

# Waste

## Innholdsfortegnelse

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# Waste

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In Norway waste volumes have increased by 60 per cent since 1995. As much as 80 per cent of the non-hazardous waste is recovered, and 97 per cent of the hazardous waste is collected. Proper treatment of hazardous waste is particularly important to prevent releases of dangerous substances into the environment.



There is a strong tendency for waste quantities to rise with standards of living. One of Norway's targets is to ensure that the growth in waste generation is considerably lower than the rate of economic growth. Photo: Bård Bredesen, Naturarkivet.no



Nearly all hazardous waste in Norway is delivered to and handled at approved facilities. Photo: Kim Abel, Naturarkivet.no



More and more plastic waste is being recycled, but at the same time an increasing proportion of packaging is made of plastic. Photo: Bård Bredeesen, Naturarkivet.no



Birds, marine mammals, lobsters and other animals can become entangled in discarded fishing gear or mistake fragments of plastic for food, with injury or death as a result. The photo shows litter washed ashore in Aust-Agder county before a beach clean-up campaign. Photo: Bård Bredesen, Naturarkivet.no

## STATE

# Continued increase in recovery rates

Norway generated 11.9 million tonnes of waste in 2014. This was an increase of 7 per cent from the year before. Since 1995, the total waste volume in Norway has increased by 60 per cent. Household waste comprises an increasingly bigger share of the total waste amount. In 2014 households generated 20 per cent of all waste in Norway<sup>1</sup>.

## Waste recovery

The recovery rate for non-hazardous waste reached 80 per cent in 2014. Material recovery and incineration with energy recovery are the most common treatments.

## Final treatment

Final treatment of waste means landfilling or incineration without energy recovery, these treatment methods result in different environmental impacts.

Landfilling of waste leads to the generation and release of methane, a greenhouse gas, and thus contributes to global warming. Landfilling also represents a threat for coming generations as emissions continue for a very long time after waste is deposited. Incineration of waste leads to emissions of flue gases containing hazardous chemicals, dust and acidic components.

The amount of degradable material going to landfill has dropped, partly due to a ban on the landfilling of bio-degradable waste that entered into force on 1 July 2009, and partly to increased export of waste to Sweden for incineration.

› Read more about waste and recovery in Norway

## Hazardous waste

In 2014, a total of 1.4 million tonnes of hazardous waste was handled according to approved treatment. If hazardous waste is dumped with ordinary waste it may result in the dispersal of harmful substances in the environment. They may spread via seepage of contaminated water from landfills, or in the flue gases, ash or slag produced in the incineration process. Hazardous waste which is disposed in the sewage may cause increased pollution of the sea and seabed due to malfunctioning of purifying plants.

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Read more about hazardous waste in Norway

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### DRIVING FORCES

## Consumption is the key driver

Economic growth, or growth in production and consumption, is the key driving force behind waste volumes in Norway. Larger homes, higher housing standards, frequent decoration and reconstruction, and increased spending on furniture and household appliances are typical examples of how affluence generates waste. There is more and more hazardous waste from consumer goods such as computers and mobile phones.

However, with more waste recovery, the quantity of waste delivered for final disposal has declined, and releases from waste treatment have been reduced in recent years.

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### RESPONSE

## A number of instruments in place

Waste management is regulated in various ways, and there is interplay between regulation at central and local levels. The central government authorities set the general framework, leaving municipalities and industry with a relatively free hand to design local collection and treatment solutions.

### Important waste policy instruments

The authorities have put in place a number of instruments (e.g. legislation, taxes, and economic incentives) targeted at the municipalities, business and industry. The most important waste policy instruments are:

- municipal responsibility for household waste
- business and industry responsibility for dealing with the waste they generate, including the collection and appropriate treatment of certain types of waste products, such as ee-waste, packaging, cars, tyres, batteries, lubricant oil and PCB-windings
- regulation of landfilling and incineration according to EU legislation
- waste management plans as a mandatory element of all building projects, as part of municipal administrative procedures
- ban on landfilling of biodegradable waste from 1 July 2009

### The effect of policy instruments is expected to increase

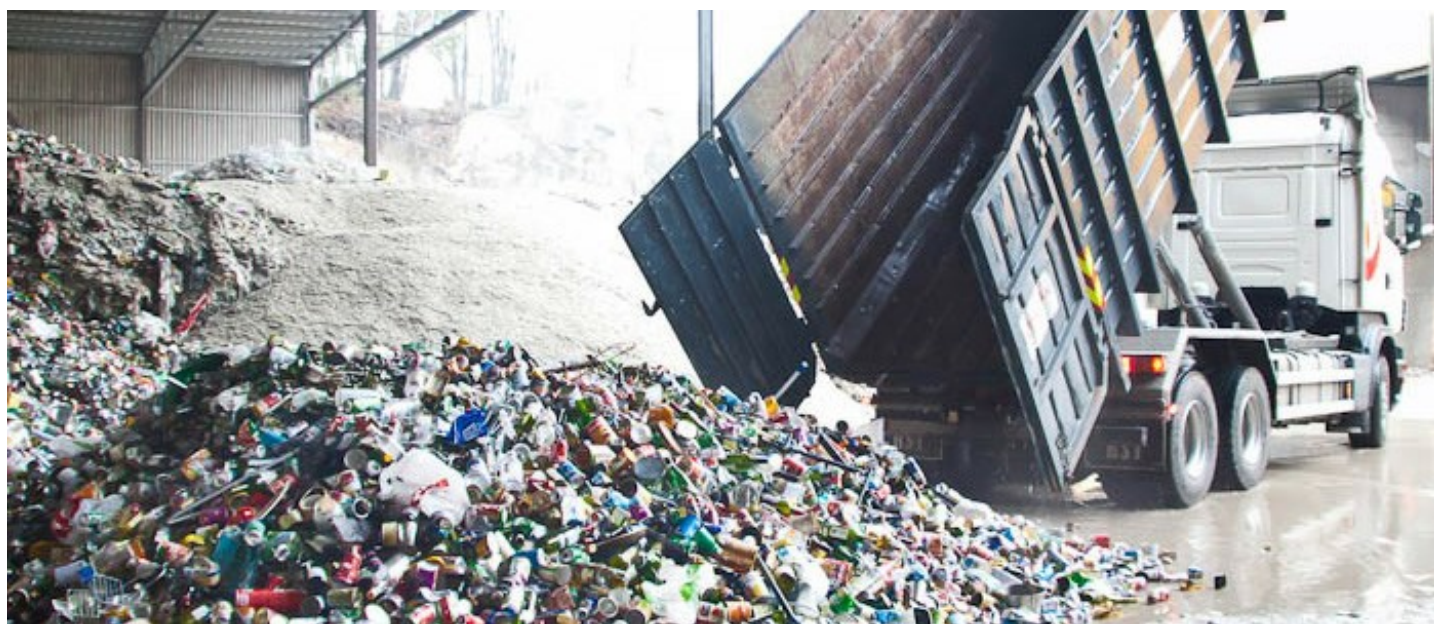
The instruments in the waste area contribute in a positive direction, particularly in relation to achieving reduced emissions from waste treatment. More stringent requirements, for example, provide better control of runoff of hazardous substances from landfills.

The effect of the policy instruments is expected to increase. This particularly applies to initiatives that require re-adjustment by the municipalities, businesses, and a change in people's habits and customs.

# 1. Waste and recovery

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Economic growth contributes to rising waste volumes. However, in recent years more waste has been recovered and emissions from the waste sector have been reduced.



Norsk glassgjenvinning at Onsøy. Photo: Linn Bryhn Jacobsen, the Norwegian Environment Agency

## STATE

### Increase in waste volumes, but more is recovered

A total of 11.9 million tonnes of waste was generated in Norway in 2014. This was an increase of 7 per cent from the year before. Industrial waste accounted for 22 per cent of the total waste quantity, while households contributed to 20 per cent.

We have a national target which states that the total quantity of waste shall be considerably lower than the growth in the economy. Overall, for the entire period from 1995 to 2014, the quantity of waste grew by 60 per cent, while GDP increased by less than 50 per cent.

### Much waste is recovered

Twenty years ago, it was common to landfill most of the waste in Norway. Since then, the proportion of the waste that is landfilled has decreased, while the proportion that is recovered has increased correspondingly. In 2014, approximately 80 per cent of all waste was recovered.

Waste contains resources, both energy and materials, which can be recovered in the recycling process. Material recovery involves using the materials as raw material in new production of goods and energy is also saved by not using virgin materials. Aluminium recycling is a good example of such practices. If the waste is not landfilled, but used to replace fossil fuels, greenhouse gas emissions are further reduced.

The figure shows that material recovery and incineration with energy recovery are the most common treatments today.

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Impact

## Environmental impacts of waste

The environmental impact of waste treatment and disposal depends on:

- the volume of waste produced and its composition
- the amounts illegally disposed of
- the amounts that are landfilled or incinerated
- the standards at the treatment plants

Final treatment of waste means landfilling or incineration, and the two treatment methods result in different environmental impacts.

Landfilling leads to the generation and release of methane, a greenhouse gas. Furthermore, hazardous chemicals may be released to the environment through sewage water. Landfilling also represents a threat for coming generations as emissions continue for a very long time after waste is deposited.

Incineration of waste may lead to emissions of flue gases containing hazardous chemicals, dust and acidic components.

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### DRIVING FORCES

## Economic growth results in more waste

Economic growth, or growth in production and consumption, is the key driving force behind the growing waste volumes.

Larger homes, higher housing standards, frequent redecoration and reconstruction, and increased spending on furniture, household appliances, mobile phones, PCs and clothes are typical examples of how affluence generates waste.

Our lifestyle also dictates how much waste we produce. A hectic schedule makes disposable products attractive, and buying new products can be more appealing than repairing old ones.

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### RESPONSE

## Waste management

In Norway waste is regulated in various ways, and there is an interplay between regulation at central and local levels. The central government authorities set the general framework, leaving municipalities and industry with a relatively free hand to design local collection and treatment solutions. Important waste policy instruments

The authorities have put in place a number of instruments (e.g. legislation, taxes, and economic incentives) targeted at the municipalities, business and industry.

The most important waste policy instruments are:

- municipal responsibility for household waste
- business and industry responsibility for dealing with the waste they generate, including the collection and appropriate treatment of certain types of waste products, such as ee-waste, packaging, cars, tyres, batteries, lubricating oil and PCB-windows
- regulation of landfilling and incineration in accordance with EU legislation
- waste management plans as a mandatory element for all building projects, as part of municipal administrative procedures
- ban on landfilling of biodegradable waste from 1 July 2009

So far, we have seen a positive effect especially with regard to waste recovery and reduced emissions from waste treatment. The full effect of new policy instruments is expected to increase. This particularly applies to the initiatives that require re-adjustment by the municipalities and businesses, and a change in people's habits and behaviour.

## 1.1. Hazardous waste

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## 2. Waste electrical and electronic equipment

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### 3. Microplastics

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## 4. Hazardous waste

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