazardous alternatives;
- Flanders bans/prevents the use of hazardous materials in new buildings and retrieves hazardous substances during the demolition of buildings and infrastructure;
- Germany has an operational goal of reducing and substituting hazardous substances;
- Ireland's goal is to reduce the use of hazardous substances and the generation of hazardous waste;
- Latvia is committed to reducing the quantity of hazardous substances used in the production of materials and products;
- Lithuania is working to reduce the amount of harmful substances in materials and products;
- the Netherlands foresees introducing practical action for better design — less material use, fewer harmful substances, more recycled material and longer product life as part of its circular economy framework;
- Poland has set an objective related to products and production with particular emphasis on limiting the use of harmful substances;
- Portugal aims to act progressively to reduce the presence of hazardous substances in products, materials and waste;
- Spain puts an emphasis on reducing the toxicity of substances in products;
- Sweden aims to guide and inspire stakeholders so that environmental goals are met, less waste is generated and products are hazardous-substance-free, irrespective of how much the economy grows;
- Wales aim is to reduce the content of harmful substances in materials and products.

Specific substances that should be banned or avoided are not listed or described in any of the programmes. Reducing the adverse impacts of generated waste on human health and the environment is also implicit and rather vague.

3.3 Targets

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 as well as public and private stakeholders.

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

A total of 18 ([11]) programmes include some form of quantitative targets, but limited 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 3.6). The targets are sometimes expressed in absolute terms, per person or per unit of gross domestic product (GDP) or gross value added (GVA), to name just a few.

Total waste in absolute terms is targeted by programmes in the Netherlands, Poland, Scotland, Spain, Sweden and Wales in a number of different ways and all targets are modest (Annex 1; EEA, 2015):

- the Netherlands limits the increase in waste generation to 1.5% a year over nine years;
- Poland's goal is to maintain a constant quantity of generated waste and to reduce the volume of waste generated relative to GDP;
- Scotland has set reduction targets of 7% by 2017 and 15% by 2025, both against a 2011 baseline — this corresponds to around 1.2% a year;
- Spain has set a target of a 10% reduction between 2010 and 2020 — corresponding to 1% a year;
- 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 with 2007 levels — equivalent to about 1.5% a year.

Table 3.6 Overview on the selected quantitative targets covered by the waste prevention programmes

Countries and regions (17)	Brussels [a]	Bulgaria	England [a]	Estonia	Finland	Flanders [a]	France	Italy	Latvia	Malta	Netherlands	Poland	Portugal	Spain	Sweden	Scotland [a]	Wales [a]
Household/municipal waste (11)	■	■		■	■	■	■	■	■			■	■				■
Food waste (6)	■		■							■	■	■			■		
Total waste (5)											■	■		■	■	■	
Hazardous waste (4)		■						■	■						■		
Industrial/mining waste (4)		■					■					■					■
Construction and demolition waste (3)							■								■		■
Textile waste (2)												■			■		
Non-hazardous waste (1)								■									
Commercial waste (1)																	■

Note: [a] Refers to region.

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

Sources: Annex 1; EEA, 2015.

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

Municipal/household waste targets have been set in 11 countries/regions:

- England aims for a 5% reduction in household food and drink waste by 2015 relative to 2012 baseline, equivalent to 1.7% a year;
- Estonia aims to keep the generation of municipal waste stable from 2020 and, until then, to grow at less than half of GDP. Thus, assuming GDP will continue to grow at around 3% per year, the growth in the generation of municipal waste should remain below an average of 1.5% a year;
- Finland aims to stabilise annual waste generation to 2.3–2.5 million tonnes and to further reduce the trend by 2016;
- Flanders aims to decouple the total amount of household waste produced from consumption and to ensure that it remains constant or decreases compared with values for 2000, when it was 560 kilograms per person;
- Italy aims for a 5% reduction in waste generated per unit of GDP between 2010 and 2020 corresponding to 0.5% a year;
- Poland aims to reduce the amount of mixed municipal waste;
- Wales aims for an annual reduction of 1.2% compared with 2006/2007 levels until 2050.

Box 3.6 provides some examples of quantitative targets linked to current levels of municipal waste generated per person.

Targets for the reduction of food waste have been set in Brussels, England ([12]), France, Malta, the Netherlands, Poland and Sweden.

Targets for industrial waste have been set in:

- Wales: a reduction of 1.4% annually until 2050, using 2006/2007 as a baseline;
- Bulgaria: the volume of industrial waste per unit of GDP in 2020 to be less than in 2010.

The target for reducing construction and demolition waste in the Welsh waste prevention programme is set at a 1.4% annually up to 2050 for waste treated off-site, based on a 2006/2007 baseline. Sweden aims to decrease construction and demolition waste generation per built square meter, compared with 2014 levels.

The amount of hazardous waste has been targeted in Bulgaria, Italy and Latvia, and a reduction of the hazardous substances content of materials and products has been targeted in Sweden.

([12]) 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). Owing to the voluntary nature of these targets, in this analysis they are treated differently from the obligatory targets set elsewhere.

Box 3.6 Linking municipal waste targets to waste generation

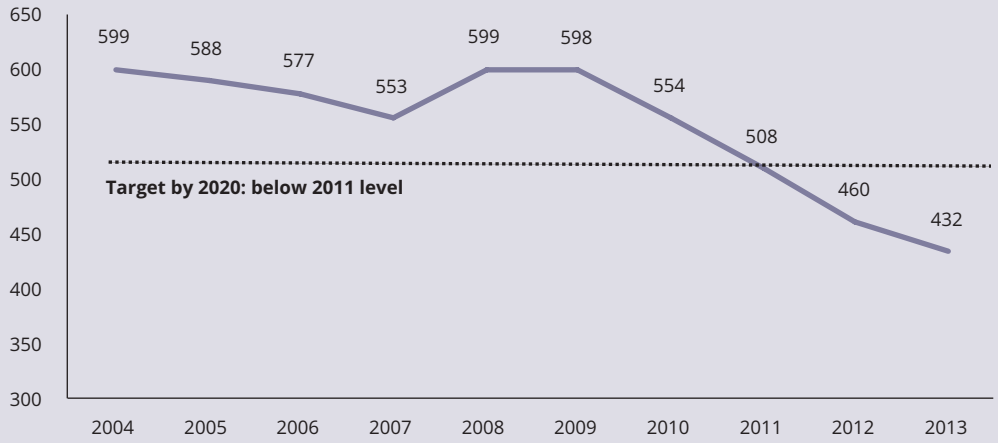
Although it is premature to talk about compliance of the targets in the majority of the waste prevention programmes, it is possible to link set municipal waste targets with current levels of generated waste. Examples from Bulgaria, France, Latvia and Portugal are provided in Figure 3.2.

The observations, however, are by no means an analysis of distance to targets, as that will require an examination of current management systems and practices; existing and planned infrastructure and facilities; overall development of relevant policies; and effectiveness of implementation measures and instruments, among other things.

Figure 3.2 Examples from Bulgaria, France, Latvia and Portugal

Municipal waste generation (kilograms per person)

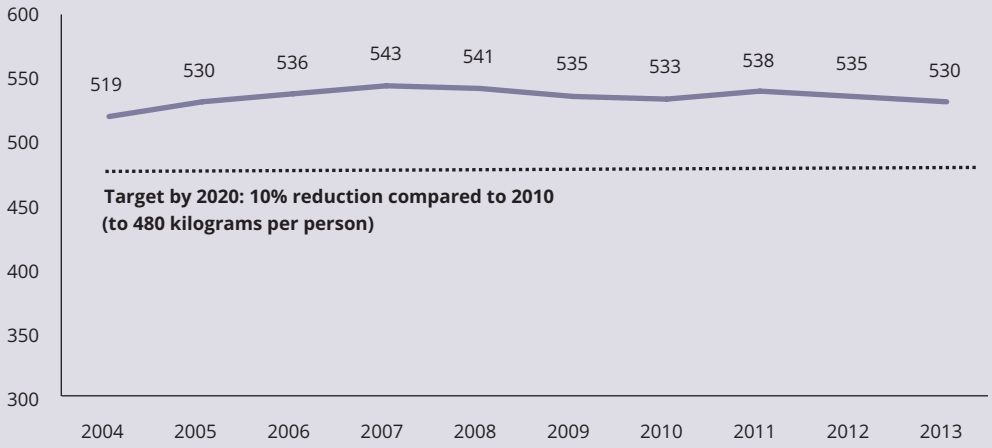
Bulgaria



Bulgaria's target is to reduce the volume of municipal waste generated per person relative to 2011. As can be seen, the country appears to be on target.

Municipal waste generation (kilograms per person)

France



France is targeting a reduction of 10% in municipal waste per person relative to 2010. Current data shows a decline of less than 1% between 2010 and 2013. The current level of 530 kilograms per person will have to drop to close to 480 kilograms per person between 2013 and 2020 in order to reach the target.

Box 3.6 Linking municipal waste targets to waste generation (cont.)

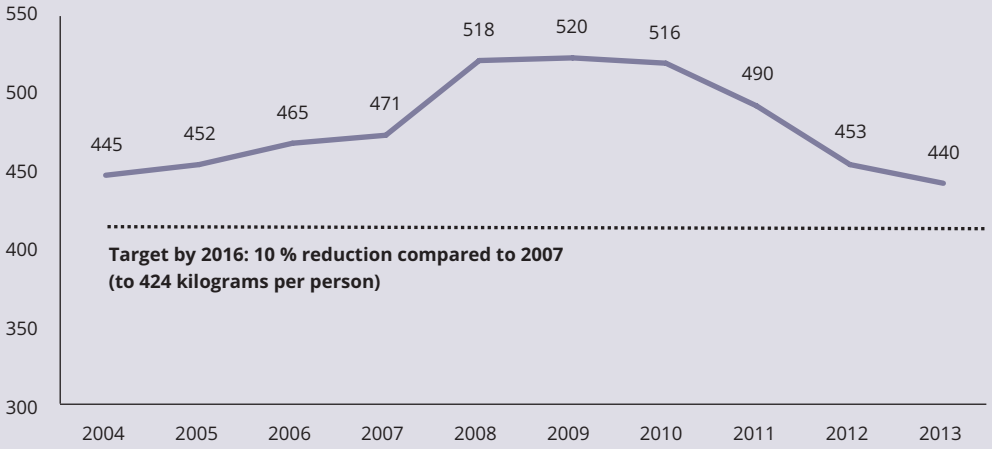
Municipal waste generation (kilograms per person)

Latvia

Latvia set the upper limit for municipal waste generation at 400 kilograms per person by 2020. According to current levels of waste generation, amounts could theoretically increase by close to 4% a year and still achieve the target.

Municipal waste generation (kilograms per person)

Portugal



Portugal is targeting a 10% reduction in municipal waste generation per person between 2007 and 2016 from 471 kilograms to 424 kilograms per person. The reduction rate was close to 7% between 2007 and 2013.

Sources: Annex 1; Eurostat, 2015.

Sweden has also set targets for WEEE, textiles and construction, but not numerical ones. An example of a reduction of hazardous substances in textiles is presented in Box 3.7.

Poland is the only country to have set a target for mining waste — to reduce the quantity of mining waste in relation to the production volumes — and to have set targets for waste arising from thermal processes relative to the amount of energy generated.

Many countries have decided not to include quantitative targets for the time being. Germany, for example, considers it premature to set such targets owing to the poor quality of data and the problems associated with defining indicators and establishing evaluation mechanisms. Against this background, the German Federal Environment Agency (UBA) is in the process of starting a new research project to analyse the possibilities for a consistent set of waste prevention indicators.

Box 3.7 Sweden: reduction of hazardous substances in textiles

Qualitative waste prevention for textiles, and thus the reduction of hazardous substances, is one of the main focuses of the Swedish programme, which includes a general target for the reduction of hazardous substances in materials and products. To this end, the Swedish Environmental Protection Agency (SEPA), in cooperation with other government agencies in Sweden and the other Nordic countries, is working to increase the sustainability of its textile industry. Consumption of clothing and home textiles in Sweden increased by nearly 40% between 2000 and 2009 and are today about 14 kilograms per person per year (SEPA, 2015).

Inter alia, SEPA is involved in a network of representatives from clothing manufacturers and trading associations, environmental organisations, public authorities, consumer organisations and environmental scientists (NC, 2014; 2015).

The Nordic countries have commissioned the development of a common Nordic strategy for the collection, sorting, reuse and recycling of textile in response to a project funded by the Nordic Council of Ministers (NCM). The project demonstrated that in Denmark, Finland and Sweden 145 thousand tonnes of textile are thrown away every year, half of the amount put on the market annually and made recommendations for reducing the volume of waste (NCM, 2015).

A voluntary certification system for used textiles is now under implementation. The certification is available to Nordic actors involved in the collection and sorting of used textiles. The certification system is part of the 'Nordic textile reuse and recycling commitment' and aims to reduce the environmental impacts of textile consumption, increase textile reuse and recycling and ultimately strengthen the competitiveness of the Nordic region's textile industry. Targets include doubling the volumes of used textiles that are currently collected and by 2025, reusing or, where reuse is not possible recycling, at least 50% of collected textiles (NCM, 2015).

More information on quantitative targets by country/region is provided in Annex 7.

3.4 Indicators and monitoring

Indicators and benchmarks are crucial for monitoring progress against objectives and targets, but while the programmes reviewed included suggestions for a broad range of indicators, there is little clarity about which of these will either be further researched or implemented. Additionally, some countries have core or key indicators that are prioritised, while other potential useful indicators are not.

For example, Austria describes a set of core indicators which will be determined regularly (if possible, annually), whereas additional indicators will only be updated once up to 2017. The Environment Agency Austria is currently working on its first progress report (Annex 1; EEA, 2015).

3.4.1 Waste prevention indicators

This review focuses on four general groups, based on previous work by the OECD (2003) on indicator types:

- **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 3.7 provides an overview, based on this grouping, of waste prevention indicators included in the waste prevention programmes. It should be noted that only 17 of the 27 ([13]) programmes have defined quantitative targets, whereas 24 countries include waste prevention indicators. A more comprehensive, but not exhaustive, list of indicators is included in Annex 8.

([13]) Although the Finnish waste prevention programme does not include specific indicators, the Ministry of the Environment and the Finnish Environment Institute has drawn up a monitoring programme to assess the implementation and impacts of the plan. The programme lists the indicators to be monitored in connection with the most important steering instruments (Annex 1). The monitoring plan lists the specific indicators also for waste prevention.

Table 3.7 Overview of waste prevention indicators

Countries and regions (24)	Austria	Bulgaria	Czech Republic	England [a]	Estonia	Germany	Finland	Flanders [a]	France	Hungary	Ireland	Italy	Latvia	Lithuania	Malta [b]	Netherlands	Northern Ireland [a]	Poland	Portugal	Scotland [a]	Slovakia	Spain	Sweden [c]	Wales [a]
Output-based indicators (21)	■		■	■	■	■	■		■	■	■		■	■	■	■	■	■	■	■	■	■	■	■
Decoupling indicators (14)		■		■		■	■		■		■			■			■	■		■	■	■	■	■
Response indicators (12)	■		■		■	■		■	■	■	■	■			■			■				■		
Specific waste prevention measures indicators (7)					■	■			■		■				■			■		■				

Note: ([a]) Refers to region; ([b]) the Maltese waste prevention programme defines no specific indicators, but describes specific monitoring rules for the different prevention measures; ([c]) refers to 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 shows only commonly used indicators. Countries/regions not listed are yet to set waste prevention indicators.

Sources: Annex 1; EEA, 2015.

All countries and regions, with the exception of Bulgaria, Flanders and 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.

A total of 14 countries and regions 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 waste or hazardous waste, expressed per unit of GDP or GVA.

Response indicators are covered in 12 programmes and include a wide range of indicators, such as the:

- turnover of reuse organisations (Austria);
- number of companies with environmental management systems (Germany);
- evolution of public and private research and development budgets for innovative pilot projects in the area of environmentally responsible materials, products and systems (Flanders);
- number of waste prevention awareness campaigns carried out for the specific sector (France);
- number of events related to waste prevention (Hungary);
- number of businesses contacted by different waste prevention programmes, or participating in waste prevention or recycling (Ireland);
- number of products that enter and leave a reuse centre, and the number of visits made to reuse centres (Italy);
- increase in awareness and behaviour change in the population in response to outreach initiatives intended to set future benchmarks (Malta);
- number of issued eco-labelling certificates (Poland);
- list of actions implemented per qualitative target (Portugal);
- number of operative reuse centres and the number of associated employees (Spain).

Indicators linked to **specific waste prevention measures** were only considered in seven programmes.

- Germany looks at the in-plant closed substance cycles and low-waste product design.
- Ireland disseminates the principles of resource efficiency and waste prevention throughout the public and private sectors to encourage uptake of best practice for internal activities and influence the public and clients.
- Flanders monitors the amount of organic biodegradable waste that was not deposited in the relevant dedicated containers. It also records

the number of participants attending education workshops and training courses on home composting.

- France defines nine global indicators that monitor the degree to which policy objectives are achieved as well as, inter alia, the generation of hazardous waste and general understanding of waste prevention.
- Malta monitors the reduction in waste generation for specific streams such as food waste and construction and demolition waste (before and after implementation).
- Poland measures the reuse of waste equipment relative to the total mass of waste equipment collected in a given year.
- Scotland considers the carbon impact of waste and the impacts of waste across the whole life cycle, including the benefits of prevention and recycling.

The analysis reveals the lack of consistency across indicators, which is likely to make it difficult to interpret and compare results of specific waste prevention programmes across countries and regions in the future. There might be a need for common waste prevention indicators to facilitate benchmarking of Member States' performance.

3.4.2 Monitoring systems

It should be noted that many indicators are only mentioned as possibilities, and several waste prevention programmes refer to a need for further research in order to identify appropriate indicators.

As a result, only 10 programmes (Austria, England, Finland, France, Hungary, Italy, Malta (Box 3.8), Poland, Spain and Sweden) stipulate a specific monitoring system, and the responsible actors for monitoring are only explicitly mentioned by France, Italy, Spain and Sweden; in Poland, indicators will be reported every three years. Some countries have monitoring programmes or more extended monitoring systems that are not specifically mentioned in their waste prevention programme.

Additional details on monitoring systems are provided in Annex 9.

Box 3.8 Malta: monitoring of food waste prevention

According to the National Statistical Office in Malta, 22% of food purchased is wasted. It was estimated that the share of food in domestic waste is on average almost 56% or around 2.5 kilogram per person per week. Residents consume on average more than 12 kilograms of food per person per week for which they pay EUR 26.

Food waste, according to the Waste Management Plan, is primarily a result of incorrect purchasing patterns, lack of understanding of 'best-before' and 'use-by' labelling and inadequate storage. The plan sets a combination of quantitative and qualitative targets, such as raising awareness through public campaigns and reducing food waste to 15% of purchases in the next five years.

The programme plans to monitor compliance by conducting/publishing:

- biennial awareness surveys of the importance of reducing food waste;
- a biennial survey to establish the number of committed food waste savers;
- a five-year survey by the National Statistical Office to determine the amount of domestic food waste.

Sources: Annex 1; EEA, 2015.

3.5 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).

This review focuses on future or planned measures, although many programmes also describe successful past measures. More than 440 waste prevention measures in accordance with Annex IV of the Waste Framework Directive have been identified.

This review is supported by a brief analysis of related policy documents and good examples from each programme.

3.5.1 Measures

Annex IV of the Waste Framework Directive categorises examples of waste prevention measures into 16 measures, which are addressed in three areas in three areas as presented in Box 3.9 and Annex 10.

Box 3.9 Waste prevention measures according to the life cycle approach

Area 1. Framework conditions relating to the generation of waste:

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

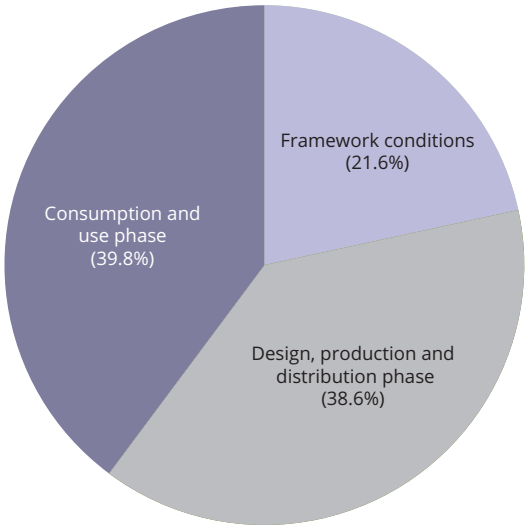
Area 2. Design, production and distribution phase:

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

Area 3. Consumption and use phase:

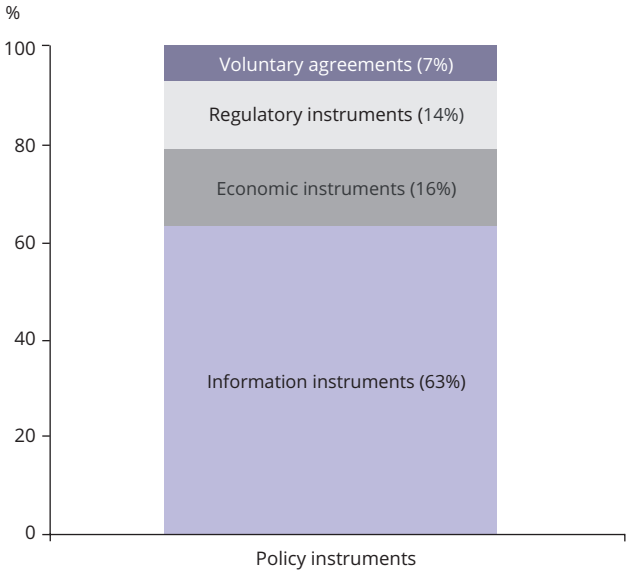
11. the introduction of economic instruments (subsidies, charges) to prevent waste;
12. the provision of information for consumers;
13. the promotion of eco-labels;
14. agreements with industry;
15. the integration of environmental criteria into calls for tenders and contracts;
16. the promotion of reuse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

Figure 3.3 **Availability of measures for the different areas according to Annex IV of the Waste Framework Directive**



Sources: Annex 1; EEA, 2015.

Figure 3.4 **Distribution of policy instruments for the measures in Annex IV of the Waste Framework Directive**



Sources: Annex 1; EEA, 2015.

The analysis shows that all programmes include at least one measure for each of the three areas. Of the recorded measures, 39% focus on the **design, production and distribution phase**; 40% relate to the **consumption and use phase**; and 21% focus on the **general** framework conditions of waste generation (Figure 3.3).

As some countries/regions explicitly focus on one example per category, the total number of measures per country cannot be used as an indicator of 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 eight 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 on toxic materials.

3.5.2 Policy instruments

The existing waste prevention programmes contain a wide variety of policy instruments, but these can be grouped into four main types:

- information instruments, including labels, awareness-raising campaigns and pilot projects;
- regulatory instruments, setting binding standards and norms;
- economic instruments, including tax incentives, green public procurement and direct subventions;
- voluntary agreements, with clear and measurable targets, mainly initiated by business associations, seem to be a preferred instrument in some places, in particular in Bulgaria, Estonia, Italy, Lithuania, Luxembourg, Norway, Spain and Wales ([14]).

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

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

Figure 3.4 shows that the prevailing type of policy instruments are **information instruments** with 63% of all those listed across 27 waste prevention programmes, followed by **economic** and **regulatory instruments** accounting for 16% and 14%, respectively. **Voluntary agreements** are the least represented category, comprising about 7% of the total mix.

3.5.3 Policy mixes

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

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

3.5.4 Measures beyond the Waste Framework Directive, Annex IV

Several measures go beyond Annex IV of the Waste Framework Directive, to clarify the responsibilities and funding of waste advisory services or to support waste prevention and resource efficiency activities beyond national borders, for example. A number of countries/regions, such as Austria, Finland, Germany, Hungary, Ireland, Italy, Lithuania, Malta, the Netherlands, Poland, Spain and Wales, include such specific waste prevention measures in their programmes. Examples ([15]) include:

- the 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 dedicated conference in Germany;
- the promotion of the use of lower quality food for charitable purposes in Hungary (pp. 260–261).
- the promotion of loan and hire as a means to enhance the frequent reuse of common items without the need for their re-creation in Malta (p. 185).

3.6 Examples of good practice

Table 3.8 provides examples of good practice, selected by the authors in cooperation with the Eionet countries, for all 16 categories in Annex IV of the Waste Framework Directive. The page numbers refer to the specific waste prevention programmes; in some cases, additional information is given based on publicly available information.

([15]) The page number(s) in parentheses refer to the pages of the waste prevention programmes listed in Annex 1.

Table 3.8 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	**France: Planning measures at the local level** Since September 2015 in France, local authorities are required under the national waste prevention programme to develop local waste prevention programmes on municipal solid waste (see: http://legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000030717221&dateTexte=&categorieLien=id). These programmes shall include waste reduction objectives at a local level, as well as measures to achieve these objectives (pp. 76-78). More information is available at the ADEME web-site: http://www.ademe.fr/expertises/dechets/passer-a-laction/eviter-production-dechets/dossier/programmes-locaux-prevention/dispositif-plans-programmes-prevention-dechets-bilan-2009-2013
2. The promotion of research and development into cleaner and less wasteful products and technologies and the dissemination and use of the results	**Bulgaria: Information exchange for research and development on waste prevention** The Bulgarian waste prevention programme includes a specific measure for the improved diffusion of research results in the field of waste prevention. The measure is linked to the creation of a web platform for presenting the results and best practices from research and development of products and technologies that use fewer resources and generate less waste (p. 77). **Czech Republic: Expert analysis of hazardous substances** The Czech waste prevention programme proposes the development of an expert analysis of the occurrence of hazardous substances and materials in the construction industry with regard to its reduction. The measure aims to replace particular materials and substances without affecting the properties of building and construction materials and components (p. 80). **Luxembourg: Testing ground for a circular economy** A study commissioned by the Ministry of Economy and steered by a committee of representatives from the Ministry of Economy, the Ministry of Sustainable Development and Infrastructure and the EcoInnovation Cluster analysed the economic benefits of waste prevention technologies and product systems (http://www.luxinnovation.lu/). The study describes how Luxembourg already leads the way to circularity in some industries and has further potential to diversify employment across traditional industries such as construction, primary manufacturing, retailing and logistics, as well as in advanced industries including information and communication technologies, robotics and 3D manufacturing.
3. The development of effective and meaningful indicators of the environmental pressures associated with waste generation aimed at contributing to its prevention at all levels, from product comparisons at community level to action by local authorities to national measures	**Finland: Practical indicator measuring material efficiency** In order to improve the quality of the monitoring information covering waste management, waste prevention and material efficiency, as set out in the Finnish national waste plan, the information already provided as part of the Finnish compliance monitoring system ('VAHTI') is intended to be made more reliable, user-friendly and comprehensive, as well as more accessible to those outside the administration. To achieve this, information on the use of natural resources and related waste generation has to be improved to enable the development of effective waste prevention measures. Therefore, Finland has drawn up practical indicators measuring material efficiency in production and consumption and explaining trends in waste volumes (p. 92). **Poland: Developing and implementing a database dedicated to products, packaging and waste management that will enable waste prevention monitoring** Collecting reliable data on the volume of waste generated at national and regional levels to enables monitoring progress in waste prevention and implementation relative to targets in Poland. Pursuant to the Waste Act of 14 December 2012, a database dedicated to products, packaging and waste management has been established. Article 79 paragraph 1 of the Waste Act specifies the scope of data to be collected, including on packaging and packaged products broken down into individual types of packaging and the resulting waste; WEEE, batteries and accumulators and resulting waste. In detailing the scope of data to be collected, account will be taken of the scope of data needed for waste prevention monitoring. The development and implementation of this database will achieve the objective of monitoring the effects of suggested waste prevention actions and future planning.

Table 3.8 Good practice examples according to Annex IV of the Waste Framework Directive (cont.)

Measure	Example(s)
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)	**England ([a]): The Great Recovery Project** The Great Recovery Project — an ongoing partnership between Innovative UK and the Royal Society of Arts is the initiative to support a shift towards design that is mindful of the whole life cycle of products. It includes an investment of GBP 1.2 million by Innovative UK in new design and business partnerships that rethink products, components and systems in ways that 'close the loop' (p. 27).
5. The provision of information on waste prevention techniques with a view to facilitating implementation of best available techniques by industry	**Scotland ([a]): Supporting Zero Waste business models** Zero Waste Scotland, the Scottish Government's resource delivery body, is developing evidence and providing practical help to encourage Scottish businesses to adapt their business models to support a circular economy. This involves creating enabling conditions for circularity across the Scottish economy and supporting specific opportunities within target sectors. In one example, a company has been helped to develop a business model whereby their customers rent LED lighting systems, enabling repair and maintenance and reuse of fittings and components. Alongside these best-available techniques, Zero Waste Scotland is also working to influence procurement in the public and private sectors to stimulate demand for longer-life products or incentivise business models that support circular economy outcomes. **Spain: Benchmarking tools to prevent packaging** Packaging is a priority for Spanish waste prevention efforts. The development and implementation of benchmarking tools aims to enable the assessment, in a comparative fashion, of the diverse packaging available on the market. Generated information should help businesses to reduce packaging. Additional tools are planned to help calculate the recyclability of packaging (p. 29).
6. Organising training of competent authorities on the waste prevention requirements in permits under the Waste Framework Directive and the Integrated Pollution Prevention and Control Directive 96/61/EC	**Wales ([a]): Waste Evidence Plan** To assess the degree of resource efficiency of the activities covered by different sectors, the Welsh Government is working with industry, process efficiency experts and the Natural Resources Wales (http://naturalresources.wales/?lang=en) to better understand the degree to which industry has optimised its processes and how these activities contribute to waste prevention. This measure covers mainly hazardous waste. Part of the measure is a review of the regulator's role in monitoring the performance of industries covered by permits under the Waste Framework Directive and Directive 96/61/EC. This work is covered by the Waste Evidence Plan (http://gov.wales/topics/environmentcountryside/epq/waste_recycling/publication/prevention-evidence-base/?lang=en) (which aims to support policy development and delivery) (p. 32).
7. The inclusion of measures to prevent waste production at installations not falling under Directive 96/61/EC	**Estonia: Industrial symbiosis** The Estonian waste prevention programme proposes to conduct waste prevention and recycling efforts, including preparation for reuse, that promote and support collaborative platforms. The collaborative platforms, so-called industrial symbiosis, is a model in which one company uses another's waste or by-products as a resource (p. 5). **Portugal: Industrial symbiosis exchange platforms** In Portugal the MOR is a trading area comprising a number of electronic platforms that can be used to trade waste and by-products, as they process market enquiries, expressions of interest and actual transactions. These platforms are recognised by the Portuguese Environment Agency as secure and sustainable. MOR aims to facilitate and promote industrial symbiosis and the reduction of waste generation, as well as waste recovery and reintroduction into the business cycle.
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, SMEs and work through established business networks	**Malta: Limit unnecessary construction waste** In Malta, waste prevention focuses in part on the prevention of construction and demolition waste, the largest waste stream in terms of volumes. Guidance on the excavation of limestone with a view to reduce construction and demolition waste is planned, as are discussions between all relevant stakeholders during the revision of local plans to limit unnecessary waste. There is an emphasis on promoting the value of the limestone resource at the excavation stage and on harnessing the potential of technology to make the process more resource efficient (p. 199).

Table 3.8 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	**England ([a]): Sustainable Clothing Action Plan (SCAP)** SCAP signatories from across the clothing lifecycle have pledged a 15% reduction in carbon, waste and in waste going to landfill, plus a 3.5% reduction in waste arising, per tonne of clothing by 2020 relative to a 2012 baseline. Consumer action is key to achieving these targets and a consumer campaign 'Love Your Clothes' is working to compliment the activities of SCAP (pp. 22-23). **Italy: Distribution of surplus food from supermarket chains** The Italian government developed a strategy to intercept food in the value chain before it becomes waste in response to the high amounts of food waste from the distribution phase. A substantial reduction potential was recognised particularly for food and packaging waste food streams have been diverted towards soup kitchens and 'solidarity markets'. To facilitate redistribution of surplus food from supermarket chains, individual regions proposed the initiation of a number of information and awareness initiatives; the reduction of waste being sent to facilities that are involved in the scheme; and economic incentives to encourage the implementation of prevention measures. All activities are based on the Memorandums of Understanding between various institutions and organisations (such as municipalities, government bodies responsible for waste management, retail organisations in the distribution phase, voluntary associations and charities) that have the capacity to prevent or redistribute surplus quantities of food. The measure is part of the nationwide effort to overcome current obstacles to the implementation of the waste prevention programme. Other measures include a functional production flow detection system, which enables better monitoring and development of guidelines for operators (covering additional issues including health, environment and taxation) (pp. 20–21). **Norway: 'ForMat collaboration project for food waste prevention'** ForMat is a four-year collaborative project between researchers and companies using the value chain approach (http://ostfoldforskning.no/uploads/dokumenter/LCM%20food%20waste%20Erik%20Svanes.pdf). The project aims to map food loss, to identify possible reduction measures throughout the chain and to implement identified measures. The target is a 25% reduction in generated food waste in 2015 compared to 2012. The idea is that food producers and retailers work in teams to select products and to discuss ways of reducing waste in the bakery, meat, ready meals and dairy sectors. The project is divided into four steps: • charting and analysing the volume of food waste generated in Norway between 2009 and 2013; • networking along the value chain to reduce waste; • communicating and transferring knowledge on results, ideas and experiences relevant to food waste prevention; • developing prevention strategies and tools in terms of packaging and shelf-life, for example. Although the food industry initiated and has taken responsibility for the project, the government plans to work on further collaboration with stakeholders in the food value chain to prevent waste (p. 38). **Sweden: Action Plan for a Toxic-free Everyday Environment** Reduction of hazardous substances is one of the key targets of the Swedish waste prevention programme. Within this context the Swedish chemicals agency, commissioned by the Swedish government, has developed and implemented an Action Plan for a Toxic-free Everyday Environment. The action plan focused on protecting children better from exposure to hazardous chemicals in everyday life, included from chemicals in textiles. One of the measures of the action plan was broad dialogue with textile industry stakeholders as a complement to legislation. Companies who were involved in the dialogue have set voluntary goals for their efforts to reduce the risks from hazardous substances, including restricting or replacing hazardous substances, organizing information activities for businesses, professionals or consumers, and knowledge exchange between companies and authorities (p. 48). The dialogue, which will now continue as a company-initiated activity, has resulted in a joint call for action to strengthen chemicals legislation on the EU level as well as an identified need for a dialogue with chemical suppliers.

Table 3.8 Good practice examples according to Annex IV of the Waste Framework Directive (cont.)

Measure	Example(s)
10. The promotion of creditable environmental management systems, including EMAS and ISO 14001	**Germany: Promotion of environmental management systems** The German government promotes the implementation and expansion of EMSs for waste prevention. Enterprises that implement EMSs such as the EMAS or ISO 14001 are obliged to monitor and document their waste generation. The EMAS further obliges enterprises to index general and hazardous waste relative to total annual waste amounts. In addition, it requires the continuous improvement of environmental performance as part of the goals and measures of an enterprise, including in the area of waste. SMEs that implement 'informal' approaches to environmental management are being given incentives to prevent waste through guidelines and regulations for low-threshold consultation and management system approaches, for example by including waste prevention in training materials. The method 'EMAS easy' which leads to the full EMAS accreditation, also includes waste prevention aspects. In addition, different regional and local training and consultation programmes are in place to improve and optimise resource protection and waste prevention in enterprises. The government plans to promote and expand these activities.
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	**Flanders ([a]): Reduced Value-Added Tax rates for reused products** To set financial incentives for the purchase of second-hand goods as stated in the Flemish waste prevention programmes, Belgium introduced a reduced VAT rate applicable to reused products, 6% rather than the usual 21%. The tax differentiation is mainly justified by social reasons, but it also supports the redistribution, repair and refurbishment of used products that can then compete more easily with new products. The exceptionally high reuse rates in Flanders underline the effects of an integrated approach to support reuse with appropriate economic instruments (p. 22).
12. The use of awareness campaigns and information provision directed at the general public or a specific set of consumers	**Ireland: The Green Home Programme** The Irish Green Home Programme has been operating since 2006. Currently, it has about 26 000 participating members and close to 7 000 online members. The programme was developed to support and advise households on ways to save money on their bills while protecting the environment, with a focus on waste, energy, water and transport. The programme can be undertaken by an individual household or as a part of a group. An average saving of EUR 350 per household per year can be achieved if all measures are implemented. The programme is now introducing the 'Tidy Towns Groups' for which induction presentations are now being held. The programme has also been adopted by Northern Ireland. **Lithuania: Becoming a Green School** The Lithuanian waste prevention programme has identified support for public awareness campaigns as an important way to providing practical advice on how to reduce food waste, and promoting the use of rechargeable batteries and waste prevention options on packaging. Competitions such as 'Green School' promote waste prevention and the promotion of sustainable ways of living among pre-school and school-aged children. For example, the Gymnasiums in Ariogala has successfully participated in this competition and will now teach pupils how to prevent waste.
13. The promotion of creditable eco-labels	**Austria: Quality label for reused products** The Austrian waste prevention programme has identified the promotion of reuse labels as one of its key strategies. ReVital is the brand name of a line of reused added-value products introduced by an Upper-Austrian regional association. Used electrical appliances, furniture and other household items, sports and leisure equipment in a good condition are collected, processed and refurbished ('revitalised') and offered for sale as certified quality goods at competitive prices. Products labelled with the 'ReVital' logo meet quality standards. The project aims to establish a network of drop-off centres, processing plants and outlets. Project activities range from running recycling centres to creating jobs in the outlets. Currently, 39 reuse centres, six shops and three social organisations are involved in the project, with further expansion planned (p. 223). **Germany: Expanding product stewardship to promote waste prevention** In Germany, waste product stewardship is viewed as a central instrument for increasing material efficiency in waste management. The concept demands that products are designed in such a way that waste generation is reduced in their production, marketing and use phases, and is being encouraged by the creation of waste stream-specific incentives. To this end, Germany promotes the Ecodesign Directive (2009/125/EC) a useful starting point. Further research, however, is needed on how requirements that target waste prevention can increasingly be used in product-specific implementation measures at European scale (p. 32).

Table 3.8 Good practice examples according to Annex IV of the Waste Framework Directive (cont.)

Measure	Example(s)
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	**Brussels ([a]): Labelling of eco-dynamic enterprises** The 'eco-dynamic enterprise' award and label was established by Brussels' waste prevention programme to encourage traders and distribution companies to voluntarily support their activities. The award particularly aimed at reducing packaging waste, the development of products that can be returned (such as packaging), the improvement of recycling performance and a reduction of energy consumption and greenhouse gas emissions from waste. Some of the award criteria are linked to increasing consumer acceptance of ecological products based on improved information about environmental impacts, and increasing the number of organic products and products with eco-labels, as well as improving and increasing the display of such (p. 30). **The Netherlands: The Dutch 'Circle Economy' Platform** The Netherlands has recently introduced 'Circle Economy', an open-member platform promoting a circular economy and providing targeted support to organisations (http://www.innovationseeds.eu/Success-Stories/Success-Stories.kl). The non-for-profit platform is also involved in a new cooperative programme initiated by the Dutch Government, 'RACE'. Besides networking, Circle Economy offers members a 'Circle Scan Process': the goal is to support the innovation competences of firms, to find a project with the potential to effect systemic change and add value for the member, and to help secure the resources to initiate the project. The identification of business models related to reuse and waste prevention is one important element of this process. Support for such platforms is a key strategy in the Dutch waste prevention programme. **Norway: Cooperation with stakeholders to reduce textile waste** The Norwegian Ministry for the Environment proposes to enter into dialogue with manufacturers/importers of textiles, voluntary collectors and municipalities to discuss opportunities for increased cooperation in the prevention of textile waste. The purpose of a dialogue is to discuss the main challenges ahead, agree on measures that can be implemented to increase collection and find out what the different actors can contribute. Planned measures include the provision of information to households about handling used clothing, the prevention of textile waste and the examination of producer schemes as suitable instruments for waste prevention, including design efforts to reduce levels of pollutants and increase product longevity and quality. Two alternative measures will also be discussed; special collections of textiles and textile waste from households and the supply of dedicated disposal containers for the collection of textiles for reuse and recycling (p. 42).
15. In the context of public and corporate procurement, the integration of environmental and waste prevention criteria into calls for tenders and contracts	**Hungary: Reuse quota for materials in construction processes** To support construction and demolition operators in Hungary who prioritise the reuse and recycling of materials, an obligatory share of reused materials is being proposed. The measure aims to reduction the amount of primary raw materials used in construction products, structures, and their manufacture; in building operations, maintenance and demolition, and fat increasing in the lifespan of building products (pp. 253–254). The government is also drafting a regulation on green public procurement and the gradual tightening of its measures in order to meet the criteria of the EU Green Public Procurement Toolkit (p. 258). **Italy: National Action Plan on Green Public Procurement** The Italian Ministry of Environment has developed and adopted the Action Plan for the Environmental Sustainability of the Consumption of Public Administration through an extensive process of consultations with local authorities and relevant stakeholders. The plan, originally adopted in 2008 and subsequently updated since then, aimed to achieve a level of 'green procurement' of not less than 50% for all contracts awarded by 2014. The adoption of the following criteria in the process of purchasing goods and services has been proposed: reduce use of natural resources; replace non-renewable energy sources with renewable ones; reduce generation of waste; reduce environmental risks (p. 15). **Latvia: Green Procurement Promotion Plan** The Latvian Ministry of Environment annual reports contain recommendations on the promotion of green public procurement at national and local levels, and the construction sector. In 2015, the Environmental Protection and Regional Development Ministry, in collaboration with stakeholders, developed a Green Procurement Promotion Plan for 2015–2017. This describes the current situation, including the identification of the main problems associated with green procurement and proposes concrete measures to solve them. The plan aims to raise the green procurement of goods and services to at least 15% of all state and local government authority purchases in 2015 and increases to 20% for 2016 and 30% for 2017 (p. 125).

Table 3.8 Good practice examples according to Annex IV of the Waste Framework Directive (cont.)

Measure	Example(s)
16. The promotion of the reuse and/or repair of appropriate discarded products or 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	**Hungary: Establishment of a reuse network** The Hungarian government aims to establish one or more regional accredited reuse centres and a network organisation for established reused centres. In 2014, Hungary initiated a technical working group responsible for framing and developing work in the area of reuse. The group's focus is on the organisation of reverse logistics, preparation for reuse, sales, legal considerations and public relations related to reuse. The next step will be to introduce a certification system for reuse centres, to conduct an evaluation of existing centres (especially in terms of health, safety and quality) and to establish minimum requirements. This will be complemented by the introduction of a compliance verification system (pp. 254–257). **Northern Ireland ([a]): Reuse Quality Assurance** The Northern Ireland Department of the Environment engages with partners within and beyond of the United Kingdom to influence supply chains; to promote the extension of lifetimes for electronic products; and to reduce wastage of electronic products that are still in working order. At a local level, the Department works with and supports stakeholders to increase the reuse of EEE and to assist the development of new business models for reuse schemes and promote standards such as Publicly Available Specification 141 (2011) (p. 35). This reuse standard is a process management specification for the reuse of used and waste electrical and electronic equipment (UEEE and WEEE) (http://www.wrap.org.uk/content/pas-141-re-use-standard).

Note: ADEME, French Environment and Energy Management Agency; EMAS, Eco-Management and Audit Scheme; EMS, Environmental Management System; ISO, International Organization for Standardization; LED, light emitting diode; MOR, Portuguese Organised Waste Market; RACE, Realisation of Acceleration towards a Circular Economy.

([a]) Refers to region.

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

Sources: Annex 1; EEA, 2015.

4 Key findings and prospects

4.1 Key findings

In terms of general findings the review found the following.

- A total of 27 waste prevention programmes, covering 24 countries, were adopted by the end of 2014.
- A total of 17 programmes are stand-alone documents, whereas the remaining 10 are integrated into waste management plans. The stand-alone programmes, however, are often linked to other non-waste-related national policies and strategies, such as the circular economy or resource efficiency.
- The duration of programmes varies: nine programmes are of unlimited duration, whereas 18 range from 4 to 11 years.
- A total of 12 programmes include explicit requirements for evaluation, at least every sixth year. In addition, 11 of 27 programmes include 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: 13 programmes describe how stakeholders have been involved in the programme's development, in addition to public consultation and 23 describe, in general terms, how stakeholders will be involved in implementation.
- Only seven programmes specify a budget or financial schemes for waste prevention measures, indicating a relative lack of financial perspective in the programmes.

Waste prevention coverage (scope), in terms of sectors and waste types, varies across the programmes. All programmes cover household and public services (except Northern Ireland), whereas the agriculture sector is included in 11 programme and mining and raw material sectors in only 10. Waste types such as food/organic waste, WEEE and batteries, packaging waste, hazardous waste and municipal/household waste, are largely covered by the programmes, although a number of them have focused on fewer sectors or waste types.

Waste prevention objectives are formulated in different ways. A total of 15 programmes have an overall objective of breaking the link between economic growth and environmental impacts. Improving material efficiency and resource efficiency, decoupling resource use from economic growth and preventing the use of primary materials are among the listed objectives in several programmes. Explicit objectives for moving towards a circular economy are mentioned in two programmes. A total of 15 programmes include the reduction of harmful substances among their objectives. Other objectives include the creation of jobs, new business models and behavioural changes.

Most countries/regions claim to have set out how the programmes will break the link between economic growth and environmental impacts, but this is not always clear.

Although importance of waste prevention is recognised in waste policies, the need to coherently address design, production and consumption aspects appears to be a considerable challenge for national and regional authorities. It is revealing that in most Member States, waste prevention programmes have been adopted some months before, or even after, the 2013 deadline set by the Waste Framework Directive. A further push is coming from the circular economy agenda, which could reinforce implementation in the areas of eco-design and waste prevention and reuse.

Quantitative waste prevention targets are included in 17 of the 27 waste prevention programmes. The targets range from those linked to total waste to more specific targets for specific sectors or waste types, and are expressed as waste generation in absolute terms, per person or as waste intensity. Some countries demonstrate caution in defining quantitative waste prevention targets, indicating the importance of having reliable base-year data and an indicator framework.

Examples of targets versus municipal waste generation for Bulgaria, France, Latvia and Portugal demonstrate different approaches for measuring the progress of waste prevention measures, but they also indicate the range of ambitions embedded in the programmes.

Waste prevention indicators feature in 24 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 comes as a surprise that only a few countries cover all their objectives with indicators — Latvia, the Netherlands, Portugal, Spain Scotland and Wales. So far, Brussels and Luxembourg have set waste prevention targets, but no indicators to monitor them, whereas Austria, Germany, Hungary, Lithuania, Poland and Sweden have set indicators, but no targets.

Monitoring systems for waste prevention targets and indicators are included in only 10 programmes. In some cases, monitoring systems are not mentioned specifically in the programmes, but exist in other documents.

More than 440 **waste prevention measures** in line with Annex IV of the Waste Framework Directive were found in the programmes. The majority of these measures are related to the production and distribution, and the consumption and use phases, whereas smaller proportions refer to the general framework of waste generation.

An analysis of the measures with regard to their classification as **policy instruments** shows that the vast majority are concerned with the provision of information, education and awareness raising. Voluntary agreements are the least used instruments in the reviewed programmes.

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

4.2 Prospects

The waste prevention review process is still in its infancy and is expected to develop and intensify in the coming years. The objectives of the review process are to:

- feed into the evolving EU and national/regional policies and strategies linked to waste prevention and resource efficiency and support the careful design of waste prevention policies, including targets and indicators;
- strengthen cooperation efforts between a broad range of national and international actors, including Eionet, the EC and OECD, and across multiple sectors, in order to reinforce the European knowledge community on waste prevention;
- support the EC in evaluating progress in the implementation of the waste prevention programmes (Articles 30 and 37 of the Waste Framework Directive), based on Member States' triennial reports on the implementation of the directive ([16]), as well as providing inputs to the evaluation of the 7th Environment Action Programme;

The future waste prevention reviews are expected to make links between waste prevention objectives and trends in waste generation, key socio-economic drivers, the evolution of waste-related policies and legislation, waste management practices, and existing and planned infrastructure investments for selected waste types or waste-generating sectors (such as hazardous waste, food waste or construction and demolition waste)

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 level to the public and private sectors, international organisations, civil society, academia and EEA Eionet partners that might have active roles in the process. This would allow access to up-to-date and accurate information on waste prevention, contribute to overcoming language barriers and allow for sound understanding of implementation efforts and existing institutional frameworks.

By linking the EEA waste prevention review process with other well-established processes and initiatives at European and global levels will allow the access to broader networks of actors and to extended knowledge base on waste prevention and

([16]) In the legislative proposal on the review of waste targets (EC, 2015a), the EC has proposed to abolish the triennial reporting on implementation.

management. The example of such cooperation is in the context of the review of waste prevention policies in OECD countries. However, factors that may hamper the waste prevention review process are the:

- availability and quality of relevant data;
- lag between data availability and waste prevention implementation dynamics;
- lack of a common framework of indicators at European level;
- lack of common prevention targets at European level;
- lack of an analytical framework for the implementation evaluation, making it difficult to narrow priority themes;
- lack of an annual reporting obligation on waste prevention from the Eionet countries to the EEA.

Monitoring and evaluation of the quantitative targets for waste prevention rely on easily accessible, accurate and reliable base-year data and indicators, but also insight on current management practices. 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, could be a central research area in support of efforts to move up the waste hierarchy. The development of adequate indicators also requires consideration of the amounts of waste that would have been generated without the prevention measures. 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 December 2015

Country/region (36)	Programme adopted by 1 December 2015	Title and link to the programme If programme is not ready, status of the programme
Austria	Yes	Abfallvermeidungsprogramm (http://www.bundesabfallwirtschaftsplan.at/vermeidungsprogramm.html) 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 ([a])	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)
Flanders ([a])	Yes	Uitvoeringsplan milieuverantwoord beheer van huishoudelijke afvalstoffen (http://www.ovam.be/sites/default/files/2014_UMBHA-geconsolideerd-DEF.pdf) Materiaalbewust bouwen in kringlopen (http://www.ovam.be/sites/default/files/2014-DEF-Milieuverantwoord-milieugebruik-bouw-3luik-LR.pdf)
Wallonia ([a])	No	The waste prevention programme was redrafted in June 2015 and is currently under political discussion. The programme is expected to be adopted by the end of the year.
Bulgaria	Yes	НАЦИОНАЛЕН ПЛАН ЗА УПРАВЛЕНИЕ НА ОТПАДЪЦИТЕ (http://www.moew.government.bg/files/file/Waste/NACIONALEN_PLAN/_/NPUO_2014-2020.pdf) National Waste Management Plan (http://www.moew.government.bg/files/file/Waste/NACIONALEN_PLAN/NPUO_ENG_22_10_2014_06_01_2015.pdf)
Croatia	Special Agreement with the EC	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 still pending
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	Yes	Danmark uden affald II — Udkast til Strategi for affaldsforebyggelse (http://mst.dk/media/130620/danmark_uden_affald_ii_web-endelig.pdf)
Estonia	Yes	RIIGI JÄÄTMEKAVA 2014–2020 (http://www.envir.ee/sites/default/files/riigi_jaatmekava_2014-2020.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.bmub.bund.de/service/publikationen/downloads/details/artikel/abfallvermeidungsprogramm/)

Country/region (36)	Programme adopted by 1 December 2015	Title and link to the programme If programme is not ready, status of the programme
Greece	Yes	ΕΘΝΙΚΟ ΣΡΑΣΗΓΙΚΟ ΣΧΕΔΙΟ ΠΡΟΛΗΨΗΣ ΔΗΜΙΟΤΡΓΙΑΣ ΑΠΟΒΛΗΣΩΝ (http://www.ypeka.gr/LinkClick.aspx?fileticket=2Y2%2B%2BPSM4P0%3D&tabid=238&language=el-GR)
Hungary	Yes	Országos Megelőzési Program (Országos Hulladékgazdálkodási Terv 2014-2020) (nih.gov.hu/download.php?docID=28337)
Iceland	No	The waste prevention programme is expected in 2015. Implementation of the Waste Framework Directive is in process.
Ireland	Yes	Towards a Resource Efficient Ireland — National Waste Prevention Programme, 2014–2020 (http://www.epa.ie/waste/nwpp/#.VkH3YWfbly8)
Italy	Yes	Programma Nazionale di Prevenzione dei Rifiuti (http://www.minambiente.it/sites/default/files/archivio/comunicati/Programma%20nazionale%20prevenzione%20rifiuti.pdf)
Latvia	Yes	Atkritumu apsaimniekošanas valsts plans 2013.–2020.gadam (http://polsis.mk.gov.lv/view.do?id=4276)
Lichtenstein	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 (https://environment.gov.mt/en/document%20repository/waste%20management%20plan%202014%20-%202020%20-%20final%20document.pdf)
Netherlands	Yes	Afvalpreventieprogramnd (https://zoek.officielebekendmakingen.nl/stcrt-2013-27383.html)
Norway	Yes	Forebygging av avfall (Chapter 4 in the waste management plan Fra avfall til ressurs) (https://www.regjeringen.no/contentassets/27128ced39e74b0ba1213a09522de084/t-1531_web.pdf)
Poland	Yes	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 Programme — Programa de Prevenção de Resíduos Urbanos (http://www.apambiente.pt/index.php?ref=16&subref=84&sub2ref=106&sub3r ef=268) (Click Anexos in bottom left corner)
Romania	No	Romania started a project to develop a waste prevention programme in 2014; the project is ongoing
Slovakia	Yes	Program predchádzania vzniku odpadu SR na roky 2014–2018 (http://www.minzp.sk/files/sekcia-enviromentalneho-hodnotenia-riadenia/odpady-a-obaly/registre-a-zoznamy/ppvo-vlastnymaterial.pdf)
Slovenia	No	The waste prevention programme is under development
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/upload/miljoarbete-i-samhallet/miljoarbete-i-sverige/avfall/avfallsforebyggande-programmet/avfallsforebyggande-programmet-giftfritt-resurseffektivt-samhalle.pdf)
United Kingdom		
England ([a])	Yes	Prevention is better than cure — The role of waste prevention in moving to a more resource efficient economy (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/265022/pb14091-waste-prevention-20131211.pdf)

Country/region (36)	Programme adopted by 1 December 2015	Title and link to the programme If programme is not ready, status of the programme
Northern Ireland (a)	Yes	The waste prevention programme for Northern Ireland — the road to zero waste (http://www.biffa.co.uk/assets/files/zerowaste/20140710-Waste-prevention-programme-for-NI.pdf)
Scotland (a)	Yes	Zero Waste: Safeguarding Scotland's Resources: Blueprint for a more resource efficient and circular economy (http://www.gov.scot/Resource/0043/00435308.pdf)
Wales (a)	Yes	Towards Zero Waste One Wales: One Planet The Waste Prevention Programme for Wales (http://gov.wales/docs/desh/publications/100621wastetowardszeroen.pdf)

Note: (a) Refers to region.

The shaded boxes indicate the 27 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 at the European Topic Centre on Sustainable Consumption and Production (ETC/SCP) and was used for the reviews of the national/regional waste prevention programmes.

An abstract was drafted based on the national or regional waste prevention programme; it was then consulted and approved by waste prevention experts from within and outside the Eionet national reference centres. Upon its finalisation, the abstract are in the process of uploading to the designated publicly available Eionet forum (EEA, 2015).

Template abstracts

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	[Objective: something that one's efforts or actions are intended to attain or accomplish. For differences in the definitions of objective and target, see below.]
Remember page number	[Objectives/aims/goals]
8. The means used to break the link between economic growth and the environmental impacts associated with the generation of waste	Are the measures/means specifically mentioned in the waste prevention programme? Yes/no If yes, please indicate the main elements
Remember page number	

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 reuse of products or the extension of the lifespan 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 reuse of products or the extension of the lifespan 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 qualitative waste prevention and contributes to reducing human and environmental exposure to hazardous materials' (EC, 2012). 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 sixth year (the Waste Framework Directive 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 waste prevention programme describe involvement of stakeholders in the development of the programme? Yes/no information. If yes, please specify. Does the waste prevention programme 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	

Differences between objectives and targets

As part of the development and implementation of 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 words, which are defined as follows in the standard:

- 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 Template for an analysis of the implementation of the waste prevention programmes

A first draft of the implementation template was developed by a team of experts in the ETC/WMGE, and used for the reviews of the national/regional waste prevention programmes.

The implementation template is used for the first time in 2014 for three sample countries (Finland, Germany and Ireland) and will be further improved and consulted with the Eionet national reference centres on waste.

Country/region	
Introduction and context	Updates of the waste prevention programme, new initiatives, regulations, etc. in the specific country.
Number and extent of waste prevention measures implemented; Description of implemented measures	How many comprehensive waste prevention measures have already been realised? What is their scope?
	Which distinctive actions did they involve? What do you consider as highlights from which other countries could benefit?
Waste and resource benefits of implemented measures	How much waste has been avoided (e.g. reduced tonnage compared with previous year)? Which other resources could be saved? [Indicate type and quantity.]
Cost benefits of implemented measures	Did the implemented waste prevention measures achieve cost savings (yes/no)? If yes, which amount has been saved?
	Any indicators of job creation or other economic benefits?
Stakeholder involvement	How were stakeholders involved in the implementation of the waste prevention programme?
	What progress has been achieved to engage the broader public (e.g. increased public awareness of the issue of resource protection and waste prevention)?
	Are there any new networks/institutional settings established in the area of waste prevention?
Outlook	What would you identify as lessons for waste prevention? Which new challenges have been identified?
	What is the focus of the next year(s) (e.g. in terms of activities, research projects, etc.)?

Annex 4 Key features of waste prevention programmes

Country/region (27)	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 2011 waste prevention programme is scheduled for 2015/2016 as the starting point for the design of the 2017 waste prevention programme
Belgium			
Brussels [a]	2010–intermediate duration	Yes (main part of the Waste Management Plan)	2013 and reporting every second year (p. 60)
Flanders [a]	2008–2015 2014–2020	Yes (Chapter 4.2, pp. 42-69) Construction and demolition waste is addressed in a specific plan for material-efficient construction	Plan will be replaced if circumstances change, no information on evaluation (p. 7) Evaluation is planned every second year
Bulgaria	2014–2020	No (stand-alone)	No information available
Czech Republic	2014–2020	No (stand-alone)	No information available
Estonia	2014–2020	Yes (Annex 3)	No information available
Finland	2008–2016	Yes (Aim I, pp. 11–15)	Interim reports on implementation in 2012 and 2014
France	2014–2020	No (stand-alone)	Mid-term evaluation in 2017, end evaluation in 2020 (p. 97)
Germany	2013–2018	No (stand-alone)	Core waste prevention indicators are developed. The evaluation and review of the waste prevention programme 2013 is scheduled for 2016/2017 as starting point for the design of the waste prevention programme 2018.
Hungary	2014–2020	Yes (Chapter 4, pp. 227–272)	No information available
Ireland	from 2004 Work Plan 2009–2012	No (stand-alone)	Every fourth 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 will be revised in 2017 (p. 88)

Country/region (27)	Duration	Part of the waste management plan	Evaluation
Lithuania	2014–2020	No (stand-alone)	The effectiveness of the programmes will be evaluated biennially (in even years)
Luxembourg	from 2010	Yes (integrated in different chapters)	No information available
Malta	2014–2020	Yes (stand-alone)	Requirement for evaluation every six years (p.169)
Netherlands	from 2014	No (stand-alone)	No information available
Norway	from 2013	Yes (Chapter 4, pp. 33–38)	No information available
Poland	from 2014	No (stand-alone)	Reporting and updating after a period of three years
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)
Spain	2014–2020	No (stand-alone)	The programme's results will be monitored biennially, with 2014 as the reference year. The evaluation will be publish the annual report prepared by the Ministry of Agriculture, Food and Environment (the first was published in 2014) (p. 37)
Sweden	2014–2017	No (stand-alone)	A new programme will be developed in 2018 (p. 9)
United Kingdom			
England ([a])	from 2013	No (stand-alone)	No information available
Northern Ireland ([a])	from 2014	No (stand-alone)	No information available
Scotland ([a])	from 2013 (targets for 2017 and 2025)	No (stand-alone)	No information available
Wales ([a])	from 2013	No (stand-alone)	The programme is integrated with and linked to Wale's over-arching waste management strategy 'Towards Zero Waste' and sector plans

Note: ([a]) Refers to region.

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

Sources: Annex 1; EEA, 2015.

Annex 5 Financial resources related to waste prevention

Country/region (7)	Information available on the budgetary issues
Belgium	
Brussels ([a])	In Appendix 1, the budget allocated for 2010–2013 (four years) for total waste prevention is EUR 10.49 million, of which EUR 5.45 million is allocated for the prevention of household waste.
Flanders ([a])	Flemish Household Waste Management Plan contains a plan scenario with costs for prevention and reuse measures between 2008 and 2015. In 2015, the expenditures was EUR 1.78 million (p. 138).
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 the following: • the minimum financial resources needed for municipal waste management, including activities targeting increased reuse rates, are specified as 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 to increase the recycling of hazardous waste and to reduce pollutant emissions is specified at HUF 8 billion (approximately EUR 26 million); • for the reuse of construction and demolition waste, the minimum financial resources needed are specified as HUF 7 billion (approximately EUR 23 million) (pp. 205, 212, 216 and 217).
Poland	The programme includes a very specific financial schedule of recommended actions (p. 54) with an overall estimated outlay for the 14 strategic actions of PLN 94.8 million (EUR 22.79 million). The programme states that waste prevention measures can be financed from the National and Voivodeship Funds for Environmental Protection and Water Management (NFOŚiGW, WFOŚiGWs), EU funds (Life +, financing under the Operational Programme Infrastructure and Environment, Regional Operational Programmes), private funds and mixed funds (public–private partnerships).
United Kingdom	
England ([a])	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 0.9 million (EUR 1.1 million) for a programme of the Action Based Research pilots and trials of take-back and lease/hire schemes; • GBP 0.5 million (EUR 0.7 million) for a two-year scheme to support communities take forward innovative waste prevention, reuse and repair action in their local areas, working in partnership with local businesses, authorities and civil society groups. In a first round, United Kingdom provided GBR 0.3 million (EUR 0.4 million) in grant to ten novel waste prevention partnership projects across England (http://www.wrap.org.uk/content/ innovation-waste-prevention-fund-england). This leveraged in almost three times as much (GBR 0.9 million) in match funding from other sources.
Northern Ireland ([a])	Although the programme does not explicitly include information on costs or savings, it cites research conducted as part of the Green Home Programme. The programme estimates the overall combined household savings from 25% of all Green Home participating households involved at around EUR 1.6 million or EUR 325 per household per year (EPA, 2015)..

Note: ([a]) Refers to region.

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

Sources: Annex 1; EEA, 2015.

Annex 6 Waste prevention objectives

Country/region (27)	Objective(s)
Austria	The objectives of the programme are: • decouple economic growth from the environmental life cycle effects of Austrian waste (including all upstream chains); • reduce emissions; • minimise the dissipation of hazardous waste; • reduce pollutants; • conserve resources, particularly with respect to raw materials and energy sources (p. 225).
Belgium	
Brussels ([a])	The programme's objectives are to: • minimise food, paper and organic wastes, superfluous packaging and unnecessary purchasing; • pursue an ambitious sustainable purchasing policy; • promote reuse 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.
Flanders ([a])	General objectives of the programme include: • increasing environmentally responsible consumption increases in absolute and relative terms; • providing innovative materials, products and systems access on the Flemish market and making them known to the consumers; • by 2015, ensuring that there is a growing range of environmentally responsible products in the distribution sector compared with 2008 and also more environmentally responsible products compared with 2008; • making available more environmentally responsible products and services in total consumption in 2015 compared with 2008; • the government taking on exemplary function and strivings to foster green public procurement (pp. 18 and 48); • the total amount of household waste produced is decoupled from consumption, and can remain stable or decrease compared with 2000; • the disengagement indicator should indicate that the production of household waste per consumption unit decreases. Moreover, the aim is to produce no more than 560 kilograms of waste per person. The 560 kilograms per person can be adjusted based on a positive assessment of social and economic developments; • final disposal of household waste reduces to an average of 150 kilograms per person in Flanders. The Flemish average may not exceed 150 kilograms per person. To achieve this target each municipality were limited up to 180 kilograms per person by 2010. Some municipalities are entitled to a correction; • ensuring that waste is disposed according to the waste hierarchy (p. 18). • objectives that specifically refer to the construction and demolition waste stream: • use as few primary raw materials as possible in the manufacture of construction materials;

Country/region (27)	Objective(s)
	• use the right material at the right place and with the right construction techniques so that material cycles can be optimally closed; • use no more hazardous materials in new construction, and retrieve hazardous substances during demolition or dismantling buildings and infrastructures; • construct new buildings and structures so that materials and building components are easily recoverable; • construct only buildings that can be easily adapted in order to better serve the continuing evolution (p. 10).
Bulgaria	The objectives of the programme can be summarised as: • main strategic objective: breaking the link between economic growth and the environmental impacts associated with the generation of waste and operational objectives; • operational objectives: reduce the amount of waste, reduce the harmful effect of waste, reduce the content of harmful substances in materials and products (p. 59)
Czech Republic	The objectives of the programme are divided into one main goal and 13 sub-goals. It should be noted that short-term refers to the period 2014–2016; medium-term to the period 2017–2018 and long-term to the period beyond 2019. The main goal is to develop a coordinated and unified approach to create conditions to lower consumption of primary resources and the gradual reduction of waste generation (p. 73). The programme has the following 13 sub-goals: • provide comprehensive information support on issues including the introduction of the issue of waste prevention in school curricula, research and educational programmes, outreach and educational activities related to the protection and recreation of the environment (short- to medium-term and ongoing); • ensure effective involvement of government at all levels of waste prevention with the aim of progressively reducing the amount of waste (short- to medium-term); • develop conditions and set incentives for reducing raw material and energy resources in the productive sectors and increase the use of secondary raw materials in connection with further strategic documents, in particular mineral policy of the Czech Republic, and in connection with the national Waste Management Plan (long-term); • support all available means of implementation of innovative technologies and feedstock materials and support manufacturing and industrial sectors to optimise the management of production processes to meet the objectives of the programme (medium- to long-term); • at all levels, encourage, promote and provide information on the availability of voluntary instruments (voluntary agreements, environmental management systems, environmental labelling, cleaner production with a view to gradual expansion) (short-term and ongoing); • in connection with the objectives of other programmes and environmental policies and the requirements of the EU institutions, ensure an appropriate legislative environment for the implementation of the programme (ongoing); • pay maximum attention to food waste and create conditions for a gradual reduction of waste at all levels of the food cycle (production, marketing and consumption) (mid-term and continuing); • establish conditions to stabilise the production of individual components of municipal waste and subsequently reduction it at all levels of government and among people (medium-term and continuing); • in conjunction with other strategic documents, create the conditions for stabilisation of hazardous waste, construction and demolition waste, textile waste and waste from product directives with a view to reducing their real production in the coming years (medium-term and continuing); • support reuse and service centres and charitable organisations to repair and reuse products and materials (mid-term and continuing); • play an active part in research, experimental development and innovation support programmes in the field of waste prevention (long-term and continuing); • increase the efficiency of the enforcement of waste prevention, collection systems and retrospectively collected products (short- to medium-term and continuing); • ensure implementation of necessary analytical materials and assessment tools to evaluate the effectiveness of waste prevention programmes and in the short term for the assessment of specific prevention measures and evaluation of progress towards partial targets (p. 74).

Country/region (27)	Objective(s)
Estonia	The programme's strategic goal is to prevent and reduce the generation of waste, including its toxicity. The use of natural resources and the impacts of waste on the environment and human health will be reduced. In addition, the prevention measures shall result in a decoupling of economic growth and waste generation. The activities of the waste prevention programme are designed to achieve successful implementation of the following: • Estonian entrepreneurs have the resources and competence for resource efficiency and waste prevention policies for widespread application; • raising awareness among Estonian consumers for the possibilities of prevention so that they are willing and able to contribute to waste prevention and reuse (p. 13)
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 will be reduced and be replaced with less hazardous alternatives.
France	The programme sets the following quantitative objectives on the waste prevention until 2020: • the reduction of all household and similar waste collected by public waste management services by 7% (expressed as kilograms per person) compared with 2010 (p. 27); • the stabilisation of the current amounts of waste generated by economic activities; • the stabilisation of construction and demolition waste generation (p. 28). These broad objectives will, however, need further clarifications.
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 (pp. 19 and 22). In addition, the programme describes: • operational goals such as: – reduction of waste generation; – reduction of environmentally harmful impacts; – reduction and substitution of hazardous substances; • and specific sub-goals including: – 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 the lifespan of products; – support of reuse of products; – increasing the use intensity of products (pp. 20–21).
Hungary	The programme's objectives are 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).

Country/region (27)	Objective(s)
Ireland	General objectives of the programme aim 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 to reduce waste generation; • increase the diversion of biodegradable municipal waste from landfill; • 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 sectorial levels; • generate case studies to actively demonstrate the opportunities and cost savings possible from resource efficiency and waste prevention; • promote green growth opportunities and the important role of resource efficiency in a green economy; • 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 reuse 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. As a result, in accordance with the waste hierarchy, the highest priority has to be given to waste prevention, promotion of sustainable consumption and making responsible use of materials and resources (p. 1). Waste prevention objectives are 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; • reuse products or 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 ensure 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 ensuring that the amount of municipal waste does not exceed the average of EU Member States (p. 6). (Note: changes in the National Waste Management Programme are foreseen in 2016, including integrating measures concerning the reduction of lightweight carrier bags, food waste and marine litter pollution.)
Luxembourg	The aim of the programme is to guide consumers towards product longevity or multiple use (p. 29)

Country/region (27)	Objective(s)
Malta	On the basis of the waste management statistics as well as the consultations, the priority areas established for waste prevention programme are: • heightening the awareness of the need to reduce waste generation through appropriate behavioural changes which either minimise purchases that generate waste through smarter shopping practices or through extending the lifespan of goods and avoid their untimely conversion into waste; • reduction of municipal solid waste generation including: – organic fraction; – recyclable fraction; – promoting reuse and repair initiatives (p. 181).
Netherlands	The programme aims to 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 (pp. 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 waste prevention by informing and encouraging deliberate choices, less waste and more reuse (p. 10).
Norway	The programme aims at relative decoupling of economic growth and waste generation (p. 33).
Poland	The waste prevention objectives are linked to the main strategic objective for the country to develop a sustainable economy based on efficient use of resources, respect for the environment and higher competitiveness through the use of technologies with a lower demand for raw materials and energy and enabling the use of recyclable raw materials and renewable energy sources by 2020 (p. 39). Quantitative objectives in relation to the total quantity of generated waste include: • preserving the current balance between economic growth with the total quantity of waste generated; • reducing burden on GDP attributable to waste. Qualitative objectives in relation to products and production include reduction of environmental impact in the extraction of raw materials and logistics linked to consumption, with particular attention to limiting use of harmful substances.
Portugal	The aim of the programme, in broad terms, is to create conditions for its articulation in line 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 to reduce: • the intensity of natural resources used — material by waste prevention, reuse, 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 (carbon dioxide and methane) associated with waste management; • the presence of hazardous substances (in products, materials and waste) (p. 7 651).
Slovakia	The main objective of the programme is a shift away from material recovery, 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 in paragraph 3 of the amendment to the Law on Waste (Act No 223/2001 Coll. on waste and in amendments of other 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, but also a process of continuous assessment of the effectiveness of measures taken (p. 31) There are several specific objectives, formulated in a very general manner but with concrete measures for each objective, for specific waste types.

Country/region (27)	Objective(s)
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 reducing marine litter from terrestrial sources (p. 25). The programme emphasises four strategic outlines: • reduce the quantity of waste, increase reuse and extend product life; • reduce the hazardous substances and the risks involved in their use 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 (pp. 25–26).
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 [a]	The objectives of the programme are to: • encourage businesses 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 reduce their waste, use products for longer, repair broken items and enable reuse by others; • help businesses recognise and act upon potential savings through 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 and promoting sustainable economic growth (p. 13).
Northern Ireland [a]	The aim of the programme is to maintain the downwards trend in waste generation. This includes the following objectives: • to decouple economic growth from the environmental impacts associated with waste generation; • to encourage people to use resources efficiently and generate less waste; • to establish improved resource efficiency and waste prevention as an integral part of business management and project planning (p. 11).
Scotland [a]	The objectives of the programme are to prevent waste, increase resource efficiency and enable a shift towards a more circular economy (p. 11). These overall objectives are supported by: • helping businesses use resources more efficiently; • stimulating innovation and business opportunities in the reuse, 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).

Country/region (27)	Objective(s)
Wales ([a])	The primary aim of the programme is to decouple economic growth from the environmental impacts of waste generation (p. 3). This will be supported by the following objectives: • helping householders and businesses to reduce the quantity of waste through reuse 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 (pp. 16–17); • helping businesses use resources more efficiently by promoting eco-design and exchange of resources; • promoting new and alternative business models to improve producer responsibility and sustainable procurement (p. 37).

Note: ([a]) Refers to region.

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

Sources: Annex 1; EEA, 2015.

Annex 7 Quantitative waste prevention targets

Country/region (18)	Quantitative target(s)
Belgium	
Brussels [a]	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 with a 2005 baseline); • households: – reduce food waste by 5 kilograms/person/year; – reduce paper waste by 7 kilograms/person/year; – reduce household packaging waste by 10 kilograms/person/year; – reduce the consumption of gadgets by at least 2 kilograms/person/year and reduce waste from disposable nappies by 1 kilograms/person/year; – reduce garden waste through home composting by 12 kilograms/person/year; – selectively collect and return 6 kilograms/person/year of additional reusable items to the market; • businesses: – reduce paper waste by 30 kilograms/employee/year; – reduce food waste by 6 kilograms/employee/year; – reduce packaging waste by 1 kilogram/employee/year; • schools: – reduce paper waste by 2.5 kilograms/student/year; – reduce packaging waste, and in particular drinking carton waste, by 1 kilogram/student/year; – reduce food wastage by 3 kilograms/student/year; and other qualitative objectives.
Flanders [a]	• The total amount of household waste produced decoupled from consumption, and reduced volume compared with 2000 (i.e. 560 kilograms/person/year) (p. 18); • the amount of final disposal of household waste reduced to an average of 150 kilograms/person/year (p. 18); • 42% of homes to compost by 2015 (p. 50).
Bulgaria	An Action Plan attached to the waste prevention programme mentions one target corresponding to the overall strategic objectives, while a great number of further targets (of which many are quantitative) correspond to individual measures. Overall targets include: • in 2020, the value of the indicators 'industrial waste per unit of GDP' and 'hazardous waste per unit of GDP' is less than the value of the indicators in 2010; • in 2020, the value of 'generated municipal waste per person is less than the value of the indicator in 2011 (p. 76).
Estonia	The programme aims to keep the generation of municipal waste stable from 2020 onwards. Until 2020, generation of municipal waste should be at a growth rate less than half that of GDP. Assuming that in coming years the estimated GDP will continue to grow at a rate of 3%, the generation of municipal waste should remain below an average growth of 1.5% per year. At the same time, the percentage of packaging waste growth should be less than two-thirds of GDP growth percentage (p. 13).

Country/region (18)	Quantitative target(s)
Finland	The waste prevention target is to stabilise the amount of municipal waste generated at the level of the early years of this century (2.3–2.5 million tonnes year) and ensure that the trend will be downwards by the 2016. There was not enough information on industrial waste 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).
France	The programme sets the following objectives (that are at the same time quantitative targets) for waste prevention until 2020: • the reduction of all household and household-like waste collected by public waste management services of 7% (expressed as kilograms/person) compared with 2010 quantities (p. 27); • the reduction of food waste by 50% by 2025; • the stabilisation of the current amounts of waste generated by economic activities; • the stabilisation of construction and demolition waste generation (p. 28). These broad objectives will, however, need further qualification.
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 to GDP; as a monitoring measure, the ratio of municipal solid waste to household consumption will also be considered; • 10% reduction in the ratio of generated special hazardous waste to GDP ([b]); • 5% reduction in the ratio of generated special non-hazardous waste to GDP ([b]). The programme stipulates that these targets could be changed into targets for individual waste streams (p. 7).
Latvia	Waste prevention targets are: • by 2020, not more than 400 kilograms/person/year of municipal solid waste generated; • by 2020, not more than 650 000 tonnes/year of total municipal solid waste generated; • by 2020, not more than 50 000 tonnes/year of total hazardous waste generated. Targets are related to the indicators presented on p. 87.
Malta	The programme describes specific quantified targets for food waste prevention: • to increase the number of committed food reducers by 10% per year (p. 188); • to promote food waste reduction in at least 30 interventions of radio, television and newspapers (p. 188); • to distribute food purchasing tips to at least 50% of schools, medium to large employers, supermarkets and local food stores (p. 189); • to lower waste from 22% to at least 15% of purchased food in solid waste over a period of 5 years (p. 189).
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 with 60 million tonnes in 2006 (p. 12). Specific waste targets include: • food waste: the goal is to decrease annual food losses by 20% in 2015 compared with 2009. To achieve this, waste should drop between 276 000 tonnes and 522 000 tonnes or between 17 kilograms/person and 31 kilograms/person (p. 13); • textile waste: by the end of 2015, the amount of textiles discarded in residual waste will be reduced by 50% compared with 2011 (p. 13).

Country/region (18)	Quantitative target(s)
Poland	Based on the overall objectives, the programme includes specific quantitative targets: • constant quantity of generated waste according to Polish Central Statistical Office data; • reduced quantity of waste generated in relation to GDP (kilograms/EUR). In addition, specific targets for the identified priority waste types are: • reduced quantity of mining waste in relation to production volumes; • reduced quantity of waste from thermal processes in relation to the amount of generated energy; • reduced environmental pressure through an increase in the amount of goods produced in Poland covered by eco-labelling; • reduced levels of mixed municipal waste; • reduced quantity of packaging waste in relation to the volume of products; • less food wasted; • increased reuse (e.g. by means of networks for the exchange and repair of electrical and electronic equipment, as well as collecting and preparing WEEE for reuse) (p. 39).
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 envisages a 10% reduction in the waste generated per person in 2007 by 2016, which is considered 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 landfill by involving communities and households in increasing composting as follows: – 54% of the municipalities with fewer 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 of waste produced (by weight) in 2010 by 10% by 2020 (pp. 25 and 37).
Sweden	The programme includes eight targets: • the amount of waste to be reduced continuously compared with 2010 (p. 25); • the content of hazardous substances in materials and products to be reduced (p. 25); • waste in the entire food chain to decrease compared with 2010. SEPA has been mandated by the government to develop a milestone target for reducing food waste (p. 33). The milestone non-binding target refers to the food waste alongside the entire food chain, except for primary production, to be reduced by at least 20% by 2020 compared to 2010; • textile waste from households to decrease compared with 2010. SEPA has been mandated by the government to develop a target for textile and textile waste (p. 46). The Agency has published a proposal for milestone target considering reuse, material recovery and hazardous substances in textiles; • the proportion of second-hand goods in total textile sales to increase compared with 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 with 2014 (p. 46); • in 2020 waste generation per built square metre to decrease, compared with 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 with 2014 (p. 66).

Country/region (18)	Quantitative target(s)
United Kingdom	
England [a]	The programme refers to on-going initiatives that include the following commitments: • to reduce household food and drink waste by 5% by 2015 from a 2012 baseline; • to improve packaging design through the supply chain to maximise recycled content as appropriate, improve recyclability and deliver product protection to reduce food waste, while ensuring there is no increase in the carbon impact of packaging by 2015 from a 2012 baseline; • to reduce traditional grocery ingredient, product and packaging waste in the grocery supply chain by 3% by 2015 from a 2012 baseline (pp. 22 and 23).
Scotland [a]	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).
Wales [a]	The overarching target is a significant reduction in annual waste production, 27%, by 2025 and 65% by 2050, both compared with 2007 (p. 2). Specific targets include: • household waste: reduction of 1.2% every year to 2050 based on a 2006/2007 baseline of 18 869 tonnes/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: [a] Refers to region; [b] 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 pages number(s) in parentheses refer to the waste prevention programmes listed in Annex 1.

Sources: Annex 1; EEA, 2015.

Annex 8 Waste prevention indicators

Country/region (27)	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 reuse: number and turnover of reuse 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 ([a])	No specific indicator is mentioned.
Flanders ([a])	Indicators are listed in few categories: • opportunities for innovation, environmentally responsible materials, products and systems, including: – number of useful innovations, products service systems, life cycle analysis; – number of applied Ecolizers (eco-design evaluations); number of applied versus implemented Ecolizers; – evolution of public and private research and development budgets for innovative pilot projects – in this category; – market penetration of products (labels and certifications related to waste prevention) (p. 53); • waste prevention activities in the production phase, including: – number of pilot projects; – number of initiatives to promote the environmentally sound consumption; – established social forum; – number of initiatives to promote environmentally responsible consumption in progress; – number of offers (and location) of environmentally responsible products on the shelves of retail; – share of environmentally responsible products in retail sales; – number of products with an eco-label visible on shelves (p. 56); • involvement of ordinary consumers as key actors: – study of evaluation (support research); – setting up of low-waste and environmentally responsible neighbourhoods; – research on knowledge, attitude and behaviour of effective citizens;

Country/region (27)	Indicator(s)
	– number of low-waste and environmentally safe neighbourhoods; – number of green schools; – number of low-waste events; – adapted behaviour of consumers (p. 59); • maximising environmentally responsible purchasing and contracting by authorities based on OVAM's indicators and calculation model to measure performance of public organisations in the field of environmentally responsible consumption and production, including: – presence and status of 'environment' as a criterion in the Flemish purchasing and contracting policy; – presence and status of 'environment' as a criterion in purchasing and contracting policies of local, state and regional government (p. 61); • optimising recycling in gardening, including: – number of municipalities participating in the activity; – number of municipalities that promote home composting and recycling in gardening in cooperation with local residents; – promotional information disseminated measured by number of relevant journals, leaflets, brochures, websites, among others; – number of courses, training, refresher courses, workshops (such as composting congress, June Compost Month, etc.); – number of participants in the education, training, workshops (see previous); – number of municipalities that actively support composting operations; – number of households which practice composting and raise chickens; – number of municipalities achieving the targets set to develop cooperation agreements on home composting between the Flemish government and the regions; – quality and impact of information on home composting (newsworthiness, response to current events, needs, targeted, region specific, etc.); – evaluation of the quality of education, trainings, workshops and other activities by means of satisfaction surveys; – evaluation of behavioural change as a result of subsidies specifically dedicated to prevention initiatives; – amount of generated organic biodegradable waste that was not deposited in the garbage bags; vegetable, fruit and garbage waste; and green waste containers; – population that effectively implements qualitative prevention of organic waste; – number of active composting 'champions' (voluntary assistants) per 10 000 inhabitants per intermunicipal association (p. 64); • maintain, strengthen and develop the network of recycling and repair centres: • number of recycling centres and thrift shops; • number of municipalities that have an agreement with recycling centres within the cooperation agreement framework; • coverage of the recycling centres networks; • number of active networks of organisations or activities related to product recycling; • number of staff employed in the recycling industry; • average amount of collected waste and reusable goods per person per year; • average amount of reusable goods sold per person per year; • share of population that actively delivers reusable products to recycling centres; • share of population that regularly buy goods from thrift shops; • annual turnover by the recycling centres.

Country/region (27)	Indicator(s)
Bulgaria	The programme states that it is very difficult to accurately measure the causal relationship between the measured quantity of waste and the success of waste prevention measures. It describes a variety of possible indicators. The Action Plan attached to the programme mentions further indicators specifically linked to the strategic overall goal and each individual measure. Indicators corresponding to the strategic objective are: • industrial waste generated per unit of GDP; • municipal waste generated per person; • hazardous waste generated per unit of GDP (p. 76).
Czech Republic	The following indicators are mentioned in the programme: • generation of total waste in tonnes per year; • generation of mixed municipal waste in tonnes per year and kilograms per person per year; • generation of separately collected municipal waste, including four collected fractions: glass, paper, plastic and metals in tonnes per year; • generation of biodegradable waste in tonnes per year; • the amount of composted materials (from home composting) in tonnes per year; • the amount of composted material (from community composting) in tonnes per year; • the amount of collected textiles, footwear and selected reusable products in tonnes per year; • the amount of food waste in tonnes per year; • the amount of secondary raw materials used in production in tonnes per year. Additional indicators include: • number of analytical assessment tools and plans closely associated with the programme; • number of visits to the programme website; • number of updates on the programme website; • number of information and educational publications and materials; • number of licenses issued for products based on the National Eco-labelling Programme; • number of specified product groups for the National Eco-labelling Programme; • number of research and development projects with a focus on low-waste technologies, saving raw materials, energy saving and waste prevention implemented; • number of workshops, training courses and educational programmes dedicated to waste prevention; • number of reuse centres and networks; • number of second-hand products sold by reuse centres and networks; • number of non-profit organisations with activities in waste prevention and reuse of products; • number of new legislative instruments linked to waste prevention and reuse; • number of research programmes which focus on energy and waste prevention, as well as material efficiency; • number of voluntary agreements in the area of waste prevention; • share of public procurement taking into account environmental aspects with a focus on waste prevention; • number of established environmental management systems for businesses.
Estonia	• Reduction of generated waste linked to specific policy measures (the amounts are generated before and after its implementation); • reduction of waste per unit of production; • number of discarded products prepared for reuse.

Country/region (27)	Indicator(s)
Finland	The Waste Prevention and National Waste Plan requires that a monitoring programme be developed to assess the implementation and impact of the plan. The monitoring programme lists the indicators, including: • The Waste Prevention and National Waste Plan requires that a monitoring programme be developed to assess the implementation and impact of the plan. The monitoring programme lists the indicators, including: • generation of municipal waste (tonnes/year); • generation of industrial waste/added value of industrial production (kilograms/EUR); • landfilled industrial waste amount/added value of industrial production (kilograms/EUR); • share of industrial waste into used raw materials of industry (%); • total use of natural resources/economic growth (GDP) (kilograms/EUR); • landfilled waste from extractive industry/added value of the extractive industry (kilograms/EUR); • amount of used stone material/total amount of extraction (%); • amount of used and wasted stone/value added of extraction industry (kilograms/EUR); • amount of landfilled construction waste/volume of the construction business (tonnes/EUR); • amount of municipal waste/consumption of households (kilograms/EUR). In addition, there are several subsidiary indicators supporting above mentioned main indicators.
France	The programme defines indicators to monitor the achievement of policy objectives. It defines nine overall indicators: • generation of household and similar wastes; • decoupling of household and similar wastes generation from household consumption expenditure; • generation of non-hazardous, non-mineral waste from economic activities, excluding construction sector; • decoupling generation of non-hazardous, non-mineral waste from economic activity and GDP; • generation of construction waste in buildings and public works; • generation of hazardous waste; • apparent domestic material consumption; • decoupling material consumption from economic wealth expressed in GDP; • sensitivity to waste prevention in France. For each of the strategies included in the programme (e.g. reuse, prevention of construction and demolition waste, etc.) there are further specific indicators listed/defined (e.g. number of sectors in which a measure is employed, number of awareness campaigns carried out, etc.).
Germany	• Share of reused electronic products in relation to WEEE generation per category; • reuse 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.

Country/region (27)	Indicator(s)
Hungary	The amount of annually generated municipal waste (in tonnes); • the increase in the amount of separately collected municipal waste compared with the total amount generated (%); • the reuse rate of materials originating from construction and demolition waste (%); • number of accredited reuse centres; • the size of the population served by the reuse centres (number of individuals); • amount of second-hand products transferred to accredited reuse centres; • the proportion of marketed second-hand products compared with the amount transferred to accredited reuse centres; • the proportion of green elements compared with 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, cubit metres of water, kilowatt hours 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 and timescale — such as waste prevention and treatment projects; • 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 percentage of operators applying for certification; • the number of information 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 of 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;

Country/region (27)	Indicator(s)
	• 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.
Latvia	Municipal solid waste generated (kilograms/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 reuse (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 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 enters the mixed municipal waste stream (tonnes and kilograms per person per year).
Luxembourg	No specific indicator is mentioned.
Malta	No specific indicator is mentioned. However, the programme includes measurable objectives for priority areas and a number of quantitative targets.
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	Quantity of generated waste according to the Polish Central Statistical Office data; • quantity of generated waste linked to GDP (kilograms/EUR); • ratio of waste generated in the mining industry to the production volume (for black coal, brown coal, copper and rock raw materials in total) (Mg/Mg); • ratio of waste generated in the power industry to the amount of produced energy (Mg/GWh); • number of issued eco-labelling certificates; • amount of mixed municipal waste (kilograms/person/year); • share of reusable packaging in packaging placed on the market (%); • mass of the packaging in relation to the mass of the product placed on the market (kilograms/kilogram); • quantity of food delivered to the Food Banks (the indicator should be regarded as a proxy since it does not reflect the complexity of the problem of food waste generation); • share of the volume (by weight) of totally reused waste equipment in the total volume of waste equipment collected in a given year (%).

Country/region (27)	Indicator(s)
Portugal	Reduction of municipal solid waste generated per person per day expressed as: percentage municipal waste reduction/person = ((kilograms municipal waste/person/day) ref. year — (kilograms /person/day) target year)) / (kilograms municipal waste/person/day) ref. year; • reduction of biodegradable municipal waste generated per person per day expressed as: percentage reduction of biodegradable municipal waste/person = ((kilograms biodegradable municipal waste/person/day) ref. year — (kilograms biodegradable municipal waste/person/day) target year) / (kilograms biodegradable municipal waste/person/day) ref. year; • reduction of packaging waste generated per person per day expressed as: percentage reduction of packaging waste/person = (kilograms packaging waste/person/day) ref. year; • reduction of paper and paperboard waste generated per person per day expressed as: percentage reduction of paper and paperboard waste/person = ((kilograms paper and paperboard waste/person/day) ref. year — (kilograms paper and paperboard/person/day) target year) / (kilograms paper and paperboard/person/day) ref. year; • reduction of other fractions waste generated per person per day expressed as: percentage reduction of other fractions waste/person = ((kilograms packaging waste/person/day) ref. year — (kilograms other fractions/person/day) target year) / (kilograms 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.
Spain	Amount of generated waste/year; • amount of generated waste per economic sector (activity); • amount of generated waste/year/unit of GDP; • amount of municipal waste/year; • amount of hazardous waste/year/industrial unit of GDP (GVA); • amount of construction and demolition waste/year/unit of 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 in total public procurement in relation to the total number of tenders; • Green Public Procurement share in 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, textiles, construction and demolition, and WEEE) will be further developed.
United Kingdom	
England [a]	Waste generation (Mt) per unit of household economic activity; • waste generation (Mt) per unit of GVA in constant price (volume) terms; • six high-level metrics were developed during 2014, but not published until early 2015.

Country/region (27)	Indicator(s)
Northern Ireland (a)	The following indicators will be monitored by the Department of the Environment: • initially, the amount of household waste generation. When more reliable data become available through other initiatives in the revised Waste Management Strategy, the amount of commercial and industrial waste and construction and demolition waste will also be monitored; • initially, the amount of household waste per unit household expenditure to assess trends relating to decoupling economic growth and waste generation. Commercial and industrial waste and construction and demolition waste per unit of GVA will be monitored once reliable data becomes available.
Scotland (a)	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 (a)	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: EMAS, Eco-Management and Audit Scheme.

(a) Refers to region.

Sources: Annex 1; EEA, 2015.

Annex 9 Waste prevention monitoring systems

Country/region (10)	Monitoring system
Austria	The core indicators shall be updated regularly, if possible annually; the additional indicators at least once before 2017, if possible.
Finland	Indicators are updated yearly. Two follow-up reports are published in 2012 and 2014. Information is provided by the Statistics Finland and the Finnish compliance monitoring system (VAHTI).
France	Organisation responsible for reporting on prevention activities sends annual reports to ADEME. ADEME transfers the information to the Ministry of Ecology, Sustainable Development and Energy, which monitors results from each prevention activity (p. 97).
Hungary	The indicators need to be produced annually 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.
Malta	Theme-specific chapters cover in more details monitoring mechanism.
Poland	The programme includes dedicated chapter on monitoring. Information on the monitoring of indicators will be included in three-year reports (p. 57).
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 (SEPA) and the Swedish Chemicals Agency are responsible for monitoring the indicators. However, a number of indicators need to be further developed.
United Kingdom	
England ([a])	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 and carbon impact of waste, to judge the success of the programme as a whole is envisaged in the programme. By the end of 2014 (but not published until early 2015), a suite of metrics was developed to help monitor progress on waste prevention, enabling consistent measurement of, for example, financial, environmental and social impacts, and levels of engagement.

Note: ADAME, French Environment and Energy Management Agency.

([a]) Refers to region.

Sources: Annex 1; EEA, 2015.

Annex 10 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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European Environment Agency
Kongens Nytorv 6
1050 Copenhagen K
Denmark

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

Publications Office

European Environment Agency