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Office of the Auditor General
of Norway

The Office of the Auditor General's investigation into the management of hazardous waste

Document 3:7 (2011–2012)



23 257 -3 918 240 1 255 712 474 320 120 3 924 23 781

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Fagbokforlaget AS
Postboks 6050 Postterminalen
NO-5892 Bergen

ISBN 978-82-8229-184-2

Illustration: 07 Oslo AS

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To the Storting

The Office of the Auditor General hereby submits Document 3:7 (2011–2012)
*The Office of the Auditor General's investigation into the management of
hazardous waste.*

The Office of the Auditor General, 31 January 2012.

For the Board of Auditors General

Jørgen Kosmo
Auditor General

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The Ministry of the Environment

The Office of the Auditor General's investigation into the management of hazardous waste

1 Introduction

Hazardous waste is waste that cannot expediently be handled together with consumer waste, as this may result in serious pollution or involve a risk of injury to people or animals. The Storting's intention is that practically all hazardous waste is to be dealt with in an appropriate way, so that it is either recycled or sufficient treatment capacity is provided within Norway. The overall objective in the field of waste management is to ensure that waste causes as little harm as possible to people and to the natural environment. Failure to manage hazardous waste properly could have serious environmental consequences by allowing environmental toxins to spread and cause acute pollution of air, soil and water. Such failure could also have serious effects on the working and local environment. There have been a number of cases of serious environmental consequences resulting from the improper handling of hazardous waste, and several of them have resulted in convictions in the courts.

Pursuant to the EU Regulation on the supervision and control of shipments of waste within, into and out of the European Community (the Waste Shipment Regulation), Norway has a duty to prevent hazardous waste from being exported to developing countries. Illegal export of waste might result in the waste not being treated properly, thereby causing serious damage to health and the environment in other countries.

The Ministry of the Environment has overall responsibility for ensuring that hazardous waste is properly managed. The Norwegian Climate and Pollution Agency is the agency in charge of hazardous waste. It issues permits for the treatment and export of such waste, supervises treatment facilities, producer responsibility schemes and the import/export of hazardous waste. The county governors are responsible for permits and the supervision of reception and storage facilities for hazardous waste and for the supervision of i.a. ports and enterprises that produce waste. It is the Norwegian Climate and Pollution Agency's responsibility to instruct and guide the county governors in their supervision work. The municipi-

palities are responsible for collecting and receiving hazardous waste and controlling building and construction waste. The Norwegian Maritime Directorate supervises ships, ensuring that they comply with the regulations relating to waste disposal in ports.

The objective of the investigation was to evaluate the authorities' work on ensuring that hazardous waste is properly handled. The following four main lines of inquiry were pursued.

- 1 To what extent do the Ministry of the Environment and the Norwegian Climate and Pollution Agency fulfil their management responsibility to contribute to ensuring that hazardous waste is properly handled?
- 2 To what extent is hazardous waste collected and declared in an expedient manner?
- 3 To what extent is hazardous waste properly handled at storage and treatment facilities?
- 4 To what extent do the authorities have control of the export of hazardous waste?

The investigation focused in particular on the management of some selected types of hazardous waste:

- electrical and electronic waste (hereinafter called EE waste) from households and vehicle collection enterprises
- building and construction waste containing PCBs or brominated flame retardants
- waste containing oil from ports and vehicle collection enterprises
- mercury from dental surgeries

These types of waste were chosen because they are produced in large quantities and/or involve a risk of spreading prioritised environmental toxins.

The Office of the Auditor General has obtained some of the data through cooperation with the Office of the City Auditor of Oslo, the intermunicipal auditing companies Telemark kommunerevisjon AS and KomRev NORD, and the Office of the City Auditor of Trondheim.

The Office of the Auditor General's investigation report is enclosed as a printed appendix. A draft report was presented to the Ministry of the Environment in a letter of 16 September 2011. In its letter of response of 14 October 2011, the Ministry has made a statement about the report. The comments have been incorporated into the report and this document.

2 Implementation of the investigation

The audit criteria that form the basis for this investigation primarily derive from the Ministry of the Environment's budget propositions, reports to the Storting with pertaining recommendations concerning waste and chemicals policies, the Norwegian Pollution Control Act, the Norwegian Waste Regulations and other regulations. The investigation was also based on relevant EU directives and international commitments.

The lines of inquiry were pursued using document analysis, analyses of statistics and waste streams, observations and interviews. The data collection was carried out during the period from May 2010 to June 2011.

The investigation is based on specialist reports, annual reports, studies, governing documents and internal documents from the Norwegian Climate and Pollution Agency. The Norwegian Climate and Pollution Agency's campaign memos, individual inspection reports and summaries of inspection campaigns targeting waste producers and facilities for treatment, reception and storage during the period 2001–2012 have been reviewed and collated. The reports from the municipal auditors' offices with which cooperation was established have also been included in the factual basis. In addition, the case files of 11 waste oil facilities, 21 treatment facilities, 19 reception facilities and 24 export cases were reviewed. The investigation has also reviewed waste handling plans for 36 ports.

Statistics were collated from Statistics Norway, the Norwegian Climate and Pollution Agency's administrative database for waste, and the police criminal case register. Data from the declaration database Norbas have been particularly important in assessing the handing-in and traceability of waste. An electronic questionnaire survey was conducted to map how households handle different types of hazardous waste and small appliances. A national sample as well as a sample of

households in the cities of Oslo, Skien, Tromsø and Trondheim took part in this questionnaire survey. The response rate was 55 per cent.

A waste stream analysis of selected types of waste was used to calculate the amounts of EE waste and hazardous waste that are produced in dental surgeries, ports and building and construction activities. Physical observations were carried out of reception facilities and waste oil plants entitled to reimbursements, and 218 waste declarations were checked.

Interviews were conducted with the Ministry of the Environment, the Norwegian Climate and Pollution Agency, Statistics Norway, the Norwegian Customs and Excise, the Norwegian National Authority for Investigation and Prosecution of Economic and Environmental Crime (Økokrim), and the environmental protection departments of the County Governor Offices in Oslo/Akershus, Rogaland, Sør-Trøndelag, Telemark and Troms. In addition, interviews were carried out with Norsk forening for farlig avfall (the industry association for the waste handling industry), Waste Management Norway, the Norwegian Resource Centre for Waste Management and Recycling (Norsas), relevant take-back companies and representatives of four enterprises that handle hazardous waste.

3 Summary of the findings

The authorities have implemented several measures to help to ensure that hazardous waste is properly handled. The investigation shows a reduction in the amount of hazardous waste subject to unknown handling. This has been a priority area for the Norwegian Climate and Pollution Agency in recent years. Special measures such as the producer responsibility schemes and reimbursement schemes have helped to increase the amount of hazardous waste that is collected. Producer responsibility means that the enterprises are made responsible for the collection, treatment and recovery of waste from their own products. The waste strategies drawn up by the Norwegian Climate and Pollution Agency are operationalisations of the national goals. The priorities in this field have been communicated in the county governors' assignment document. Thematic inspection campaigns in cooperation with the county governors have resulted in more targeted and comprehensive supervision, and also in a higher number of supervision activities. In 2010, the

Norwegian Climate and Pollution Agency initiated a review of all permits for the treatment of hazardous waste. This review helps to ensure that more specific requirements are stipulated, which will make it easier to take legal action against enterprises.

However, the investigation shows that many enterprises are still failing to comply with the regulations intended to ensure that hazardous waste is properly handled. The most important weaknesses in the Ministry of the Environment and the relevant authorities' work of ensuring that hazardous waste is properly handled appear to be the following:

- There is still hazardous waste that is not collected.
- Supervisory activities show no significant improvement in waste handling at storage and treatment facilities.
- Control of the export of hazardous waste is inadequate.
- The Ministry of the Environment has failed to adequately follow up whether development in the area is satisfactory, and whether the policy instruments are functioning as intended.

3.1 Collection of hazardous waste

Pursuant to several international agreements and national performance goals, Norway shall help to ensure that hazardous waste is handled properly, which includes ensuring that the waste is collected. According to Statistics Norway, there has been a reduction in the amount of hazardous waste subject to unknown handling. In 2009, 72,000 tonnes of waste went to unknown handling, compared with 115,000 tonnes in 2004. Waste containing oil and waste containing heavy metals/contaminated soil were the largest quantities in this context. Hazardous waste subject to unknown handling is waste that cannot be accounted for in the statistics, but which could still be handled in a satisfactory manner. The investigation also shows that hazardous waste that is not collected can still contribute to the release of environmental toxins and oil pollution into the natural environment. Supervision of the waste producers have shown that many enterprises fail to comply with the regulations for the handing-in and storage of hazardous waste. It also emerged that some waste ends up in residual waste and is illegally exported to countries that cannot handle the waste properly. Some waste is also released into drains or the sea.

Follow-up of the producer responsibility schemes

Producer responsibility is a key policy instrument in achieving the goals set for the field of waste. Producer responsibility schemes have been established for several types of hazardous waste. The schemes are normally managed by the industries themselves, which join forces to set up take-back companies. With the exception of batteries, the Norwegian Waste Regulations specify requirements for take-back schemes and the take-back companies. Overall, the producer responsibility schemes have a high level of participation and help to increase the amounts collected. However, the investigation questions whether the Ministry of the Environment and the Norwegian Climate and Pollution Agency have been sufficiently active in their follow-up of the collection of EE waste in relation to how much waste is produced, and whether they have done enough to check whether the take-back companies have fulfilled their obligations pursuant to the Waste Regulations.

The investigation shows that a high proportion of the EE waste produced is not collected. Waste that is not collected is exported illegally, stored or ends up in residual waste. The Waste Regulations regulate the take-back companies' duties in relation to the collection of EE waste, but not the total amount to be collected. The investigation shows that the authorities do not have an overview of how much EE waste is generated, even though the data required to calculate this amount are available. Inadequate management information weakens the preconditions for good follow-up of the collection system. The Norwegian Climate and Pollution Agency has begun the work of considering changes in the regulations relating to EE waste in order to improve the collection rate.

In order to ensure that the collection system works, all relevant producers and importers are obliged to be affiliated to a take-back company and to pay a fee. The Norwegian Climate and Pollution Agency is responsible for following up enterprises that do not pay, and it is empowered to impose sanctions on them. Participation has increased significantly in all areas, but new products and internet imports by parties that are not members of the schemes are a challenge. The problem is particularly great in relation to the take-back scheme for vehicles. The investigation shows that the Ministry of the Environment has been unable to establish agreements with the customs or transport and communications authorities to ensure that fees are collected from more car importers.

According to the Waste Regulations, take-back companies in the EE area must be controlled by an independent certification body. The investigation shows that these controls have failed to uncover major non-conformities in the take-back companies' collection, reporting, removal of hazardous components and export.

Follow-up of the regulations for the handing-in of hazardous waste in ports

The Port Waste Directive is based on provisions in the MARPOL Convention that require ports to have adequate reception facilities. The Directive has been implemented through the Norwegian Pollution Regulations. The Norwegian Maritime Directorate is subordinate to the Ministry of the Environment in cases concerning environmental matters relating to individual ships and protection of the marine environment. The investigation shows that, for many years, the Norwegian Maritime Directorate has neither followed up the assignment given to it in the allocation letter from the Ministry of the Environment of supervising the handing in of waste from ships pursuant to the Pollution Regulations, nor ensured that waste notification forms are collected from ships. This reduces its ability to check whether ships have handed in waste.

On the basis of the Norwegian Maritime Directorate's inadequate follow-up, the investigation questions whether the Ministry of the Environment has followed up the task assigned to the Directorate in the allocation letter of ensuring the collection of hazardous waste from ships.

The investigation also shows that many ports lack waste handling plans, and that existing waste handling plans do not comply with the regulatory requirements. The investigation points out that the county governors have failed to follow up the ports' compliance with regulations to a sufficient extent. In the Norwegian Climate and Pollution Agency's opinion, the regulations are not well suited to Norway's port structure. In autumn 2011, the Ministry of the Environment was considering the need for changes in the regulations.

Waste containing oil

Discharges of oil shall not harm human health or the environment, or contribute to an increase over time in the background values of oil or substances harmful to the environment, cf. the Ministry of the Environment's budget propositions. Waste containing oil accounts for the largest quantity of hazardous waste subject to unknown

handling. It can be difficult to determine whether the oil is waste or a product, and thus under which regulations it falls. What regulations apply will determine how the oil is to be handled. The investigation uncovered a difference of opinion between the authorities and the parties involved in waste management. The investigation questions whether the Norwegian Climate and Pollution Agency has helped to clarify how the regulatory framework is to be interpreted in practice.

Some types of waste containing oil are difficult to handle because they involve an explosion hazard. Report No 17 to the Storting (2001–2002) concerning State Supervision, cf. Recommendation No 222 to the Storting (2002–2003), emphasised the coordination of supervisory bodies as an important area with a potential for improvement. The Directorate for Civil Protection and Emergency Planning is responsible for explosives and flammable substances. Some waste containing oil falls under the area of responsibility of both the Directorate for Civil Protection and Emergency Planning and the Norwegian Climate and Pollution Agency. The investigation shows that there was little cooperation between the two bodies until the explosion at the Vest Tank facility in 2007, but that this has improved since 2007. In light of the goal of ensuring that practically all hazardous waste shall be dealt with in an appropriate way, the investigation questions whether the Ministry of the Environment has done enough to facilitate the required coordination of supervisory bodies in order to improve the control of waste containing oil.

Challenges relating to the collection of construction waste

PCB emissions were to be stopped by 2005, cf. Proposition No 1 to the Storting (2009–2010) *for the Ministry of the Environment*. The investigation shows that the authorities' efforts to collect waste containing PCBs have been largely successful. The collection of this waste has been prioritised through producer responsibility and inspection campaigns. Other construction materials that contain PCBs are not handed in to the same extent. In its letter of response, the Norwegian Climate and Pollution Agency has pointed out that a project has been initiated to identify an expedient way of handling large quantities of waste containing low concentrations of PCBs. As regards waste containing brominated flame retardants, the authorities do not know enough about the amounts, concentrations and the periods during which different products have been in use. With respect

to mercury in buildings, the authorities have not followed up measures that they have previously encouraged. There is also a need for existing knowledge to be communicated to the involved parties.

The municipalities have a particular responsibility for construction waste in their processing of building applications and supervision activities, cf. the Planning and Building Act. The investigation shows that municipalities have followed up the regulations concerning building and construction waste to varying degrees. The investigation emphasises that, together, this represents a major challenge in relation to the adequate removal of hazardous components and the collection of hazardous waste from building and construction activities.

Collection and information in municipalities

The municipalities are responsible for ensuring adequate services for the reception of hazardous waste from households and small businesses, cf. the Norwegian Waste Regulations. The quantity of hazardous waste collected per inhabitant varies between municipalities, and less waste is collected than is produced.

The hazardous waste strategy that was in effect for the 2008–2010 period, cf. Proposition No 1 to the Storting (2008–2009) for *for the Ministry of the Environment*, is intended to help to improve consumers and the business community's knowledge about hazardous waste. Many parties have a responsibility to provide information to consumers. The information comes from many different parties and administrative levels, and is largely in the form of individual campaigns. The information is therefore fragmented and lacking a long-term perspective. The guidance publications made available to the municipalities by the Ministry of the Environment and the Norwegian Climate and Pollution Agency are old and partly out of date. The investigation points out that, even though many expedient information measures have been implemented, it may be questioned whether the Ministry of the Environment has ensured that sufficient guidance and information have been provided to households and municipalities.

3.2 Permits for reception, intermediate storage and treatment facilities

The Norwegian Climate and Pollution Agency and the county governors are tasked with regulating treatment facilities and reception and intermediate storage facilities by means of permits,

supervision and regulations. Following the Vest Tank accident, the Norwegian Climate and Pollution Agency reviewed and updated treatment facilities' permits during the period 2010–2011. The investigation also shows that many of the county governors' permits for preliminary storage facilities are out of date in relation to the facilities' current operations, and that the county governors do not have the capacity to initiate updates. Neither the Norwegian Climate and Pollution Agency nor the county governors have established procedures to ensure that the permits are up to date.

Pursuant to non-statutory principles for satisfactory case processing, the authorities shall take steps to ensure reasonable, objective and equal treatment in case processing. Important requirements set by the county governors for private facilities that operate subject to a permit are not included in the regulations that govern small municipal facilities. The investigation shows that the county governors' permits vary in form and can deviate significantly from the Norwegian Climate and Pollution Agency's template. Different requirements are stipulated in the permits for similar facilities located in different parts of Norway, and the Norwegian Climate and Pollution Agency sets stricter requirements for storage, treatment and emission than the county governors. The investigation emphasises that this results in differential treatment of activities with similar risks of pollution. This in itself is unfortunate, seen in relation to the non-statutory principle of equal treatment. It is also pointed out that this results in a risk that not all hazardous waste is properly handled. The Ministry of the Environment states in its letter of response that it has initiated work on regulations stipulating more uniform and clear requirements for reception and storage facilities for hazardous waste.

3.3 Supervision of hazardous waste

The Standing Committee on Energy and the Environment emphasised intensification of the supervision of hazardous waste and chemicals, cf. Recommendation No 46 to the Storting (2003–2004) and Recommendation No 180 to the Storting (2006–2007). It also pointed out that supervision must be comprehensive, systematic and risk-based. The investigation shows that the inspection campaigns under the auspices of the Norwegian Climate and Pollution Agency have contributed to more comprehensive and systematic supervision, among other things because many control objects are inspected in a short period of time, on a basis intended to ensure uniformity in

implementation and in the registration of non-conformities. The frequency of supervisory activities conducted by the county governors has also increased, but several county governors do not carry out supervision activities other than as part of the Norwegian Climate and Pollution Agency's inspection campaigns. At the same time, the investigation shows that supervision is not fully risk-based, that the methods used are not suitable for uncovering every type of non-conformity, and that enterprises are not sufficiently followed up after non-conformities have been discovered.

Several circumstances undermine the basis for carrying out risk-based supervision:

- Insufficient maintenance and updating of administrative databases make it more difficult to plan, carry out and follow up controls.
- Many of the facilities that fall under the county governors' area of responsibility have not been assigned a risk category that specifies the supervision frequency.
- Because of the present system of fee-funding of the county governor offices' supervisory activities, the controls that result in the highest income are given highest priority.

In addition to the Norwegian Climate and Pollution Agency's risk-based priorities, supervisory activities are also carried out as a result of tips the Agency receives about environmental crime. Such tips can help to uncover matters that warrant criticism in enterprises that cannot be uncovered through ordinary supervisory activities. The investigation shows that the Norwegian Climate and Pollution Agency provides no information on its website about how tips are handled, and that the agency has no systematic procedures for handling tips.

The investigation shows that the Norwegian Climate and Pollution Agency and the county governors' supervision activities are carried out as visits to the facilities and visual inspections. Other than this, the supervision is largely based on document reviews and interviews with employees at the facilities. The county governors and the Norwegian Climate and Pollution Agency do little to verify the enterprises' information about whether waste is correctly labelled, sorted, treated and its hazardous components removed by ensuring that test samples are collected. There is reason to believe that this results in failures to handle hazardous waste properly not being uncovered to a sufficient extent. The purpose of the reimbursement scheme for

waste oil is to encourage increased handing-in of such waste oil for approved treatment, cf. the Ministry of the Environment's budget propositions. The investigation shows that many facilities fail to fully comply with the regulations on matters such as sample collection, volume measurement and record-keeping. As a result, they may be receiving inflated reimbursements. The Norwegian Climate and Pollution Agency checks that the reimbursement claims are in line with the regulations by means of document control. However, there are circumstances that can only be uncovered through inspection of the facilities. Since 2006, the environmental authorities have chosen not to supervise the waste oil scheme by means of inspections. The investigation questions whether the Ministry of the Environment is doing enough follow-up to ensure that the scheme is not being abused.

Follow-up of completed supervisory activities

Enterprises that violate their permits or the regulatory framework for hazardous waste can face sanctions from the Norwegian Climate and Pollution Agency and the county governors. Sanctions for violation of the applicable regulations are to be made stricter, cf. Recommendation No 180 to the Storting (2006–2007). The investigation shows that the reports prepared after supervision activities have not clearly communicated which non-conformities are particularly serious. From 2010, the Norwegian Climate and Pollution Agency introduced a new supervision report template in which the most serious non-conformities are better highlighted. The county governors register non-conformities in different ways. The investigation points out that the way in which follow-up is carried out has reduced the enterprises' ability to identify the most serious matters. The investigation shows that non-conformities are repeatedly found in the same enterprises.

The coercive fine should be set so high that it does not pay to continue polluting activities. The investigation shows that the county governors do not base the size of the coercive fine on the seriousness of the non-conformity, but largely use standard amounts. Long case processing times also undermine the effect of notifications of coercive fines by both the Norwegian Climate and Pollution Agency and the county governors. The use of coercive fines is therefore not functioning as intended.

The pollution control authorities have legal authority to revoke or change a permit as a sanction

for violation of the regulations. The investigation shows that this instrument is not being used. Enterprises can be reported to the police if they violate the penal provisions of the Pollution Control Act, and the case can be pursued through the legal system. Although large waste-related cases have been brought before the courts, the investigation shows that serious non-conformities and pollution cases in the waste management industry that have been reported to the police have resulted in very few criminal proceedings that have led to sanctions being imposed. This is partly because it has been difficult to legally verify the facilities' permits, as the permits are general and it is unclear what the enterprises actually hold permits for. Other reasons include a lack of expertise and capacity on the part of local police. The investigation points out that it can be questioned whether the Norwegian Climate and Pollution Agency and the county governors are utilising their powers of sanction to increase compliance with the regulatory framework as intended by the Storting to a sufficient extent.

3.4 Control of the export of hazardous waste

Norway has endorsed the Basel Convention's objective of minimising the transboundary transport of hazardous waste, which has also been incorporated into the Waste Shipment Regulation. As far as practically possible, hazardous waste should be treated in the country of origin, and as close to its place of origin as possible. The Standing Committee on Energy and the Environment has asked the Government to be restrictive in granting export permits for special waste if the type of waste in question can be treated in Norway, cf. Recommendation No 259 to the Storting (2000–2001). The investigation shows that the Norwegian Climate and Pollution Agency only to a very limited extent carries out checks in order to uncover illegal export of hazardous waste.

The investigation shows that the export of hazardous waste has increased. The Norwegian Climate and Pollution Agency is responsible for processing applications for the export of hazardous waste. The Waste Shipment Regulation sets out detailed requirements concerning the authorities' case processing of applications for export permits. The investigation shows that the Norwegian Climate and Pollution Agency's case processing is mostly in accordance with the regulations. Most export permits are granted for hazardous waste that is to be processed in the other Nordic countries. Export permits are also granted for export to other EU countries, including for final dispos-

al. These exports have also increased. The authorities do not have a good overview of re-export from the countries to which the waste is initially exported. This means that there is a risk that Norwegian waste may end up in countries that lack the capacity to treat the waste properly.

In the Norwegian Climate and Pollution Agency's opinion, Norway has sufficient final disposal capacity for all types of waste. In this context, the Ministry of the Environment deems the Nordic countries to be a joint market for hazardous waste in accordance with the Council of Ministers' declaration of 1994. The largest Norwegian treatment facility for hazardous waste has sufficient capacity until 2024. After this time, the national final disposal capacity will depend on the establishment of new treatment solutions.

It is prohibited to export hazardous waste out of the EU/EFTA area for final disposal, cf. the Waste Shipment Regulation. However, the Regulation does not require a permit from a country's authorities for the export of products or pure waste fractions for recovery in an EU country. The investigation shows that some illegal export of hazardous waste takes place under the pretext of being products or pure fractions for recovery. The requirement for an export permit from the Norwegian Climate and Pollution Agency is thus bypassed, as the waste is not classified as hazardous waste. Some of the illegal waste export from Norway goes to countries outside the EU/EEA area that do not have the capacity to treat the waste properly.

Pursuant to the Waste Shipment Regulation, Norway is obliged to supervise transboundary transport of waste. The Norwegian Climate and Pollution Agency has entered into a cooperation with the Norwegian Customs and Excise, but few supervisory activities have been carried out in relation to export of hazardous waste. Nor have adequate systematic procedures for uncovering attempts at illegal export been implemented.

Pursuant to the Waste Shipment Regulation, Norway shall stipulate rules concerning sanctions for violations of the provisions of the Waste Shipment Regulation. The investigation shows that the authorities have few sanctions available in relation to the illegal export of hazardous waste. Because of this, the authorities do not deem supervisory activities to be expedient. The Ministry of the Environment states in its letter of response that it has begun work on amending the Pollution Con-

trol Act, among other things, in order to improve the follow-up of illegal exports of hazardous waste.

Since the Vest Tank accident, the Norwegian Climate and Pollution Agency, the Norwegian Customs and Excise, the Directorate for Civil Protection and Emergency Planning and the Norwegian Coastal Administration have adopted a cooperation scheme to improve control of the illegal exports and imports of hazardous waste by tanker and bulk carriers. The cooperation had not yet begun when the data collection for this investigation was concluded in June 2011. On the basis of the lack of regular and risk-based supervision, the investigation questions whether the Ministry of the Environment has taken sufficient steps to follow up its overall responsibility for ensuring better control of the export of hazardous waste.

3.5 Management information

Deficiencies in databases

Pursuant to the Environmental Information Act, the public sector has chief responsibility for having environmental information and making it available. Pursuant to the Regulations on Financial Management in Central Government Section 4, all agencies shall also ensure that there is sufficient management information and a proper basis for decisions, so that established objectives and performance requirements are achieved and the resource use is efficient.

Statistics Norway's hazardous waste statistics are important to the authorities' prioritisation of measures. For the types of waste the investigation has focused on, it has identified major challenges associated with assessing the amount of waste collected and produced, and thereby also the amount of hazardous waste that is not collected.

Pursuant to the Waste Regulations, waste producers have a duty to declare the contents of waste on delivery. The investigation shows that much waste is incorrectly declared, and that errors also occur during the manual transfer of data to the declaration database, Norbas. Incorrect declarations create a risk of incorrect treatment, which can lead to negative environmental consequences, working environment problems and accidents at the facilities.

According to Report No 46 to the Storting (1988–89), the Ministry of the Environment must ensure that there are suitable systems in place for

monitoring the state of the environment and for performance reporting and follow-up. The declaration system for hazardous waste is important in relation to statistics and for the authorities' follow-up in this area. The system is particularly important in relation to the supervision of the waste producers' duty to hand in waste. There is no requirement for reporting that the waste has been treated. The investigation shows that some of the waste cannot be traced all the way to final disposal. Although the authorities have other sources of information to document proper treatment, the declaration system's lack of documentation of proper treatment makes it more difficult to carry out effective risk-based supervision and control of the waste handed in.

The investigation emphasises that material shortcomings in Norbas regarding specific waste fractions have consequences for the statistics and for the authorities' control of the handing in and treatment of the waste. For example, weaknesses in the declaration system have probably caused too large a quantity to be registered for amalgam waste from dental surgeries. This makes it difficult to assess how much mercury is collected through the collection of amalgam waste from dental surgeries. Consequently, there is a risk that a smaller proportion of this waste is being collected for proper handling than the authorities assume.

The present declaration system is based on the submission of forms on paper. The investigation shows that an electronic declaration system will result in financial savings for the authorities as well as the enterprises, and will improve the quality of the information provided and the opportunities for control. The Norwegian Climate and Pollution Agency has been working since 2004 to introduce an electronic system, but has made little progress. The investigation points out that it can be questioned whether the Ministry of the Environment has contributed enough towards implementing a better functioning declaration system that could help to improve management information.

The Forurensning database is used by the Norwegian Climate and Pollution Agency and the county governors to follow up the inspection objects. The investigation shows that several important items of information about enterprises and supervisory activities have not been registered in the database, particularly by the county governors. This makes systematic follow-up in this area more difficult.

The Norwegian Climate and Pollution Agency

registers documentation for the approved export of hazardous waste in the database Miljødata. The investigation shows that not all exported waste is registered. This means that the export figures in the statistics are too low. In its letter of response, the Norwegian Climate and Pollution Agency emphasises that the control procedures have been tightened up over the past three years, and that this has helped to improve the statistics significantly, since all exports are registered in the database.

The investigation emphasises that errors in the central administrative databases can contribute to the authorities basing their decisions on incorrect information. Deficiencies in the management information also weaken the Norwegian Climate and Pollution Agency's basis for its control work and prioritisation of measures.

Ownership of the declarations database

Ownership of the fee-funded declaration database Norbas was not clarified by the Ministry of the Environment when the partly state-owned company Norsas was sold. Operation of the declaration system has therefore not been put out to tender, and Norsas has continued to operate it. The investigation points out that this makes it impossible for the Ministry of the Environment to give other parties the chance to provide a better service.

The Norwegian Climate and Pollution Agency has not stipulated any requirements in the contracts with Norsas regarding how Norsas is to separate the assignment of operating the state reimbursement scheme for waste oil and the declaration system from its other activities as a private company. One consequence of this is that it is unclear to the enterprises when Norsas is acting on behalf of the environmental authorities and when the company is acting as a private company. Guidance material that is provided as part of the operation of the declaration system is only available on Norsas' website, and the impression is that it is guidance from the company. The investigation points out that confusion regarding which recommendations are from the authorities could weaken compliance with the regulations.

4 The Office of the Auditor General's comments

It is the Storting's intention that practically all hazardous waste is to be dealt with in an appropriate way, so that it is either recycled or sufficient treatment capacity is provided within Norway.

The Office of the Auditor General regards it as positive that several measures have been implemented that have helped to ensure that increasing quantities of hazardous waste are being properly handled, and that the policy instruments in the area are largely functioning well. However, there is still hazardous waste that is not being collected. In addition, not all collected waste is being handled properly. This causes a risk of environmental pollution and harm to people and animals. In Office of the Auditor General's opinion, there are several issues that the Ministry of the Environment should deal with in order to help to increase the amount of hazardous waste that is properly handled. They include improving management information, strengthening export controls and improving follow-up of the collection of hazardous waste from ships, EE waste and oil waste. It is also important to continue and develop the good supervision work carried out in recent years.

Major weaknesses have also been found in the Norwegian Maritime Directorate and the county governors' follow-up and control of the handing-in of hazardous waste from shipping in Norwegian ports. In this connection, the Office of the Auditor General would like to point out that, when ships fail to hand in hazardous waste, this increases the risk of oil and chemical discharges at sea. The Norwegian Maritime Directorate is subordinate to the Ministry of the Environment in cases concerning environmental matters relating to individual ships and the protection of the marine environment. The Office of the Auditor General expects closer follow-up of the Directorate's duty to supervise the handing-in of waste from ships.

The investigation shows that a lot of EE waste is not collected, and it also documents that some EE waste ends up in residual waste or is exported illegally. This entails a risk that the waste is not handled properly. The Office of the Auditor General expects the Ministry of the Environment to continue to follow up this area closely in order to strengthen the collection of EE waste.

The investigation also shows an increase in the amount of oil waste collected, and that less waste containing oil is subject to unknown handling. At the same time, the investigation shows that oil waste comprises the largest quantity of hazardous waste subject to unknown handling, although the statistics for this type of waste are uncertain. It can be difficult to determine whether the oil is waste or a product, and thus what regulations it

falls under. The waste producers are responsible for assessing whether residues from production fall under the hazardous waste regulations. However, it must be pointed out that the environmental authorities have a responsibility for ensuring that practical guidance material is available to help the enterprises to comply with the regulations. The Norwegian Climate and Pollution Agency is also responsible for following up this area by means of appropriate supervision.

The enterprises and take-back companies are responsible for providing the authorities with the correct information. At the same time, the investigation shows that serious errors and deficiencies were uncovered during verification of reported information. The Office of the Auditor General would therefore like to underline how important it is that the Norwegian Climate and Pollution Agency and the county governors verify reported information and further develop effective methods of control and supervision.

The Office of the Auditor General has noted that the Norwegian Climate and Pollution Agency has prioritised the supervision of hazardous waste in recent years and strengthened its cooperation with other agencies. In the opinion of the Office of the Auditor General, it is particularly important that the Norwegian Climate and Pollution Agency continues to develop its cooperation with the Directorate for Civil Protection and Emergency Planning regarding the supervision of types of waste that fall under both the directorate and the Agency's areas of responsibility. The Office of the Auditor General also takes a positive view of the Norwegian Climate and Pollution Agency's organisation of inspection campaigns targeting waste producers and facilities that handle hazardous waste. It is important that the Agency continues to provide guidance to the county governors in order to ensure more comprehensive and risk-based supervision.

The Office of the Auditor General notes that the control of hazardous waste exports is inadequate. There is reason to point out that there is a risk of hazardous waste being re-exported out of the EU/EFTA area. In the Office of the Auditor General's opinion, the Norwegian Climate and Pollution Agency should to a much greater extent check whether waste export with government permits takes place in accordance with the permit. It is also important to emphasise that few supervisory activities have been carried out in order to uncover illegal waste exports. In the opinion of the

Office of the Auditor General, it is positive that the Norwegian Climate and Pollution Agency and other authorities have established a collaboration for the purpose of controlling illegal waste movements. The Office of the Auditor General expects this cooperation to result in risk-based controls that can help to ensure that more enterprises comply with the applicable regulations.

The investigation shows that there are faults and deficiencies in the administrative databases for which the Norwegian Climate and Pollution Agency is responsible. In the Office of the Auditor General's opinion, the faults and deficiencies in the databases weaken the authorities' ability to effectively control the handing-in and further handling of hazardous waste. The Office of the Auditor General has noted that the Norwegian Climate and Pollution Agency is working on developing an electronic declaration system, and questions whether the Ministry of the Environment has contributed enough towards putting a better functioning system in place.

The Ministry of the Environment has an overall responsibility to help to ensure that hazardous waste is properly handled. The area is a complex one, with many types of waste, many different parties, different levels of administration and several policy instruments. The Office of the Auditor General is therefore of the opinion that the Ministry of the Environment must continue its broad approach in order to achieve the goals in the area. The Office of the Auditor General also points out that the Ministry of the Environment is responsible for coordinating the work and assessing whether development in the area is satisfactory.

It is particularly important for the Ministry to improve its follow-up of the regulations, particularly for waste from ships, oil waste and the producer responsibility schemes for EE waste. Providing the public, enterprises and municipalities with better information is crucial to achieving the objectives for the field of waste management. It is also important for the Ministry to facilitate the continued prioritisation and further development of supervision of the handling and export of hazardous waste.

5 The Ministry of the Environment's response

The report was presented to the Ministry of the Environment, and, in a letter of 18 November 2011, the Minister replied as follows:

I refer to the letter of 2 November 2011 in which Document 3:7 (2011–2012) The Office of the Auditor General's investigation into the management of hazardous waste was submitted to the Ministry of the Environment for its opinion.

The goal of the Office of the Auditor General's investigation was to evaluate the authorities' work of ensuring that hazardous waste is properly handled. The investigation has focused on the collection, storage, treatment and export of hazardous waste. The emphasis has been on examining certain selected waste fractions and waste streams: electric and electronic waste from households and vehicle collection enterprises, building and construction waste (PCBs, brominated flame retardants), waste that contains oil, such as waste oil and slop from ports and vehicle collection enterprises, and mercury from dental surgeries.

The national goal that practically all hazardous waste is to be dealt with in an appropriate way, so that it is either recycled or sufficient treatment capacity is provided within Norway, forms the basis for the authorities' work relating to the collection, storage, treatment and export of hazardous waste, cf. Proposition No 1 to the Storting (2009–2010) for the Ministry of the Environment and Report No 14 to the Storting (2006–2007) Working together towards a non-toxic environment and a safer future – Norway's chemicals policy, and Recommendation No 180 to the Storting (2006–2007).

It is extremely important to ensure that hazardous waste is properly handled. Hazardous waste should be handled separately because it can result in serious pollution problems or a risk of harm to people or animals. The environmental authorities have implemented several measures over many years to increase collection and ensure proper handling. The Ministry of the Environment presented a hazardous waste strategy in Report No 21 to the Storting (2004–2005), cf. Recommendation No 228 to the Storting (2004–2005). This strategy provided for particular efforts to deal with twelve types of hazardous waste. These types of waste had been given priority because they entailed a high risk of spreading environmental toxins, or because large quantities were handled

in unknown ways and could cause significant local pollution. The strategy was later revised, and in the Norwegian Climate and Pollution Agency's hazardous waste strategy for the period 2008–2010, there is particular focus on increasing the collection of hazardous waste containing prioritised environmental toxins and on dealing with different fractions of hazardous waste of which large quantities go to unknown handling.

In its report, the Office of the Auditor General emphasises that several measures have been implemented that have helped to increase the quantities of hazardous waste that are properly handled, and that the policy instruments in the area largely function well. Nonetheless, unknown handling of hazardous waste continues, and in the opinion of the Office of the Auditor General, there are several matters that the Ministry of the Environment should follow up.

The Office of the Auditor General points to the Ministry of the Environment's overall responsibility for coordinating the work, assessing whether development in the area is satisfactory and improving the follow-up of regulations. I would like to emphasise that the work of ensuring the proper handling of hazardous waste is given high priority, and that the Ministry of the Environment continuously assesses developments in the area and whether the policy instruments are functioning as intended. Expert opinions and advice are obtained from the Norwegian Climate and Pollution Agency. The development in this area is evaluated in relation to national goals, and on the basis of statistics for the amounts of hazardous waste collected. We are also actively developing and following up the work that is taking place in the EU and under the global Basel Convention. The follow-up requirements that have been identified, including the need to further develop and modify policy instruments, are followed up in the allocation letters and assignments to the Norwegian Climate and Pollution Agency and the Norwegian Maritime Directorate, and in the hazardous waste strategies. The status in this field is reported on in the Ministry of the Environment's budget proposition and in reports to the Storting. In the same way, the Norwegian Climate and Pollution Agency follows up the environmental protection departments of the county governor offices through the annual assignment documents, in which hazardous waste has been a priority in recent years.

Norway was the first country in Europe to establish a take-back scheme for waste electrical and electronic equipment, and it is among the countries with the highest collected quantity per capita. The Office of the Auditor General points out that a lot of electrical and electronic waste is still not collected, and it expects the Ministry of the Environment to continue its close follow-up in this field. This is in line with my intentions, as increasing the collection of electrical and electronic waste is among the highest priorities for the future. Work on changing the regulations in order to improve the collection rate is already under way. I have also taken an initiative in relation to the industry to ensure a significantly increased collection rate for small appliances.

The Office of the Auditor General mentions that there has been an increase in the amount of oil waste collected and that less of this type of waste is now subject to unknown handling, but that, at the same time, this waste accounts for the largest amount of hazardous waste subject to unknown handling, and thus presents a challenge. I refer to the fact that increasing the collection of waste containing oil has been one of the priority areas in the Norwegian Climate and Pollution Agency's hazardous waste strategy for the period 2008–2010, and that follow-up of this issue continues. The information provided to the industry and the supervision of storage and treatment facilities have been strengthened. The Norwegian Climate and Pollution Agency and the Directorate for Civil Protection and Emergency Planning cooperate on supervision in this area.

The Office of the Auditor General emphasises that providing the public, enterprises and municipalities with better information is crucial in order to achieve the goals in the area of waste management. The work of improving consumers and the business community's knowledge about hazardous waste is a very important part of the authorities' work to increase the collection of hazardous waste, and the development of guidance material and information measures will continue. This work includes setting up a special web-based tool for municipalities – miljokommune.no. The first part will be introduced in spring 2012. It is intended to help to ensure that municipal case officers have guidance that directly addresses the municipality's needs.

The environmental authorities have given priority to hazardous waste supervision over several years and have strengthened cooperation with

other agencies on such supervision. Nonetheless, the Office of the Auditor General points out a clear need to continue to develop this cooperation with other agencies and to continue providing guidance to the county governors. I agree that the further development of supervision work and cooperation with other agencies is important, and these matters will continue to be given priority.

The Office of the Auditor General deems the control of the export of hazardous waste to be inadequate. The investigation points out that there is a risk that hazardous waste could be re-exported out of the EU/EFTA area and that this entails a risk that Norwegian waste could end up in countries that lack the capacity to handle it properly. The export of hazardous waste to countries outside the EU/EEA and OECD is prohibited by the EU's Regulation 1013/2006 on Shipments of Waste. I would like to point out that the countries to which we export waste are covered by the same regulations. It is an important principle of this regulation that these countries cannot simply refuse the export of waste for recovery, and much of the waste exported from Norway is exported for the purpose of recovery.

The Office of the Auditor General is also of the opinion that not enough supervisory activities have been carried out in order to uncover illegal exports of waste. I would like to mention that the work of uncovering and following up the illegal export and import of hazardous waste has been strengthened significantly in recent years, both the supervision work and work to strengthen and follow up the regulations. In 2008 and 2009, the Norwegian Climate and Pollution Agency carried out control campaigns at the main border stations and ports in cooperation with Norwegian Customs and Excise. Almost 200 inspections were carried out in this field during the two years in question. Inspections have also been carried out in 2010 and 2011, some as a result of tips from the customs authorities. The Norwegian Climate and Pollution Agency has developed practical cooperation procedures and systems for practical cooperation with Norwegian Customs and Excise on preventing the illegal export of hazardous waste, and a formal cooperation agreement has been signed. In addition, the export of waste has been included as a regular topic in several other types of supervisory activities carried out by the environmental authorities. These activities have uncovered several cases of illegal export. The Norwegian Climate and Pollution Agency processes approximately 300 notifications of export of waste

per year, and it maintains a close dialogue with the other Nordic countries in this connection.

The Norwegian Climate and Pollution Agency cooperated with the Norwegian Maritime Directorate, Norwegian Customs and Excise, the Directorate for Civil Protection and Emergency Planning and the Norwegian Coastal Administration to prepare a system to improve control of the illegal export and import of hazardous waste by tankers and bulk carriers. Work is continuing on testing and further development of this control system. The investigation also refers to the fact that the authorities have few sanctions at their disposal in relation to the illegal export of hazardous waste. I agree that the available sanctions are not satisfactory, and would like to mention that work is under way to strengthen regulations in this area.

We are working on a new white paper on waste. Further follow-up of the Office of the Auditor General's remarks will be considered during work on this paper.'

6 The Office of the Auditor General's statement

The overall objective in the field of waste management is to ensure that waste causes as little harm as possible to people and the natural environment. The Storting's intention is that practically all hazardous waste is to be dealt with in an appropriate way, so that it is either recycled or sufficient treatment capacity is provided within Norway. Norway shall also prevent the illegal export of hazardous waste.

The Office of the Auditor General's investigation shows that increasing amounts of hazardous waste are handled properly, and that supervision in this area has improved. However, there is still hazardous waste that is not collected. In addition, not all collected waste is handled properly, and some of it is illegally exported. This causes a risk of pollution of the environment and injury to people and animals. The Ministry of the Environment points out in its response that this field is the focus of continuous follow-up work, and

that several measures have been implemented, including strengthening supervision activities and information aimed at the industry, work on amending the regulations in order to improve the collection of small electronic equipment and the development of a new web-based tool for use by the municipalities. The Office of the Auditor General sees this as positive, and will consider whether these measures are helping to increase the amount of hazardous waste that is collected and satisfactorily handled in its follow-up of the investigation. In this context, the Office of the Auditor General expects the quality of databases and statistics to be improved in order to ensure a good basis for follow-up.

The Office of the Auditor General has also noted that border controls of the export of hazardous waste have been strengthened, but it emphasises how important it is that this work be further strengthened through regular and risk-based supervision in order to stop the illegal export of waste. In this context, the Office of the Auditor General would like to point out the importance of checking whether information provided about waste and its treatment tallies with the export permits granted by the environmental authorities. Such control could be carried out in cooperation with the authorities of other countries to the extent that this is expedient.

In its response, the Ministry of the Environment refers to the fact that the Norwegian Maritime Directorate is followed up through allocation letters and assignments. The investigation shows major weaknesses in the Norwegian Maritime Directorate's control of the collection of hazardous waste from shipping in Norwegian ports. The Office of the Auditor General expects the Ministry of the Environment to follow up the Norwegian Maritime Directorate more actively in order to ensure better control in this area.

The Office of the Auditor General also notes that the Ministry of the Environment is working on a white paper on waste management, and is satisfied with the Ministry's intention to follow up the Office of the Auditor General's comments in its work on this report.

The report will be submitted to the Storting.

Adopted at the meeting of the Office of the Auditor General, 13 December 2011

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**Report: The Office of the Auditor
General's investigation into the
management of hazardous waste**

Appendix to Document 3:7 (2011–2012)

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Key terms and abbreviations

Amalgam	Amalgam is a mercury alloy. Silver, tin and copper alloys have been used in dental fillings. Amalgam fillings consist of up to 50 per cent of the environmental toxin mercury. Amalgam waste includes waste from amalgam separators, drain traps and drain pipes and waste such as extracted teeth, surplus material from preparation or disposable filters.
BAT	Best Available Technology, i.e. that the best available technology is used as a standard or requirement
Brominated flame retardants	A group of fire-retarding substances containing bromine. These substances are not easily broken down in nature, and they could have serious effects on health and the environment.
Coercive fine	Coercive fines are issued pursuant to the Norwegian Pollution Control Act Section 73 and used as an instrument to achieve compliance with the regulations. A coercive fine is not deemed to constitute punishment.
Declaration system	The declaration system for hazardous waste registers the quantities handed in and types of hazardous waste in the Norbas database. This system is based on the duty of enterprises to file declarations, cf. the Norwegian Waste Regulations.
EWC/EWC code	The European Waste Catalogue, covering hazardous and non-hazardous types of waste, is used throughout the EU and the EEA area. The EWC code consists of six digits.
Federation of Norwegian Building Industries (BNL)	Interest organisation for 15 building industry associations
Forurensning	The Norwegian Climate and Pollution Agency and the county governor offices' internal database for assigning risk categories and registering emission permits, reports, emission and waste quantities, accidents and supervisory activities etc.
Free rider	An importer or producer that does not fulfil its obligation to be a member of a take-back scheme
Green-listed waste	Non-hazardous waste for recycling that can be exported without advance notification and consent
HSE	Health, safety and the environment
Inspection	A brief unannounced or announced control visit to check whether certain aspects of the regulations are complied with
National treatment capacity	Measure of domestic treatment capacity for hazardous waste in accordance with the proximity principle set out in the Basel Convention

NFFA	Norsk forening for farlig avfall, an industry association for the waste management industry
Non-conformity	A failure to comply with requirements set out in acts or regulations.
Norbas	Norwegian national hazardous waste database operated by Norsas AS on assignment for the Norwegian Climate and Pollution Agency
Norsas AS	Norwegian Resource Centre for Waste Management and Recycling, consultancy company in the field of waste management, established in 1998 by the Ministry of the Environment, the Confederation of Norwegian Enterprise and the Norwegian Association of Local and Regional Authorities and sold in 2000. Today, the company is a wholly-owned subsidiary of Cowi AS.
PCBs	Polychlorinated biphenyls – industrial chemicals not easily broken down naturally that accumulate in the food chain and have serious consequences for health and the environment
Producer responsibility	The producer/importer of goods is held responsible for the collection and treatment of waste. Companies in an industry often cooperate to establish a take-back company to manage the system.
Proximity principle	That the waste treatment shall take place as close to the source of the waste as possible
Remark	A matter which the supervisory authority finds it necessary to point out, but which does not fall under the definition of non-conformity.
Removal of hazardous components	Mapping, separation and safe handling of hazardous waste fractions.
Reporting from facilities	Enterprises in risk categories 1, 2 and 3 that hold emission permits are required to report emission figures and the status of their emergency preparedness to the pollution control authorities.
Slop	Created when storage and transport tanks are washed, and also occurs in the form of oily bilge water from shipping. Slop containing oil can also arise when metal is processed and during the drilling and operation of production wells for oil and gas.
Special waste	Waste that cannot appropriately be treated together with other household waste or industrial waste because of its size or because it may cause serious pollution or involve a risk of injury to people and animals (the Norwegian Pollution Control Act Section 27)
SSB	Statistics Norway
STRASAK	The police criminal case register

Supply of goods	Domestic production plus imports minus exports
System audit	A comprehensive announced supervisory activity with a duration of between two and five days
Take-back system	System for the collection, treatment and recovery of certain types of waste
Thematic inspection campaign	Nationwide or regional supervision campaign targeting a defined industry or a priority topic
Waste fraction	Particular type of waste, for example slop containing oil or insulating glass
Waste holder	Waste producer or other party (households, businesses or in the public sector) that holds hazardous waste
Waste Management Norway	Interest organisation for public and private parties in the waste management sector
Waste oil refund scheme	Reimbursement scheme for waste oil
Waste producer	Enterprise where hazardous waste is produced
Waste stream analysis	Analysis of a selected waste fraction from handing-in to final disposal
Waste substance number	The Norwegian classification of hazardous waste by properties and/or chemical composition
WEEE Register	Register of producers, importers and exporters of electrical and electronic equipment. The Register is tasked with calculating the amount of EE equipment that enters the Norwegian market, keeping statistics of the collected and treated amount of EE waste and providing information to producers and importers who are required to be members of a take-back company.
Økokrim	The Norwegian National authority for investigation and prosecution of Economic and Environmental Crime.

1 Introduction

1.1 Background

The Storting has endorsed the goal that practically all hazardous waste is to be dealt with in an appropriate way, so that it is either recycled or sufficient treatment capacity is provided within Norway¹ This goal is based on the goal of eliminating the use and emission of chemicals hazardous to health and the environment by 2020. This goal was developed through the North Sea Cooperation and adopted as part of OSPAR's environmental toxin strategy from 1998, and is also a national performance goal.² The strategic goal in the field of waste management is to ensure that waste causes as little harm to people and to the natural environment as possible.³

Failure to hand in and inadequate storage and treatment of hazardous waste contribute to improper handling. The treatment of hazardous waste is paid for when it is handed in, i.e. before the waste has been treated. This provides an incentive for the parties in the industry to reduce treatment costs and entails a high risk that they may circumvent the regulatory framework in order to increase financial profits. Failure to han-

dle hazardous waste properly could have serious environmental consequences by allowing environmental toxins to spread and cause acute pollution of air, soil and water. Such failure could also have serious effects on the working environment and local environment. There are many examples where the improper handling of hazardous waste has had serious environmental consequences, and several cases have been pursued through the legal system and resulted in fines and prison sentences.

Norway has committed itself through the Basel Convention⁴ to preventing the export of hazardous waste to developing countries. Illegal export of waste could result in the waste not being handled properly, thereby causing serious damage to health and the environment in other countries.

1.1.1 Status

According to Statistics Norway, 1.0 million tonnes of hazardous waste was handed in for approved treatment in 2009. The amount has increased every year since 2004, with the exception of 2009, when there was a decrease of 10 per cent, cf. Table 1.1.⁵ Statistics Norway assumes that the reason for this decrease was a reduced level of activity in industry.

Table 1.1 Hazardous waste handed in for approved treatment during the period 2004–2009, by material. 1000 tonnes

Type of material	2004	2005	2006	2007	2008	2009
Total	898	975	1,103	1,085	1,126	1,017
Waste containing oil	226	256	256	287	342	378
Waste containing solvents	12	27	21	19	25	22
Other organic hazardous waste	10	33	13	14	15	16
Waste containing heavy metals and polluted matter	364	402	551	547	482	380
Corrosive waste	208	221	211	175	200	155
Other inorganic hazardous waste	17	32	26	14	9	9
Contaminated wastewater	59	2	20	14	45	32
Photochemicals	3	1	3	1	1	1
Non-classified hazardous waste	0	0	2	13	7	24

Source: Statistics Norway

1 Report No 14 to the Storting (2006–2007) *Working together towards a non-toxic environment and a safer future – Norway's chemicals policy*, cf. Recommendation No 180 to the Storting (2006–2007).
 2 Report No 25 to the Storting (2002–2003) *The Government's Environmental Policy and the State of the Environment in Norway*, cf. Recommendation No 46 to the Storting (2003–2004).
 3 Proposition No 1 to the Storting (2009–2010) *for the Ministry of the Environment* and Recommendation No 228 to the Storting (2004–2005).

4 The Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal of 22 March 1989.

5 Statistics Norway (2010) *Less hazardous waste in 2009. Hazardous waste. Final figures 1999 to 2009*.

The two categories waste containing heavy metals/polluted matter and waste containing oil each accounted for 37 per cent of all hazardous waste handed in for approved treatment in 2009. However, the statistics say nothing about toxicity, i.e. that types of waste that are produced in smaller quantities can be more harmful to the environment than waste that is produced in large quantities.

According to Statistics Norway, 57 per cent of the waste handed in for approved treatment stems from industry. Waste from mining and quarrying accounts for 16 per cent, and waste from service industries makes up 11 per cent. Electrical and electronic waste (EE waste) may contain components that are classified as hazardous waste. EE waste is not included in the statistics from Statistics Norway, but components from EE waste classified as hazardous waste are included. Approximately 85 per cent of the hazardous waste sent for approved treatment in 2009, or 850,000 tonnes, was treated in Norway, while the rest was exported for treatment abroad.

1.1.2 Organisation

Division of responsibility in the government administration

The Ministry of the Environment has overall responsibility for ensuring that hazardous waste is handled properly. According to Report No 46 to the Storting (1988–89) *Miljø og utvikling* ('The Environment and Development'), this includes a responsibility for coordinating the work of stipulating quantifiable targets and assessing whether the development in an area is satisfactory. The Ministry shall also ensure that there are suitable systems in place for monitoring the state of the environment and for performance reporting and follow-up. The Norwegian Climate and Pollution Agency⁶ is the agency in charge of hazardous waste, and it issues permits for the treatment and export of such waste and supervises these areas.

The county governors are responsible for supervising and issuing permits for reception and storage facilities for hazardous waste, and for supervising waste producers, incineration plants, landfills and ports.⁷ The county governors shall

also receive reporting from the port operators about the waste reception system in ports. It is the Norwegian Climate and Pollution Agency's responsibility to instruct and guide the county governors in their work in the area of pollution control and to coordinate the county governors' supervision work and facilitate joint campaigns. The municipalities are responsible for collecting and receiving hazardous waste and controlling building and construction waste.

The Norwegian Climate and Pollution Agency cooperates with bodies such as Norwegian Customs and Excise on the supervision of import and export of waste. The Norwegian Maritime Directorate supervises ships, ensuring that they comply with the regulations relating to waste disposal in ports. If necessary, the Norwegian Maritime Directorate can order ships to hand in waste and detain ships until waste and cargo residues have been handed in. The Directorate for Civil Protection and Emergency Planning is responsible for supervision and regulations relating to explosives, flammable and reactive substances, transport of dangerous goods by road and rail and the prevention of major accidents.

Statistics Norway is responsible for developing and preparing statistics of hazardous waste. The Norwegian Climate and Pollution Agency contributes financially. The statistics cover handing-in for approved treatment, treatment, unknown handling and import/export of hazardous waste carried out with government permits.

Figure 1.1 provides an overview of the waste chain, including policy instruments and key parties involved. Producer responsibility, in addition to permits and supervision, is an important instrument for several waste fractions.

Organisation of work in the Norwegian Climate and Pollution Agency

Three departments of the Norwegian Climate and Pollution Agency are responsible for exercising authority in the field of hazardous waste.⁸ The Section for Waste Recovery and Hazardous Waste in the Chemicals and Waste Department is responsible for preparing strategies for achieving the national goals, for identifying new types of hazardous waste and for waste statistics, among other things. This section is also responsible for the regulations relating to waste collection, take-back schemes and export.

6 Formerly the Norwegian Pollution Control Authority (SFT). In this report, the agency is called the Norwegian Climate and Pollution Agency also in the context of the period before the name change on 18 January 2010.

7 *The authority of the county governors pursuant to the Pollution Control Act in the area of special waste.* Letter of 30 May 1994 from the Ministry of the Environment to the county governors.

8 Cf. the Norwegian Climate and Pollution Agency's website.

The Industry Department's Section for the Petrochemical and Mineral Industry is responsible for processing licences for treatment facilities for hazardous waste and for the overall guidelines for the county governors' exercise of authority in relation to industrial activities.

The Inspection Department's Section for Industrial and Offshore Control is responsible for the supervision of hazardous waste. The Inspection Department's Section for Local Environment is responsible for guiding and coordinating the county governors' work in the field of pollution control.

1.2 Goal and lines of inquiry

The objective of the investigation was to evaluate the authorities' work on ensuring that hazardous waste is handled properly. The following lines of inquiry were pursued:

Line of inquiry 1: To what extent do the Ministry of the Environment and the Norwegian Climate and Pollution Agency fulfil their management responsibility to contribute to ensuring that hazardous waste is properly handled?

- To what extent have the goals been expediently operationalised?
- To what extent do the Ministry of the Environment and the Norwegian Climate and Pollution Agency provide expedient management signals?
- Has the Ministry of the Environment ensured that reliable and relevant management informa-

tion is obtained, and does the Ministry make use of this information?

- Is the administration of hazardous waste organised in an expedient manner?

Line of inquiry 2: To what extent is hazardous waste collected and declared in an expedient manner?

- How much hazardous waste is not collected?
- Is the waste correctly declared?
- To what extent do the policy instruments contribute to a high collection rate?

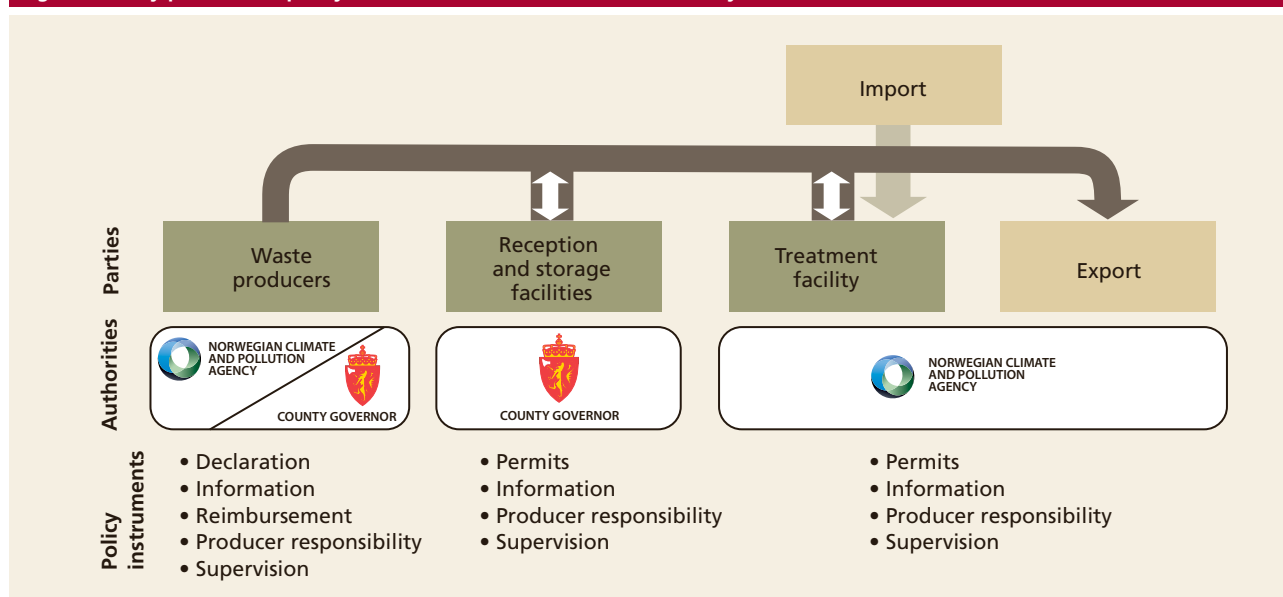
Line of inquiry 3: To what extent is hazardous waste properly handled at storage and treatment facilities?

- Is hazardous waste properly handled at reception and preliminary storage facilities and treatment facilities and by enterprises that are covered by the producer responsibility schemes?
- Are the permits for receiving and treating hazardous waste expediently formulated?
- To what extent do supervision and control contribute to the proper treatment of waste?

Line of inquiry 4: To what extent do the authorities have control of the export of hazardous waste?

- How much hazardous waste is exported?
- To what extent do export permits ensure proper final disposal abroad?
- To what extent do the authorities help to prevent illegal export?

Figure 1.1 Key parties and policy instruments in the hazardous waste system



1.3 Limitations and definitions

The investigation has focused on the collection, reception, treatment and export of hazardous waste. Emphasis has been on examining some selected waste fractions and waste streams:

- EE waste from households and vehicle collection enterprises
- building and construction waste (PCBs, brominated flame retardants)
- waste containing oil, such as waste oil and slop⁹ from ports and vehicle collection enterprises
- mercury from dental surgeries.

These waste fractions and waste streams have been chosen because they represent large quantities of hazardous waste and/or involve a risk of spreading prioritised environmental toxins. The definition of hazardous waste follows from the Norwegian Waste Regulations¹⁰: waste that cannot appropriately be handled together with consumer waste, as this might entail serious pollution or involve a risk of injury to people or animals.

9 Slop containing oil is water mixed with oil, created for example when storage and transport tanks are washed, and it also occurs in the form of oily bilge water from shipping.

10 *Regulations No 930 of 1 June 2004 relating to the Recycling of Waste* (the Waste Regulations).

2 Methodological approach and implementation

The lines of inquiry were pursued using document analysis, analyses of statistics, field studies and interviews, the summaries of which have been verified by the interviewees. The data collection was carried out during the period from May 2010 to June 2011.

All the lines of inquiry have been pursued through a review of specialist reports and previous reports. In order to complete and verify the overall picture, several interviews with representatives of the authorities and enterprises in the industry were conducted. The purpose was to shed light on the division of responsibility in the government administration and how different policy instruments function. The following authorities were interviewed: the Ministry of the Environment, the Norwegian Climate and Pollution Agency (the Section for Waste Recovery and Hazardous Waste, the Section for Industrial and Offshore Control and the Section for the Petrochemical and Mineral Industry) and selected county governor offices represented by the environmental protection departments of the county governor offices of Oslo/Akershus, Rogaland, Sør-Trøndelag, Telemark and Troms. These offices were selected to represent counties with different industry structures, population densities and geographical locations. The environmental protection departments were also interviewed about their processing of licences, the demarcation between the responsibilities of the municipalities and the county governors, and the county governors' responsibility for and supervision of waste producers, ports and reception and intermediate storage facilities. An interview with Statistics Norway dealt with the basis for statistics, while the Norwegian National Authority for Investigation and Prosecution of Economic and Environmental Crime (Økokrim) was interviewed about incentives to commit crimes in the waste management business, enforcement and sanctions.

Interviews with enterprises in the waste management industry and interest organisations provided further information about the policy instruments relating to the collection and management of hazardous waste and the exercise of authority with regard to supervision and licence processing. The following parties were interviewed: the indus-

try associations (Norsk forening for farlig avfall (NFFA) and Waste Management Norway), the Norwegian Center for waste and recycling (Norsas), take-back companies for EE waste (Elretur, Renas, Eurovironment, Ragn-Sells' electronics take-back entity (now Elsirk)), Batteriretur/Rebatt, Ruteretur and Autoretur, and representatives of four enterprises that handle hazardous waste (Renor, Veolia Miljø (now Norsk Gjenvinning), SAR and NOAH).

The sections below contain a more detailed description of the methodological approach used to shed light on the four lines of inquiry.

2.1 The Ministry of the Environment and the Norwegian Climate and Pollution Agency's management

Relevant reports to the Storting, propositions to the Storting and recommendations from standing committees have been reviewed in order to assess the Ministry of the Environment's management of the area. The management dialogue between the Ministry of the Environment and the Norwegian Climate and Pollution Agency has been mapped by means of allocation letters, the annual reports of the Norwegian Climate and Pollution Agency, strategies and action plans, while the Norwegian Climate and Pollution Agency's management signals to the county governor offices are included in the county governors' assignment documents and the offices' preliminary and final annual reports. Annual reports from the take-back companies and Norsas have provided insight into how the collection of hazardous waste is organised. Internal documents, contracts and letters were reviewed in order to assess the follow-up of Norsas.

2.2 Collection of hazardous waste

Existing statistics from various databases have been analysed in order to estimate the amounts of hazardous waste subject to unknown handling and hazardous waste that has not been properly handled, and to obtain an overview of the number of inspection objects. Information from Statistics Norway was compared with figures from



Manned hazardous waste collection point

Source: Office of the Auditor's General

the Norbas database, the WEEE Register and the Forurensning database. Data from Forurensning have also been used to analyse supervisory activities and the registration of non-conformities and remarks.

The investigation is based on the Norwegian Climate and Pollution Agency's campaign memos for inspections and summaries of inspection campaigns aimed at different categories of waste producers during the period 2001–2010. However, systematic summaries are not available for all the inspection campaigns. More than 500 inspection reports from the five selected county governor offices have been reviewed to assess the extent to which the regulations are complied with. The assessment of the authorities' follow-up of the reimbursement scheme for waste oil is based on the Norwegian Climate and Pollution Agency's case files for eleven facilities and on the correspondence between Norsas and the facilities. The Norwegian Climate and Pollution Agency's information measures and materials have been reviewed in order to assess the Agency's information and guidance to enterprises and to the general public.

2.2.1 Waste stream analysis

Mepex Consult AS has, on assignment for the Office of the Auditor General, carried out a waste stream analysis of selected waste fractions and calculated the amounts of EE waste and hazardous waste that are produced in dental surgeries, ports and building and construction activities. Data from Norbas, the WEEE Register and reports from the building and construction industry about the removal of hazardous components were included in the analysis, together with information obtained from different parties in the waste management industry. On behalf of the municipal auditor offices of three municipalities and the Office of the Auditor General, Mepex has also verified the quality of waste declarations and reception control at municipal facilities. Mepex checked 218 waste declarations, visited the facilities and interviewed the employees. In addition, Mepex examined the traceability of selected declarations. The assignment also involved examining the authorities' control of waste oil in facilities entitled to reimbursement through inspection of the seven facilities.

In order to obtain an overview of the amounts of hazardous waste from shipping, Mepex prepared several estimates based on key figures for the gen-

eration of various types of waste containing oil. The key figures came from calculations previously carried out by Det Norske Veritas and Interconsult.¹¹ Statistics for calls at Norwegian ports and the tonnage for different classes were obtained from Statistics Norway. Separate estimates have been prepared based on the number of vessels in the fishing fleet and data from the Hurtigruten coastal express. Mepex Consult asked seven public port districts about the handing-in of hazardous waste.

2.2.2 Evaluation of waste handling plans

The Office of the Auditor General requested waste handling plans for a total of 50 ports from the selected county governor offices. The environmental protection departments submitted a total of 36 waste handling plans. Of these, 19 pertained to ports for which plans had been requested, and 17 waste handling plans that had not been requested were also received. For another nine of the ports for which plans were requested, various documentation was received, such as correspondence between the ports and county governor offices, but no waste handling plans. All the plans received have been analysed to ascertain whether they meet the criteria set out in Appendix 1 to Chapter 20 of the Pollution Regulations. The Norwegian Maritime Directorate was interviewed about the handing-in of hazardous waste in ports.

2.2.3 Investigations under the auspices of the municipal auditor offices

In order to assess how hazardous waste is managed at a municipal level, the Office of the Auditor General cooperated with the Office of the City Auditor of Oslo, the intermunicipal auditing companies Telemark kommunerevisjon IKS and KomRev NORD and the Office of the City Auditor of Trondheim. The municipal auditor offices' reports shed light on challenges relating to the collection, handing-in, storage, sorting and supervision at the municipal or inter-municipal level in Oslo, Skien, Tromsø and Trondheim, respectively. The methods used include document analysis, interviews, observations and statistics.

2.2.4 Questionnaire survey about the handing-in of household waste

A web-based questionnaire survey carried out by TNS Gallup on assignment for the Office of the Auditor General has mapped how households

handle different types of hazardous waste and small electronic equipment. The survey was conducted using TNS Gallup's online panel, targeting a representative national sample of 2,604 persons. Special samples were selected in Oslo, Skien, Tromsø and Trondheim. The sample was stratified by age, gender and education in accordance with public statistics. All the interviews were carried out in January and February 2011 by means of an electronic form. In order for the responses to provide as accurate a picture as possible of the behaviour of households, they have been weighted by gender and age in accordance with public statistics. The overall response rate was 55 per cent.

2.3 Proper handling at storage and treatment facilities

The Norwegian Climate and Pollution Agency's summaries of inspection campaigns for treatment, storage facilities, as well as 21 case files for treatment facilities from the Norwegian Climate and Pollution Agency and 19 case files for storage facilities from the five selected counties, were reviewed. The facilities were selected to provide a broad selection of types of waste handled, with a focus on the waste fractions prioritised in this investigation. The case files contain permits, reporting from all the treatment facilities and six storage facilities, inspection reports and other correspondence between the Norwegian Climate and Pollution Agency/the environmental protection departments and the enterprises during the period 2000–2010. All the county governor offices' environmental protection departments have submitted overviews of all supervisory activities targeting reception and intermediate storage facilities between 2004 and 2010. Data from the Forurensning database have been compared with information from inspection reports and the police criminal case register (STRASAK) to map the authorities' use of sanctions.

Light has also been shed on this line of inquiry by means of the Norwegian Climate and Pollution Agency's permit templates, guidelines for supervisory activities and internal evaluations. The law firm Bjercknes Wahl-Larsen has, on assignment for the Office of the Auditor General, reviewed a selection of permits for treatment, storage facilities, in addition to the new permit template, and considered the extent to which they can be legally verified.

11 Det norske Veritas Industri (1993) *Reception of waste from shipping*. Report for the Norwegian Maritime Directorate and Intraconsult (2002) *Waste from ships*. On the commission from Borg Port IKS, Oslo Port Authorities and Grenland Port IKS.

Manned storage facilities as well as unmanned collection point were visited to get a first-hand impression of waste handling and user-friendliness. The Office of the Auditor General has also participated as an observer during two inspections under the auspices of the Norwegian Climate and Pollution Agency and a county governor office's environmental protection department, respectively.

2.4 The authorities' control of the export of hazardous waste

To assess how the regulations have been enforced, a case file review has been carried out of 24 applications for export permits during the period 2005–2010. The cases were selected on the basis of the priority waste types in this investigation, and with a view to obtaining a representative sample of export countries. Statistics of the export of hazardous waste were mapped using data from Statistics Norway and the WEEE Register, the Norwegian Climate and Pollution Agency's reporting under the Basel Convention and the Norwegian Climate and Pollution Agency's administrative database Miljødata. The Norwegian Customs and Excise was interviewed about the export of hazardous waste. Summarising reports of national and international joint campaigns were reviewed to find indications of the scope of illegal exports of hazardous waste.

3 Audit criteria

3.1 Overriding goals

3.1.1 National goals and the waste management strategies

The strategic objective in the waste management area is to ensure that the adverse effects on human health and the natural environment are minimised.¹² The national performance goal is that practically all hazardous waste is to be dealt with in an appropriate way, so that it is either recycled or sufficient treatment capacity is provided within Norway.¹³

When considering Report No 14 to the Storting (2006–2007), the majority of the Standing Committee on Energy and the Environment stated that it is an overriding long-term goal for the environmental toxin and chemicals policy that emissions and use of hazardous chemicals should not cause injury to health, harm ecosystems, or damage the productivity of the natural environment and its capacity for self-renewal. Concentrations of the most hazardous chemicals in the environment are to be reduced to background levels for naturally occurring substances and close to zero concentrations for synthetic man-made substances.¹⁴ This overriding long-term goal is incorporated as a strategic objective in the Ministry of the Environment's budget propositions. It is a goal to continuously reduce emissions of chemicals that pose a serious threat to health or the environment, with a view to eliminating them within one generation (i.e. by the year 2020), cf. Proposition No 1 to the Storting (2009–2010) *for the Ministry of the Environment*. PCB emissions were to be eliminated by 2005 (work goal 3.4.1.1). Substantial reductions were to be made in the emissions of mercury and brominated flame retardants, among other substances, by 2010 at the latest.

12 Proposition No 1 to the Storting (2009–2010) *for the Ministry of the Environment* and Recommendation No 228 to the Storting (2004–2005), Proposition No 1 to the Storting (2009–2010) *for the Ministry of the Environment*, cf. Report No 14 to the Storting (2006–2007) *Working together towards a non-toxic environment and a safer future – Norway's chemicals policy* and Recommendation No 180 to the Storting (2006–2007).

13 Proposition No 1 to the Storting (2009–2010) *for the Ministry of the Environment*, cf. Report No 14 to the Storting (2006–2007) *Working together towards a non-toxic environment and a safer future – Norway's chemicals policy* and Recommendation No 180 to the Storting (2006–2007).

14 Recommendation No 180 to the Storting (2006–2007).

Operational discharges of oil shall not cause damage to human health or the environment or contribute to an increase in the background level of oil or other substances harmful to the environment over time, cf. Proposition No 1 to the Storting (2009–2010) *for the Ministry of the Environment*. The environmental authorities shall ensure the elimination or minimisation of operational, acute and illegal discharges of oil, substances harmful to the environment, waste or alien organisms from ships into the sea.

The hazardous waste strategy in force from 2008 to 2010, cf. Proposition No 1 to the Storting (2008–2009), shall help to 1) increase consumers and the business community's knowledge about hazardous waste, 2) increase the collection of priority hazardous waste and ensure its environmentally sound handling, and 3) increase knowledge about hazardous waste produced and identify new types of hazardous waste. The Norwegian Climate and Pollution Agency is to focus its efforts on the collection of hazardous waste containing prioritised environmental toxins in particular. The Agency is also to increase its efforts to prevent hazardous waste from being disposed of outside the proper channels in large quantities.

3.1.2 International commitments

Norway ratified the Basel Convention in 1990.¹⁵ The purpose of the Basel Convention is to protect human health and the environment against the adverse effects of the generation, management and landfilling of hazardous waste, as well as to minimize the transboundary movement of hazardous waste. The Convention requires the prior consent of the competent authority of the state of import before the state of export can grant an export permit for the movement of hazardous waste. The member states must have their own regulations concerning the transboundary movement of waste, and they must ensure that exported waste is handled in an environmentally sound manner. In order to reduce the international movement of hazardous waste as much as possible, the waste shall, as far as practically possible, be treated in the country where it originates

15 The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal was adopted in 1989 and entered into force in 1992.

(the principle of self-sufficiency), and as close to its place of origin as possible (the principle of proximity). Norway is also committed to strictly supervising hazardous waste during its storage, treatment, recovery and final disposal.

The London Convention covers waste that is liable to create hazards to human health, to harm living resources and marine life, harm recreational areas or to interfere with other legitimate uses of the sea.¹⁶ Norway ratified the Convention in 1974 and the Protocol to the Convention in 1999. The principle of the Convention is that dumping of specific types of waste is prohibited, and that permits are required for dumping other types of waste. The London Protocol prohibits all dumping of waste, except for specific types which are explicitly permitted.

The OSPAR Convention – *The Convention for the Protection of the marine Environment of the North-East Atlantic* (the Oslo and Paris conventions) – entered into force in 1998. Through this convention, Norway has undertaken a general commitment to implement measures to eliminate pollution and protect the marine environment against damage from human activities.

The Stockholm Convention¹⁷ is a global agreement created in order to protect human health and the environment from persistent organic pollutants (POPs). Norway ratified the Convention in 2002. This agreement commits Norway to phasing out 21 of the most dangerous environmental toxins, including PCBs. Norway is also under a commitment to develop strategies to identify products and waste that contains these environmental toxins, and handle this waste in an environmentally sound manner. Norway must endeavour to identify other items that contain more than 0.005 per cent PCB, and to treat them in accordance with the Convention's waste management provisions.

Eight protocols have been prepared under the UNECE Convention on Long-range Transboundary Air Pollution (LRTAP¹⁸), including one on heavy metals and one on POPs. Norway has ratified both these protocols. Norway is committed to ensuring that specific POPs (including PCBs) are destroyed or disposed of in an environmentally

sound manner. Norway shall implement effective measures to ensure that these substances are disposed of domestically, and that environmental considerations are taken into account during their treatment. Pursuant to the Protocol on Heavy Metals, Norway is obliged to reduce emissions to air of mercury, among other substances, compared with the 1990 levels.

3.2 Organisation

The Ministry of the Environment has the overall responsibility for ensuring that hazardous waste is handled properly. According to Report No 46 to the Storting (1988–89) *Miljø og utvikling* ('The Environment and Development'), this includes a responsibility for coordinating the work of stipulating quantifiable targets and assessing whether the development in an area is satisfactory. The Ministry shall also ensure that there are suitable systems in place for monitoring the state of the environment and for performance reporting and follow-up.

The Norwegian Climate and Pollution Agency is responsible for the implementation of the pollution policy through its administration of goals and policy instrument in the field of hazardous waste.¹⁹ The Norwegian Climate and Pollution Agency administers the applicable hazardous waste legislation, including the Pollution Control Act (see Section 3.5) and the Waste Regulations. The authority to process applications for permits for the handling of hazardous waste has been delegated to the Norwegian Climate and Pollution Agency and the county governors, cf. the Waste Regulations.

The county governors are the King and Government's representatives at county level and are tasked with ensuring that the decisions, goals and guidelines of the Storting and the Government are followed up. According to the Instructions to county governors, the county governors shall work to ensure the best possible cooperation between the municipalities, the county authority and the local state administration. The county governors shall also provide guidance to the municipalities and county authorities. This includes a responsibility for communicating to municipal, county and state bodies information about matters that must be assumed to be relevant to their activities. The county governors also supervise the

16 The London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter of 1972 and its Protocol of 1996.

17 The Stockholm Convention on Persistent Organic Pollutants was adopted in 2001 and entered into force in 2004.

18 The Convention was adopted in 1979 and entered into force in 1983.

19 Proposition No 1 to the Storting (2009–2010) *for the Ministry of the Environment*, cf. Recommendation No 9 to the Storting (2009–2010).

duties of the municipalities under the Local Government Act.

The municipalities are the pollution control authorities at the municipal level, cf. the Pollution Control Act. The municipalities' responsibilities are specified in more detail in the Waste Regulations. Pursuant to the Pollution Control Act, the municipalities are responsible for monitoring the pollution situation in their municipality, assessing whether waste is handled in accordance with applicable regulations, and following up illegal handling of waste. The municipalities also have a particular responsibility for construction waste in their processing of building applications and supervision, see section 3.6.6.

The Norwegian Maritime Directorate is responsible for monitoring foreign ships calling at Norwegian ports, cf. Proposition No 1 to the Storting (2009–2010) *for the Ministry of Trade and Industry*. The Norwegian Maritime Directorate is subordinate to the Ministry of the Environment in cases concerning environmental matters relating to individual ships and protection of the marine environment. One of the main objectives of the Norwegian Maritime Directorate is to contribute to ensuring that shipping is an environmentally friendly form of transport, cf. Proposition No 1 to the Storting (2009–2010) *for the Ministry of the Environment*. The Directorate is to help prevent pollution through effective supervision of Norwegian ships and port state control of foreign ships.

Norwegian Customs and Excise is tasked with preventing the illegal import and export of goods and inspecting goods, travellers and means of transport in order to uncover instances of smuggling, cf. Proposition No 1 to the Storting (2009–2010) *for the Ministry of Finance*. The Customs and Excise service also administers regulations, and this includes providing information and guidance to users.

3.3 Management and principles of the exercising of authority

3.3.1 Goal and performance management

One of the purposes of the Regulations on Financial Management in Central Government is to ensure that central government entities achieve the established objectives and performance requirements.

Overall management

In Section 9 of the Appropriations Regulations, the Storting has set a requirement for the government administration to have goal and performance management as its form of management. The government administration has incorporated and operationalised this requirement in the Regulations on Financial Management in Central Government. The Ministry of the Environment shall have the competence and internal management and control systems and procedures necessary to enable it to follow up its subordinate agencies in a satisfactory manner. The Provisions on Financial Management in Central Government show that it is also the Ministry's responsibility to ensure that the agency conducts its activities in accordance with the decisions and premises of the Storting, and that the governance dialogue between the ministry and the agency functions expediently. The agency's management shall plan and prepare one-year and multi-year strategies suitable for the distinctive nature of the agency. The plans shall be documented by means of internal governing documents.

Management information

According to Regulations on Financial Management in Central Government Section 4, all agencies shall also ensure sufficient management information and a proper basis for decisions, so that established objectives and performance requirements are achieved and the resource use is efficient. The agencies must establish good management parameters that ensure that the management information provides the necessary basis for monitoring the activities, resources and results. Systems for reporting and follow-up of the agency's performance must also be established.

3.3.2 Case processing

Pursuant to the Public Administration Act and principles of administrative law, the authorities shall facilitate reasonable, objective and equal treatment in case processing. These requirements may be regarded as following from the provisions in the Public Administration Act, non-statutory rules for the exercising of authority and non-statutory rules for satisfactory case processing. The investigation is based on these requirements also applying to the pollution control authorities' administrative practice in connection with the granting of permits and conducting of inspections and supervisory activities in the field of hazardous waste.

3.3.3 The right to environmental information

The purpose of the Environmental Information Act is to ensure public access to environmental information and thus make it easier for individuals to contribute to the protection of the environment, to protect themselves against injury to health and environmental damage, and to influence public and private decision-makers in environmental matters.²⁰ This Act incorporates the Aarhus Convention²¹ into Norwegian law. Under the Environmental Information Act, the public sector has chief responsibility for holding environmental information and making it available to the public at an overview level and in an easily accessible and comprehensive form, so that the general public can obtain an overview of the environmental situation and influences in different sectors of society and concerning different environmental problems, cf. Proposition No 116 to the Odelsting (2001–2002) *Om lov om rett til miljøinformasjon og deltakelse i offentlige beslutningsprosesser av betydning for miljøet* ('On the Act relating to the Right to Environmental Information and Public Participation in Decision-making Processes Relating to the Environment'). This includes facts about environmental matters in sectors of society, impact factors, consequences of decisions and policy and development trends. Undertakings shall hold information about factors relating to the undertaking's operations which may have an appreciable effect on the environment.

3.4 Principles of the use of policy instruments

Effectiveness and cost-effectiveness are important goals for environmental policy.²² Effectiveness means that the policy instruments should result in environmental policy goals being achieved with the highest possible degree of certainty. Cost-effectiveness means that the policy instruments should trigger measures where the socio-economic costs are lowest.

Important principles for the waste management policy were set out in the Storting's consideration of Report No 44 to the Storting (1991–92) *Om tiltak for reduserte avfallsmengder, økt gjenvinning*

og forsvarlig avfallsbehandling ('On measures to reduce the amount of waste, increase recovery and promote proper handling of waste'). In its recommendation, the Standing Committee on Local Government and the Environment refers to the fact that the 'polluter pays' principle shall be used as the basis for the reduction of waste problems.²³ In a waste policy context, this principle means that the waste handling costs associated with a product should be reflected in its price. A company should not only pay its internal production costs, but also the external costs that arise from the effect the company's activities have on the environment and society, and also any remediation costs.²⁴

The Standing Committee on Local Government and the Environment referred to the 'life cycle philosophy', which means that the producer of a product must also take part of the responsibility for it after use and for the waste problems that arise when the product is discarded.²⁵ In Recommendation No 228 to the Storting (2004–2005), the Standing Committee on Energy and the Environment refers to the business community's responsibility for the waste resulting from its own products, and the fact that there are producer responsibility schemes in effect for several types of waste that have shown good results. Producer responsibility, which means that businesses are held responsible for the treatment and recovery of waste from their own products, is an important strategy in helping to ensure that the 'polluter pays' and achieving the goals in the field of waste management. This responsibility means that the producer/industry is faced with the waste cost associated with the product, which encourages improved quality and easier recovery.²⁶

It is important to have a comprehensive approach to the use of policy instruments and take into consideration the fact that important policy instruments are already in place. When there is a choice between different alternatives, the solution that involves the use of less resources for society shall be preferred. Moreover, great emphasis will be placed on the precautionary principle when proposed measures or policy instruments reduce serious threats to the ecosystem.²⁷

20 Act relating to the Right to Environmental Information and Public Participation in Decision-making Processes Relating to the Environment.

21 The Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters.

22 Report No 58 to the Storting (1996–97) *Environmental Protection Policy for a Sustainable Development*, cf. Recommendation No 150 to the Storting (1997–98) and Report No 8 to the Storting (1999–2000) *The Government's Environmental Policy and the State of the Environment in Norway*, cf. Recommendation No 256 to the Storting (1999–2000).

23 Recommendation No 56 to the Storting (1992–1993).

24 Recommendation No 180 to the Storting (2006–2007).

25 Recommendation No 150 to the Storting (1997–1998).

26 Report No 24 to the Storting (2000–2001), cf. Recommendation No 295 to the Storting (2000–2001).

27 Report No 24 to the Storting (2000–2001), cf. Recommendation No 295 to the Storting (2000–2001).

3.5 The Pollution Control Act

The Pollution Control Act states that waste shall be managed in such a way as to minimize damage and nuisance. The costs of preventing or limiting pollution and waste problems shall be met by the party responsible for the pollution or waste. Pollution and waste problems resulting from activity in Norwegian territory shall be counteracted to the same extent irrespective of whether the damage or nuisance arises within or outside Norway.

The Act (Section 7) states that no one can pollute unless it is lawful or a permit has been granted.²⁸ Such permits are granted for certain activities in Section 11 of the Act or in various regulations pertaining to polluting activities.²⁹ Permits shall be granted subject to certain conditions, for example requirements for the treatment and storage of waste, requirements for emissions to be below certain limits, or for specific measures to be implemented to limit pollution. Requirements relating to the contents of the application are set out in more detail in the Pollution Regulations.

When the pollution control authorities are deciding whether to grant a permit for the reception and treatment of hazardous waste and stipulate the conditions in the permit, the Pollution Control Act states that the pollution nuisance of the activity must be emphasised seen in relation to the other advantages and disadvantages the activity will entail.

In principle, enterprises that hold permits pursuant to the Pollution Control Act are themselves responsible for ensuring that the requirements and conditions of the permit are complied with. Most enterprises must submit periodic reports describing how they comply with the conditions of the permit and any non-conformities. Compliance with the applicable regulatory framework and the requirements and conditions of the permit is to be controlled through the pollution control authorities' supervisory and control activities. As regards waste, the Norwegian Climate and Pollution Agency and the country governors are to supervise that the hazardous waste provisions of the Waste Regulations are complied with.

28 Exceptions also apply pursuant to sections 8 and 9 of the Act for ordinary pollution from 1) fisheries, agriculture and forestry, etc., 2) housing, holiday homes, offices, business premises or assembly rooms, schools, hotels and warehouses, and the like, 3) temporary construction activity, subject to special conditions.

29 Including the Pollution Regulations, the Waste Regulations and the Product Control Regulations.

Under the provisions of the Pollution Control Act and the Product Control Act, special regulations have been laid down for the area of waste management: Regulations No 930 of 1 June 2004 relating to the recycling of waste (the Waste Regulations). Chapter 11 of the Waste Regulations deals with the storage, delivery and treatment of hazardous waste, and the purpose of this chapter is to help to ensure that hazardous waste is properly handled, and that there is an appropriate and sound system in place for the management of hazardous waste.

3.6 Provisions concerning handing-in of hazardous waste and producer responsibility

Several EU directives concerning hazardous waste are incorporated into the EEA agreement. The following directives have been implemented in Norway through the Waste Regulations:

- the Hazardous Waste Directive (91/689/EEC)
- the Waste Oil Directive (75/439/EEC)
- the WEEE Directive (EE waste, 2002/96/EC)
- the Battery Directive (2006/66/EC)
- the Directive on End-of Life Vehicles (the ELV Directive 2000/53/EC).

It is a municipal responsibility to ensure that an adequate collection system exists for small waste holders (with up to 400 kg of hazardous waste per year). The county governor is tasked with supervising that the system has sufficient capacity.³⁰ The municipalities are free to offer to receive up to 1,000 kg of waste per waste holder per year. No permit is required for such services operated by the municipality within these limits or via an intermunicipal collaboration. The municipality's costs shall be covered in full through the municipal waste management fee, cf. the Norwegian Climate and Pollution Control Agency's comments to the Waste Regulations.

Enterprises have a duty to declare the contents of waste on delivery (duty of declaration), cf. Section 11-12. There are also requirements for hazardous waste to be stored and handled responsibly, cf. Section 11-5.

The Waste Regulations also contain several other chapters that are relevant to hazardous waste. For waste types that are subject to special regulation, these special provisions apply in parallel with the

30 The Norwegian Climate and Pollution Control Agency (2004) *Kapittel 11: Farlig avfall. Kommentarer til avfallsforskriften* ('Chapter 11: Hazardous Waste. Comments to the Waste Regulations').



Unmanned collection point for car batteries.

Source: Office of the Auditor General

chapter on hazardous waste. However, if the special rules conflict with the general chapter, they shall take precedence.³¹

3.6.1 EE waste

Chapter 1 of the Waste Regulations governs the reception, collection, recycling and other treatment of waste electrical and electronic equipment (EE equipment). This provision does not apply to EE equipment that is part of means of transport. Both the municipality and distributors of EE waste have a duty to receive EE waste, a duty to provide information and a duty to ensure the sorting, storage and forwarding of EE waste. EE waste is covered by a producer responsibility scheme, and producers are required to be members of a take-back company approved by the Norwegian Climate and Pollution Agency. The producers and the take-back company have a duty to provide information to the effect that

31 The Norwegian Climate and Pollution Control Agency (2004) *Kapittel 11: Farlig avfall. Kommentarer til avfallsforskriften* ('Chapter 11: Hazardous Waste. Comments to the Waste Regulations').

EE waste should not be disposed of together with other waste.

Among other things, take-back companies are required to meet certification requirements and document this to the Norwegian Climate and Pollution Agency through a certification body. The take-back companies shall collect and receive a proportion of the total quantity of EE waste collected that corresponds to its members' share of the total supply of goods in each product group in the same geographical area. The Regulations also require a register of producers of EE products. The Norwegian Climate and Pollution Agency or a party authorised by the Ministry of the Environment establishes and owns the register, which shall cover all producers of EE products. The take-back companies have a duty to report to the WEEE Register. Among other things, the WEEE Register shall receive and collate data on the EE waste that is collected, treated and dispatched for various types of disposal, which treatment facilities are used, what quantities and types of EE waste are treated and in what country the treatment has taken place.

The county governors are the supervisory authority for distributors and municipalities, while the Norwegian Climate and Pollution Agency is the supervisory authority for the other provisions in the chapter.

3.6.2 Batteries which are hazardous to the environment

Enterprises have a duty to deliver waste lead or nickel-cadmium batteries to dealers or approved storage facilities for hazardous waste. Producers and importers of lead batteries have a duty to ensure that an amount of waste lead batteries corresponding to at least 95 per cent of the amount they introduce to the Norwegian market is collected and handed in for recovery or environmentally sound final disposal. Producers and importers of rechargeable batteries have a duty to ensure that waste batteries are collected free of charge.

3.6.3 End-of-life vehicles

Vehicles are also covered by a producer responsibility scheme, cf. the Waste Regulations. Producers are required to be members of a take-back system which must be approved by the Norwegian Climate and Pollution Agency. The Norwegian Climate and Pollution Agency supervises the take-back system. Any person shall be able to deliver any end-of-life vehicle to the take-back system free of charge.

3.6.4 Discarded insulating glass units containing PCBs

The handling of insulating glass units containing PCBs is governed by Chapter 14 of the Waste Regulations. It is the duty of the municipality to accept up to 500 kg of insulating glass units containing PCBs per year per waste holder from households and enterprises generating small quantities of hazardous waste in the municipality. The municipality shall accept scrapped insulating glass units containing PCBs from household waste free of charge. Producers have a duty to ensure that any waste holder can deliver discarded insulating glass units containing PCBs for appropriate treatment on payment of a fee not exceeding the normal price for delivery of insulating glass units containing no PCBs to ordinary waste facilities. Producers shall meet their commitments through participation in an approved take-back system. Producers also have a duty to ensure that waste holders are provided with adequate information about the fact that insulating glass units containing PCBs are covered by a take-back system. Producers shall, unsolicited, provide their customers with information on which units may contain PCBs. Approved take-back companies shall submit annual reports to the Norwegian Climate and Pollution Agency about the amount of discarded insulating glass units containing PCBs that has been collected and treated. The county governors supervise the municipalities' other duties under this chapter. The Norwegian Climate and Pollution Agency supervises compliance with the other provisions in this chapter.

3.6.5 Waste oil

The purpose of the reimbursement scheme for waste oil is to encourage increased handing-in of waste oil for approved treatment, cf. Proposition No 1 to the Storting (2009–2010) *for the Ministry of the Environment*. Lubricating oils are, with an exception for certain uses, subject to a lubricating oil charge, cf. Proposition No 1 to the Storting (2009–2010) *Skatte-, avgifts- og tollvedtak* ('Decisions relating to direct and indirect taxes and customs duties'). Reimbursements are paid for most types of used lubricating oil and other used oils (insulating oils etc.) with corresponding properties, with exceptions including waste oil from large ships in international traffic. The reimbursement is to be paid to a large reception facility (tank facility) that has been approved in advance by the Norwegian Climate and Pollution Agency. The approval will stipulate conditions with which the recipient of the waste is obliged to comply. The Norwegian Climate and Pollution Agency shall check the claims

for payment against these conditions. The Agency shall follow up violations of the reimbursement scheme by denying reimbursement payments or demand the repayment of incorrectly paid reimbursements. Stricter sanctions, such as revoking permits or reporting matters to the police, shall also be considered for serious cases.

3.6.6 Construction waste

A waste handling plan is required for new buildings if the project's living space exceeds 300 m², and for rehabilitation and demolition if the living space exceeds 100 m² BRA, cf. the Building Regulations of 1 July 2010 (previously the Waste Regulations Chapter 15). Rehabilitation and demolition also requires a specification of hazardous materials. In cases where a waste handling plan or specification of hazardous materials is required, a final report documenting the actual disposal of the waste must be enclosed with the application for a certificate of completion.³² The new Construction Matters Regulations have established a time-limited supervision requirement. In a two-year period starting on 1 January 2011, the municipalities must prioritise supervision of the preparation and compliance with waste handling plans and specification of hazardous materials.

3.7 Provisions regarding the reception and handling of hazardous waste

Parties that handle hazardous waste must ensure that the waste received from enterprises is declared and that the declaration form follows the waste when it is sent on. The initial receiver of hazardous waste subject to the declaration duty must submit a copy of the completed declaration form to the Norwegian Climate and Pollution Agency or a party appointed by the Agency. Chapter 12 stipulates a fee for declaring hazardous waste.

Enterprises that handle hazardous waste also have a duty to establish internal control for their activities.³³ Through requirements for the systematic implementation of measures, the Internal Control Regulations shall promote efforts to improve conditions in enterprises in regard to the working environment and safety, the prevention of damage to health or disturbances to the environment from products or consumer services, the protec-

32 The Regulations relating to Construction Matters (the Construction Matters Regulations).

33 Regulations relating to Systematic Health, Environment and Safety Activities in Enterprises (the Internal Control Regulations).

tion of the external environment against pollution, and the improved treatment of waste so as to ensure that the objectives of the health, environmental and safety legislation are achieved.

Special provisions apply to waste fractions for which there are separate chapters in the Waste Regulations:

- 1 For EE waste, take-back companies have a duty to ensure the sorting, transport, reuse, recycling and other proper treatment.
- 2 For end-of-life vehicles, requirements for removal of hazardous components and treatment facilities apply. The producers shall ensure that 85% of their proportional share of all end-of-life vehicles are recovered, and that at least 80 percentage points of this is recycled and the remainder used for energy recovery. This requirement will be increased to 95% and 85 percentage points by 2015. Any person that operates a treatment facility for end-of-life vehicles must hold a special permit issued by the competent authority.
- 3 For insulating glass units containing PCBs, it is a requirement that the take-back system must be able to document treatment solutions for the insulating glass units collected.
- 4 For batteries, producers and importers have a duty to ensure environmentally sound final disposal.

3.7.1 Hazardous waste from ships and reception facilities in ports

Norway has ratified the MARPOL Convention³⁴, whose purpose is to prevent pollution from ships. Norway is committed to providing onshore reception facilities for waste from ships.

The Port Waste Directive (2007/71/EC) has been implemented through Chapter 20 of the Pollution Regulations. Under this chapter, the port operator shall ensure the establishment and operation of port reception facilities for ship-generated waste and cargo residues. Such reception facilities shall be adequate to meet the normal needs for delivery in the port, without causing undue delay to ships. When receiving hazardous waste from ships, the port operator shall ensure that the waste holder has declared the hazardous waste. The waste hold-

er is himself responsible for making a correct declaration. When receiving hazardous waste from recreational craft, the port operator shall declare the waste. This waste shall be declared at the latest when the waste leaves the reception facility. The ports are required to have a waste handling plan and to report to the county governor.

It is the Norwegian Maritime Directorate's responsibility to ensure that the ships provide notification of waste to be delivered. The Directorate can also order ships to deliver waste. If there is reason to believe that adequate reception facilities are not available at the intended port of delivery, or if this port is unknown, the ship may be detained until waste and cargo residues have been delivered. The Norwegian Maritime Directorate shall supervise ships' compliance with their duty to deliver waste and cargo residues.

3.8 Export of hazardous waste

In Recommendation No 295 to the Storting (2000–2001) *On the Government's Environmental Policy and the State of the Environment in Norway*, the majority of the Standing Committee on Energy and the Environment highlighted the goal that everyone is to take responsibility for their own waste, and is therefore of the opinion that waste produced in Norway should be dealt with in Norway. The majority requests the Government to review the regulations concerning export of hazardous waste and to be very restrictive in granting export permits for special waste in future if the type of waste in question can be handled in Norway. Hazardous waste may only be exported as raw materials for recovery, or if final disposal of the waste cannot be carried out in a proper manner in Norway, cf. Report No 25 to the Storting (2002–2003) and Recommendation No 46 to the Storting (2003–2004). The export of hazardous waste for final disposal is an expression of whether the national final disposal capacity is sufficient.

Pursuant to OECD's Decision C(92)39 final version, revised in Decision C(2001)107 final version, *On the Control Of Transboundary Movements Of Wastes Destined For Recovery Operations*, the member countries shall control transboundary movements of waste for recovery within the OECD area. The waste shall be recovered in an environmentally sound manner in accordance with national legislation in the country where the waste is treated. Hazardous waste shall be subject to stricter control than other waste.

³⁴ The International Convention for the Prevention of Pollution From Ships adopted in 1973 and the pertaining Protocol adopted in 1978. MARPOL 73/78 came into force in 1983.

The OECD Decision is implemented in EU/EEA through Regulation (EC) 1013/2006.

Chapter 13 of the Norwegian Waste Regulations contains provisions concerning the transboundary shipment of waste. The administrative authority in Norway is the Norwegian Climate and Pollution Agency, which is also tasked with monitoring compliance with the regulations. The Regulations refer to the fact that EEA Agreement appendix XX No 32c (Regulation (EC) No 1013/2006 on Shipments of Waste, 'the Waste Shipment Regulation') applies as regulations.

The Waste Shipment Regulation requires prior written notification and consent from the authorities for the export of hazardous waste for final disposal or recovery. When hazardous waste is exported, the Norwegian Climate and Pollution Agency shall check information and documentation in the compulsory notification and transport documents. The notification shall cover the shipment of waste from its initial place of dispatch via temporary treatment to recovery or final disposal. The Norwegian Climate and Pollution Agency shall also check that a contract has been entered into between the notifier (a physical or legal person intending to export the waste) and the recipient for the recovery or final disposal of the waste to be exported. Among other things, the contract must contain a duty for the notifier to accept return of the waste if the shipment, recovery or final disposal is not completed as intended, or if the shipment is carried out in an illegal manner. The contract must also contain a duty on the part of the facility to submit a declaration that the waste has been recovered or final disposal carried out in accordance with the notification, the conditions stipulated and the requirements of the Regulation. All transport of hazardous waste shall be subject to the requirement for a financial guarantee that covers costs including those relating to shipment and recovery or final disposal. On the basis of the available information, the Norwegian Climate and Pollution Agency can deny or grant its approval for export of the waste, or grant an approval subject to certain conditions. The basis for objections includes the principle of proximity, that there is treatment capacity in Norway, or that the final disposal will not be in accordance with the national legislation as regards protection of the environment, health or safety.

The recovery or final disposal of the waste must be completed no later than one calendar year after the facility has received the waste. The Norwegian Cli-

mate and Pollution Agency shall withdraw its consent if it comes to the Agency's knowledge that the composition of the waste is not in accordance with the notification, the conditions imposed on the shipment are not complied with, the waste is not recovered or final disposal not carried out in accordance with the permit of the facility that carries out the work, or the waste has not been treated in accordance with the information provided. When it receives information of environmentally unsound treatment or illegal export, the Norwegian Climate and Pollution Agency shall ensure that the waste is returned to Norway or is treated in an environmentally sound manner in the country of destination or another place.

The Waste Shipment Regulation prohibits all waste exports out of the EU for final disposal. The exception to this rule is EFTA countries that are parties to the Basel Convention. For these countries, the same requirements apply as for export to an EU country. The export of hazardous waste for recovery to states where the OECD decision does not apply is also prohibited. Separate rules and documentation requirements have been stipulated for the export of hazardous waste to countries where the OECD decision applies. The Norwegian Climate and Pollution Agency shall work to ensure that all exported waste is handled in an environmentally sound manner. If the competent authorities of dispatch and of destination cannot agree on the classification in terms of determining what is waste and what is not waste, the case is to be handled as if it is waste.

Norway shall adopt rules for sanctions that apply for violations of the provisions of the Waste Shipment Regulation, and take all measures necessary to ensure that the sanctions are implemented. The sanctions shall be effective, proportionate and deterrent. The Regulation specifies that Norway shall provide for supervision of enterprises and businesses, carry out spot checks on shipments of waste or recovery or final disposal relating to the shipment. Inspections can take place at the point of origin, at the destination, at border crossings and during transport within the EU. The inspections shall include document control, identity control and, where expedient, physical inspections of the waste. Member states are to cooperate, bilaterally or multilaterally, to facilitate the prevention and detection of illegal shipments. Exchange of information, shared responsibility and cooperation measures between EU member countries and third countries should be promoted with a view to ensuring the proper handling of waste.

4 The Ministry of the Environment and the Norwegian Climate and Pollution Agency's management of the area

The Ministry of the Environment provides the overall guidelines for the area in its allocation letter to the Norwegian Climate and Pollution Agency. The county governors' assignment document from the Norwegian Climate and Pollution Agency contain the important central guidelines for the county governors' work. The Norwegian Climate and Pollution Agency is also responsible for following up the policy instruments in this area, including permits under the Pollution Control Act and the Waste Regulations, supervision, the registration system for hazardous waste (the hazardous waste declaration system), the waste oil scheme and the producer responsibility schemes.

4.1 Operationalisation of goals

The Norwegian Climate and Pollution Agency has prepared two strategies for hazardous waste that specify measures, priorities and sub-goals. In an interview, the Agency states that it deems these strategies to have contributed to the prioritisation of specific activities relating to hazardous waste, both internally in the Agency and in the industry. The strategies have also formed the basis for the prioritisation of inspection campaigns. Measures in the waste management sector are also included in the strategies for different priority environmental toxins.

4.1.1 The waste strategies

The goal of the hazardous waste strategy for the period 2004–2006 was to increase the collection of hazardous waste and reduce the amount of hazardous waste produced. This strategy provided for particular efforts to combat twelve types of hazardous waste. In an interview, the Norwegian Climate and Pollution Agency states that what brought about the first strategy were statistics indicating that much hazardous waste was going astray. These types of waste had been given priority because they entailed a high risk of spreading environmental toxins, or because large quantities went to unknown handling, or because the waste could cause significant local pollution. The Norwegian Climate and Pollution Agency has carried out an evaluation on the basis of internal infor-

mation and figures.³⁵ The main conclusion is that the goal of increased collection has been reached for most of the priority waste fractions. Other fractions were still deemed to have significant challenges associated with them, while for some fractions, the information available was not sufficient for an evaluation of goal achievement.

The next hazardous waste strategy applied to the period 2008–2010. According to Report No 26 to the Storting (2006–2007) *The Government's Environmental Policy and the State of the Environment in Norway*, the main objective of the strategy was to increase the collection of hazardous waste and reduce the amount of hazardous waste produced. The Norwegian Climate and Pollution Agency states in an interview that the new strategy was based on the first strategy as well as on the statistics and other internal knowledge in the Norwegian Climate and Pollution Agency. In the strategy for the period 2008–2010, more emphasis was placed on the content of environmental toxins in the waste fractions.

The goals of this strategy are formulated as general goals and contain 44 different measures. Each measure is linked to either a sub-goal or a type of waste. There is no specific description of how individual measures are to contribute to goal achievement. The measures in the strategy are evaluated annually. In an interview, the Norwegian Climate and Pollution Agency states that the Agency has carried out a preliminary review of the measures implemented, but that it has not yet evaluated whether the goals of the strategy have been achieved.

4.1.2 The environmental toxin action plans

The Norwegian Climate and Pollution Agency has prepared special action plans for the environmental toxins brominated flame retardants, PCBs and mercury. The purpose of these plans is to help to achieve the goal of eliminating the use and emission of chemicals hazardous to health and the environment within one generation.

35 The Norwegian Pollution Control Authority (undated) *Evaluering av: Strategi for farlig avfall på avveier 2004–2006* ('Evaluation of: Strategy for hazardous waste gone astray 2004–2006').

Fact Box 4.1 Priorities in the waste strategy 2008–2010

Four sub-goals

- to increase consumers and the business community's knowledge about hazardous waste, and facilitate environmentally friendly purchases
- to increase the collection of priority hazardous waste and ensure that it is handled in an environmentally sound manner
- to increase the knowledge about the quantity of hazardous waste produced and identify new types of hazardous waste
- to develop regulations and policy instruments to regulate the content of environmental toxins in products.

Seven types of hazardous waste

- small electronic equipment: energy-saving light bulbs and fluorescent tubes containing mercury, plastic containing brominated flame retardants, components that contain PCBs and mercury
- insulation from building and construction: insulation containing brominated flame retardants and foam insulation with blowing agents that are harmful to the environment
- building and construction waste with PCBs: insulating glass units, joint fillers, paint and concrete
- certain organic solvents
- fire-fighting foams containing PFOS, used by the armed forces and the oil industry
- impregnated wood
- waste containing oil.

The action plan for brominated flame retardants was prepared in 2002 and has been revised twice, most recently in 2009.³⁶ Five types of brominated flame retardants have been prioritised. The action plan emphasises measures such as the collection of small electronic equipment, tunnel insulation materials that contain brominated flame retardants, and considering a change in the rules relating to the removal of hazardous components from vehicles. For both EE waste and building and construction waste, the authorities emphasise supervision of the industry and information.

The action plan for PCBs was submitted in Report No 25 to the Storting (2002–2003) *The Government's Environmental Policy and the State of the Environment in Norway* and was updated in 2005 and 2009. According to the action plan, it is assumed that 90 per cent of PCB products will

36 The Norwegian Pollution Control Authority (2009) *Action plan for the reduction of emissions of brominated flame retardants*. Updated in November 2009.

have gone out of use by the end of 2008. Of these products, 630 tonnes were deemed to have been destroyed in an environmentally sound manner, while almost 150 tonnes are still in use in products and materials. The Norwegian Climate and Pollution Agency was to clarify the need for measures to handle PCBs in existing buildings and plants by the end of 2010.

In 2005, the government presented an action plan to reduce emissions of mercury. The purpose was, among other things, to increase the collection of discarded light sources that contain mercury. Information measures and supervision activities targeting amalgam and the dental health service are also priority measures. An updated action plan was presented in January 2011.³⁷ The use of mercury in products was banned from 1 January 2008, with a few exceptions. From 2011, the ban also covers tooth fillings (amalgam).³⁸ An exception applies to mercury in certain EE products, such as fluorescent tubes, energy-saving light bulbs and batteries.

4.2 The management dialogue

4.2.1 The Ministry of the Environment's management of the Norwegian Climate and Pollution Agency

The Ministry of the Environment's allocation letter to the Norwegian Climate and Pollution Agency outlines the financial framework for the Agency and describes priorities, performance goals and reporting requirements. The Ministry of the Environment sets out guidelines at an overriding level and expects the Agency to set its own priorities within the framework provided. In addition to the allocation letter, the Ministry also gives the Norwegian Climate and Pollution Agency some assignments through the year. The Norwegian Climate and Pollution Agency feels that it has the freedom to develop the administration of the field of hazardous waste within the given limits. The work involves many regular tasks, but some individual tasks and assignments relating to hazardous waste are managed in more detail. The Norwegian Climate and Pollution Agency is satisfied with the dialogue.

37 The Norwegian Climate and Pollution Agency (2010) *Action plan for reducing mercury releases – 2010*. TA-2684.

38 The Ministry of the Environment (2007) *Bans mercury in products*. Press release 21 December 2007, the Product Control Regulations.

4.2.2 The county governors' assignment document

The county governor offices are governed through assignment documents covering different fields. The Norwegian Climate and Pollution Agency stated in an interview that it is primarily the statutory tasks that govern the assignment document, including the county governors' responsibility under Chapter 11 of the Waste Regulations, the responsibility to provide guidance to the municipalities, work with permits and supervision of the duty to hand in hazardous waste.

Other tasks can be included in the assignment document as an annual assignment. In the area of hazardous waste, the county governors' participation in inspection campaigns has been a priority. The environmental protection departments of the county governor offices state in interviews that the offices do not have the capacity to carry out all the tasks in the assignment document. However, the environmental protection departments feel that the Norwegian Climate and Pollution Agency is generally good at prioritising and focusing assignments, and on maintaining focus on an assignment over several years. Nonetheless, maintaining focus on problem areas for a sufficient period of time can be a problem for the overall administration of hazardous waste. The environmental protection departments feel that their management dialogue with the Norwegian Climate and Pollution Agency is close and good.

The Norwegian Climate and Pollution Agency states that preliminary annual reports are the Agency's main tool in the planning of the assignment document. Dialogue meetings are held annually with all the county governors, as well as six more extensive management meetings, and the tasks from the Directorate for Nature Management and the Norwegian Climate and Pollution Agency are discussed in these meetings. Preliminary annual reports are often more detailed than the final reports, but a review of reporting for the period 2004–2009 shows that the level of detail varies greatly between county governor offices. In an interview, the Norwegian Climate and Pollution Agency states that it can be difficult to interpret the reporting, and that it is a challenge to achieve good reporting from all the county governors.

The county governors are also to report on permits and supervisory activities through the Forusning database. According to the Agency for Public Management and eGovernment, county

governors have mentioned environmental databases as an area of low priority at county level.³⁹ In 2007 and 2008, the assignment document contained a special assignment: to quality-assure data on waste in this database. The environmental protection departments state that the database is useful in the planning of controls. However, it is a major weakness that the database is not integrated with the county governors' case processing system. This means that the same information has to be registered twice.

It is a recurring theme in all the preliminary annual reports that the environmental protection departments are short-staffed or vulnerable to sickness absence or leaves of absence. The Norwegian Climate and Pollution Agency states that on average, each county governor office has six full-time equivalents dedicated to pollution matters. Interviews with the environmental protection departments show that there are considerable differences in the amount of resources spent on hazardous waste, from about the equivalent of three weeks' full-time work to about three person years. In addition to the national guidelines, each county governor has to prioritise local matters. For example, the County Governor of Telemark had to spend resources on the clean-up following the Full City accident.

The Agency for Public Management and eGovernment's report *Sammen for et giftfritt miljø* ('Working together towards a non-toxic environment') shows that the county governors feel that they do not have enough resources to follow up the tasks assigned to them. The Norwegian Climate and Pollution Agency states that the financial situation has improved in recent years as a result of the introduction of new fee regulations, which allow the county governors to charge fees for their permit processing and supervisory activities.

4.2.3 The Norwegian Climate and Pollution Agency's guidance to the county governor offices

The Norwegian Climate and Pollution Agency states in an interview that the Agency provides guidance to the environmental protection departments by means of guidance material, professional gatherings, telephone contact and dialogue meetings. Also, representatives of the county gov-

39 The Agency for Public Management and eGovernment (2010) *Sammen for et giftfritt miljø? Gjennomgang av organiseringen av kjemikalieforvaltningen*. ('Working together towards a non-toxic environment? A review of the organisation of the management of chemicals'). Agency for Public Management and eGovernment report 2010:6.

ernor offices often participate in working groups together with the Norwegian Climate and Pollution Agency when guides and regulations etc. are prepared. The county governors perceive this guidance as very good and systematic in some areas, while it seems poorly focused and badly planned in other areas.⁴⁰

The environmental protection departments state in an interview that guidance from the Norwegian Climate and Pollution Agency usually functions well in individual cases. The executive officers of the Norwegian Climate and Pollution Agency are generally quick to provide informal clarification, but it can often be difficult to obtain the necessary clarifications in writing. It can also be difficult to get specific clarifications of practical interpretations of the regulations, and it is a challenge that professional assessments differ between departments in the Norwegian Climate and Pollution Agency. In cases of internal disagreement in the Norwegian Climate and Pollution Agency, cases take a long time, and in some cases no answer is received. The Norwegian Climate and Pollution Agency states that as a rule, the Agency responds rapidly to most enquiries.

4.2.4 The Norwegian Climate and Pollution Agency and the county governors' guidance to municipalities

The Norwegian Climate and Pollution Agency states in an interview that it is the county governors' responsibility to provide guidance to the municipalities, and that there should be an annual dialogue with the municipalities. This guidance must be provided when the municipality is the authority or the owner of the facility, or when it has supervisory authority. The county governor provides guidance through three main channels: supervisory activities, regional waste cooperation forums and direct enquiries from municipalities. Contact with and information to municipalities are specified in the assignment documents for 2004, 2008, 2009 and 2011. The Agency for Public Management and eGovernment's report *Sammen for et giftfritt miljø* ('Working together towards a non-toxic environment') shows that the environmental protection departments feel that they cooperate well with the municipalities, but that they feel a shortage of resources also in this area.

40 The Norwegian Climate and Pollution Agency (2010) *Myndighetsfordeling etter forurensningsloven mellom Klif og Fylkesmannen* ('Division of authority between the Norwegian Climate and Pollution Agency and the county governors pursuant to the Pollution Control Act'). Final report from the division of authority project. Memo, the Norwegian Climate and Pollution Agency, 4 May 2010.

Both the Ministry of the Environment and the Norwegian Climate and Pollution Agency prepared guidance material in the 1990s relating to the municipalities' authority and duties under the Pollution Control Act.⁴¹ The Norwegian Climate and Pollution Agency's comments to Chapter 11 (Hazardous Waste) of the Waste Regulations provide the most up-to-date guidance available to the municipalities. These comments refer back to the guide from 1999. User-friendliness, safety and information are key criteria in the evaluation of whether the material provided is sufficient.

A municipality's costs in connection with establishing and running a reception system for hazardous waste from households, including forwarding and final disposal of the waste received, shall be covered by the municipal waste collection charges.⁴² The Norwegian Climate and Pollution Agency states in an interview that the requirement that households are not to be charged for handing in hazardous waste is included in the comments to the regulations. Nonetheless, some municipalities do charge those who hand in waste.

The Ministry of the Environment states in an interview that the levels of competence in the environmental area vary between municipalities. In order to strengthen this competence, a project for online guidance of municipalities right across the environmental area has been established under the auspices of the Norwegian Climate and Pollution Agency. The document review shows that there is no standardised reporting from the municipalities to the county governors.

4.3 The organisation of the Norwegian Climate and Pollution Agency and the county governors' inspection work

The supervision work can be divided into three categories:

41 Ministry of the Environment (1998) *Kommunens myndighet og plikter etter forurensningsloven* ('The municipalities' authority and duties under the Pollution Control Act'), circular T-5/98 and the Norwegian Pollution Control Authority (1999) *Tilstrekkelig tilbud om mottak av spesialavfall: veileder til kommunene* ('Sufficient provision for the reception of special waste: guide to municipalities'), guidelines 99:02.

42 The Norwegian Climate and Pollution Agency *Kommentarer til avfallsforskriften. Kapittel 11 farlig avfall* ('Comments to the Waste Regulations. Chapter 11 Hazardous Waste').

- 1 supervisory activities carried out by the Norwegian Climate and Pollution Agency alone
- 2 supervisory activities carried out by the Norwegian Climate and Pollution Agency and the county governors in cooperation
- 3 activities carried out by the county governors alone⁴³

The main forms inspection and audit are described in Fact Box 4.2.

Fact Box 4.2 Different types of controls

Inspection

An inspection shall normally be a planned and systematic examination of chosen risks within the enterprise, to ensure that the enterprise satisfy the demands given by law and regulations. Inspections will normally last for 4 to 8 hours, and will mainly be based on visual and physical investigations, analysis of documents concerning chosen subjects, and if necessary sampling. Inspections are unannounced or will be warned shortly before it is to take place.

Audit

Audits are a systematic control of the control system of the enterprises to establish that the activities and results correspond to what is planned, if they are effective and suitable to reach the given targets. Audits are held over a period of 3-5 days and notice will be given in advance. Audit of takeback companies was carried out over a period of 2 weeks.

Source: The Norwegian Climate and Pollution Agency

4.3.1 The Norwegian Climate and Pollution Agency's own supervisory activities

The Norwegian Climate and Pollution Agency states in an interview that the Agency uses three-year plans for their supervisory activities and uses a special management tool to plan inspections. The list of periodic inspections for the coming year is retrieved from the database Forurensning. In addition to the supervisory activities carried out in accordance with the three-year plans and other management tools, the Norwegian Climate and Pollution Agency also carries out annual risk assessments. These risk assessments involve many factors: experience from previous inspection campaigns, experience from previous periodic inspections, feedback from county authorities, action

43 The Norwegian Pollution Control Authority (2004) *Veiledning: Til Fylkesmannens miljøvernnavdelinger. Hva er tilsynsarbeid?* ('Guide to the environmental protection departments of the county governor offices. What is supervision work?') Published by the project 'FM styrker tilsynet' ('County governors strengthen supervision'). Published on 15 December 2004.

plans for individual substances, the list of assignments in the allocation letter from the Ministry of the Environment, results of monitoring, guidelines from the EU and relevant topics. Once input has been received from all the departments in the Norwegian Climate and Pollution Agency, an supervision plan listing enterprises to be targeted in the year ahead is prepared in the Forurensning database. The Agency carries out supervisory activities both in the form of campaigns that target several businesses in the same industry and in the form of individual supervisory activities.

The Norwegian Climate and Pollution Agency website has no special channel for reporting tips about illegal activities in enterprises or information about how the Agency deals with tips it receives. The Agency states that it receives some tips. The Inspection Department receives internal as well as external tips, but the investigation does not show that the Agency has established systematic procedures for handling tips. The Norwegian Climate and Pollution Agency states that tips from employees in enterprises must be handled with particular care, since these persons may have other agendas. Tips from reliable organisations with expertise in this area are dealt with in the same way as internal tips. The Norwegian Climate and Pollution Agency also states that tips can result in supervisory activities in addition to those planned.

4.3.2 Joint campaigns with the county governors

The county governors are to supervise storage facilities, waste producers and ports. According to the county governor offices, enterprises that operate without permits are mainly inspected during thematic campaigns. The selection of inspection objects is based on industry registers, the Brønøysund Register Centre, the Norbas database statistics of waste handed in or tips. In an interview, the environmental protection departments of the county governor's offices state that they primarily focus on waste producers from the private sector.

Nationwide and regional thematic inspection campaigns are campaigns for which the Norwegian Climate and Pollution Agency has chief responsibility for planning, coordination and aids. The Norwegian Climate and Pollution Agency prepares campaign memos that contain detailed instructions about how the inspections are to be carried out. A review of campaign memos show that they present topics, lines of inquiry, goals and often results from previous campaigns. The



Preliminary storage of EE waste. Source: Office of the Auditor General

memos provide an overview of the authorities involved, other relevant parties and the aspects on which the county governor offices should focus. The Norwegian Climate and Pollution Agency explains the legal basis and sets out criteria for reporting to the police and guidelines for how to exercise discretionary judgement and, if relevant, the use of policy instruments. Various aids are enclosed with the campaign memos, such as checklists and reporting forms. The campaign memos show that the Norwegian Climate and Pollution Agency notify the respective industry associations in advance so that they can inform their members of the upcoming inspection campaign, while individual inspections are in principle intended to be unannounced. The Norwegian Climate and Pollution Agency leaves it up to the county governor offices to decide whether to notify the inspection objects shortly before the inspection visit.

The campaign memos show that thematic inspection campaigns serve an awareness-raising purpose as well as a control function. A review of inspection reports show that they are used for guidance purposes, in that non-conformities are explained with detailed comments on the actual circumstances. The environmental protection departments of the county governor offices

also use remarks to point out aspects where the entity could improve. In some cases, the reports describe what would be required to close a non-conformity or implement improvements. A non-conformity has been closed when the matter that was remarked on has been remedied or otherwise cleared up.

The Norwegian Climate and Pollution Agency states in an interview that plans for supervisory activities used to be made for one year at a time, but that this was not a very satisfactory solution in relation to the county authorities' resource planning. Planning in a more long-term perspective helps the county governors to adjust their activities better in accordance with the Norwegian Climate and Pollution Agency's signals.

4.3.3 The county governors' own supervisory activities

The Norwegian Climate and Pollution Agency states in an interview that feedback from the county governors is that the inspection campaigns partly cover the industries they are meant to supervise. This means that the challenge involved in following up individual supervisory activities is not as great as originally expected. However, it has emerged in interviews with the environmental protection departments that some of the county governor offices do not have sufficient resources to carry out such activities other than as part of the nationwide campaigns.

The Ministry of the Environment has delegated authority to the municipalities under the Pollution Control Act to supervise holders of industrial waste that does not materially differ from household waste in type or quantity and ensure that they handle this waste properly.⁴⁴ This means that this provision authorises the municipalities to check whether businesses handle hazardous waste. The municipal auditor offices' investigations show that none of the municipalities investigated utilises this opportunity. Neither Skien municipality nor the City of Tromsø has considered the matter, while the City of Trondheim has considered it to some extent. The investigation carried out by the Office of the City Auditor of Oslo shows that the City of Oslo did not consider this until spring 2011.

44 Regulations No 1909 of 5 December 2003 relating to the delegation of authority to municipalities pursuant to the Pollution Control Act.

4.3.4 Fee-funding of the county governors' supervisory activities

The supervisory activities are to be financed by fees paid by the control objects. The purpose of this funding is to help to increase the supervisory activity level. The Norwegian Climate and Pollution Agency states that from 2008 to 2010, the supervisory activity level at county level have seen an increase corresponding to twelve full-time equivalents as a result of increased fee-funding. The Norwegian Climate and Pollution Agency's internal auditing of the action plan for supervisory activities for the period 2008–2010 pointed out that the fee system has helped the counties to increase their supervision resources, but not enough to meet the Norwegian Climate and Pollution Agency's expectations. The environmental protection departments confirm in interviews that the fee-funding scheme has helped to increase the amount of supervisory activities carried out, and audits in particular. The fee income is well dimensioned for audits, a form of supervision primarily aimed at inspection objects assigned to the highest risk categories – risk categories 1 and 2. Inspections and follow-up of small enterprises that are not always assigned to a risk category requires more time than allowed for by the fee income. The environmental protection departments' opinion is that the supervision is not fully risk-based. It is a challenge that the fees are not high enough to finance the work that actually goes into a supervisory activity and to cover the administrative costs. The environmental protection department for Rogaland states that it has chosen to carry out several inspections in the same area and the same industry in the same day. The environmental protection departments for Telemark and Sør-Trøndelag point out that another consequence of the scheme is a tendency to prioritise work with the permits, which generates the highest incomes. The Norwegian Climate and Pollution Agency confirms that the fee rates are low in the field of pollution control compared to several other fields, and that they are not sufficient to provide actual coverage of expenses and enable the county governors to hire more personnel.

4.3.5 The relationship between licensing authority and supervisory authority

The Norwegian Climate and Pollution Agency states in an interview that the independence of supervision is safeguarded by the way in which it is organised. The Inspection Department feels that in day-to-day work, the supervision work is considered to be an independent activity within the Norwegian Climate and Pollution Agency.

There is no organisational separation between the county governor offices' roles as the authority for permits and as the supervisory authority. The environmental protection departments differ in their opinion as to whether this is unfortunate. Some of them feel that it is a real problem, because the relationship between the supervisory authority and the permit authority is too close. Those who feel that this is a real problem are aware of the dilemma and try to take it into account in their work. Others believe it to be an advantage that the same executive officer holds both roles, since this individual will have the insight and expertise necessary to make good assessments during supervision of the enterprise. In some environmental protection departments, work is organised in such a way that the same executive officer is always responsible for an enterprise. Other county governor offices instead choose a system in which an executive officer never heads a supervisory activity in relation to enterprises for which he or she processed the permit, although the executive officer in question may nevertheless participate as a member of the team.

The Ministry of the Environment emphasises that the pollution control authorities have no self-interest in the industries for which they are the licensing and supervisory authority, and that the Norwegian Climate and Pollution Agency and the environmental protection departments at the county governor offices are aware of this when they execute their functions. The Norwegian Climate and Pollution Agency states that it has not seen any unfortunate results of the way in which this work is organised. Many of the environmental protection departments' activities are regulated by the Waste Regulations, which limits individual executive officers' potential influence.

4.3.6 The effect of supervisory activities

According to the Norwegian Climate and Pollution Agency's action plan for supervisory activities, the priority industries shall have reduced the number of serious violations by at least 60 per cent since the first control/campaign before 2011. In an interview, the Norwegian Climate and Pollution Agency states that it is challenging to prove that the supervisory activities result in environmental gains. However, the annual reports show that repeated activities result in an improvement compared to where they are not repeated. There is therefore a basis for the Norwegian Climate and Pollution Agency's claim that supervisory activities have an effect, but it is difficult to quantify. The fact that the authorities have become stricter in their enforcement of the regulations makes it

more difficult to document the effect of supervisory activities.

4.4 The follow-up of Norsas

Norsas AS was established by the Ministry of the Environment, the Federation of Norwegian Industries (Norges Industriforbund) and the Norwegian Association of Local and Regional Authorities in 1988. The company's objective was to develop and operate a national system for the collection and treatment of special waste. Norsas functioned as a national centre of expertise in the area of waste management, with responsibilities including providing information and operating the declaration system for hazardous waste. In autumn 2000, the original owners sold the company to a private company. At the same time, the Norwegian Climate and Pollution Agency assumed overall responsibility for the declaration system.

Norsas currently carries out the following continuous tasks on assignment for the Norwegian Climate and Pollution Agency:

- operating the declaration system
- following up the waste oil scheme
- operating the WEEE Register.

In addition to this, Norsas carries out studies and ad hoc assignments for the Norwegian Climate and Pollution Agency. Norsas also takes on assignments, including advisory services, information and training assignments, for private as well as other public clients. Moreover, Norsas runs the take-back company Ruteretur.

Enterprises and industry associations state in interviews that they see Norsas as having different roles, and that it can be unclear when Norsas is acting on behalf of the authorities and when the company is acting as independent consultants.

4.4.1 Operation of the declaration system

The declaration system comprises the registration and overview of the amounts and types of hazardous waste handed in. Norsas registers the information and stores it in the Norbas database.

Before 2001, parties that received waste subject to the duty of declaration had to pay an administrative fee to Norsas to cover the development and operation of the declaration system and Norbas. It emerges in interviews with the Norwegian Climate and Pollution Agency and Norsas, as well as from document analysis, that the rights to Norbas

were not clarified when Norsas was sold, and that, at present, it is unclear whether the Norwegian Climate and Pollution Agency or Norsas owns the software. However, there is no doubt that the Norwegian Climate and Pollution Agency has full right of use of the data.

At the turn of the year 2000/2001, a quick solution was required in order to ensure that the system could continue to operate during the reorganisation. Norsas was given this task. The Ministry of the Environment stated that the assignment could be put out to tender at a later time.⁴⁵ The assignment has been opened to competitive tendering once. The Norwegian Climate and Pollution Agency states in an interview that Norsas submitted the only tender, and that there was no real competition since other parties had no access to Norbas.⁴⁶ The next time it became an option to subject the assignment to competitive tendering, the Norwegian Climate and Pollution Agency therefore concluded that the assignment falls under the exception provision in the Public Procurement Regulations Section 14-3 c), 'the service, for technical or artistic reasons or in order to protect an exclusive right, can only be performed by one specific provider'.

4.4.2 Operation of the waste oil scheme

A state reimbursement scheme has been established for the handing-in of waste oil, i.e. used oils that can no longer be used for their original purpose. The Norwegian Climate and Pollution Agency states in an interview that the scheme has been subject to competitive tendering, and that Norsas has always run it. The Norwegian Climate and Pollution Agency is aware that Norsas provides advisory services to some waste oil facilities. It is a challenge that there are few experts in this area, and that there are few consultants to choose from. A review of the tender document and contracts show that they contain no provisions regarding role conflicts/impartiality other than to state that the contractor cannot receive reimbursement for waste oil, either directly or indirectly. According to the contract, Norsas has a duty not to use sensitive competition information in its own activities, but the Norwegian Climate and Pollution Agency sets no requirements regarding how this should be enforced.

45 The Ministry of the Environment (2000) *Norsas AS – videreføring av virksomheten* ('Norsas AS – continuation of the activities'). Letter of 14 November 2000 to various industry associations.

46 The Norwegian Climate and Pollution Agency (2010) *Drift av deklarasjonssystemet for farlig avfall i 2010. Vurdering av krav om anbud* ('Operation of the declaration system for hazardous waste in 2010. Consideration of the request for competitive tendering'). Internal memo 2012/272 from the Norwegian Climate and Pollution Agency.

4.4.3 Operation of the WEEE Register

The WEEE Register was established in 2006, and is wholly owned by the Norwegian Climate and Pollution Agency. The register has its own website (www.eeregisteret.no). The operation of this register has been subject to competitive tendering.

4.5 Follow-up of the producer responsibility schemes

Producer responsibility is a policy instrument whereby the duty to treat the waste is transferred to the producer or importer of a product. An industry normally implements producer responsibility by establishing one or more take-back companies. The authorities can regulate producer responsibility through the Waste Regulations and conditions stipulated in the Norwegian Climate and Pollution Agency's approval of the take-back companies. In addition, the Ministry of the Environment has entered into voluntary agreements with the industry. Table 4.1 shows how the take-back schemes are controlled by regulations as well as by the industry agreements.

4.5.1 Funding

The producer responsibility scheme is funded by a fee/environmental tax paid by all the producers/importers that are members of/participants in the take-back company.⁴⁷ In addition, the take-back companies earn income where possible from the

sale of waste that has a positive value (lead, scrap iron etc.).

The take-back companies are to finance the collection, removal of hazardous components from and further treatment of waste. The costs associated with the removal of hazardous components can be high for certain product groups. Parties have stated in interviews that there are examples where it costs more to remove the hazardous components from a product than to buy a new one. The take-back companies have to varying degrees established incentive schemes for their subcontractors to ensure the proper removal of hazardous components. One of the take-back companies for EE waste has established a scheme whereby they pay their subcontractors' expenses relating to the handling of environmental toxins removed. This company achieved the lowest number of non-conformities in the Norwegian Climate and Pollution Agency's audit of the take-back companies in 2010.

Interviews with the take-back companies show that the take-back schemes are financially sound. However, the take-back scheme for vehicles is sensitive to steel prices. A supplementary agreement was entered into with the vehicle collection enterprises in 2009 to safeguard the financial side of the system.

Table 4.1 An overview of producer responsibility schemes relevant to hazardous waste

	EE waste	Lead batteries	Rechargeable batteries/industrial batteries	Insulating glass units containing PCBs	End-of-life vehicles
Agreement year	1998	1993	2000	2002	No agreement
Party to agreement with the Ministry of the Environment	The EE industry	AS Batteriretur	The battery industry	4 industry associations	No agreement
Authorised by regulations?	Yes	Yes, but the details of the take-back scheme are not regulated	Yes, but the details of the take-back scheme are not regulated	Yes, from 2004	Yes
Approval scheme?	Yes	No	No	Yes	Yes
Take-back companies	Five, of which two non-profit organisations in accordance with the industry agreement	AS Batteriretur	Rebatt AS	Ruteretur AS and Vindusretur AS (since 2011)	Autoretur AS and one inactive company

Source: The Waste Regulations and agreements with the Ministry of the Environment.

47 Norsas (2009) *Videreutvikling av produsentansvaret* ('Further development of producer responsibility'). Document no 100758.



An example of batteries left as ordinary waste.

Source: Office of the City Auditor of Trondheim

4.5.2 EE waste

The producer and importer organisations for EE products (the EE industry) are, under an industry agreement with the Ministry of the Environment, obliged to establishing and developing a nationwide system for the collection and environmentally sound treatment of EE waste. According to this agreement, the industry shall ensure that at least 80 per cent of discarded white goods, electronics and industrial electronics (measured by weight) is collected. The industry has an obligation to coordinate its activities to ensure that the collection and treatment systems established are as easy as possible for consumers, municipalities and distributors of EE products to relate to, while at the same time providing the desired environmental solutions at the lowest possible cost. The Ministry of the Environment states in an interview that as a result of the expansion of the regulations, the agreements are less important than when they were signed. However, there are still elements in the agreements, for example the collection targets, that are not regulated by the regulations.

There are five approved take-back companies at present, two of them non-profit organisations in accordance with the agreement with the Ministry of the Environment. In addition, three commercial take-back companies have been established.

The Norwegian Climate and Pollution Agency states that it is the requirements in Chapter 1 of the Waste Regulations that are used for the follow-up of producers and the take-back companies. The Norwegian regulatory framework is based on the WEEE Directive (2002/96/EC). The requirements set out in the industry agreement are not used. The Norwegian Climate and Pollution Agency states that a competitive situation makes greater demands of the regulations. It emerges from interviews with take-back companies that there is considerable dissatisfaction with the way in which the system functions. Some express concerns about whether the consideration for proper handling of the waste is attended to when there is fierce competition between the take-back companies. The Ministry of the Environment states that work to change the regulations relating to EE waste in order to improve collection is under way.

Approval of take-back companies for EE waste

Approval by the Norwegian Climate and Pollution Agency is granted on the basis of the take-back companies being certified in accordance with the Waste Regulations. This means that the companies must be able to document that they meet requirements relating to organisation, collection, reception, treatment, competence, data collection and reporting etc.

At present, two private companies act as certification bodies. According to the Norwegian Climate and Pollution Agency, these companies are to be a neutral third party that carries out certification audits. The audit is intended to be a systematic, independent investigation to determine whether the take-back company can document that it meets the criteria set out in the Regulations. The Norwegian Climate and Pollution Agency states in an interview that the certification scheme has not functioned as intended. There could be different reasons for this, including differing interpretations of the certification requirements, differing opinions about what constitutes sufficient documentation, and that thorough audits have not been carried out.

Interviews with the take-back companies confirm that the certification scheme does not function satisfactorily:

- Most of the take-back companies find that the certification bodies do not carry out actual controls. The certification bodies lack sufficient technical and professional expertise in the field of hazardous waste.
- According to the take-back companies, the Norwegian Climate and Pollution Agency should improve its follow-up of the certification bodies to ensure that they function as intended.

4.5.3 Other take-back schemes

Batteries

According to the agreement with the Ministry of the Environment, AS Batteriretur shall organise and fund a nationwide take-back system for used lead batteries. At least 95 per cent of lead batteries are to be collected and recycled. AS Batteriretur shall submit annual reports to the Norwegian Climate and Pollution Agency. A separate agreement has been entered into for rechargeable batteries and industrial batteries, but neither the agreement nor the regulations stipulate specific requirements for the percentage to be collected. This take-back scheme is run by Rebatt AS, which is administered jointly with Batteriretur.

No approval scheme has been established for take-back companies for batteries. The Norwegian Climate and Pollution Agency states that the take-back scheme for batteries is not regulated in detail in the regulations, but that this is of no practical consequence since the system functions so well.

Insulating glass units containing PCBs

The industry has a duty to develop and establish a return scheme for discarded insulating glass units containing PCBs so that they can be collected and delivered for treatment in accordance with the regulations. The Norwegian Climate and Pollution Agency's requirements for approval of the take-back system are that the companies meet the requirements set out in the Waste Regulations.

Ruteretur has incorporated into its agreement with the enterprises graded supplementary payments, which are intended to help to make collection profitable all over Norway. These parties have in turn entered into agreements with many private and municipal storage sites for the collection of insulating glass units containing PCBs.

End-of-life vehicles

The regulations impose a duty on producers and importers to ensure that end-of-life vehicles are collected and treated in an environmentally sound manner. Refund payments for end-of-life vehicles require the vehicles to be delivered to an approved treatment facility.

Criteria have been stipulated for the approval of take-back companies. In its approval of Autoretur, the Norwegian Climate and Pollution Agency stipulates a requirement in line with the regulations, and the take-back requirement is set at 95 per cent of the market share. Autoretur states in an interview that the system is now functioning well – that all vehicle collection enterprises are members, and that the collection network is nationwide.

4.5.4 Performance reporting

The Norwegian Climate and Pollution Agency has established the WEEE Register to follow up producers and importers of EE products and the take-back companies. The reporting covers collection, treatment, reuse and members of the take-back companies. In its annual report for 2010, the register states that reporting from the take-back companies has not been satisfactory. Many reports have been inadequate and contained errors in format as well as in contents. The Norwegian Climate and Pollution Agency's supervision of take-back companies in 2010 uncovered several errors in the reporting to the register, see Chapter 6.

It emerges from interviews with the other take-back companies and from document analysis that the extent to which the Norwegian Climate and

Pollution Agency actively follows up their reporting varies, and that the Agency rarely provides feedback. The Agency states that it expects the industry to comply with the requirements in the regulations. The Norwegian Climate and Pollution Agency verifies figures reported by take-back companies through supervisory activities.

4.5.5 'Free riders'

Producers and importers that do not comply with the regulatory requirement to be members of a take-back company are called free riders. The WEEE Register is responsible for identifying free riders in its area. During the period from 2006 to 2010, nearly 4,000 enterprises received one or more letters from the register.⁴⁸ In the same period, 3,312 new take-back company members were registered.

The Norwegian Climate and Pollution Agency is responsible for following up free riders. In 2008, the Agency imposed coercive fines of NOK 50,000 and NOK 100,000 on four enterprises that had not joined a take-back company for EE waste.⁴⁹ In the same year, the Agency reported five enterprises to the Norwegian National Authority for Investigation and Prosecution of Economic and Environmental Crime (Økokrim). Økokrim imposed fines of a total of NOK 630,000 on these enterprises.⁵⁰

It is a widely held opinion among take-back companies that the Norwegian Climate and Pollution Agency and the WEEE Register have done a good job of identifying and following up free riders. The take-back companies emphasise that it is important to achieve better control of new products and industries involving EE waste fractions. The take-back companies accept the waste when it is handed in, but this means that the take-back companies pay for the treatment of non-members' waste.

In an interview, the Norwegian Climate and Pollution Agency states that the battery area is easy to control, and that it has no problem with free riders. A register of battery importers has been established in order to identify free riders and include them in the scheme. Membership is not mandatory, but Batteriretur states that they have

a 'friendly dialogue' with enterprises that are not members of the register. For battery types other than lead batteries, the situation is less easy to monitor, and the free rider problem is assumed to be greater, particularly because of import via the internet. Batteriretur states that the Norwegian Climate and Pollution Agency do not have the resources to follow this up, but that the Agency assists the company in connection with major cases.

The Norwegian Climate and Pollution Agency states that free riders have not been a major problem for the take-back scheme, but that the situation is changing. The scope of direct imports for building projects and import of prefabricated houses and building components is increasing. Sales also take place via the internet. Ruteretur does not believe that the quantities concerned are particularly large. The Norwegian Climate and Pollution Agency has stronger instruments at their disposal than Ruteretur, because enterprises that are not members are in violation of the regulations.

The Norwegian Climate and Pollution Agency states that for the end-of-life vehicles scheme, the proportion of free riders is approximately 16 per cent. Autoretur states in an interview that free riders are a major challenge, since about 30,000 cars are imported every year by parties outside the take-back system that rarely pay the fee. Each year, Autoretur loses approximately NOK 7.5 million due to these imports, and the company has no instruments at its disposal for including these enterprises in the system. Autoretur states that it has been raising the matter with the authorities for several years, and that a good solution would be to require the fee to be paid on customs clearance or on registration. The Norwegian Climate and Pollution Agency has proposed a change in the Regulations relating to vehicles to make it illegal to register cars without documenting membership of a take-back system for end-of-life vehicles.⁵¹ The Norwegian Climate and Pollution Agency recommends that the Ministry of the Environment raise the matter with the Ministry of Transport and Communications.

4.5.6 Supervisory activities

In 2010, the Norwegian Climate and Pollution Agency targeted the EE take-back companies. Interviews with the take-back companies show that

48 The WEEE Register (2011) *Annual report 2010*.

49 The Norwegian Pollution Control Authority (2008) *Færre gratispassasjerer i returordning for EE-avfall* ('Fewer free riders in the take-back scheme for EE waste'). News article, 10 September 2008.

50 The Norwegian Pollution Control Authority (2009) *Forelegg mot fem elektronikkbedrifter* ('Fines imposed on five electronics enterprises'). News article, 29 October 2009.

51 The Norwegian Climate and Pollution Agency (2011) *Forslag om endring av regelverk for å sikre medlemskap i returselskap for kasserete kjøretøy* ('Proposal for change in regulations to ensure membership of a take-back company for end-of-life vehicles'). Letter of 2 May 2011 to the Ministry of the Environment.

they take a positive view of supervisory activities, because they help to ensure that the conditions for the industry are followed up. It was pointed out that supervision ought to have been unnecessary, had the certification scheme functioned as intended. Several of the take-back companies also want stricter sanctions, particularly for serious non-conformities uncovered over a period of time. The Norwegian Climate and Pollution Agency has not carried out supervisory activities in relation to the other take-back schemes since 2005.

4.6 Partial assessment

The Ministry of the Environment has overall responsibility for ensuring that hazardous waste is handled properly. Among other things, the Ministry shall ensure that there are suitable systems in place for monitoring the state of the environment and for performance reporting and follow-up. The Norwegian Climate and Pollution Agency is responsible for implementing policies. The investigation shows that the management dialogue and the organisation in this area are largely expedient, but that there are weaknesses in the Ministry of the Environment's follow-up of producer responsibility schemes, the declaration system and the provision of guidance to the municipalities.

Pollution control authority for many enterprises has been delegated to the county governors, who are also responsible for providing guidance to the municipalities and supervising the municipalities' duties. The county governors state that the Norwegian Climate and Pollution Agency is good at prioritising in the assignment document and focusing on an assignment over a period of several years. The investigation shows that an insufficient level of detail in reporting from several county governor offices makes it difficult for the Norwegian Climate and Pollution Agency to interpret their reporting.

The overall goals in the area have been operationalised through the waste strategies that the Norwegian Climate and Pollution Agency has drawn up. These strategies have provided an important framework for prioritisations and long-term work. The investigation shows that the measures included in the waste strategies and in the action plans for environmental toxins tie in well together. The work on these strategies has focused on measures and activities, and does not incorporate the results of the measures to any great extent.

Producer responsibility means that the business community is given responsibility for the treatment and recovery of waste from their own products. Producer responsibility schemes have been established for several types of hazardous waste. With the exception of batteries, the Norwegian Waste Regulations specify requirements relating to the take-back system and the take-back companies. For most of the schemes, producer responsibility is fulfilled by one take-back company. In the case of EE waste, there are several competing take-back companies. According to the Waste Regulations, take-back companies must be controlled by an independent certification body. The investigation shows that neither the Norwegian Climate and Pollution Agency nor the take-back companies feel that this control has functioned satisfactorily.

Reporting from take-back companies under the schemes for batteries, end-of-life vehicles and discarded insulating glass units containing PCBs shall be followed up by the Norwegian Climate and Pollution Agency. The investigation shows that the Norwegian Climate and Pollution Agency does not verify the figures reported, except through some supervisory activities.

In order for the collection system to function, all producers and importers subject to the mandatory membership requirement must be affiliated to a take-back company and pay a fee. The Norwegian Climate and Pollution Agency is responsible for following up free riders, and has the possibility of imposing sanctions on them pursuant to the Waste Regulations. All of the take-back companies experienced problems with participation in connection with their establishment. In the EE area, the creation of the WEEE Register has helped to reduce the number of free riders. The problem has been reduced in all areas, but new products and internet import by enterprises that are not members of the systems represent a challenge. The problem is particularly great in relation to the take-back system for end-of-life vehicles. The investigation shows that the Ministry of the Environment has been unable to establish agreements with other authorities to ensure a more effective collection of fees.

Ownership of the declaration database Norbas was not clarified when the previously partly state-owned company Norsas was sold. The Norwegian Climate and Pollution Agency has ownership of the data, but ownership of the software remains unclarified. This means that the operation of the

system cannot be opened to competitive tendering.

In addition to running the declaration database, Norsas also runs the waste oil scheme on behalf of the Norwegian Climate and Pollution Agency. Parties in the waste management industry see Norsas as having different roles, and it can be unclear when Norsas is acting on behalf of the authorities and when it is acting as a private company. The Norwegian Climate and Pollution Agency has not to any great extent stipulated requirements for independence when subjecting the waste oil scheme to competitive tendering. Nor have there been any requirements stipulating that Norsas should run the waste oil scheme and declaration systems as clearly separated tasks.

The supervision of small enterprises should be regular in order for it to be possible to check whether the enterprises improve their compliance with regulations over time, cf. Report No 14 to the Storting (2006–2007) and Recommendation No 180 to the Storting (2006–2007). Joint campaigns in cooperation between the Norwegian Climate and Pollution Agency and the county governor offices have produced good results, such as inspections of many control objects in a short period of time, on a basis intended to ensure uniformity in implementation and in the registration of non-conformities. The investigation shows that the rates under the present fee-financing system are too low to cover all the costs associated with supervisory activities. The county governor offices adapt their supervision priorities to the fee system. This creates a risk that inspection objects that are not assigned to a risk category and those assigned to the lower risk categories will be given a low priority in connection with supervisory activities.

Several authorities are responsible for supervising enterprises that do not hold permits. In the cases investigated, no municipal supervision of waste producers had been implemented. The county governor offices' supervisory activities are focused around the thematic campaigns. There is thus a risk that many waste producers may not be considered as potential objects for supervisory activities.

The municipalities are the pollution control authorities at the municipal level. Much of the guidance material provided to the municipalities by environmental authorities is out of date. The municipalities have no duty to report to the county

level, and the county governors therefore have little knowledge about the results of the work carried out in the municipalities.

5 Collection, declaration and control of hazardous waste

Waste producers are enterprises or households that generate hazardous waste. The enterprises can be different types of public or private service providers, industrial enterprises, marinas etc. The entities vary greatly in terms of the amount and type of hazardous waste generated. The Norwegian Climate and Pollution Agency states in an interview that the most important policy instruments at the Agency's disposal in ensuring that waste producers hand in hazardous waste, are the regulations and the regulatory duty to hand in waste, combined with supervisory activities and sanctions against non-conformities.

5.1 Hazardous waste that is not collected

5.1.1 Statistics of hazardous waste subject to unknown handling

The main purposes of Statistics Norway's hazardous waste statistics are to provide a comprehensive, easily understood overview of the amounts of hazardous waste handed in in Norway, and determine annual figures for hazardous waste subject to unknown handling. The methods used to calculate the hazardous waste that is sent to approved facilities and the amount that goes to unknown handling are shown in Fact Box 5.1. The Norwegian Climate and Pollution Agency states in an interview that these statistics provide good information about the status of hazardous waste in relation to the national goals. It is also an important tool for determining whether measures that have been implemented have had an effect. The Norwegian Climate and Pollution Agency prefers the term *unknown handling* to the term *astray*, which was pre-

viously used. The waste has not necessarily gone astray, but what happens to it is not documented. The investigation uses the terms *waste that is not collected*, and *waste that is not handled properly*. According to Statistics Norway, the amount of hazardous waste subject to unknown handling is intended as a measure of how much hazardous waste may at worst have ended up in the natural environment, see Table 5.1.

The amount of hazardous waste subject to unknown handling in 2009 was 72,000 tonnes. This corresponds to seven per cent of the amount that underwent approved treatment. The amount has decreased by 43,000 tonnes, corresponding to 37 per cent, since 2004. Statistics Norway states that the main reasons are increased collection of waste containing oil and the fact that the calculations show a reduction in the amount of waste arising from wood containing creosote. In Statistics Norway's opinion, the long-term decrease is due to the increased collection of hazardous waste.

The two largest waste groups that are least handed in for approved handling are impregnated wood (classified under 'other organic hazardous waste') and waste containing oil. According to Statistics Norway, impregnated wood has a long service life, which makes it a challenge to calculate the amount of waste generated, and some of the waste can be reused. Statistics Norway also calculates the amount of waste generated, but these figures are not published.

The Norwegian Climate and Pollution Agency states in an interview that it is a challenge to produce statistics on the basis of the many data

Table 5.1 Hazardous waste subject to unknown handling during the period 2004–2009, by material. 1000 tonnes

Type of material	2004	2005	2006	2007	2008	2009
In total	115	93	90	77	74	72
Waste containing oil	63	45	44	30	37	31
Waste containing solvents	2	1	1	1	1	1
Other organic hazardous waste	37	36	30	35	30	29
Waste containing heavy metals and polluted matter	9	6	8	8	3	6
Photochemicals	2	2	3	2	2	2
Unknown and other	3	2	3	1	1	2

Source: Statistics Norway

Fact Box 5.1 Calculations of hazardous waste subject to approved and unknown handling

The amount of hazardous waste that undergoes approved handling is calculated by combining data from different databases. The Treatment Survey is used to find the amount of hazardous waste handed in for approved handling and break it down by material and type of treatment. The Foundation database (Norbas, figures from the battery take-back scheme, waste treated by the enterprises themselves and exports) is used to break down waste by industry, and as a supplement to the Treatment Survey.

There are discrepancies between the different data sources. Possible explanations include: waste being stored at reception and storage facilities, handling at reception and storage facilities that changes the quantities, and errors in reporting to Norbas and the Treatment Survey. The discrepancies have been reduced in the past year.

	Data	Data owner	Information	Frequency	Population
The Foundation database	Norbas	The Norwegian Climate and Pollution Agency/ Norsas	Hazardous waste handed in for approved treatment	Annual	All waste handed in, except waste treated by the enterprises themselves, batteries and exports
	Pollution	The Norwegian Climate and Pollution Agency	The industry's reporting of hazardous waste treated by the enterprise of origin	Annual	All waste treatment by the enterprises themselves carried out by enterprises holding permits
	Collected batteries	Batteriretur	Collection of batteries	Annual	All collected batteries
	The import/export database	The Norwegian Climate and Pollution Agency	Only export figures used	Annual	Full count
	The Treatment Survey	Statistics Norway	Form-based questionnaire survey of Norwegian facilities granted treatment permits by the Norwegian Climate and Pollution Agency	Annual	Full count. Adjusted for import/export, changes in stocks at treatment facilities and for treatment in several stages
	Energy consumption in industry	Statistics Norway	Incineration of waste oil	Annual	Full count
	The waste handling survey	Statistics Norway	Treatment of hazardous waste at facilities for ordinary waste	Annual	Full count. Facilities for ordinary waste with a permit to treat certain types of hazardous waste

Source: Statistics Norway

sources used by Statistics Norway. It emerges from interviews with the two largest interest organisations for the waste management industry that they doubt whether there can be as much waste astray as suggested by statistics. The methods used by Statistics Norway produce uncertain results. The statistics are based on the original amounts declared, and do not take subsequent corrections into consideration. The amount of environmental toxins gone astray in this waste is not shown by Statistics Norway's statistics.

5.1.2 Environmental toxins in the natural environment

Collection and proper handling of hazardous waste are important in order to achieve environmental toxin goals, cf. Report No 14 to the Storting (2006–2007). Environmental toxins in nature can come from a variety of sources, including long-range transport of air pollution, emissions to water and air from industry and from hazardous waste that is not collected or is not properly handled. Below is a brief general status of the environmental toxins prioritised in this investigation.



Unsorted waste.

Source: Office of the Auditor General

Mercury

Mercury that is not collected and handled properly can spread into the natural environment. Emissions of mercury have decreased from about six tonnes in 1985 to 2.5 tonnes in 1995 and to approximately 0.9 tonnes in 2008. Most of the emissions come from different types of industrial processes such as smelting plants, crematoriums, waste incineration and landfills. Amalgam is the cause of approximately 14 per cent of the total Norwegian mercury emissions through crematoriums and municipal wastewater.⁵²

Mercury is one of the reasons for the authorities' recommendation (dietary recommendation) to limit the intake of or completely avoid eating fish and shellfish from certain fjords. The main reason is not waste, but long-range transport of air pollution. The Norwegian Food Safety Authority has also introduced nationwide dietary recommendations for freshwater fish.⁵³ The increased mercury content in freshwater fish is a clear trend that has been observed in south-eastern Norway and in Sweden. The reason for this is unclear, but it is not

caused by atmospheric deposition, which has decreased in recent years.⁵⁴

PCBs

In the action plan for reducing emissions of PCBs for the period 2009–2012, it is assumed that 90 per cent of PCB products will have gone out of use by the end of 2008, see Figure 5.1. It is uncertain how much PCBs has been disposed of in unknown ways after use, but the estimate is 500 tonnes.

About 70 tonnes of PCBs lie as pollution in the soil in various locations in Norway. Approximately 20 kg leak out each year. Measurements of wastewater from cleaning plants show that the PCB content has been reduced significantly in recent years.⁵⁵ There are still high levels of PCBs in the sediments of around twenty fjords and harbour basins. More than half the dietary recommendations for Norwegian fjords are primarily caused by PCBs.⁵⁶

52 The Norwegian Climate and Pollution Agency (2011) *Action plan for reducing mercury releases – 2010*. TA-2684.

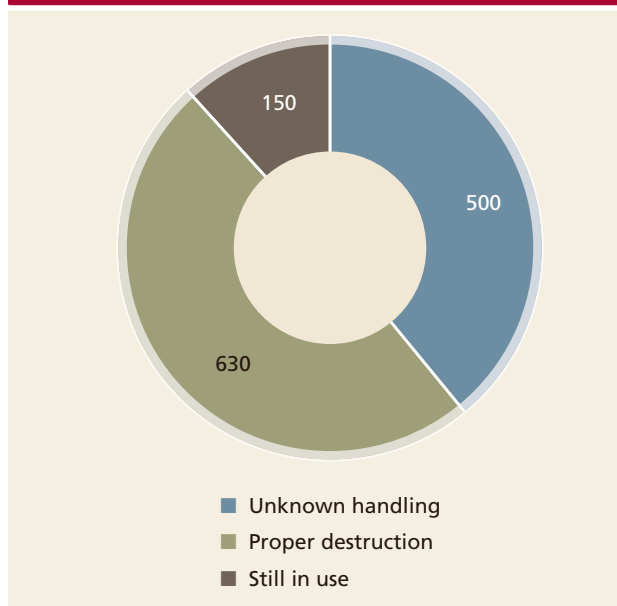
53 State of the Environment Norway (2011) *Kvikksølv ('Mercury')*. Online article published by the Norwegian Climate and Pollution Agency on 17 January 2011.

54 The Norwegian Climate and Pollution Agency (2010) *Meir kvikksølv i aure ('More mercury in trout')*. News article, 26 January 2010.

55 The Norwegian Climate and Pollution Agency (2010) *Nasjonale utslipp Prioriterte miljøgifter: Status 2008 ('National emissions Priority environmental toxins: Status 2008')*. TA-2738.

56 State of the Environment Norway (2011) *PCB*. Online article published by the Norwegian Climate and Pollution Agency on 17 January 2011.

Figure 5.1 Accounts of PCBs in Norway in tonnes



Source: The Norwegian Climate and Pollution Agency (2009) *Actionplan for the reduction of emissions of PCB*.

Brominated flame retardants

Estimated sales of brominated flame retardants in Norway in 2008 were 365 tonnes.⁵⁷ Brominated flame retardants released into the environment in Norway usually come from leakages from products in use and from waste. Emissions from both diffuse sources and specific points of emission can follow water flows and be found in wastewater and sludge from municipal treatment plants. The annual emissions of brominated flame retardants total approximately 1.9 tonnes. About half the emissions are assumed to be to air, the rest to water. High levels of brominated flame retardants have been found in several fjords and waterways.⁵⁸

5.2 The definition of waste

In the opinion of the Norwegian National Authority for Investigation and Prosecution of Economic and Environmental Crime (Økokrim), the definition of what constitutes waste presents a significant challenge. The unclear distinction between waste and products is a challenge in criminal cases. The definition of waste in the Norwegian Pollution Control Act is not quite identical to the definition in the EU Waste Framework

Directive. The Norwegian Climate and Pollution Agency and the Ministry of the Environment are currently working to harmonise the definition in the Pollution Control Act with the one in the Waste Framework Directive, but have not considered it a practical problem that the definitions have not been identical. The EU Waste Framework Directive's definition of waste also includes substances/objects which the holder has not discarded, but intends to discard. The Norwegian Climate and Pollution Agency states that this definition is open to more subjective assessments than the Norwegian definition. In the Norwegian definition, an object becomes waste when it is discarded. Interpretations can still vary as regards what has been discarded and what is still usable, particularly when it comes to vehicles and EE waste. The Norwegian Climate and Pollution Agency states that if an object has been handed in, it is to be considered waste.

The term *hazardous waste* is only defined in the Waste Regulations, and not in the Pollution Control Act. The Pollution Control Act uses the broader term *special waste*. In the Norwegian Climate and Pollution Agency's opinion, the definition in the Waste Regulations is not a good one, because it gives the impression that the distinction between hazardous waste and other waste depends on a discretionary assessment of whether the waste can 'be treated appropriately together with other household waste'. The Norwegian Climate and Pollution Agency actually uses the criteria in Section 11-4 of the Waste Regulations when determining whether waste is hazardous waste or not.

In interviews, some parties point to the grey area between waste and product as particularly problematic and a matter that the authorities should follow up more. One party states that the problem is how the regulations are interpreted and practised. Much waste that should be treated as hazardous waste is not treated as such. One example is the storage of chemicals in enterprises. Other waste management enterprises are of the opinion that, in practice, it is not a challenge to determine what is product and what is waste. Even if an object or a substance could have a value as a product, the object or substance is waste once it has been handed in to a storage or treatment facility.

57 The Norwegian Climate and Pollution Agency (2010) *Nasjonale utslipp Prioriterte miljøgifter: Status 2008* ('National emissions Priority environmental toxins: Status 2008'). TA-2738.

58 The Norwegian Pollution Control Authority (2009) *Action plan for the reduction of emissions of brominated flame retardants*. Updated in November 2009.

5.3 Declaration

The declaration system for hazardous waste was established in the late 1980s to give the authorities the necessary overview and control of hazardous waste. The system is paper-based, and uses carbon copy paper with five copies. The facility that initially receives the waste has a duty to ensure that one copy of the declaration form is sent to Norsas (acting on behalf of the Norwegian Climate and Pollution Agency) for registration. Norsas registers the form in the Norbas database. According to Norsas, the number of declaration forms submitted has more than doubled since 1996, and in 2010 the number of forms was 150,000.⁵⁹

Some hazardous waste is not covered by the declaration system:

- industrial waste that is treated by the enterprises themselves (approx. 210,000 tonnes)
- waste exported directly by a waste producer (approx. 180,000 tonnes)
- waste that is imported (approx. 250,000 tonnes)
- batteries, covered by a separate register operated by the take-back company (approx. 15,000 tonnes)
- EE waste, but hazardous components are declared by the facility on removal of these components

In a report to the Norwegian Climate and Pollution Agency in 2010, Mepex recommended that a uniform duty to report all hazardous waste should be considered. This would create a uniform practice for all hazardous waste and probably help to improve the basis for statistics and the overview of all hazardous waste handled, as well as provide a better basis for supervision. The Norwegian Climate and Pollution Agency states in an interview that the Agency has a more comprehensive system than Norbas for waste that is exported directly by the waste producers, but that it could be a good idea to include waste treated by the enterprises themselves.

5.3.1 Norbas and traceability

The Norwegian Climate and Pollution Agency states in an interview that Norbas is an important source of detailed information about hazardous waste, both about the amount produced, who produces it and how often it is handed in. Few other countries have this source of information. The information is used in the selection of in-

spection objects and preparation for supervisory activities, and forms part of the basis for Statistics Norway's statistics.

Most waste producers have no overview of what happens to the waste after it has been handed in, and there is at present no reporting of final disposal.⁶⁰ Moreover, at present there is no reporting back to Norbas when the waste management enterprises in the waste chain correct declaration forms. The Norwegian National Authority for Investigation and Prosecution of Economic and Environmental Crime (Økokrim) states in an interview that the declaration form has not functioned quite as intended. The form is intended to accompany the waste from producer to final treatment, but this has not been possible in practice. The Norwegian Climate and Pollution Agency states that the original plan was for the party that carries out the final disposal to submit a copy as confirmation that the waste had been treated, but this proved too cumbersome to be implemented. The possibility of tracing the waste from the waste producer to final disposal was lost when joint declaration (a declaration in which the same type of waste from several producer is combined) became an option. In the Norwegian Climate and Pollution Agency's opinion, some of the deficiencies are identified through supervisory activities and reporting from enterprises.

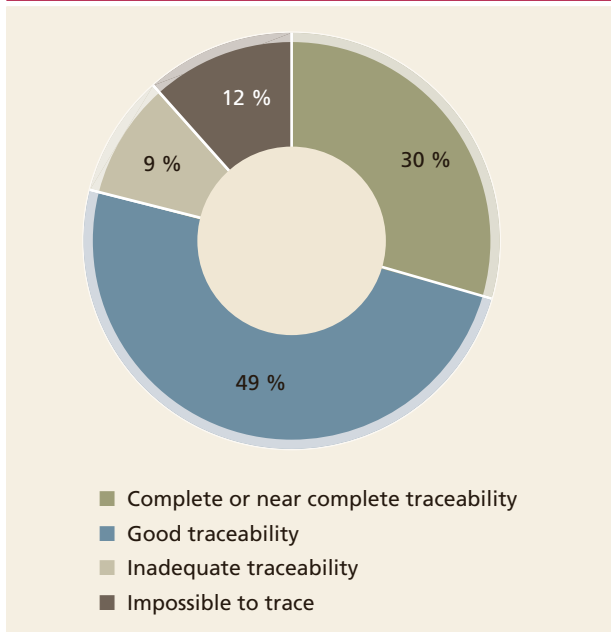
Both the Norwegian Climate and Pollution Agency and enterprises in the industry emphasise in interviews that direct contact between waste producers and treatment facilities helps to improve traceability. One or more intermediaries can nonetheless make reduced traceability a challenge.

In this investigation, 95 declarations from 2010 have been reviewed in order to consider whether the waste is traceable and whether it is treated in an approved manner, and to assess the quality of the information registered in Norbas. Each declaration has been traced from producer to reception, pre-treatment and final treatment. This was done by directly contacting those enterprises that have handled the waste. There are usually three or four parties involved in handling waste until final disposal. Figure 5.2 shows that 21 per cent of the declarations examined are impossible to trace or have inadequate traceability. This accounts for 12 per cent of the amount of waste.

59 The Norwegian Climate and Pollution Agency (2011) *Deklarasjonssystemet for farlig avfall* ('The declaration system for hazardous waste'). Annual report for 2010. Norsas. TA-2520.

60 Mepex (2010) *Etablering av nytt elektronisk deklarasjonssystem for farlig avfall – Forprosjekt* ('The establishment of a new electronic declaration system for hazardous waste – Preliminary study'). Reports written on assignment from the Norwegian Climate and Pollution Agency.

Figure 5.2 The traceability of declarations.
Figures in per cent



Source: Mepex for the Office of the Auditor General

The review of declarations show that it is more difficult to trace waste declared in joint declarations. Norbas does not show whether waste was jointly declared. Forty-five per cent of the declarations are for jointly declared waste.

5.3.2 Electronic declaration system

In the allocation letters from the Ministry of the Environment for 2004 and 2005, the Norwegian Climate and Pollution Agency was tasked with ensuring that an electronic declaration system was established for hazardous waste. This was repeated in the allocation letter for 2011. The Norwegian Climate and Pollution Agency carried out a feasibility study in 2004/2005 and a preliminary study in 2009. The Ministry of the Environment stated in an interview that the work has taken more time than expected. The Norwegian Climate and Pollution Agency states that the greatest challenge is choosing a solution.

In an interview, the Agency states that the declaration system works as intended, but that the fact that it is still paper-based could be a challenge. There is a risk that forms are incorrectly completed, and a paper-based system is demanding in terms of resources, both for the enterprises and for the Norwegian Climate and Pollution Agency as the relevant authority. An electronic system is intended to simplify this and help to filter out errors by means of built-in quality assurance measures. Calculations indicate that an electronic declaration system will result in savings for the



Unlabeled hazardous waste.

Source: Office of the Auditor General

authorities as well as for the industry.⁶¹ Interviews with enterprises and industry associations show that they would like the current paper-based declaration system to be replaced by an electronic system.

5.3.3 The duties of waste producers

Waste producers have many duties that are set out in the Waste Regulations. These duties are summarised in Fact Box 5.2.

Fact Box 5.2 The duties of waste producers

Pursuant to Chapter 11 of the Waste Regulations, waste producers have a duty to:

- assess whether the waste produced by the enterprise is hazardous waste
- store waste in such a way that it does not result in pollution, spills or injury to people
- hand in waste annually if more than one kilogram of hazardous waste is produced per year
- declare the waste on delivery.

Source: The duties of waste producers are summarised on the basis of Norsas (2009) *Veileder om innlevering og deklarerer av farlig avfall* ('Guide to handing in and declaring hazardous waste'), 2009 edition.

The waste producer is given a copy of the declaration as a receipt that the waste has been handed in. For small waste producers, it is common for the recipient to declare the waste in cooperation with or on behalf of the waste producer.⁶² In cases

61 Mepex (2010) *Etablering av nytt elektronisk deklarasjonssystem for farlig avfall – Forprosjekt* ('The establishment of a new electronic declaration system for hazardous waste – Preliminary study'). Report written on assignment from the Norwegian Climate and Pollution Agency.

62 Mepex (2010) *Etablering av nytt elektronisk deklarasjonssystem for farlig avfall – Forprosjekt* ('The establishment of a new electronic declaration system for hazardous waste – Preliminary study'). Report written on assignment from the Norwegian Climate and Pollution Agency.



Unlabeled hazardous waste.

Source: Office of the Auditor General

where an enterprise collects waste for a municipality, it is common for this party to examine and declare the waste. This practice is recommended by Norsas.⁶³ Households are not subject to a duty of declaration – hazardous waste from households must be declared by the recipient with the municipality entered as waste producer. A special box in the declaration form is ticked to distinguish such waste from other municipal hazardous waste.

5.3.4 Costs relating to handing in hazardous waste

The initial receiver of waste subject to the declaration duty is, with certain exceptions, charged a declaration fee stipulated by the Norwegian Climate and Pollution Agency. This fee is intended to cover the costs of running the declaration system. The declaration fee for 2011 is NOK 40 per tonne of waste. There is a cap on this fee, so that no waste producer shall be charged more than NOK 40,000 per year. In a questionnaire survey carried out by Mepex on behalf of the Norwegian Climate and Pollution Agency as part of the preliminary study for a new electronic declaration system,

nearly half of all waste management enterprises express the opinion that it is *not* likely that the cost of the fee will cause enterprises not to report hazardous waste to the authorities, or cause hazardous waste to be handled improperly. Nearly 11 per cent believe it to be somewhat or highly likely.

In addition to the declaration fee, the waste producers pay to hand in the waste. The prices are market-based. The price for handing in certain types of waste, for example waste oil that falls under the reimbursement scheme and insulating glass units containing PCBs, are subject to special regulation to ensure that the cost does not prevent this waste from being handed in. The Federation of Norwegian Building Industries states in an interview that they believe it is too expensive for the responsible developers to hand in hazardous waste, and that this could mean that they will seek less appropriate solutions.

5.3.5 Classification of hazardous waste on declaration

Hazardous waste is defined through Appendix 1 to Chapter 11 of the Waste Regulations, the European Waste Catalogue (EWC). Waste types marked with an asterisk are hazardous waste. Other waste with a content of hazardous substances exceeding certain limit values comes in addition to this. The regulatory framework for chemicals provides the limit values that determine whether waste is to be considered hazardous waste or not. The Norwegian Climate and Pollution Agency states that the regulations relating to chemicals are updated relatively often, as new knowledge comes to light about properties of the substances that are hazardous to health and the environment. On declaration of waste, the waste is classified using a Norwegian waste substance number and an EWC code, see Fact Box 5.3.

Table 5.2 shows that it could take years from the time when a type of waste is defined as hazardous until it gets its own waste substance number. The Norwegian Climate and Pollution Agency has the authority to change waste substance numbers. The Agency specifies that it changes waste substance numbers if there is a need to highlight something, or if no suitable codes exist, but that it has no duty to create such numbers. It is the EWC list that formally defines what constitutes hazardous waste. The Norwegian Climate and Pollution Agency can also propose changes in the EWC list, but notification to the EU is required. The Agency states that whether new waste substance numbers are created for new types of waste will depend on

63 Norsas (2009) *Veileder om innlevering og deklarerer av farlig avfall* ('Guide to handing in and declaring hazardous waste').

Fact Box 5.3 Classification of hazardous waste – EWC and waste substance numbers

There are about 500 different waste substance numbers, and they are listed on the back of part 1 of the declaration form. The waste substance number is based on the type or a property of the waste (based on the chemical content). It may describe that a type of waste contains environmental toxins, for example 7210 'Waste containing PCBs and PCTs'. However, this coding says nothing about the amount of environmental toxins in the waste.

The EWC is a list of waste used across the entire EEA. The EWC codes consist of six digits. The EWC is structured so as to sort waste types according to processes that describe how the waste was created or other characteristics. Municipal waste has a separate chapter in EWC, Chapter 20.

Source: Norsas' web pages about hazardous waste, Appendix 1 to Chapter 11 of the Waste Regulations, interview with and e-mail from the Norwegian Climate and Pollution Agency.

the need to bring particular emphasis to the type of waste in question. NFFA states in an interview that it is a problem that new waste substance numbers are rarely created, while new types of hazardous waste are included in the regulations. This means that there could be a delay of several years before a new type of waste is recognised in the declaration system and thus in the basis for statistics. This also has unfortunate consequences for the handling of the waste.

The annual report on the declaration system shows that Norsas receives many enquiries about whether or not certain types of waste are hazardous waste. The Norwegian Climate and Pollution Agency states in an interview that the Agency also receives enquiries about the classification of hazardous waste, as well as from the oil industry concerning the classification of certain fractions as waste or raw material. In this area, however, the Norwegian Climate and Pollution Agency considers the guides provided by Norsas and the Agency itself to be clear. However, the Norwegian Climate and Pollution Agency sees that the definitions can be difficult for the industry to relate to in some cases. If the regulations and guidance materials are complied with, there should be no problem. The challenge is that the industry fails to comply with the regulations. The Norwegian Climate and Pollution Agency states in an interview that the enterprises need to have a certain expertise in the area of chemicals in order to assess individual substances, and also says that the industry expects the Agency to carry out functions that are not necessarily the Agency's tasks. Examples include practical questions such as for example clarification about whether something is considered hazardous waste or not. In these instances, the Norwegian Climate and Pollution Agency can only refer to the criteria – the enterprises themselves must make sure that they know the contents of the waste they are handing in.

Table 5.2 Changes in waste substance numbers introduced after 2003

Direction	Hazardous waste from	Waste substance number from	No	Designation
In	2003	2003	7098	Wood impregnated with CCA
In	2004	2004	7155	Waste containing brominated flame retardants
In	1980/2000*	2003	7211	Insulating glass units containing PCBs
In	2001 and 2005**	2009	7156	Waste containing phthalates
In	2003	2009	7157	Insulation with blowing agents harmful to the environment, such as CFC and HCFC
In	***	2011	7158	Insulating glass units containing chlorinated paraffins
In	***	2011	7159	Waste containing chlorinated paraffins
In		2011	7261	Gases in pressurised containers
Combined		2011	7051	Paints that are hazardous waste have been combined into one group (paint, glue, varnish, solvent-based)

From 2011, radioactive waste was regulated by the Waste Regulations Chapter 16. This is not included in the table.

* Waste with PCB concentrations in excess of 50 ppm has been explicitly regulated as hazardous waste since 1980. Insulating glass units containing PCBs became a separate fraction in EWC in 2000, and was included in the Norwegian regulations in 2003.

** Phthalates with different limit values were defined as hazardous from 2001 and 2005; others have still not been classified. In 2009, the Norwegian Climate and Pollution Agency stated that flooring containing phthalates is hazardous waste.

*** Short-chain chlorinated paraffins were classified as hazardous waste from 2001. In 2009, the Norwegian Climate and Pollution Agency stated that insulating glass units containing chlorinated paraffins are hazardous waste.

Source: The Norwegian Climate and Pollution Agency (2011) *Svar farlig avfallsfraksjoner* ('Reply: Hazardous waste fractions'). E-mails of 11 and 14 April to the Office of the Auditor General.

In interviews, waste management enterprises point out some practical problems in declaring waste relating to when waste is to be considered hazardous. There can sometimes be disagreements between the preliminary storage treatment facility and waste producer about how the waste is to be classified. Several enterprises call for better practical guidance from the authorities with specific limit values, for example for the content of water and environmental toxins. The guides prepared by the authorities or Norsas are not deemed to be sufficiently specific. One enterprise finds that the Norwegian Climate and Pollution Agency has become better at clarifying problematic limit values.

5.3.6 Incorrect declaration

Norsas must return forms that are incompletely or incorrectly completed to the parties that submitted them. The most common reasons why forms are returned are that:⁶⁴

- the waste producer cannot be identified
- no amount is specified

- there is a discrepancy between the waste substance number and the EWC code
- waste that is not hazardous pursuant to the Chapter 11 of the Waste Regulations has been declared

Norsas states that in the company's experience, the declaration forms are relatively well filled in and waste substance numbers are well established, but the EWC codes are more often incorrect. The Norwegian Climate and Pollution Agency points out in an interview that errors in data can arise in connection with the declaration of waste or in connection with the electronic registration of the information declared on the declaration form. Incorrectly declared waste (mostly incorrect use of codes) should be discovered by the first party, but the error is not always corrected. The Norwegian Climate and Pollution Agency states that incorrect declaration is a topic that is brought up during supervision of the enterprises' duty to hand in waste as well as of reception and storage facilities for hazardous waste. Information and guidance are also important instruments.

Fact box 5.4 Systematic errors in the declaration of amalgam-containing waste from dental surgeries

A review of Norbas regarding amalgam waste from dental treatment shows that the database is not suitable for showing the amount of amalgam waste handed in. It is also difficult to estimate the amount of mercury handed in on the basis of the figures, partly because the amount of amalgam waste handed in is uncertain.

As stipulated in the regulations, it is the amount of amalgam waste that is handed in that is registered in Norbas. It is not technically possible to enter a weight of less than 1 kg in Norbas, which means that the amount for small separators is often set at 1 kg, even if this is an overestimation. This applies to just over 400 of the approximately 740 declarations received from dental surgeries in 2009. Another 100 or so declare a weight of 2 kg. The most important reasons for the systematic overestimation of the amount of amalgam waste handed in is that the figures also include equipment handed in.

There are also examples where other mercury-containing industrial waste is incorrectly registered in Norbas as amalgam waste from dental surgeries. The review of Norbas has identified errors in one single declaration that resulted in 1,568 kg of mercury-containing industrial waste being registered as amalgam-containing waste from dental surgeries.

A review of Norbas shows that incorrect registrations have probably resulted in the registration of 1,400 per cent too much amalgam waste for Akershus county in 2006. The reason for this error is probably that one of the dental depots declared the waste again when it was forwarded for export.

During inspections of the dental depots in 2010, the Norwegian Climate and Pollution Agency uncovered errors in the registration of weight of waste on declaration forms. The Agency assumed that the actual amount was between five and ten per cent of the stated amount. Errors were also found that indicated that too little waste was registered. Two of the dental depots failed to submit declaration forms. Errors in EWC codes were also found, and they were such that the waste was not registered as waste containing amalgam.

Source: Mepex' investigation for the Office of the Auditor General and the Norwegian Climate and Pollution Agency's summary report of the supervision of the dental depots.

64 Norsas (2010) *Evaluering av driften av deklarasjonssystemet for farlig avfall i 2009* ('Evaluation of the running of the declaration system for hazardous waste in 2009'). Memo to the Norwegian Climate and Pollution Agency, 30 April 2010.

Fact Box 5.4 describes how incorrectly declared amalgam from dental surgeries contributes to the over-registration in Norbas of waste handed in. The fact box also shows that the figures in the database have been overestimated as a result of the manner in which the waste is declared.

In interviews, storage and treatment facility operators state that waste has often been incorrectly declared when they receive it. One treatment facility states that there are errors in approximately 70 per cent of all declarations received by the facility. Such errors can have consequences for human health, safety and the environment, see Fact Box 5.5. Some parties assume that the misdeclaration is also done to save costs. Small waste producers find it more difficult to declare waste than large producers.⁶⁵

Fact Box 5.5 Consequences of incorrect declaration of hazardous waste

Interviews with enterprises that handle hazardous waste have revealed that there have been accidents at the facilities caused by the fact that treatment arrangements were not suitable for the content of the waste. The reason for this was misdeclaration. Slop and drilling fluids are pointed out as problematic fractions. Among other things, it is claimed that waste producers on the Norwegian continental shelf to some extent mix other waste with the slop and declare it all as slop. Waste from one installation could also be mixed with waste from another one when a supply boat collects waste from more than one installation. One enterprise states that some of the slop received is flammable, even though this is not indicated in the guide. In that enterprise's experience, the flashpoint entered by the waste producer is rarely correctly. It is important to have the correct information, both for safety reasons and to ensure satisfactory treatment. One enterprise states that industrial waste is often incorrectly declared in terms of its content of chemical substances. The risk of accidents during treatment is particularly high for this type of waste.

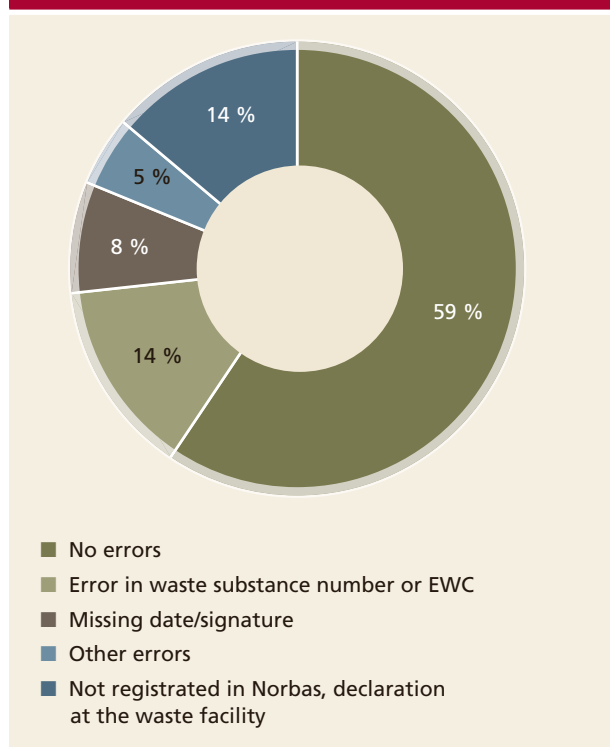
One of the enterprises describes a specific incident where six plastic containers had been declared and labelled as containing waste oil. Three of the containers actually contained acid. The contents of the containers were mixed, which resulted in intense heat generation and personal injury. The case was reported to the police, but it was dropped due to insufficient evidence.

65 Mepex (2010) *Etablering av nytt elektronisk deklarasjonssystem for farlig avfall – Forprosjekt* ('The establishment of a new electronic declaration system for hazardous waste – Preliminary study'). Report written on assignment from the Norwegian Climate and Pollution Agency.

5.4 Reception and declaration at local storage facilities

The municipal auditor offices of Skien, Trondheim and Tromsø have, in cooperation with the Office of the Auditor General, carried out an investigation of declarations and reception control at local facilities in these three municipalities. The investigation showed that the level of competence in the field of sorting and declaration of hazardous waste varies. A total of 218 declarations were examined in this investigation. The results are shown in Figure 5.3. Fourteen per cent of the declarations could not be found in Norbas, despite the fact that their dates indicate that they should have been reported and registered in the version of the database used as the basis for the investigation. There is no basis for drawing conclusions as to whether the missing registrations were caused by errors on the part of the local facilities or Norsas. Some of these declarations may not have been registered because of delays in submission or registration.

Figure 5.3 Results from the investigation of declarations in three municipalities. Weighted average of a total of 218 declarations



Source: Mepex, for the Office of the Auditor General

Fourteen per cent of the declarations are deemed to have the wrong EWC code or waste substance number, and EWC codes accounted for the majority of these errors (12 per cent of the declarations). Many of these declarations contained waste from households with waste substance numbers indicating that the waste should have



Not easily accessible unmanned municipal collection point.

Source: KomRev NORD

been declared using the EWC 20 series. Household waste is declared with the collection or waste management enterprise as producer, and the box for hazardous waste from households must be ticked. In several of the declarations, the collection/waste management enterprise is entered as producer, although it is unlikely and not indicated in the declaration that the waste in question is household waste. Most of this waste could be industrial waste received without declarations, and it could be that collection/waste management enterprise then choose to declare this waste entering themselves as producers. If this is the case, this practice is in violation of the Waste Regulations. It is also possible that the enterprises concerned are evading fees and payment to the storage facility by handing in waste under the pretext of being private individuals. The municipalities emphasise this as a problem in their communication with the municipal auditor offices. This practice also results in inadequate traceability of waste and deficiencies in the statistics. Several of the same errors were found in a separate investigation carried out by the Office of the City Auditor of Oslo.

The investigation carried out by the City of Oslo, the Office of the City Auditor, shows that there are instances of incorrect use of organisation numbers and producers, incorrect waste codes or incomplete information in declarations of hazardous waste. The county governor's office had identified these points as non-conformities in its supervisory activities aimed at municipal facilities in April 2010. The Office of the City Auditor

of Oslo's investigation uncovered cases where the enterprise had entered the correct organisation number, but where the number was changed to an incorrect one at Norsas. The investigation also uncovered several cases of inadequate sorting and labelling of hazardous waste. The collection point employees did not have sufficient competence in the field of construction materials with hazardous contents. This is supported by concrete findings in the reception facilities.

The municipal auditor offices' investigations show that the municipal facilities have electronic systems for registering the declarations, but submit print-outs to Norsas for manual processing. To some extent, the data in the municipalities' databases differ from the data in Norsas.

It also emerges that the municipalities have internal control systems that attend to the need for procedure descriptions for critical work operations relating to hazardous waste. However, the investigation indicates that the internal control systems do not fully achieve their intention, and that they could therefore be ineffective. For example, it was found that non-conformities are not registered in the non-conformity system even if they are actually uncovered and followed up.

5.5 Information about handing-in of hazardous waste

5.5.1 Information aimed at households

Information from municipalities to households

According to the Waste Regulations, the municipalities have a duty to inform households about the sorting and handing-in of hazardous waste. The Norwegian Climate and Pollution Agency states in an interview that households' knowledge about hazardous waste depends primarily on the municipality's system for information and collection. Municipalities differ with respect to how they attend to their duty to provide information, but the Norwegian Climate and Pollution Agency states that this functions well in many municipalities. The environmental protection departments of the county governor offices state that most municipalities include hazardous waste in their information to users.

The municipal auditor offices' investigations show that the municipalities in question provide sufficient information about the sorting and handing-in of hazardous waste. In recent years, Skien mu-

nicipality has prioritised information about the municipality's system for sorting ordinary waste and has not to any great extent actively disseminated information about hazardous waste and EE waste in particular. The City of Trondheim has a special information strategy with defined target groups. The audits in Trondheim and Tromsø found insufficient information at unmanned collection points, and several of the facilities had insufficient signage or no signage at all. When the control committee of Tromsø considered the audit, it asked Remiks, the company responsible for municipal waste management, to prepare an information plan in accordance with the regulations.⁶⁶

It emerges from interviews that parties in the industry have different opinions about the municipalities' information activities. NFFA expresses the opinion that households need continuous information about how to hand in hazardous waste and about the consequences of hazardous waste going astray. NFFA feels that municipalities vary in terms of how well they fulfil their duty to provide information. According to NFFA, hazardous waste is often a marginal fraction in municipal waste facilities, and this contributes to the municipalities' poor competence in this area. However, Waste Management Norway and one of the take-back companies are of the opinion that information to households has improved in recent years. Waste Management Norway states that households have a good knowledge about hazardous waste, with the exception of construction waste. Take-back companies also point to small electronic equipment as a challenge.

Information from government authorities to the public

Information is an important instrument in the hazardous waste strategies. In 2007, the Norwegian Climate and Pollution Agency initiated a project to improve information to consumers about chemicals hazardous to health and the environment that are found in products and waste, 'the Consumer Project', see Table 5.3. This project included a three-year plan for information to consumers in cooperation with several organisations.

The work also included studying measures and instruments that could give consumers more information about products that end up as hazardous waste. The short-term goals were to provide information about substances hazardous to health and the environment in products and about what constitutes hazardous waste which must not be disposed of in household waste.

Waste Management Norway states in an interview that the organisation miss a stronger involvement on the part of the authorities in information measures and prioritising the most important things at the national level. With more and more new products, for example energy-saving light bulbs, gaps in knowledge open up, and it is important to keep households' knowledge up to date. The organisation wants the environmental protection authorities to assume the overall responsibility for efficiently coordinating and implementing information campaigns in cooperation with parties involved in the industry. The cooperation work in Operation Gadget was perceived as positive. NFFA feels that it is a paradox that there has been more effort put into informing

Table 5.3 The Consumer Project's activities during the period 2007–2010

2007	<ul style="list-style-type: none"> • A user survey was carried out in order to map aspects such as consumers' knowledge about what constitutes hazardous waste and how they handled this waste. • Seminars were held with different parties, including the grocery trade, to inform them about chemicals hazardous to health and the environment and about eco-labelling of products. • A web-based consumer portal about hazardous chemicals in products was developed (now called erdetfarlig.no).
2008	<ul style="list-style-type: none"> • The Norwegian Climate and Pollution Agency adapted and improved its consumer web pages and the product information bank and continued work on creating the consumer portal.
2009	<ul style="list-style-type: none"> • Operasjon duppeditt ('Operation gadget') was implemented in autumn 2009⁶⁷ by Waste Management Norway. The Norwegian Climate and Pollution Agency contributed expertise and funding. The goal of this campaign was to provide information about the hazards relating to EE waste and to increase collection of this waste fraction.
2010	<ul style="list-style-type: none"> • The consumer portal erdetfarlig.no was launched. The Norwegian Climate and Pollution Agency continued its work on the further development and marketing of the portal, among other things.

66 City of Tromsø, control committee. *Minutes of meeting* 9 June 2011.

67) SFT (2009) *Operasjon duppeditt 1.–8. november 2009*. Nyhetsartikkel 5. november 2009.



Information about hazardous waste.

Source: Office of the Auditor General

people about how to hand in for example milk cartons than about the more hazardous fractions.

5.5.2 Information aimed at the business community

The authorities have established different channels of information aimed at the business community, for example the website regelhjelp.no. Information relevant to the industry about collection, reception, storage, treatment, recovery and other handling of waste is found under the category 'Avfall og gjenvinning' ('Waste and recovery'). Under 'Farlig avfall' ('Hazardous waste') there is an overview of the responsibilities of waste producers with references to relevant legislation.

The Norwegian Climate and Pollution Agency also cooperates with the industry, including the take-back companies and the network for the implementation of the national action plan for building and construction waste, in the information area. The Norwegian Climate and Pollution Agency liaises with the industry association NFFA. NFFA states that there are several small enterprises that are not members of the organisation.

The Norwegian Climate and Pollution Agency has produced some information sheets aimed at individual industries. These information sheets are available from the Agency's website. Some of them were prepared in connection with inspection campaigns, and the Norwegian Climate and

Pollution Agency and the environmental protection departments of the county governor offices have distributed the information in connection with inspections.

More comprehensive guidance material has also been prepared. The most important guide is the Norsas guide to handing in and declaring hazardous waste. This guide is available via the websites of both the Norwegian Climate and Pollution Agency and Norsas. The introduction states that the guide was prepared on assignment for the Norwegian Climate and Pollution Agency. However, the front page does not feature the Agency's logo. A guide was prepared jointly by the Norwegian Climate and Pollution Agency and NFFA in 2004. It is not clear from the Norwegian Climate and Pollution Agency website whether that guide has been replaced by the Norsas guide on handing in and declaring hazardous waste.

Norsas has also published several information sheets in the series *Deklarering av farlig avfall på 1-2-3* ('Declaration of hazardous waste in 3 easy steps') aimed at different industries. These information sheets are available from Norsas' website. The sheets contain no information about when they were published. The Norwegian Climate and Pollution Agency states that this material was prepared as part of the contract with the Agency for operating the declaration system.

An interview with NFFA shows that the organisation feels that the enterprises at an overriding level does not have sufficient knowledge about how to hand in hazardous waste. The situation has improved over the past decade. One of the enterprises is of the opinion that the level of knowledge varies from enterprise to enterprise, and that there are enterprises that fail to comply with regulations even though they have the knowledge.

The Federation of Norwegian Building Industries (BNL) emphasises in an interview that information must be simplified and have a practical perspective if it is to be understood and result in changes. In the BNL's opinion, it is the Norwegian Climate and Pollution Agency's responsibility to inform the industry about any new hazardous substances, and it is the Agency that has the best overview of amounts and where substances occur.

5.6 Results of thematic inspection campaigns

The Norwegian Climate and Pollution Agency has carried out thematic inspections of waste producers in the form of nationwide campaigns in recent years. These campaigns are listed in Table 5.4.

The Norwegian Climate and Pollution Agency's summaries of the inspection campaigns show non-conformities in many enterprises because of inadequate handling and handing-in of hazardous waste. The main results are shown in Table 5.5. A summary of 182 inspection reports from dif-

Table 5.4 Nationwide inspection campaigns targeting waste producers, 2004–2011

Year	Inspection campaign
2004	Impregnated wood, waste from chemical surface treatment (galvano), EE waste
2005	Vehicle collection enterprises, PCB campaign, fishing net washing facilities
2006	The use of chemicals and handling of hazardous waste in small-scale industry and workshops, PCB campaign, ship-yards
2007	The use of chemicals and handling of hazardous waste in the building and construction industry, the use of chemicals and handling of hazardous waste in small-scale industry and workshops, PCB campaign, shredder plants
2008	EE waste, PCB campaign, the building and construction industry
2009	The use of chemicals and handling of hazardous waste in the building and construction industry + PCB, waste from chemical surface treatment (galvano), EE waste
2010	EE waste, collectors of waste containing amalgam, fish farming
2011	Vehicle collection enterprises, ports*

* The Norwegian Climate and Pollution Agency has planned more campaigns for 2011.

Source: The Norwegian Climate and Pollution Agency.

Table 5.5 Summary of the results of inspection campaigns targeting different waste producers

Year	Area	Topic and scope	Main findings for hazardous waste
2006	Small-scale industry, workshops, dry cleaners	Handling of hazardous waste, use of chemicals 304 enterprises inspected	20% lack an overview of hazardous waste 20% do not hand in hazardous waste to an approved facility (some of these enterprises may have handed in waste to municipal collection points) 40% do not comply with their duty to hand in waste 40% do not fill in declaration forms correctly 45% do not store hazardous waste in a satisfactory manner 40% do not label hazardous waste as hazardous or package it satisfactorily 7% treat hazardous waste themselves without a permit from the authorities 50% do not have written procedures for handling hazardous waste
2007	Small-scale industry, workshops, dry cleaners	Handling of hazardous waste, use of chemicals 292 enterprises inspected	37% lack an overview of hazardous waste 18% do not hand in hazardous waste to an approved facility (some of these enterprises may have handed in waste to municipal facilities) 32% do not comply with their duty to hand in waste 30% do not fill in declaration forms correctly 35% do not store hazardous waste in a satisfactory manner 31% do not label hazardous waste as hazardous or package it satisfactorily 3% treat hazardous waste themselves without a permit from the authorities 50% do not have written procedures for handling hazardous waste
2009	Chemical surface treatment (galvano)	Risk assessment, handling of chemicals, discharge to water, handling of hazardous waste 121 inspections, six of which were carried out by the Norwegian Climate and Pollution Agency	59% have no written risk assessment for the external environment 25% exceed the limit values for heavy metal in wastewater 25% have inadequate intermediate storage 25% have inadequate intermediate storage (improved compared with 2004) 22% do not hand in hazardous waste

Source: The Norwegian Climate and Pollution Agency's summary of inspection campaigns.

ferent waste producers in five selected counties in the period from 2005 to 2010 shows that between one and three non-conformities are found in between twenty and thirty per cent of the enterprises, while four non-conformities are found in ten per cent of waste producers. The enterprises where non-conformities were found include several enterprises subject to licence requirements and enterprises with high pollution potentials.

Figure 5.4 shows that the non-conformities ‘handling of hazardous waste’ and ‘internal control’ are the most frequent ones. ‘Internal control procedures’ also include circumstances registered under ‘handling/substitution assessment, chemicals’. More non-conformities/remarks in other categories are often found in enterprises with non-conformities relating to ‘pollution’. When several non-conformities are found in one enterprise, the inspectors will rarely enter remarks.

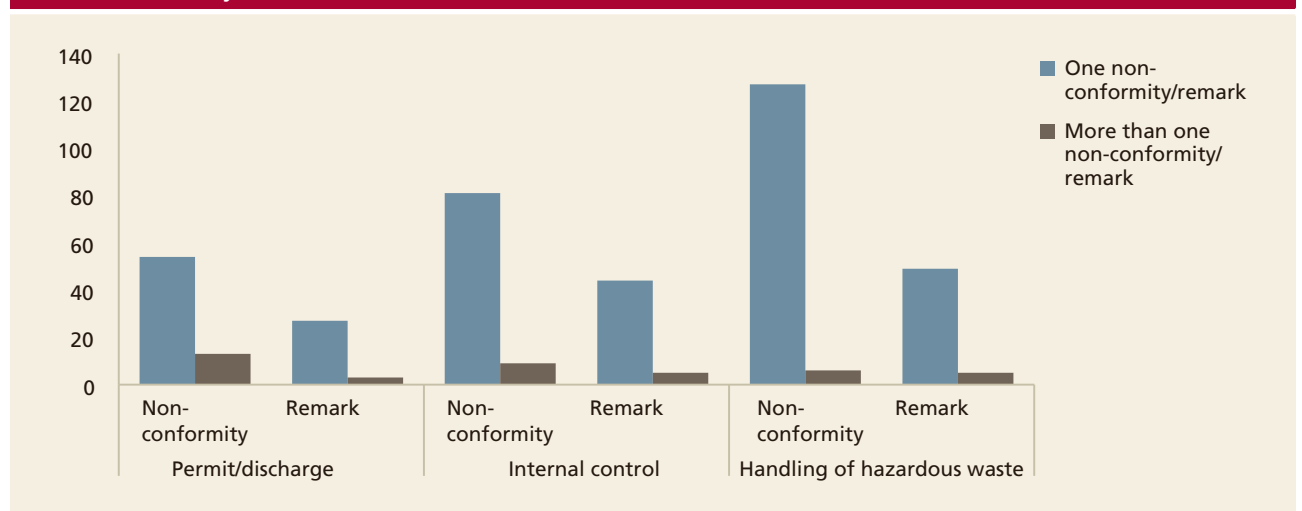
The Norwegian Climate and Pollution Agency’s campaign memos propose non-conformity wordings that the county governor offices’ environmental protection departments are normally free to use, and which define the form of sanction. Extensive violation of the regulations, behaviour on the part of the enterprise that warrants strong criticism or extensive potential or actual environmental consequences shall be deemed to be so serious that they should be reported to the police. When campaigns are repeated, the Norwegian Climate and Pollution Agency wants the sanctions to be stricter than in the previous

campaign. The Norwegian Climate and Pollution Agency considers highlighting serious violations to be an appropriate strategy, and also considers it important to ensure uniform interpretation and sanctions.

The Norwegian Climate and Pollution Agency states that in practice, the registration of non-conformities is not uniform, neither between county governor offices nor between the county governor offices and the Agency. The definition of non-conformity is a violation of the regulatory framework, but the inspectors make a discretionary assessment of how serious the non-conformity is. The county governor offices see no point in reporting too many non-conformities during the same supervisory control. It varies somewhat between campaigns and has varied over time whether the county governors deem identical circumstances to constitute one or more non-conformities. The environmental protection departments of the county governor offices state that they prefer to give the enterprise an opportunity to improve, and then return for follow-up.

The environmental protection departments find that it is a challenge when new non-conformities are found in enterprises where non-conformities have been closed, even if these do not necessarily concern the same issue. The enterprises’ management plays an important role in relation to whether improvements are implemented systematically throughout an enterprise. Good management in the enterprises and social control

Figure 5.4 Number of waste producers with one or more non-conformities/one or more remarks per category of non-conformity/remark



Source: Inspection reports from selected county governor offices

Explanation of non-conformity categories:

Permit/discharge include non-conformity from conditions in the permit, risk of pollution and unsatisfactory operation of oil separation.

Internal control includes insufficient risk analysis and readiness plans, lack of routines for handling of hazardous waste and insufficient training.

Handling of hazardous waste includes waste not handed in, storage of waste for a period of more than a year, insufficient labeling, storage and declaration.

in the industries are considered important factors in creating a lasting, positive development. The level of knowledge is generally lower in small enterprises, while larger enterprises take orders seriously and act quickly.

5.7 Partial assessment

The national performance goal is practically all hazardous waste is to be dealt with in an appropriate way, cf. Proposition No 1 to the Storting (2009–2010) *for the Ministry of the Environment*. There has been a reduction in the amount of hazardous waste subject to unknown handling from 2004 to 2009, but some hazardous waste is not collected and leaks environmental toxins into the natural environment. Statistics Norway is responsible for preparing statistics of hazardous waste. The Norwegian Climate and Pollution Agency uses the statistics as a basis for its priorities.

The supervision of small enterprises should be regular in order to make it possible to check whether the enterprises improve their compliance with regulations over time, cf. Report No 14 to the Storting (2006–2007) and Recommendation No 180 to the Storting (2006–2007). Sanctions for violation of the applicable regulations are to become more stringent. The inspection campaigns headed by the Norwegian Climate and Pollution Agency have helped to draw attention to priority waste fractions and industries. The supervisory activities have shown that many enterprises fail to comply with the regulations for handing in and storing hazardous waste. The investigation shows that county governors do not register non-conformities in a uniform manner, which makes it difficult to assess the situation in this field and the total effect of supervisory activities.

According to Report No 46 to the Storting (1988–89), the Ministry of the Environment is to ensure that there are suitable systems in place for monitoring the state of the environment and for performance reporting and follow-up. The declaration system for hazardous waste is important for statistical purposes and for the authorities' follow-up in this area. The declaration system is particularly important to the supervision of the waste producers' duty to hand in waste. In order to prevent the declaration system from becoming too cumbersome, joint declaration has been made an option, and there is no requirement to report that waste has been treated. The investigation shows that some of the waste cannot be traced

all the way to final disposal. The declaration system is thus not suited to documenting whether waste has been properly handled. Although the authorities have other sources of information to document proper treatment, this makes it more difficult to maintain effective control of the waste being handed in and conduct risk-based supervision.

The present declaration forms are paper-based and an expensive system to run, for waste management enterprises as well as for the authorities. The investigation shows that an electronic declaration system will help to improve the quality of the information in Norbas and improve the authorities' opportunities for control. Since 2004, the Norwegian Climate and Pollution Agency has worked to put an electronic system in place, but has made little progress.

It is a municipal responsibility to ensure the existence of a sufficient collection system for hazardous waste from small waste holders, and many municipalities run their own storage facilities. It is the county governors' responsibility to supervise these facilities. The investigation shows that the municipal facilities vary in terms of their levels of competence in relation to the declaration and sorting of waste, particularly as regards hazardous waste from the building and construction industry.

A lot of waste is incorrectly declared. Errors can result in waste being treated incorrectly, which can cause working environment problems and accidents at the facilities. The errors also affect the statistics and the authorities' control of the handing-in and treatment of waste. For example, errors in the declaration system make it difficult to maintain a good overview of how much waste Norwegian households and dental surgeries hand in.

The investigation shows that there are several challenges relating to how the regulations are practised. It can be a practical challenge to determine whether waste is to be considered hazardous waste or not. For some types of waste, it can be difficult to determine whether the waste is a product or whether it should be handled as waste pursuant to the regulations. The enterprises in the business and the authorities have different opinions about which questions the authorities are responsible for clarifying in connection with the interpretation of regulations. It could take several years from the time when a fraction is defined as

hazardous until the waste is highlighted by being given its own waste substance number. This makes it more demanding for the enterprises to comply with the regulations.

The hazardous waste strategy that was in effect for the period 2008–2010, cf. Proposition No 1 to the Storting (2008–2009) *for the Ministry of the Environment*, was intended to help to increase the knowledge of consumers and the business community about hazardous waste. The Norwegian Climate and Pollution Agency has prepared some information and guidance material aimed at different industries, but it is unclear whether the guides available from its website are up to date in relation to the regulations in force. The investigation shows that much of the guidance material can be mistaken for Norsas products, and there is therefore a risk that the guidance material will not be understood to be the recommendations of the authorities.

There are many parties with a duty to provide information, to consumers as well as to the business community. The result is fragmented information. The efforts of the central government authorities contain expedient measures, but information is nevertheless characterised by short-term campaigns. There is thus a risk that the effects will be short-lived. The municipal auditor offices' investigations show that the municipalities prioritise information about hazardous waste to varying degrees, and that not all municipalities actively inform their users about hazardous waste.

6 Collection from specific waste streams

Chapter 5 described the general system for handing in and declaring waste. This chapter deals with the specific waste fractions and waste producers selected for closer examination in this investigation. The specific waste streams are regulated through separate regulations and requirements – many of them direct implementations of EU directives.

6.1 EE waste

EE waste is not considered to be hazardous waste, but is to be handed in separately because it contains components that are hazardous to health and the environment. The hazardous components are separated from the rest of the EE waste (removal of hazardous components) by specialised enterprises and are handed in and registered as hazardous waste.

In 2010, 138,000 tonnes of EE waste was collected. The collected amount increased by four per cent in the period 2006–2010, but there was a decrease of ten per cent from 2009 to 2010. According to the WEEE Register's annual report for 2012, this decrease was caused by the fact that a lot of EE waste was not collected in 2010, but was instead stored by many municipalities. The Norwegian Climate and Pollution Agency states that another probable cause could be incorrect reporting in 2009, which was uncovered by the Agency's audits of take-back companies in 2010.

6.1.1 Handing-in and collection of EE waste

Pursuant to the Waste Regulations, enterprises that sell EE products have a duty to receive EE waste and a duty to provide information. The Norwegian Climate and Pollution Agency's inspection campaigns targeting distributors of EE equipment have covered the duty to receive EE waste, the reception system and the duty to provide information to consumers. The results are shown in Table 6.1. The overview shows that many distributors fail to comply with their duty to provide information, while fewer are found to have non-conformities in their reception systems. However, there are few who fail to fulfil their duty to receive EE waste. Interviews with waste management enterprises and the county governor

offices' environmental protection departments confirm that the take-back scheme via shops has improved over time. The take-back companies state in interviews that the distributors could become even better at actively informing their customers about the duty to receive EE waste, in addition to labelling and posting signs.

Table 6.1 Overview of inspection campaigns aimed at EE waste and their main findings

Year	2008	2009	2010
Number of EE product distributors	589	281	206
Do not receive EE waste	3%	4%	–
Have inadequate reception systems	12%	7%	26%
Do not fulfil the duty to provide information	71%	39%	54%

Sources: The Norwegian Pollution Control Authority (2008) *Kontrollaksjon EE-avfall 2008* ('Inspection campaign EE waste 2008'), Summary of the 2008 inspection campaign, the Norwegian Climate and Pollution Agency (2010) *Regional kontrollaksjon EE-avfall 2010* ('Regional control campaign for EE waste 2010'), campaign memo, the Norwegian Climate and Pollution Agency (2010) *Refser håndtering av EE-avfall* ('Critiques handling of EE waste'), news article, 18 October 2010, the Norwegian Pollution Control Authority (2009) *Småelektronikk skal ikke i søpla* ('Small electronic equipment should not go into household waste'), news article, 16 June 2009.

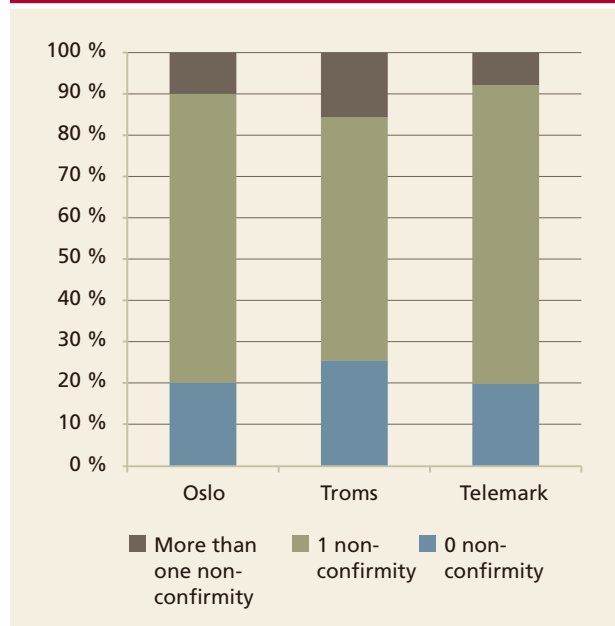


Worn-out children's shoe with light effects.

Source: Office of the Auditor General

A review of 177 inspection reports from the counties of Oslo, Akershus, Telemark and Troms for the period 2008–2010 confirms that few enterprises are given non-conformities for not receiving EE waste. This non-conformity is usually found with distributors not primarily associated with EE products, such as toy and grocery shops. These also provide poor information to customers about the opportunity to hand in EE waste. This is confirmed in interviews with the take-back companies. The reports show that non-conformities were found in 80 per cent of the enterprises, but in most of them only one, see Figure 6.1.

Figure 6.1 Proportion of EE product distributors in Oslo/Akershus, Troms and Telemark, by number of non-conformities



Source: Inspection reports for 2008–2010 from the respective country governor offices

Inspection reports and interviews show that theft of EE waste from the distributors' collection point areas is a problem. In 2009, the Norwegian Climate and Pollution Agency pointed out that the results of the inspection campaign showed that EE waste was often stored in such a way that unauthorised persons could easily access the waste.⁶⁸ There is a risk that this waste could be exported illegally.

6.1.2 The collection obligation for EE waste

The amount of waste that a take-back company is obliged to collect is called the collection obligation, as described in Fact Box 6.1.

Fact Box 6.1 Calculating the collection obligation

Section 1-14 of the Waste Regulations sets out the collection obligations of take-back companies. The take-back companies shall collect and receive a proportion of the quantity of EE waste collected in total that corresponds to the share of its members in the total supply of goods in the same geographical area. The duty to collect and receive EE waste applies to each category of products, cf. Appendix 1 to Chapter 1 of the Regulations. The collection requirements for the certification of take-back companies is specified in more detail in Appendix 2 to Chapter 1 of the Regulations, Part C: Criteria for the certification of take-back companies, item 2.07.

The supply of goods is calculated on the basis of the members' import – export + production of EE products in a given period of time. The WEEE Register estimates the collection obligation for all take-back companies on the basis of the amounts collected during the previous six months. Internal circumstances for some members of the take-back companies may result in the estimated collection obligations not being correct. The take-back companies must be able to document such changes to the certification body and the Norwegian Climate and Pollution Agency. The Norwegian Climate and Pollution Agency can request such documentation during supervisory activities.

Source: The Waste Regulations, the Norwegian Climate and Pollution Agency and the WEEE Register.

The Norwegian Climate and Pollution Agency's control of take-back companies for EE waste in 2010 uncovered that not all the companies have a collection network that covers all the municipalities in Norway, see Table 6.2. The companies were also given non-conformities for not fulfilling part of their collection obligation (four out of four), for keeping inadequate accounts of the amounts of EE waste collected (three out of four) and for incomplete and/or incorrect reports to the WEEE Register (three out of four). The Norwegian Climate and Pollution Agency's supervisory activities also uncovered inadequate internal controls in all the companies.

Statistics Norway does not publish statistics of EE waste. In an interview, Statistics Norway states that the total (generated) amount of hazardous waste from EE waste is calculated by combining supply data with data about the content of hazardous components in the waste. Statistics Norway's figures also contain some EE waste that is not covered by the take-back scheme.

⁶⁸ The Norwegian Climate and Pollution Agency (2010) *Refser håndtering av EE-avfall* ('Criticises handling of EE waste'). News article, 18 October 2010.

Table 6.2 Results from the Norwegian Climate and Pollution Agency's supervision of four take-back companies in 2011

Deficiencies uncovered	Companies with non-conformities
A large or small proportion of the collection obligation was not met for the period 2007–2010	4
Deficiencies in the removal of hazardous components from the waste	4
Deficiencies in internal control	4
Export without a permit, deficiencies in the accompanying documents	4
Lacking accounts of the amounts of EE waste collected and treated	3
Deficiencies and errors in reporting to the WEEE Register	3
Room for improvement in controls of contractual partners and subcontractors	3
Collection network not nationwide	2
No documentation that all the treatment facilities used have permits for treatment or consent to export	2
Deficiencies relating to the duty to provide information	1
Inadequate control of reported data	1

Source: The Norwegian Climate and Pollution Agency's inspection reports.

The Norwegian Climate and Pollution Agency states in an interview that the amount of waste collected in relation to the amount of waste generated is part of the industry agreement (80 per cent by 2004). The take-back companies' collection obligation under the Waste Regulations is currently not linked to the amount of EE waste generated. As of today, the Norwegian Climate and Pollution Agency has no up-to-date figures for the amount of EE waste generated. It will be difficult and demanding in terms of resources to have updated figures at all times, but the Norwegian Climate and Pollution Agency would welcome a joint initiative by the industry to calculate this amount. Several of the take-back companies emphasised in interviews that it is a problem that the amount of EE waste generated is unknown.

The amount of EE waste that is created in Norway has been calculated in the investigation. This calculation is based on data from the WEEE Register, import and export data from Statistics Norway and assumptions about the lifetime of different types of products. The calculation was carried out using a model developed by Mepex for the Nordic Council of Ministers ('Methods to measure the amount of WEEE generated'), and has been adjusted for the proportion of EE products in composite products. Table 6.3 compares the results with calculations carried out in previ-

ous years. The calculations for 1996–1998 were used as the basis for the industry agreement with the Ministry of the Environment. The calculations show that the amount of EE waste generated is considerably larger than the amount on which the agreement with the Ministry was based.

There are uncertainties relating to the calculation of how much EE waste is created:

- Any errors in the take-back companies' reporting to the WEEE Register could cause errors in the calculations of waste quantities, for example in the event of legal exports of EE waste that are not registered in the register.
- The calculation method uses historical data for the supply of EE products in combination with an adjustment for the same products' lifetime. The current list of products used by the WEEE Register does not reflect historical changes in the nomenclature during the period between 1988 and 2006. It has therefore been necessary to add 206 product numbers to reflect these historical changes. Without these products, the total amount of waste is approximately 46,000 tonnes less. Statistics Norway has good documentation of changes in product numbers, and the uncertainty associated with adding the historical product numbers is considered to be relatively low.

Table 6.3 The amount of EE waste generated in Norway for different years. Tonnes

	Hjellnes Cowi for the Ministry of the Environment, average 1996–1998	Partly based on Hjellnes Cowi, update for Renas, 2003, and Mepex	Mepex for the Office of the Auditor General, 2011
In total	140,060	128,102	247,579



Collected EE waste.

Source: Office of the Auditor General

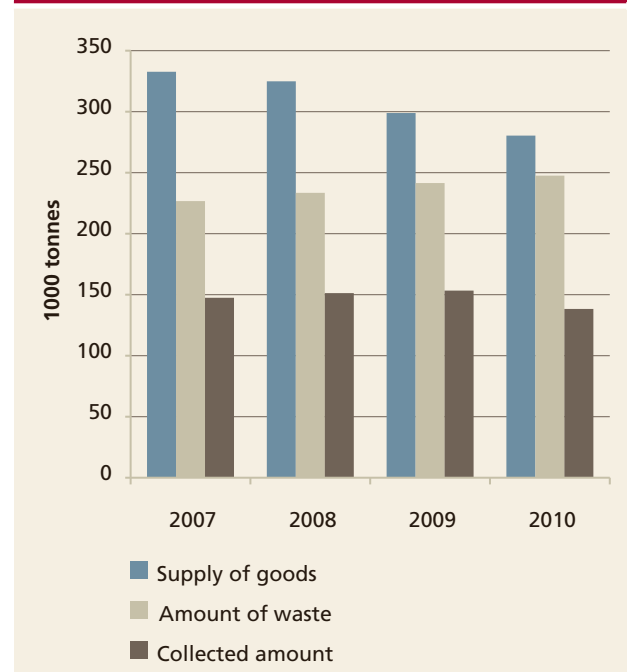
- The production data are uncertain. The data do not include production from free riders and enterprises exempt from the regulations. Production data for years prior to the start of reporting to the WEEE Register have been extrapolated. A change of plus/minus 25 per cent in estimated production data (i.e. for the years 1988–2005) changes the estimated amount of EE waste by plus/minus seven per cent.
- The lifetime of products is an important factor in the calculations if the supply of products changes significantly during their lifetime. In the calculation, the lifetimes are expressed as lifetime profiles for each product number. Four different profiles have been used: 1½, 6, 12 and 20 years. Sensitivity analyses have been carried out using assumptions of reduced and increased lifetime for the different profiles. Profile 1½ changed by one year, profile 6 by two years, profile 12 by three years and profile 20 by four years. This changes the total amount of EE waste by plus/minus seven per cent.
- Adjustments have been made for the proportion of composite products that consists of EE components. A sensitivity analysis was carried

out in which the proportion varied by plus/minus 25 per cent in the products for which such adjustments have been made. This only changes the total amount of EE waste by plus/minus two per cent.

- The above points give an overall sensitivity of 16 per cent for all products. This is not a direct measure of the uncertainty of the data, but shows the sensitivity to changes in the basic data.

Figure 6.2 shows the estimated amount of waste, together with the collected amount and the supply of goods. The collected amount as a percentage of the calculated amount of waste averages just over 60 per cent for the period 2007–2010. There are three possible explanations for the low collection rate: a) illegal export of EE waste and EE products, b) EE waste that has been disposed of as residual waste or in the natural environment by households and the business community, and c) storage of disused EE products. The effect of storage could be considerable for products with short lifetimes and a high proportion of storage, but has little effect for products with long lifetimes.

Figure 6.2 Supply of goods, amount of waste generated and collection of EE waste. 2007–2010. 1000 tonnes



Source: WEEE Register and Mepex for the Office of the Auditor General

The calculations indicate that the collection rate is high for large household appliances, computer monitors and television sets and particularly low for lighting equipment, toys, leisure and sports equipment and smoke detectors.

In 2010, the largest consumer electronics take-back company gave notice that it would stop collecting EE waste. The reason was that the company believed it had fulfilled its collection obligation. A similar situation arose in 2009. Take-back companies claim that there is no income to fund collection in excess of the obligation, and that the collection obligation does not match the amount of waste actually created in the market. Some take-back companies claim that the regulations have not been designed for a situation in which there is increasing competition between take-back companies. In interviews, take-back companies express concern that stopping collection could result in the municipalities resorting to creative solutions to treat waste without removing hazardous components. Other enterprises have pointed out that it becomes more difficult to remove hazardous components from waste when it has been stored outside for a prolonged period of time.

NFFA then expressed a wish for the Norwegian Climate and Pollution Agency to instruct companies to cooperate in order to ensure continued nationwide collection.⁶⁹ The organisation referred to the fact that the take-back companies themselves have been unable to establish cooperation. Later in 2010, Waste Management Norway asked the Norwegian Climate and Pollution Agency to take an immediate initiative to ensure that all EE waste received by municipal storage facilities would be collected by approved take-back companies. In June 2011 two of the take-back companies entered into an agreement with Waste Management Norway that is intended to ensure that EE waste will be collected from all municipalities.⁷⁰

The Norwegian Climate and Pollution Agency stated that the requirements set out in the Waste Regulations are sufficient to ensure the efficient collection of EE waste.⁷¹ It is neither natural nor necessary for the State to regulate the market in detail. A certain amount of clearing (exchange of waste for the purpose of allocating the collection costs) takes place between take-back companies. Clearing can be implemented by the take-back companies entering into an agreement. Interviews with the take-back companies show that their views differ as to how expedient they regard this arrangement to be. The Norwegian Climate and Pollution Agency has

69 NFFA (2010) *Bekymringsmelding vedr. stopp i henting av EE-avfall* ('Note of concern regarding cessation of EE waste collection'). Letter of 13 July 2010 to the Norwegian Climate and Pollution Agency.

70 Waste Management Norway (2011) *Sikret henting av EE-avfall* ('Guaranteed collection of EE waste'). News article, 10 June 2011.

71 The Norwegian Pollution Control Authority (2009) *Vil ikke detaljregulere ordningen for EE-avfall* ('Will not regulate the EE waste scheme in detail'). News article, 17 November 2009.

previously stated that it is not the Agency's responsibility to establish a clearing system, but states in an interview that the matter will be reconsidered.

In interviews, the take-back companies emphasise the uncertainty relating to the classification of waste in export statistics and when items are discarded. This uncertainty has major consequences for the calculation of the collection obligations for certain groups of products. The change of the weight of products in some groups has also been pointed out as a challenge. For example, more laptops are being purchased, while larger desktop computers are being discarded, and old computer monitors are similarly being replaced by flat screens. In addition, the number of computers and TV screens per home is increasing.

6.1.3 Batteries

Statistics from Statistics Norway indicate a high variation from year to year in the amount of lead batteries and small lithium batteries subject to unknown handling. The percentage varies between 0 and 17 per cent. The corresponding figures for mercury and cadmium batteries are between 40 and 60 per cent.

The Norwegian Climate and Pollution Agency stated in an interview that, in 2009 according to reporting from Batteriretur, the collection rate for lead batteries was 98.8 per cent. For nickel-cadmium batteries, the amount collected far exceeded the amount imported and sold, because this battery technology is being phased out. For portable batteries (hand-held batteries that are neither industrial batteries nor automotive batteries), the collection rate was 18.8 per cent.

6.2 Waste containing oil

According to the Waste Regulations, oil residues and waste containing oil shall be handed in as hazardous waste. A reimbursement scheme has been established for waste oil. According to Statistics Norway, waste containing oil, including slop that contains oil, represents the largest waste fraction subject to unknown handling, see section 5.1.1.

6.2.1 Handing in waste containing oil Oil discharges to water

The Norwegian Maritime Directorate can impose infringement fines on ships that discharge oil illegally. According to Proposition No 1 to the Storting (2010–2011) for the Ministry of the Environment, the Norwegian Coastal Adminis-

Table 6.4 Discharges of oil to the natural environment from different sources (m³)

	2004	2005	2006	2007	2008	2009
In total	1,231	1,609	589	5,443	1,111	2,799
Ships	360	27	55	668	96	538
Offshore	94	385	211	4,509	260	198
Bunker oil facilities	84	84	24	69	376	9
Industry	614	72	104	118	273	116
Land transport	32	62	43	27	21	102
Underground tanks	18	30	48	27	37	18
Other	30	949	105	24	46	1,818

Source: State of the Environment Norway

tration’s monitoring system identified 84 cases of illegal discharges from ships in 2009. The annual amount totals approximately 500 m³. It is emphasised that there is assumed to be a high number of unrecorded cases. The Norwegian Maritime Directorate states in an interview that these oil discharges can be difficult to uncover. According to State of the Environment Norway, the number of acute oil discharges has remained relatively stable since 2000, while the amount has increased, both from ships and from offshore activities, see Table 6.4. The Norwegian Maritime Directorate states that it has not been notified of these discharges.

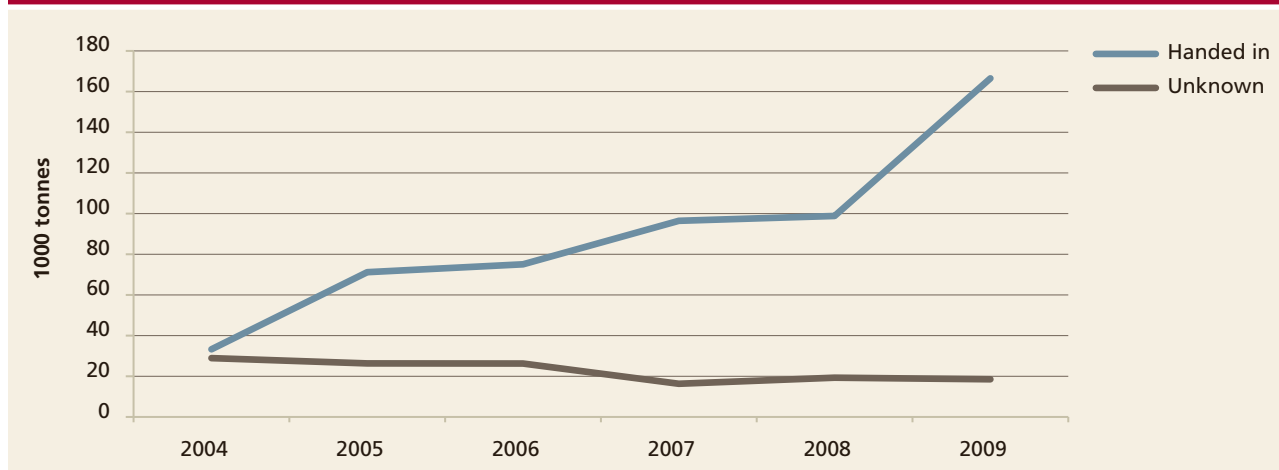
Slop containing oil

Slop containing oil is created when storage and transport tanks are washed, and also occurs in the form of oily bilge water from shipping. Slops containing oil can also arise when metal is processed and during the drilling and operation of production wells for oil and gas. Figure 6.3 shows that the amount of slop handed in has increased significantly since 2004. The amount in tonnes subject to unknown handling has been stable, but the percentage has decreased significantly, from 47

per cent in 2004 to 10 per cent in 2009. Statistics Norway states in an interview that draining water from waste containing oil, such as slop water and waste oil, which have a high water content, has a bearing on the accounts if this draining takes place at reception and intermediate storage facilities. The data available indicate that the amount of waste containing oil that is handed in for approved handling has been underestimated by about 10,000–20,000 tonnes as a result.

Norsas states in an interview that assessing the collection rate for slop is complicated. In 2007, Norsas carried out a survey on behalf of the Norwegian Climate and Pollution Agency and concluded that it is improbable that large amounts are disposed of in environmentally unsound ways. The investigation shows that various enterprises often consider slop containing oil to be a raw material, not a type of waste.⁷² According to Norsas, the amount of slop that is actually unaccounted for depends on whether the slop is to be considered waste or not. If the slop subject to unknown handling falls under the legal definition of waste, then relatively large amounts have gone astray.

Figure 6.3 Handing-in and unknown handling of slop water



Source: Statistics Norway



Collection point for waste oil and other hazardous waste.
Source: Office of the Auditor General

This means that the slop is not declared and registered in accordance with the Waste Regulations. Enterprises interviewed state that it is unclear whether slop should be treated as waste when it has a positive value. It is pointed out that the Norwegian Climate and Pollution Agency fails to provide information about this on its website.

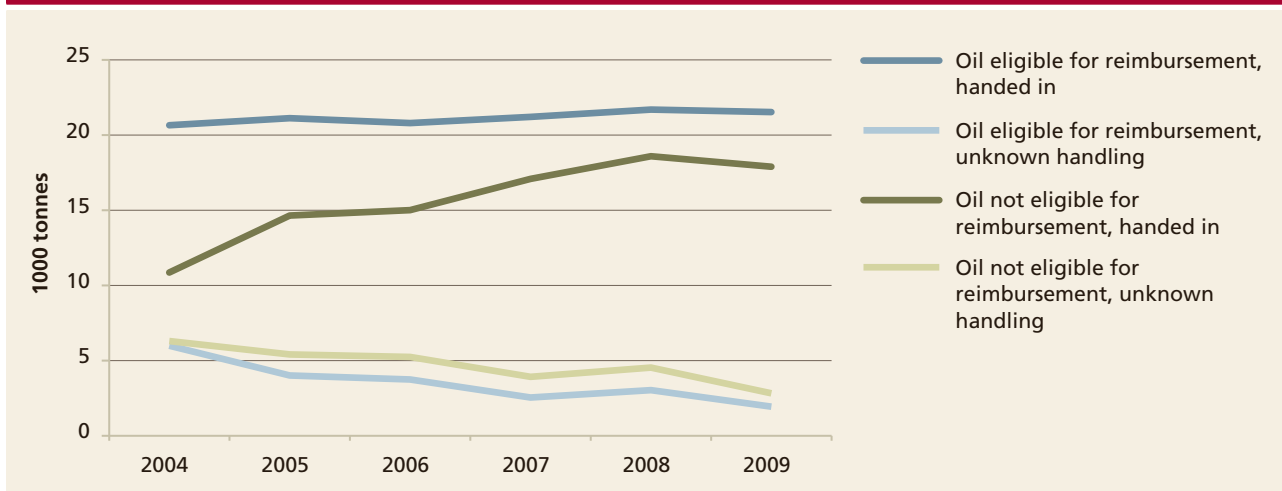
Waste oil

The Ministry of the Environment established a reimbursement scheme in 1994 in order to increase the collection and environmentally sound disposal of waste oil. The basis is the Ministry of the Environment's annual budget propositions. The scheme is administered by the Norwegian Climate and Pollution Agency.

When discarded oil eligible for reimbursement is handed in to an approved reception facility, the facility can apply to the Norwegian Climate and Pollution Agency for reimbursement. The reimbursement scheme is financed by a special tax on the import and production of lubricating oils. This tax yields approximately NOK 100 million per year⁷³, while the reimbursement scheme costs approximately NOK 40 million. In Norwegian Official Report NOU 2007: 8 *En vurdering av særavgiftene* ('An evaluation of special taxes'), the Indirect Taxes Commission concluded that the tax functions as intended.

Waste oil that is not properly handled represents a risk of pollution both in the form of discharges of oil to water and soil and of the spread of substances hazardous to health and the environment into the natural environment.⁷⁴ Today, most waste producers can hand in waste oil free of charge to approved reception facilities or receive a small payment for their waste oil, with the exception of waste holders in those areas of Norway where the transport costs exceed the reimbursement.⁷⁵ Figure 6.4 shows that the handing-in of waste oil eligible for reimbursement has been relatively stable, while the amount subject to unknown

Figure 6.4 Waste oil handed in and waste oil subject to unknown handling



Source: Statistics Norway

⁷⁵ Norsas (undated) *Refusjonsordningen for spillolje – Avfallsprodusent* ('The reimbursement scheme for waste oil – Waste producer'). Information sheet.

handling has been reduced. The amount that goes to unknown handling has also been reduced for waste oil for which no reimbursement is granted, but the proportion subject to unknown handling is somewhat higher than for oil eligible for reimbursement. Norsas states that at the same time, sales of lubricating oils have fallen.

It emerges from interviews with NFFA and enterprises that there is a general satisfaction with the waste oil scheme. The return rate for waste oil is high, and, unlike other take-back schemes, it works equally well all over Norway.

The facilities clean the waste oil and sell it as energy or as raw material for the production of lubricating oils. Waste oil can only be incinerated in facilities approved by the pollution management authorities. Only a small number of industrial enterprises and waste incineration plants have permits to incinerate waste oil. The incineration of waste oil is exempt from the carbon tax. In the Norwegian Climate and Pollution Agency's opinion, a tax could result in an increase of the amount of waste oil astray.⁷⁶

6.2.2 The authorities' follow-up and control of the waste oil scheme

According to Proposition No 1 to the Storting (2010–2011), inspections of tank facilities in recent years have uncovered many violations of the reimbursement regulations. The regulatory framework for the reimbursement facilities is described in a criteria document from the Norwegian Climate and Pollution Agency.⁷⁷ The scheme applies to waste oil from used lubricating oils, insulating oil and other refined oil products. The scheme applies to ships, but not to ships involved in international shipping. The reimbursement facilities that receive the oil must be approved by the Norwegian Climate and Pollution Agency and have a dedicated, calibrated reimbursement tank. The oil must be declared by the waste producer, and special requirements apply as regards the chemical contents. The Norwegian Climate and Pollution Agency states in an interview that it is important to check that the enterprises' papers are in order to ensure that the scheme is not abused.

The criteria document stipulates many requirements for the reception facilities' handling and procedures for control of received oil. Among other things, the reimbursement tank is to be sealed when it is full, the level shall be checked and logged, and samples shall be collected and sent to an approved laboratory. At the same time, a reimbursement claim shall be completed and submitted to the authorities. Once the analysis results become available, and after 48 hours at the earliest, the tank is released and can be emptied.

The Norwegian Climate and Pollution Agency's approval of facilities entitled to receive reimbursement

The Norwegian Climate and Pollution Agency will only approve facilities that hold permits for the intermediate storage or treatment of hazardous waste. The approval sets out a number of conditions that must be met before reimbursement is paid. The requirements to the facilities have been set in order to prevent wrongful payment of reimbursement, and are stricter than the requirements that apply to other types of waste. The facilities must apply for a renewal of their approval every ten years. However, the Norwegian Climate and Pollution Agency may withdraw its approval if the Agency finds that facilities have breached the regulations. The Agency states in an interview that the facilities must submit some documentation as a basis for control. In practice, all applicants meet the requirements for approval, and their approvals are therefore renewed. There are 20 active approved reimbursement facilities for waste oil.

Payment of reimbursements

The Norwegian Climate and Pollution Agency has outsourced the administration of the reimbursement claims to Norsas. If Norsas finds it to be sufficiently well documented that the reimbursement rights apply to the oil in question, the claims are forwarded to the Norwegian Climate and Pollution Agency with a recommendation that reimbursement be paid. If Norsas concludes that the waste oil is not eligible for reimbursement, the case is forwarded to the Norwegian Climate and Pollution Agency for a decision. The Norwegian Climate and Pollution Agency states that in such cases, payment is usually denied. In case of doubt, Norsas contacts the facilities to clear up the discrepancies. According to Norsas, it is difficult to determine the origin of waste oil. In many cases, Norsas has to carry out a more detailed examination. Interviews with the enterprises show that they have to trust the waste producers' declaration of the oil. The enterprises are of the opinion

76 The Norwegian Pollution Control Authority (2008) *Tilråd ikke avgift på forbrenning av spillolje* ('Advises against a tax on the incineration of waste oil'). News article, 8 September 2008.

77 Norwegian Climate and Pollution Agency (2010) *Refusjonsordningen for spillolje. Villkår for refusjon/tilskudd for mottak av spillolje* ('The reimbursement scheme for waste oil. Conditions for reimbursement/grant for receiving waste oil') of 15 December 2010.

that more supervisory activities should be carried out in relation to the enterprises that hand in and declare waste oil.

In 2010, 368 reimbursement claims pertaining to a total of 16,377 declarations were processed. It emerges from Norsas' annual reports that many individual deliveries are held back because of possible errors. Many of these cases end in payment after clarification. If the doubts concern a whole tank, the claim is forwarded to the Norwegian Climate and Pollution Agency for a decision. A review of case files for selected waste oil facilities confirms that Norsas asks the enterprises some follow-up questions. The case file review shows that the enterprises disagree with the rejection assessments in some cases, but usually accept the outcome. A small number of enterprises state that they perceive the Norwegian Climate and Pollution Agency and Norsas as being formalistic. The case file review shows that the system provides strong incentives to enterprises to comply with the regulations, and the Norwegian Climate and Pollution Agency appears to be consistent. Norsas states in an interview that the system provides for a significant sanction in that a tank facility loses reimbursement for the tank. The reimbursement value of a large tank could be as much as NOK 180,000.

Control and supervision

Systematic fraud relating to the waste oil scheme was uncovered at the former waste oil facility Petro Oil. The waste oil was mixed with other waste containing oil. The samples sent to the laboratory were taken from a separate tank, into which no contaminated oil had been mixed. The Norwegian National Authority for Investigation and Prosecution of Economic and Environmental Crime (Økokrim) states that in its experience, it is not to a sufficient extent checked whether waste oil is eligible for reimbursement, or whether it has been properly handled. Checks of waste oil facilities are largely carried out in the form of document reviews, with few actual inspections and controls. In Økokrim's opinion, physical inspections should be used to a greater extent. In the Petro Oil case, the investigation uncovered that the enterprise had taken a number of shortcuts, including dumping hazardous waste into the municipal sewage system. The susceptibility of this system to fraud is confirmed through interviews with some of the other enterprises.

The Norwegian Climate and Pollution Agency states in an interview that the Agency can check

facilities if non-conformities are suspected. In such cases, the Agency can also collect samples. In practice, this is rarely done. Norsas states in an interview that its contract with the Norwegian Climate and Pollution Agency does not include supervision and control of tanks and tank facilities.

The Norwegian Climate and Pollution Agency is also responsible for the supervision of the waste oil part of facilities for which the county governor is the pollution control authority. According to interviews, the Norwegian Climate and Pollution Agency carried out supervisory activities in relation to 12 waste oil facilities during the period between 2000 and 2005. These controls revealed financial non-conformities, but no environmental ones. In 2006, the Norwegian Climate and Pollution Agency considered it uncertain whether focusing on the financial aspect (the use of state funds) rather than the risk of pollution was a correct priority for the Agency. It wished to bring in another control body in connection with the reimbursement scheme. The supervision of waste oil facilities have therefore not been a priority since 2006.

A review of case files for waste oil facilities and interviews with enterprises confirm that there have been few supervisory activities relating to waste oil facilities since 2006. Nor have the regular supervisory activities particularly focused on waste oil. The Norwegian Climate and Pollution Agency states that such activities in relation to waste oil facilities have been planned for the period 2011–2013, cf. the three-year plan for supervisory activities.

Inspections of waste oil facilities

Controls of seven waste oil facilities were carried out in the form of inspections of the facilities and checking of selected declarations for reimbursement claims. The inspections and controls were carried out in April/May 2011. The inspections were not announced in advance. The results are shown in Table 6.5. The table shows that many of the facilities fail to comply fully with the regulations.

Statistics and declarations have been reviewed both for waste oil eligible for reimbursement and waste oil to which the reimbursement scheme does not apply. No clear indications of violations of the rules have been found. The review shows some errors that were detected by Norsas, but also some possible errors that have not been uncovered. This type of error includes several

Table 6.5 Summary of findings from inspections of waste oil facilities

Point in the regulations	Findings from inspections of seven waste oil facilities
The reimbursement facility shall ensure that each delivery is entitled to a reimbursement	<ul style="list-style-type: none"> • Reception control practices vary • Five of the facilities are found to comply with the regulations • Two facilities do not test the oil received for chlorine or test its flashpoint, and one of these facilities was of the opinion that it is the collector's responsibility to check the oil
Five samples shall be collected from the reimbursement tank in accordance with a specific procedure. The samples are then to be mixed.	<ul style="list-style-type: none"> • None of the inspected facilities observed the regulations concerning the collection of samples • Many facilities do not collect samples from sufficient depths in the tank. This results in inflated reimbursements. • One facility only takes four sub-samples • One facility does not stir the sample to mix the sub-samples
The reimbursement tank shall be sealed before the reimbursement claim is submitted	<ul style="list-style-type: none"> • Practices relating to sealing of the reimbursement tank vary • In practice, it is possible to add contents to or remove contents from the tank during the period when it is supposed to be sealed • This practice does not seem to comply with the regulations
The checked volume shall be determined using approved equipment	<ul style="list-style-type: none"> • The facilities carry out these measurements in different ways and with differing degrees of accuracy • One facility did not use the measuring equipment approved by the Norwegian Metrology Service • Only one facility reduced uncertainty by carrying out more than one measurement • One facility does not measure the volume below the point where the liquid is drained from the tank and subtract it from the reimbursement claim. • With the exception of the latter point, these measuring errors probably do not result in significant errors in the measurements
Reimbursement tanks must have signs that show that the tank is for oil eligible for reimbursement only. Intermediate storage tanks must have signs attached when they are being used for oil eligible for reimbursement.	<ul style="list-style-type: none"> • Two facilities did not have adequate signs on reimbursement tanks • Four facilities did not have adequate signs on intermediate storage tanks
There are many requirements relating to record-keeping	<ul style="list-style-type: none"> • All the facilities record waste oil received in the reimbursement tank • Three facilities do not keep a record of waste oil received in intermediate storage • All the facilities keep records of their sample collection • Several of the facilities keep no record of heating and maintenance • The records are not kept in such a way that they are fully protected against concealed alterations and deletions
The facilities shall have a quality programme with written procedures to ensure that the regulatory requirements are met	<ul style="list-style-type: none"> • All the facilities have a written procedure. One facility has the Norwegian Climate and Pollution Agency's regulations as its only procedure. • Several of the facilities have not updated their procedures to comply with the 2010 regulations. The update is probably unknown to many of the facilities.

Source: Mepex on assignment from the Office of the Auditor General.

declarations in which a waste management facility was entered as producer, although it could not be substantiated that the waste oil originated from the waste management facilities in question. It is possible that these errors concern undeclared waste oil received by and subsequently declared by the facility. If this is the case, it is in violation of the regulations.

Table 6.5 shows that several of the facilities have not updated their procedures and are probably unaware of the update of the regulations that took place in 2010. In connection with this, the Norwegian Climate and Pollution Agency underlines that all the facilities have received the update to the regulations when they received their renewed approvals in 2010, and that the Agency expects

the facilities to read letters and the conditions stipulated in the new approvals.

6.3 Hazardous waste from households

Hazardous waste from households comprised two per cent of the total amount in 2009.⁷⁸ Households are to hand in hazardous waste either to municipal collection systems or other approved systems, such as the distributors' take-back schemes. The municipal auditor offices' investigations show that the municipalities have organised the collection of hazardous waste from households in different ways, see Fact Box. 6.2.

Fact Box 6.2 Municipal collection of hazardous waste

Skien has manned collection and storage facilities and a collection system for hazardous waste, the so-called 'red box'. The box is collected every time a household puts it out. Trondheim has manned facilities and unmanned collection points, a waste taxi and red boxes. In Trondheim, the red boxes are collected twice a year. The collection is announced in advance. Oslo and Tromsø have manned facilities and unmanned collection points. Oslo also operates collection from housing cooperatives using locked boxes to which the caretaker holds the key, and sends a collection vehicle to all districts once a year.

Source: The investigations of the municipal auditor offices.

The investigations of the municipal auditor offices show considerable variation in the amount of hazardous waste collected per inhabitant, see Figure 6.5. The Norwegian Climate and Pollution Agency comments that the variations in the figure may not be caused only by differences in the collection systems, but could also be the result of different settlement patterns. For example, households in blocks of flats generate less hazardous waste per household than households that live in detached houses or on farms. The figure shows that the City of Oslo collects the least hazardous waste per inhabitant of all the municipalities covered by the investigation. The data shown in the figure are the municipalities' own data, and differences cannot be ascribed solely to errors in the declaration system. The figures include asbestos and insulating glass units containing PCBs. The amount of asbestos handed in explains why the City of Trondheim has collected such a large amount, particularly for the year 2009. About 1 kg of the hazardous waste handed in per inhabitant of Tromsø in 2010 consisted of asbestos and

78 Statistics Norway (2010) *Hazardous waste. Final figures 1999 to 2009. Less hazardous waste in 2009*. Online article, 14 December 2010.

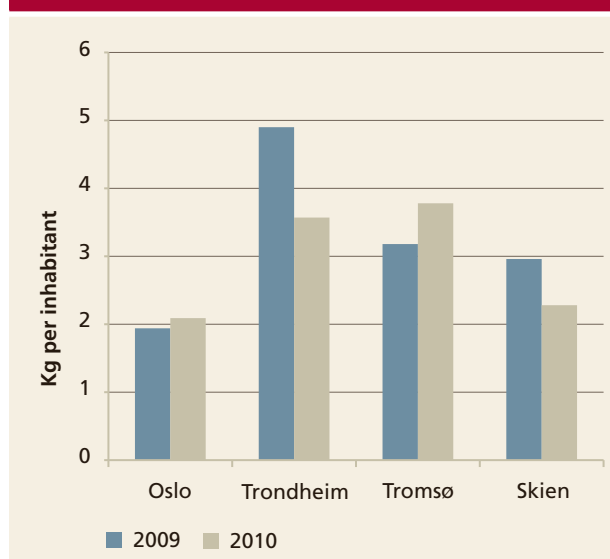


Red box for collecting hazardous waste from household.

Source: Office of the Auditor General

insulating glass units containing PCBs. Oslo's collection figures are low for these fractions, but even if asbestos and insulating glass units containing PCBs are excluded, the city still collects the smallest amount of hazardous waste per inhabitant. The office of the city auditor's investigation shows that the City of Trondheim, which collects the most waste via its municipal systems, is more active in providing information to its inhabitants about hazardous waste than the other municipalities.

Figure 6.5 Amount of hazardous waste received per inhabitant. Wood impregnated with CCA is excluded



Source: Telemark kommunerevisjon IKS, KomRev NORD, the Office of the City Auditor of Trondheim and the Office of the City Auditor of Oslo. The amount of waste per inhabitants is calculated on the basis of numbers provided by each municipality, divided by the number of inhabitants according to Statistics Norway.

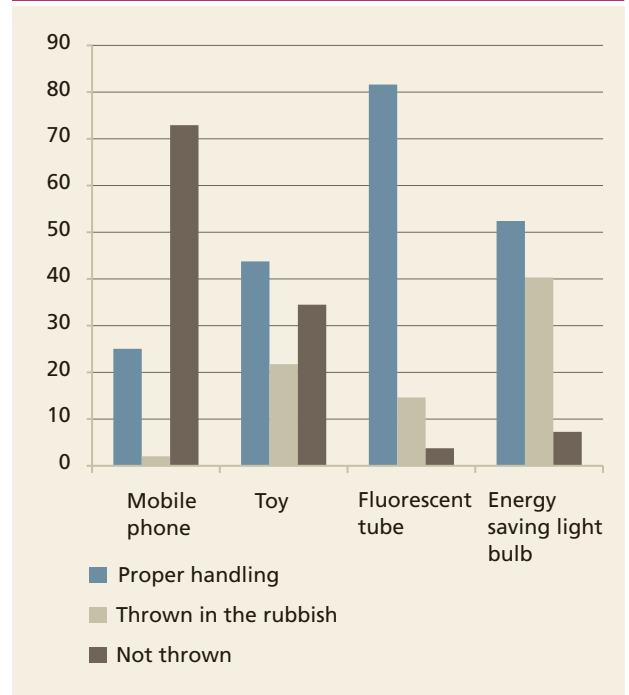
An analysis carried out by Statistics Norway in 2004 shows that 1.1 per cent of the waste produced by households is hazardous waste, and that 2.2 per cent is EE waste.⁷⁹ Statistics Norway's analysis shows a waste sorting rate for households of more than 80 per cent, both for EE waste and for hazardous waste. In 2010 each household produced 424 kg of waste,⁸⁰ of which 4.7 kg was hazardous waste (not including EE waste).

A sorting study carried out in 2006 of the two counties Aust-Agder and Vest-Agder shows which fractions are disposed of in residual waste. Light bulbs, energy-saving light bulbs, fluorescent tubes and cables account for 39 per cent of the EE waste found in residual waste. Electronic equipment such as computer keyboards, mobile phones, toner cartridges, children's games, batteries and small white goods were also found.⁸¹

Hazardous waste found in residual waste included lighters with contents, paint, insulating foam, spray cans, rat poison and solvents.⁸² An analysis carried out in the Grenland area in 2010 showed 2.1 per cent hazardous waste and 1.5 per cent EE waste in residual waste.⁸³ On the basis of these figures, the municipal auditor office in Skien concluded that in 2010, households in Skien disposed of more hazardous waste in residual waste than they handed in as hazardous waste. The Office of the City Auditor of Oslo's investigation refers to manual analyses which found 0.9 kg of hazardous waste per inhabitant in the residual waste in 2009 and 1.1 kg in 2010. An examination of the content of waste containers at the Grønmo and Haraldrud collection points for waste in Oslo indicates that about 255 tonnes of hazardous waste were incorrectly sorted in 2010.

Figure 6.6 shows the results of a questionnaire survey about how households handle different types of hazardous waste and small electronic equipment. A relatively high proportion of people throw these types of waste into household waste.

Figure 6.6 Disposal of different fractions of hazardous waste in households. As a percentage



Question: "Last time you/your household stopped using xxx, what did you/your household do with it?"

Source: TNS Gallup for the Office of the Auditor General

The investigation shows that different types of waste vary in terms of how likely they are to reach final disposal, i.e. whether the objects are discarded or not. For mobile phones, 73 per cent are either stored at home, given away or sold. Some of the respondents have never discarded a mobile phone (2 per cent) or cannot say what they did with it (other and don't know, a total of 1.8 per cent). The last categories are not included in Figure 6.6 and the above figures. The figure shows that 15 per cent throw fluorescent tubes into the rubbish bin at home, while unpublished figures from Statistics Norway indicate that more than half of fluorescent tubes are subject to unknown handling. However, the fact that there is a considerable level of uncertainty relating to these figures must be taken into consideration.

A collation of a survey carried out by Gallup for the Office of the Auditor General in 2011 and results from an investigation the Agency for Public Management and eGovernment carried out in 2007⁸⁴ shows that households are less likely to put mobile phones and electronic toys into household waste. The Agency for Public Management and eGovernment's survey shows that 36 per cent

79 Skullerud, Frøyen, Skogesal and Vedø (2010) *Estimering av materialfordelingen til husholdningsavfallet i Norge* ('Estimation of the material composition of household waste in Norway'). Statistics Norway Report 42/2010.

80 Statistics Norway (2011) Household waste, 2010. *Less waste sent to landfills*. Online article, 24 June 2011.

81 Renovasjonsselskapet for Kristiansandsregionen (2007) *Sorteringsundersøkelsen 2006 – plukkanalyse av innsamlet husholdningsavfall i Agder* ('The 2006 waste sorting study – manual analysis of household waste collected in the Agder counties').

82 Renovasjonsselskapet for Kristiansandsregionen (2007) *Sorteringsundersøkelsen 2006 – plukkanalyse av innsamlet husholdningsavfall i Agder* ('The 2006 waste sorting study – manual analysis of household waste collected in the Agder counties').

83 Renovasjon i Grenland (intermunicipal waste management company) (2011) *Plukkanalyse 2010 – husholdningsavfall til optisk sortering* ('Manual analysis 2010 – optical sorting of household waste').

84 The Agency for Public Management and eGovernment (2008) *Helse- og miljøinformasjon. Befolkningens behov for informasjon om helse- og miljøfarlige stoffer* ('Information about health and the environment. The public's need for information about substances hazardous to health and the environment'). Report 2008:6.

store the mobile phone at home, while in Gallup's survey, 62 per cent replied that they store the mobile phone at home. Both surveys show that older age groups hand in EE waste for proper handling to a greater extent than younger people.

Figure 6.7 shows that waste disposal varies between the municipalities included in the investigation. A significantly higher proportion of the population in Trondheim handed in waste to municipal facilities, waste collection vehicles or a red box, and a significantly lower proportion in Oslo did the same. In Tromsø, a significantly higher proportion has handed in waste to shops/distributors for three of the waste categories.

In the questionnaire, few respondents state that they have dumped hazardous waste on private landfills. Only for a couple of categories is there more than 1 per cent who answer that they have disposed of such waste in a private landfill. However, private landfills without a permit from the authorities could also be used by the agricultural industry and other businesses. The municipality survey carried out by the Norwegian Climate and Pollution Agency and the Directorate for Nature Management in 2008⁸⁵ shows that many of the municipalities examined have no overview of the waste situation in their own municipality, and that they do not supervise illegal handling of waste. The Norwegian Climate and Pollution Agency states in an interview that the Agency considers hazardous waste in illegal landfills to be a minor challenge. The questionnaire survey also shows that some people burn hazardous waste themselves, including impregnated wood and waste containing oil.

6.4 Port reception facilities for waste from ships

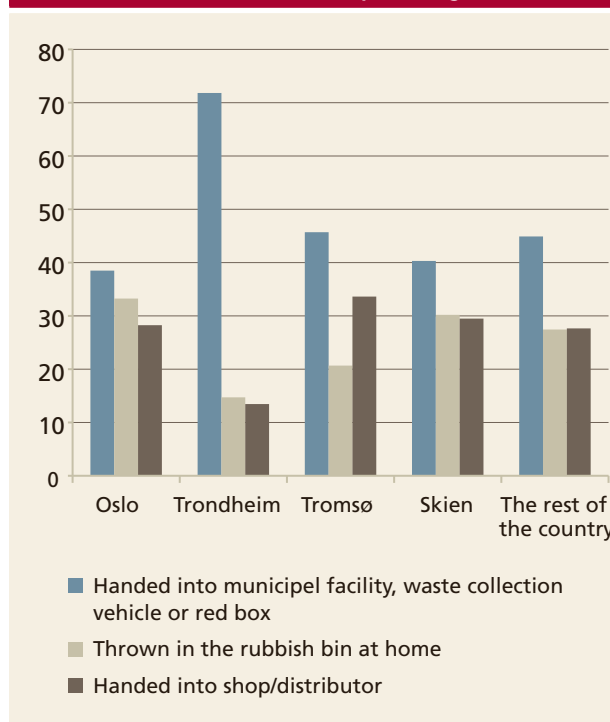
Authority and responsibility in relation to waste reception facilities in ports are divided between the county governors, who are responsible for the ports, and the Norwegian Maritime Directorate, which is responsible for the ships. The regulatory framework for the reception facilities is described in Fact Box 6.3 (following next page).

6.4.1 Amount and type of hazardous waste from shipping

During the period from 2006 to 2010, 111,000 tonnes of hazardous waste from shipping were

85 The Norwegian Pollution Control Authority and the Directorate for Nature Management (2009) *Kommuneundersøkelsen 2008 – oppsummeringsrapport* ('The municipality survey 2008 – summary report').

Figure 6.7 Handling of EE waste in Oslo, Trondheim, Tromsø and Skien. As a percentage



Question: "Last time you/your household stopped using (mobile phone, electronic toy) what did you do with it?" And "Last time you /your household had a (energy saving bulb, fluorescent tube) which was destroyed, or no longer in use, what did you do with it?" The category "not thrown" is not included.

Source: TNS Gallup for the Office of the Auditor General

declared. This represents an average of approx. 22,000 tonnes per year. Figure 6.8 (following next page) shows waste handed in broken down by types of ship. Waste containing oil dominates, and slop accounts for more than half the total amount, see section 6.2.1. Hazardous waste that does not contain oil makes up less than 10 per cent.

There is no data available that are good enough to provide a basis for assessing the amount of oil-containing waste from shipping that is not collected. An analysis based on data from the Hurtigruten coastal express shows that for the passenger fleet, the calculated amount of waste tallies well with the amount of oil-containing waste that is handed in. According to figures from Norbas, the amount of waste containing oil that is handed in by the fishing fleet is small compared with the amount that is assumed to be generated on the basis of the activities of the fishing fleet and key figures for waste generation. This discrepancy does not necessarily mean that waste is not disposed of in a proper manner, and it is possible that the waste is declared by other parties.

6.4.2 Waste received from ships and the port reception facilities

It emerges from an interview with the Norwegian Climate and Pollution Agency that there are

Fact Box 6.3 Handing-in and reception of waste and cargo residues from ships

The purpose of Chapter 20 in the Pollution Regulations is to protect the external environment by ensuring adequate reception facilities for ship-generated waste and cargo residues. It is also intended to help to ensure that ship-generated waste is handed in to port reception facilities. The chapter is an implementation into Norwegian law of the MARPOL Convention and the Port Waste Directive.

In the regulations, the fee system is designed to ensure that ships will not have any financial reasons for discharging waste. This means that every ship must pay a fee for ship-generated waste to the port operator, irrespective of whether and how much ship-generated waste is delivered to the reception facility, the 'no special fee' system. An exception applies for cargo residues, for which the fee is stipulated in relation to the amount and type of waste handed in. The fee shall be differentiated depending on the reception facilities available in the port in question. The fee is intended to fund the reception facilities, but the size of the fee shall not exceed the costs associated with the reception facilities.

The ports were ordered to prepare waste handling plans to be submitted to the county governors by 1 July 2004. The ships, with an exception for recreational craft and ships in regular scheduled service, shall give notification that they wish to deliver waste, a so-called waste notification form.

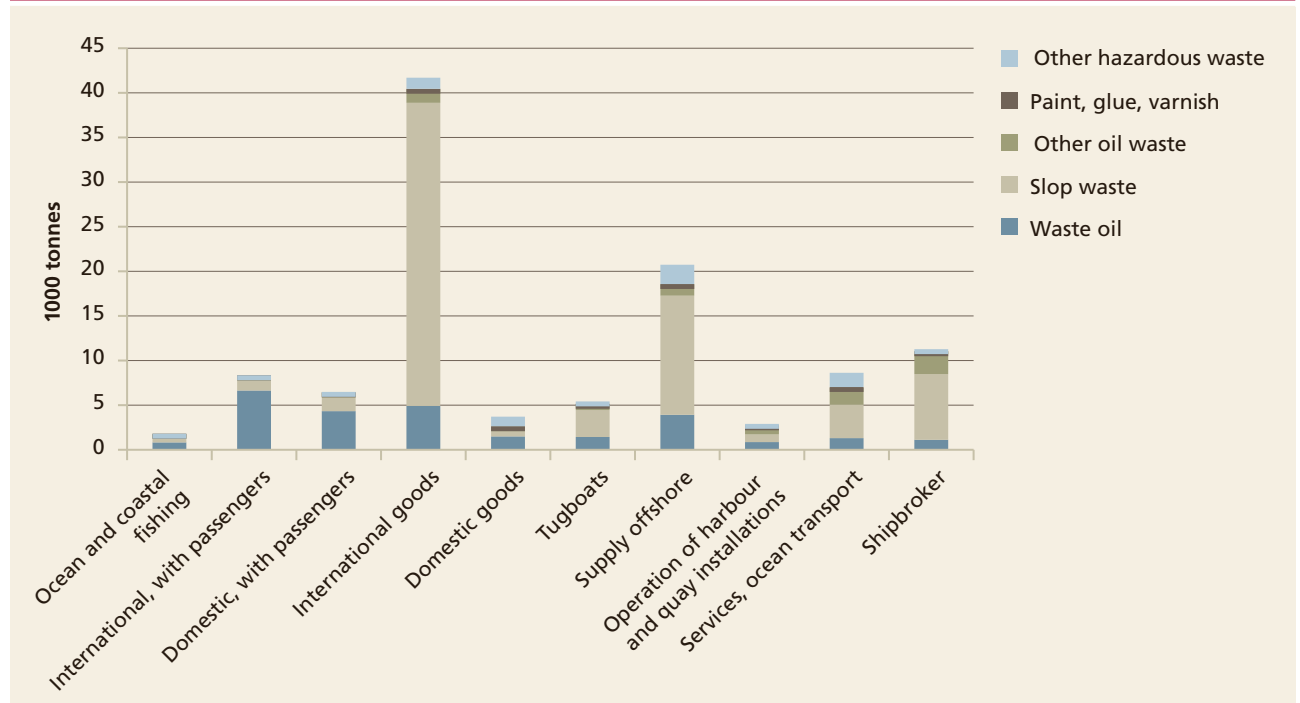
Sources: The Norwegian Climate and Pollution Agency *Kommentarer til avfallsforskriften. Kapittel 20: Levering og mottak av avfall og lasterester fra skip* ('Comments to Chapter 20 of the Pollution Regulations: Reception facilities for ship-generated waste and cargo residues') and the government information website Europaportalen on 7 December 2009 *Endring av skipsavfallsdirektivet 2000/59/EF om mottaksanlegg i havner for avfall og lasterester fra skip* ('Amendment of the Port Waste Directive 2000/59/EC on port reception facilities for ship-generated waste and cargo residues').

an estimated 7,000 port facilities/terminals in Norway. The Norwegian Climate and Pollution Agency has prioritised the 450 ports that are considered large ports.⁸⁶

Implementation of the reception system

In 2005, the Norwegian Maritime Directorate carried out a limited evaluation of the regulations.⁸⁷ This evaluation showed that half of the

Figure 6.8 Handing in hazardous waste from ocean shipping. 1000 tonnes



Source: Norbas

86 The Norwegian Pollution Control Authority (2007) *Svar på oppdrag om videreføring av rapportering på resultatindikatorer om mottaksordninger for avfall fra skip* ('Response to the assignment of continuing reporting on performance indicators for reception facilities for waste from ships'). Letter of 22 June 2007 to the Ministry of the Environment.

87 The Norwegian Maritime Directorate (2006) *Evaluering av kapittel 20 i forskrift 1. juni 2004 nr. 931 (forurensningsforskriften) om levering og mottak av avfall og lasterester fra skip* ('Evaluation of Chapter 20 in Regulations No 931 of 1 June 2004 (the Pollution Regulations) concerning reception facilities for ship-generated waste and cargo residues').

cargo ships had problems handling in waste. The problem was greatest in relation to hazardous waste. The three ports that responded to the Directorate's survey generally had negative experience of the regulations, for example because of the amount of administration work, problems relating to the compulsory notification, unclear rules for fee stipulation and ports that did not take the regulations seriously. After this, the Norwegian Maritime Directorate was asked to follow up the evaluation.⁸⁸ In the allocation letters since 2008, the Directorate was also asked to cooperate with the environmental authorities to strengthen supervision. The Directorate's reporting to the Ministry of the Environment during the period 2007–2009 did not include reporting on this assignment. For 2010, the Norwegian Maritime Directorate reported that there had been no contact between the Directorate and the Norwegian Climate and Pollution Agency or the county governors in this area in 2010.

Sustainable Management International AS (SMI) has reviewed the reception facilities for ship-generated waste and cargo residues on behalf of the Norwegian Climate and Pollution Agency. The results showed that on the whole, the regulations were not satisfactorily implemented in Norway. They were particularly inadequately implemented in private and small public ports, and in terms of establishing reception facilities and implementing the 'no special fee' charge.⁸⁹ At the time, the Norwegian Climate and Pollution Agency believed it to be necessary for the fee system to be implemented and harmonised for all ports in an area simultaneously, and that this could be done by means of a specification in the regulations.⁹⁰

EMSA's audit

The European Maritime Safety Agency (EMSA) has audited the implementation of the Port Reception Facilities Directive in Norway.⁹¹ It emerged during this audit that only 200 of the 450 ports in question have waste handling plans. The audit also showed that the authorities have not es-

tablished any control mechanisms for recreational craft and fishing vessels.⁹² The Ministry of the Environment states in an interview that feedback from EMSA indicates that many countries find it challenging to implement the directive. Interviews with the environmental protection departments of the county governors show that EMSA had expected more of the responsibility in ports to be in the hands of a single party. The audit also showed that the waste notification forms from the ships were only available in the ports, and that the Norwegian Maritime Directorate has no access to them. Among other things, this means that the Directorate cannot use these notifications as a basis for inspecting ships. According to the Norwegian Maritime Directorate, their inadequate follow-up of the compulsory notification has not increased the risk of waste being discharged to the sea.

The audit of the City of Trondheim's handling of hazardous waste shows that Trondheim Port Authority does not know whether ships that do not deliver hazardous waste in Trondheim port have *actually* delivered the waste in other ports. The port authority has no authority to request documentation that ships have delivered waste in other ports, but can notify the Norwegian Maritime Directorate. Trondheim Port Authority does not know whether the Norwegian Maritime Directorate follows up their notifications. The environmental protection departments state in interviews that there is no system for ensuring that ships actually deliver hazardous waste in a port.

In January 2011, the Ministry of the Environment tasked the Norwegian Climate and Pollution Agency and the Norwegian Maritime Directorate with following up the EMSA audit by reviewing the regulations and how they are practised. They were asked to take a closer look at aspects related both to ports and ships. The Ministry of the Environment received feedback from the Norwegian Maritime Directorate in August 2011, and from the Norwegian Climate and Pollution Agency in October 2011. The Ministry states that it is considering proposing amendments to the regulations. The Norwegian Climate and Pollution Agency states that the regulatory framework is also under consideration in the EU.

88 Allocation letters from the Ministry of the Environment to the Norwegian Maritime Directorate 2007–2011.

89 Sustainable Management International AS. (2007) *Mottaksordninger for avfall og lasterester fra skip – statusrapportering med resultatindikatorer* (Reception facilities for ship-generated waste and cargo residues – status reporting with performance indicators).

90 The Norwegian Pollution Control Authority (2007) *Svar på oppdrag om videreføring av rapportering på resultatindikatorer om mottaksordninger for avfall fra skip* ('Response to the assignment of continuing reporting on performance indicators for reception facilities for waste from ships'). Letter of 22 June 2007 to the Ministry of the Environment.

91 EMSA was established in 2003 to help the European Commission monitor the implementation of EU legislation for ships and ship-generated waste, among other things.

92 EMSA (2010) *Subject: Visit to Norway to monitor the overall effectiveness of the Port Reception Facilities – Directive 2000/59/ EC*. Letter of 28 September 2010 to the Norwegian Mission to the EU in Brussels.



Hazardous waste from a marina.

Source: The Office of the City Auditor of Trondheim

Waste handling plans

The Norwegian Climate and Pollution Agency states in an interview that the Agency has worked to ensure that the ports have waste handling plans through the assignment document to the county governors, but that the assignment has not been given sufficient priority by all county governors. Some of them have provided inadequate reporting, while others have reported to the Norwegian Climate and Pollution Agency that they have not received sufficient follow-up in this area. Input from some county governor offices indicates that the regulations in this field are inadequate. A review of the county governors' annual reports to the Norwegian Climate and Pollution Agency confirms this. The reporting shows that some county governors obtained some waste handling plans in 2005, and that the activity level was low in the following year. In 2009, some county governors reported that the mission had been accomplished, while others reported that the work had not been a priority so far.

The environmental protection departments, which were covered by the investigation, state in interviews that they have received waste handling plans for most ports. The county governor offices' impressions are that the quality of waste handling plans differs widely, and that many are inadequate and poor. Large ports have better plans than small ports. The county governor offices emphasise that the regulatory framework is somewhat unclear, and the duty to hand in waste is difficult to follow up, both for the ports and the county governors. The case file review for port reception facilities shows that only one of the county governor offices has given the ports feedback about whether their waste handling plans are in accordance with the regulations.

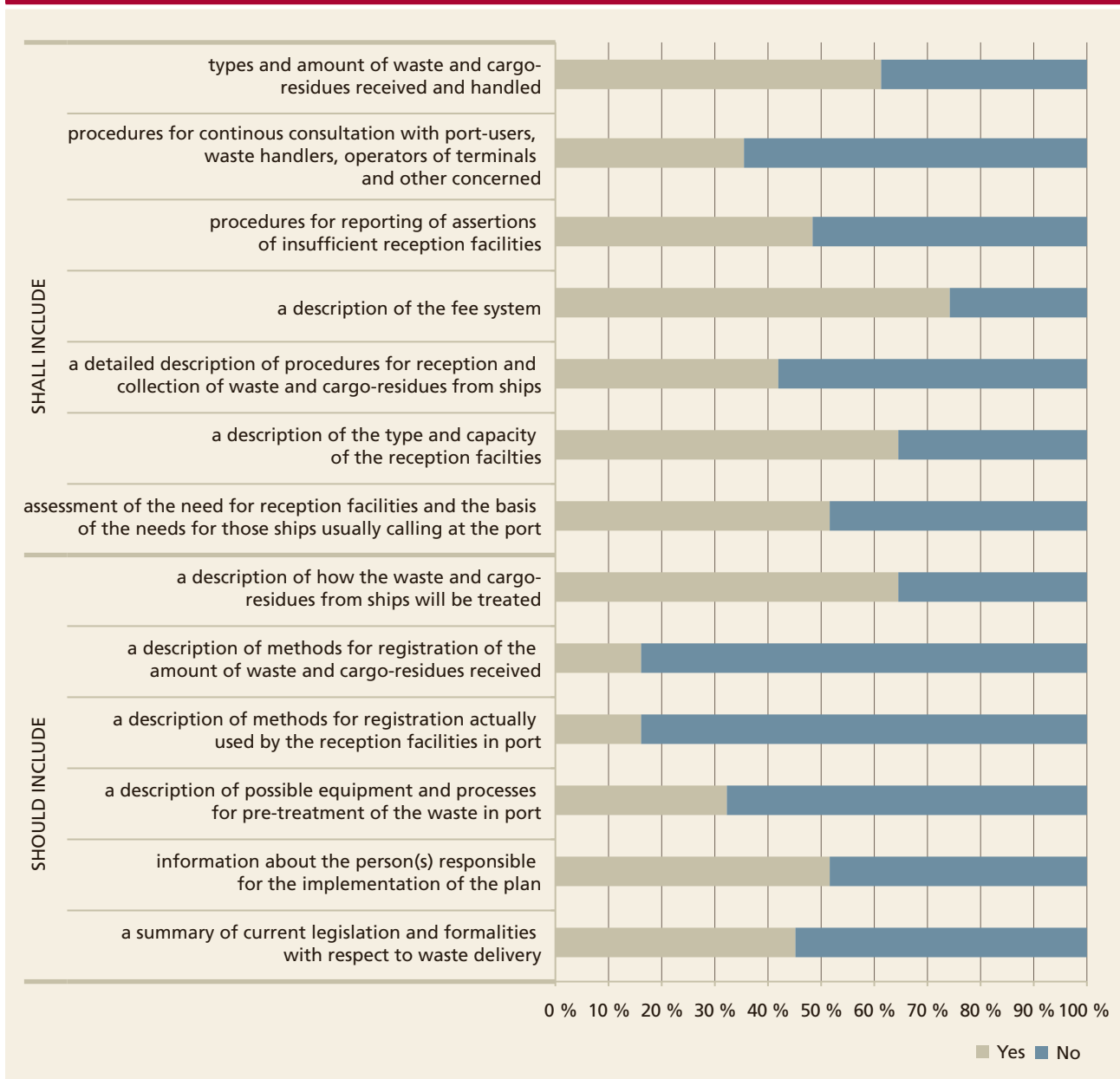
The case files show that many of the waste handling plans received do not meet the requirements set out in the Pollution Regulations. Figure 6.9 shows the findings from the review. It also emerges that many 'should' recommendations in the regulations have not been implemented.

Mepex was in contact with seven public port districts in the course of its assignment for the Office of the Auditor General. The contact with the port districts shows that the majority of hazardous waste, such as oily bilge water and waste containing oil, is delivered directly to the waste collectors. The port authorities have little to do with it. Little hazardous waste is collected via the port reception facilities. The port reception facilities are small waste collection points, sometimes poorly organised and run. Ports have found it difficult to get ships to sort their waste, and have had to change to simpler systems with fewer fractions. Many of the ports have no overview of whether hazardous waste is handed in. Many also state that ships never deliver hazardous waste.

The case files show that some ports have an overview of the waste streams in the port, but most waste handling plans show that the ports have no such overview. The Norwegian Maritime Directorate states in an interview that the port reception facilities vary. The Directorate is aware of the dissatisfaction that no overview of the reception facilities is available.

The review of case files confirms that only a few of the ports have fully implemented the 'no special fee' system. Of the ports that have implemented the system, many do not cover all waste fractions, or it is unclear what is covered. Interviews with the environmental protection departments show

Figure 6.9 Waste plans seen in relation to the criteria in the pollution regulation § 20, appendix 1



Source: Office of the Auditor General's assessment of waste plans for 36 ports

that the 'no special fee' charge is often incorporated into the port dues. The county governor offices find that ports have agreements with commercial waste management enterprises, but that ships must nonetheless pay to deliver hazardous waste. Some ports also state that they do not receive hazardous waste, while some ships state that they do not produce any waste. Contact with the ports shows that the 'no special fee' system does not appear to have been introduced for waste containing oil, and only for small amounts of hazardous waste. The Office of the City Auditor of Trondheim's investigation shows that the 'no special fee' system has been introduced on a general basis, but that vessels that deliver hazardous waste must nonetheless pay for this waste separately.

The Norwegian Maritime Directorate states in an interview that the 'no special fee' system has not been generally introduced in Norway.

It emerges from interviews with the Norwegian Maritime Directorate and NFFA that the costs associated with delivery are important to the ships, and that many European countries have cheaper reception systems than Norway. Nor do Norwegian ports have the infrastructure required to receive all types of waste, but they have vehicles that can receive the waste. The Norwegian Maritime Directorate emphasises that in its opinion, the capacity is adequate if the ships are willing to pay and give sufficient advance notice of their needs.

Marinas

The Norwegian Climate and Pollution Agency and the county governors' environmental protection departments state that the regulations are not suitable for Norwegian conditions. It is not expedient for marinas to have waste handling plans. The environmental protection departments point out that it is not only municipal enterprises that run the ports, but many different parties, and that it can therefore be difficult to know which party is supposed to submit a waste handling plan.

Trondheim Port Authority states that it is a challenge that there are no good national guidelines on how marinas should be built and what options should be available for the collection of antifouling paint.⁹³ A survey carried out by the Norwegian Geotechnical Institute on behalf of the Norwegian Climate and Pollution Agency showed that the soil and seabed in marinas are polluted with antifouling paints and environmental toxins. Some of these environmental toxins have been banned for years.

In 2005, the County Governor of Telemark examined 60 marinas and found considerable room for improvement, particularly regarding the handling of hazardous waste. Most of the marinas in the Norwegian Geotechnical Institute's survey collect such waste, which is picked up regularly by professional parties. However, there are also boating associations that only have organised reception facilities for ordinary waste.⁹⁴ A review of Norbas shows that hazardous waste is almost never registered from marinas in any case. The Norwegian Climate and Pollution Agency states that the Agency's experience from previous controls is that some marinas have no organisation number. The Agency therefore believes that some of the waste collected is handed in as waste from private individuals, and thus not declared as waste from a marina.

6.4.3 Supervision of ships and ports

The environmental protection departments of the county governor offices state in interviews that because of the limited resources, no supervisory activities targeting ports have been implemented. In 2008, the County Governor of Hordaland carried out supervisory activities in relation to six

large ports. Non-conformities relating to deficiencies in the reception facilities were found in all the ports, and five of the six ports also had non-conformities in that they did not have a waste handling plan or had an inadequate or out-of-date plan. The sixth port was given a non-conformity because its plan was inadequate. The supervisory activities also found deficiencies in the internal control systems, and non-conformities for non-compliance with standardised reception facility requirements and unsatisfactory storage facilities for hazardous waste. Data from the Forurensning database and contact with the environmental protection departments show that there have been some supervisory activities targeting marinas, particularly in 2008 and 2009. For those two years, 29 supervisory activities have been registered in Forurensning. The Norwegian Climate and Pollution Agency states that the Agency and the environmental protection departments are planning an inspection campaign targeting ports in 2011.

The EMSA audit shows that environmental factors are included in the checklists used by the Norwegian Maritime Directorate during inspections of ships. EMSA points out that the Directorate's checklists do not include references to the Pollution Regulations Chapter 20. On 2 August 2011 the Norwegian Maritime Directorate reported to the Ministry of the Environment that the checklist had been updated with a reference to Chapter 20 of the Pollution Regulations.

The environmental protection departments state in interviews that they would like an arena where they can discuss this field with the Norwegian Maritime Directorate. The county governor offices feel that the Directorate does not carry out many supervisory activities, and rarely target Norwegian-registered ships. They believe that there is a risk that waste is not handed in, but dumped later. Waste can also be received at a port without being handed in for proper treatment.

The Norwegian Maritime Directorate states in an interview that the current supervision statistics provide no data on environmental parameters. The Norwegian Climate and Pollution Agency states in an interview that it could cooperate better with the Directorate on follow-up of the regulations concerning ports.

93 The Office of the City Auditor of Trondheim (2011) *Trondheim kommunes håndtering av farlig avfall* ('The City of Trondheim's hazardous waste management'). Audit report, 24 May 2011.

94 The Norwegian Climate and Pollution Agency (2010) *Kartlegging av forurensning i utvalgte småbåthavner i Norge* ('Survey of pollution in selected marinas in Norway') TA-2751 and the Norwegian Climate and Pollution Agency *Mange småbåthavner er forurenset* ('Many marinas are polluted'). News article, 22 March 2011.

6.5 Building and construction waste

In 2009, 15,000 tonnes of hazardous waste from building and construction activities were handed in.⁹⁵ Building and construction waste could contain environmental toxins such as PCBs, brominated flame retardants and mercury.

The Federation of Norwegian Building Industries (BNL) states in an interview that due to the large amounts of waste generated by the building industry, the federation and other organisations in the industry started work on an action plan in 2001. It is a particular challenge that much non-hazardous waste is mixed in with the hazardous waste. The action plan is the industry's own project, but has received some public funding. Cooperation with the Norwegian Climate and Pollution Agency has been close.

6.5.1 Waste handling plans and specifications of hazardous materials

Construction waste was included in the Waste Regulations on 1 January 2008. The purpose was to promote the environmentally and socio-economically sound handling of waste from construction and demolition activities, and to prevent the illegal disposal of such waste. For buildings that fall under the regulations, requirements were stipulated for environmental surveys and waste handling plans to be submitted to the municipality for approval. A project start-up permission could not be granted until such approval had been obtained. After the project, the waste producer had to submit a final report to the municipality.

From 1 July 2010 the regulatory framework was transferred to the new Planning and Building Act, the Building Regulations Chapter 9 and the Construction Matters Regulations. The Norwegian Climate and Pollution Agency emphasises in an interview that the environmental protection authorities remain the authorities responsible for the collection and handling of waste. The most important changes were:⁹⁶

- The municipality shall no longer approve a waste handling plan and a specification of hazardous materials, before granting a project start-up permission, but the documents must be

prepared and presented during supervisory activities.

- A final report, with documentation that waste has been handed in, must be submitted to the municipality together with the application for a certificate of completion.
- Municipalities are to prioritise the supervision of waste handling in 2011 and 2012.
- A central approval system has been introduced for the parties responsible for pre-engineering for the removal of hazardous components and for the parties responsible for executing construction/demolition work for demolition and removal of hazardous components.

In a survey of 60 randomly chosen municipalities carried out by the Norwegian Climate and Pollution Agency in 2009, approximately 70 per cent answered that they follow up the requirements in the Waste Regulations. Eight per cent of municipalities were not aware of the regulations. The municipalities included in this survey were small municipalities with fewer than 4,000 inhabitants.⁹⁷ The Norwegian Climate and Pollution Agency states in an interview that the Agency does not consider the waste handling plans and removal of hazardous components to be good enough. Many of the enterprises operating in small municipalities are also small, and often do not have the same level of knowledge as the nationwide enterprises. However, the Norwegian Climate and Pollution Agency believes that the level of professionalism in the industry is improving, and the Federation of Norwegian Building Industries agrees with this assessment. The analysis laboratories report a large increase in the number of construction waste samples.

6.5.2 The amounts of building and construction waste generated and handed in

The Norwegian Climate and Pollution Agency bases its assessment of the amount of hazardous waste generated by building and construction activities on statistics from Statistics Norway. The available statistics are from 2004, and hazardous waste is not split into more specific fractions. The declared amounts for the different fractions are available in Norbas.

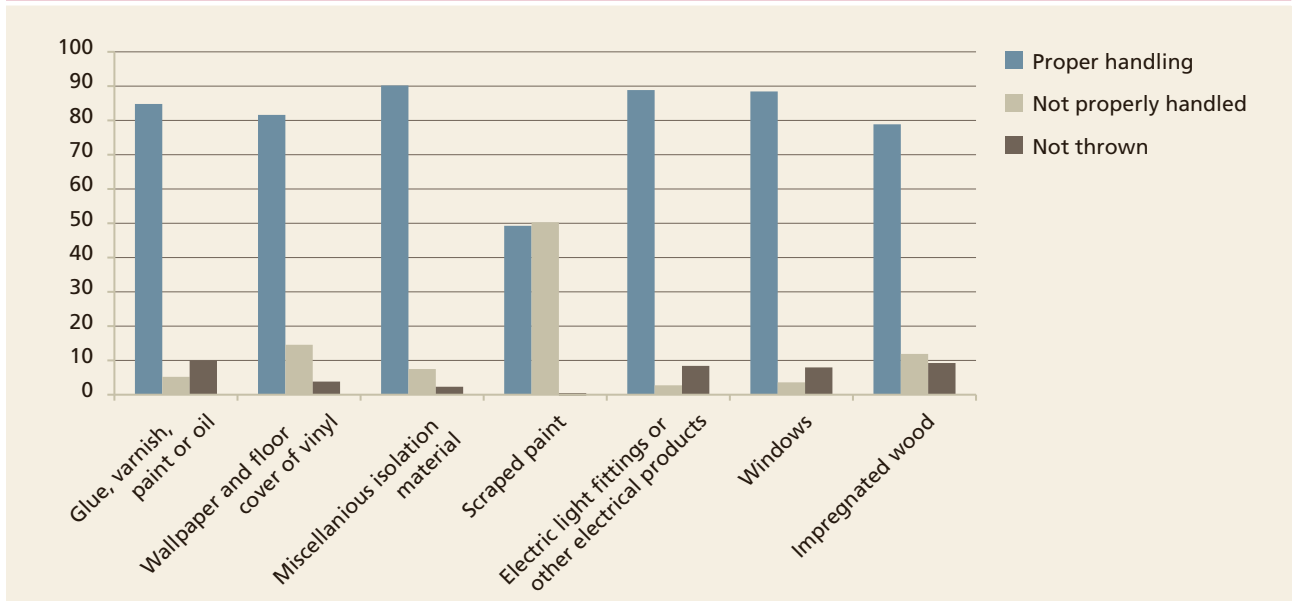
The Norwegian Climate and Pollution Agency states in an interview that even though the Agency has some knowledge about the environmental toxins that may occur and which products these

95 Statistics Norway (2010) *Hazardous waste. Final figures 1999 to 2009. Less hazardous waste in 2009. Table 5 Hazardous waste sent to approved facilities, by economic activity*. Online article, 14 December 2010.

96 The Norwegian Climate and Pollution Agency (2010) *Nyheter: Kapittel 15 om byggavfall overføres til plan- og bygningsloven 1. juli 2010* ('News: Chapter 15 about construction waste transferred to the Planning and Building Act as of 1 July 2010'). News article, 30 June 2010.

97 Larsen, Jon F. (2009) *Hva er gjort og hvilke utfordringer har vi?* ('What has been done, and what are the challenges facing us?') Presentation by the Norwegian Climate and Pollution Agency.

Figure 6.10 Households' handling of building and construction waste. As a percentage



Source: TNS Gallup for the Office of the Auditor General

toxins could occur in, there is a lot it does not know, both about quantities and periods during which various products have been in use. According to the Norwegian Climate and Pollution Agency, the uncertainty is particularly high for the proportion of hazardous waste from building and construction that is not declared as hazardous waste.

In the strategy for hazardous waste for the period 2008–2010, the Norwegian Climate and Pollution Agency writes that mandatory waste handling plans and final reports from the building and construction industry will provide new knowledge and make new figures available from 1 January 2008. The Agency states that Statistics Norway has so far not made use of this basis for statistics.

The environmental survey reports reviewed estimates a lower amount of hazardous waste containing PCBs and brominated flame retardants than the amount registered in Norbas as having been handed in. This could be because the data basis is inadequate, but could also be because construction waste that is not hazardous waste is declared, because the environmental survey is carried out by inadequately qualified personnel, and because more hazardous waste is discovered when buildings are demolished than predicted by the environmental surveys. Only a few of the environmental survey reports reviewed declared products containing mercury, and those that did declared mercury in fluorescent tubes. The environmental survey reports show that mercury in

drain traps has not been examined, not even in buildings where there is reason to suspect that there might be mercury in drain traps, such as schools and hospitals. The data material did not include any dental surgeries.

6.5.3 Building and construction waste from households

The Norwegian Climate and Pollution Agency states in an interview that it has little knowledge about waste handling when households carry out their own redecoration work. The municipal waste facilities sort the waste they receive. Therefore, the Norwegian Climate and Pollution Agency believes that a lot of the waste is probably picked out, sorted correctly and declared at municipal waste facilities. The collection of windows containing PCBs functions particularly well.

In the questionnaire survey, approximately 60 per cent stated that they had redecorated or rehabilitated their own home during the past two years. These households were asked what they did with most of the waste resulting from the redecoration or rehabilitation. The results are shown in Figure 6.10.

Most respondents state that they have handed in different types of construction waste to a waste collection point, either sorted or unsorted, or that a builder has taken care of the waste – these categories are included under 'proper handling' in the figure. The exception is paint that has been scraped off.

A control carried out by the Norwegian Climate

Table 6.6 Remaining PCBs in building and construction, new and old estimates. Tonnes

Where	Period	Waste management system	The Norwegian Climate and Pollution Agency's estimate. Data for 2008	New estimate. Data for 2009
Windows, insulating glass adhesive	Norwegian: 1965–1975 Foreign: until 1980	There is a special take-back system for this waste.	15	15
Joint fillers (soft joints, particularly outside)	1960–1978	This waste is to be handed in as hazardous waste. The content of environmental toxins can be clarified by sampling.	22.3	50
Screeds and plaster	1960–1975	The PCB content in this waste is often below the limit values for hazardous waste. There is a risk that concrete may be contaminated.	93.4 (concrete admixture)	100
Paint	Since 1952 (possibly already since before World war II)	The PCB content in this waste is often below the limit values for hazardous waste.	7.4	30
Capacitors in lighting fixtures	1960–1980	A phase-out requirement applies. The use of PCB-containing capacitors in light fixtures has been banned since 1 January 2008.	8.0	–
Capacitors in other electrical equipment	Until 1980	This waste must be handed in as EE waste.	1.2	–
Cable bushings with oil containing PCBs	1950–1980	A phase-out requirement applies. The use of cable bushings with oil containing PCBs has been banned since 1 January 2010.	2.3	–

Sources: The Norwegian Climate and Pollution Agency (2010) *Nasjonale utslipp Prioriterte miljøgifter: Status 2008* ('National emissions Priority environmental toxins: Status 2008'). TA-2738 (amount figures). The Norwegian Climate and Pollution Agency (2007) *Strømgjennomføringer med PCB* ('Cable bushings with oil containing PCBs') TA-2346, national action plan for building and construction waste (2009) *Identifisering av PCB i norske bygg* ('Identification of PCBs in Norwegian buildings'), fourth edition, revised May 2009, and Norconsult (2010) *Kartlegging av nyere fraksjoner farlig avfall i bygg* ('Survey of newer fractions of hazardous waste in buildings') TA-2613. New estimate: Mepex on behalf of the Office of the Auditor General.

and Pollution Agency and the county governors in spring 2010 shows that even if construction waste is handed in to a waste facility, this does not necessarily mean that the waste is handled properly. Many of the facilities received comments because they lacked facilities for sorting out flooring containing phthalates and cellular rubber containing brominated flame retardants. The investigation of the offices of the municipal auditors shows that this has improved since then, but the investigation of the Office of the City Auditor of Trondheim shows that not much of this waste ends up in the containers intended for it. The investigation of the Office of the City Auditor of Oslo concluded that the facilities are inadequately qualified to sort out these fractions.

6.5.4 PCBs in building and construction waste

Most of the waste that contains PCBs stems from three product categories: Lighting fixtures containing PCBs, insulating glass units containing PCBs and PCB-containing products in buildings, such as paint, mortar and joint filler. PCBs were introduced around 1940 and banned in 1980. Buildings that were built or rehabilitated dur-

ing the period 1940–1980 can therefore contain PCBs.⁹⁸ Table 6.6 shows the types of products and waste that may contain PCBs and the estimated amount remaining. Some fractions contain uncertain levels of PCBs and other environmental toxins. As the table shows, phase-out requirements apply to some products.

The authorities assume that the amount of PCBs in capacitors in light fixtures has been reduced by 97.3 per cent since 1980. For paint, concrete admixtures and joint fillers, it can be difficult and expensive to separate the fraction that contains PCBs from parts of the rest of the building when a building is demolished. Nonetheless, the remaining volume of these fractions has been reduced by more than 60 per cent since 1980.⁹⁹

98 Nasjonal handlingsplan for bygg- og anleggsavfall (2009) *Identifisering av PCB i norske bygg*. ('National action plan for building and construction waste. Identification of PCBs in Norwegian buildings'). Fourth edition, revised in May 2009.

99 The Norwegian Climate and Pollution Agency (2010) *Nasjonale utslipp Prioriterte miljøgifter: Status 2008* ('National emissions. Priority environmental toxins: Status 2008'). TA-2738.



Handing in glass containing PCB. Source: Office of the Auditor General

On behalf of the Office of the Auditor General, Mepex and Hjellnes Consult have reassessed the amount of remaining PCBs in building and construction on the basis of the available literature.

The new estimate exceeds the Norwegian Climate and Pollution Agency's previous estimate, see Table 6.6. This is due to weaknesses in the previously used methods. The discrepancies are greatest in the figures for paint and joint fillers. The original figure for paint was based on enquiries made to a selection of enterprises. The new estimate has been adjusted to take into account enterprises that did not respond to the survey. For joint fillers, a new market share estimate was made. However, the uncertainty relating to how much has been removed is considerable.

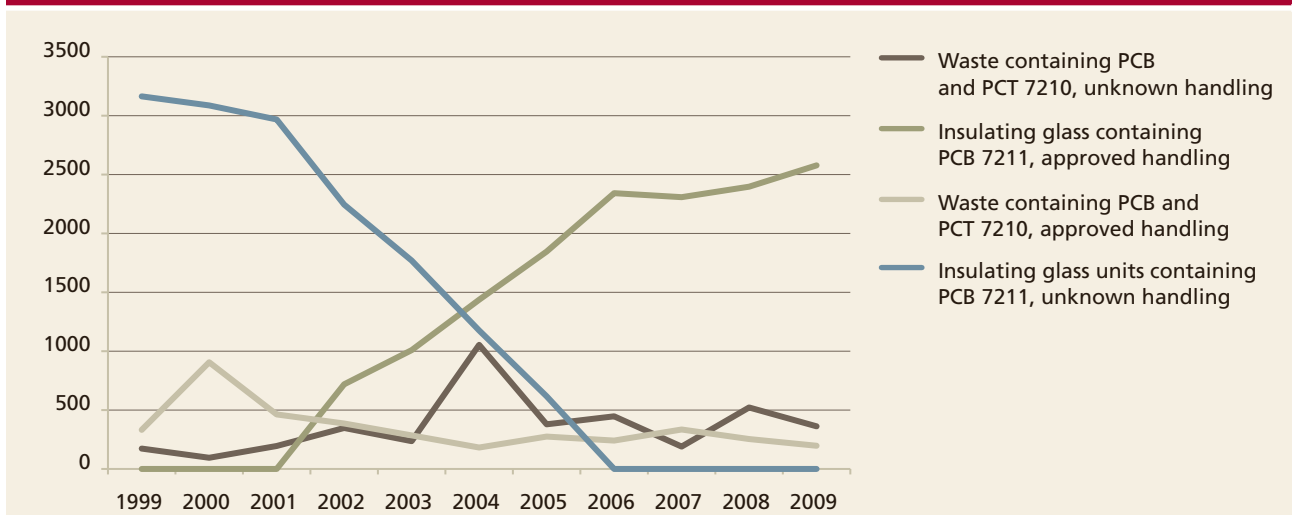
Figure 6.11 shows that the collection of windows covered by the take-back scheme for insulating glass units containing PCBs (7211) has increased significantly. The group of waste containing PCBs and PCTs (7210) contains many types of waste – from oil and transformers to paint, joint filler, plaster and screeds that contain PCBs. This waste is not covered by a separate take-back scheme, and the figures show no clear trend.

The take-back company Ruteretur states in an interview that the degree of uncertainty is so high that it is meaningless to calculate a collection rate for insulating glass units containing PCBs. The collection is expected to decrease, but when is uncertain. A rough estimate of the number of insulating glass units containing PCBs that remain in buildings is 300,000–500,000 windows

Materials with low-level PCB contamination

Waste with low-level contamination can be understood as waste that can neither be classified as hazardous waste nor deemed to be non-hazardous.¹⁰⁰

Figure 6.11 Waste containing PCBs for approved and unknown handling. Tonnes



Source: Prepared on the basis of data from Statistics Norway

On assignment for the Norwegian Climate and Pollution Agency, Norconsult has mapped how concrete contaminated with PCBs is disposed of, the concentration of PCBs in materials and the possibilities for reusing soil contaminated with PCBs.¹⁰¹ The conclusion was that large amounts of concrete are contaminated at a level far below the threshold for hazardous waste. However, this material cannot be considered non-hazardous pursuant to the Pollution Regulations. PCBs were found in approximately 40 per cent of the samples of paint, plaster/screed and concrete. Norconsult has learnt that in cases where a good environmental survey has been carried out and a waste handling plan prepared, concrete with a PCB content in excess of the norm will usually be delivered to a landfill. The report points out that some projects do probably not comply with the statutory requirement for environmental surveys and waste handling plans. Norconsult therefore assumes that concrete from several demolition and rehabilitation projects has been handled as non-hazardous, without its PCB content having been examined.

The Federation of Norwegian Building Industries (BNL) states in an interview that the industry has been asking the authorities how such materials should be handled for years, but has not received a good answer. For example, it is unclear whether and where such waste is to be handed in. The BNL points out that there are still many who scrape buildings in the ordinary way or demolish walls with paint that contains PCBs without removing the hazardous components. The organisation is therefore of the opinion that better guidance from the Norwegian Climate and Pollution Agency is needed. The Agency states that a project is under way to assess how construction waste containing low concentrations of PCBs can expediently be handled, this being a very common type of waste.

6.5.5 Brominated flame retardants

Approximately 29 tonnes of hazardous waste were registered in Norbas in 2006 under waste substance number 7155 (brominated flame retardants) and EWC code 170204 (from building and construction) and 191204 (plastic in general).¹⁰² The declared amounts have decreased somewhat since. The Norwegian Climate and Pollution

Agency states in an interview that some hazardous waste is sometimes handed in as residual waste, for example 'newly discovered' hazardous waste such as insulation that contains brominated flame retardants and vinyl flooring that contains phthalates. Different types of insulating materials containing brominated flame retardants are described in Fact Box 6.4.

Fact Box 6.4 Insulating materials with brominated flame retardants

Expanded polystyrene (EPS) is often used as underfloor insulation and in roofs. Extruded polystyrene (XPS) is often used as ground frost insulation for foundation walls, insulation in parking surfaces etc. Both EPS and XPS are available in a self-extinguishing grade (containing flame retardants) and in a non-self-extinguishing grade.

PE foam mats with brominated flame retardants were used as tunnel insulation from 1987 until 1998. These mats could contain a total of between 30 and 40 tonnes of brominated flame retardants, but this is a highly uncertain estimate.

Cellular rubber is used as anti-condensation insulation around refrigeration and air conditioning systems and as thermal insulation around sanitary installations. Cellular rubber may contain between five and ten per cent brominated flame retardants. Environmental surveys often define all cellular rubber in buildings constructed before 2004 as hazardous waste. There are often many types of cellular rubber in a building, and they are difficult to distinguish from one another.

Sources: The Norwegian Pollution Control Authority (2008) *Kartlegging. Bromerte flammehemmere i avfallsstrømmen* ('Survey. Brominated flame retardants in the waste stream.') TA-2380. The survey was carried out by COWI AS in cooperation with Norsas; the Norwegian Pollution Control Authority (2008) *Bromerte flammehemmere i isolasjonsmaterialer* ('Brominated flame retardants in insulation materials'). Geological Survey of Norway report 2008.081 Ola A. Eggen and Rolf Tore Ottesen; Norconsult (2010) *Kartlegging av nyere fraksjoner farlig avfall i bygg* ('Survey of new hazardous waste fractions in buildings').

Most of the cellular rubber, EPS and XPS that is not separated on construction sites will probably be sent for incineration or end up in a landfill. In 2004, 223,000 tonnes were sent to landfills and 42,000 tonnes to incineration of a total of 280,000 tonnes of residual waste from building and construction activities.¹⁰³ Insulation waste can also be handed in in the take-back system for plastic. In this way, the brominated flame retardants return

101 Norconsult (2011) *Kartlegging av disponering av forurenset betong* ('Survey of the disposal of contaminated concrete') (report for the Norwegian Climate and Pollution Agency).

102 The Norwegian Pollution Control Authority (2008) *Kartlegging. Bromerte flammehemmere i avfallsstrømmen*. ('Survey. Brominated flame retardants in the waste stream.') TA-2380.

103 Statistics Norway (2006) *Waste from building activities, 2004. Preliminary figures 1.2 million tonnes of waste from building activities. Table 2. Disposal/treatment of waste from construction, rehabilitation and demolition of buildings. 2004. Tonnes*. Online article, 27 April 2006.

as new construction insulation materials.¹⁰⁴ The amount of brominated flame retardants in waste that is withheld from controlled collection or required separation is estimated at 80–100 tonnes. Just under 70 per cent of this amount is believed to lie in EE waste that has gone astray, approximately 15 per cent to be in insulation waste handed in as residual waste from building and construction activities, and some to be found in textiles.¹⁰⁵

Mercury in building and construction

Mercury in building and construction can be found in electrical products and in (deposits in) drains, from where it could leak out into the sewage system, particularly in connection with dental surgeries. In 2004, a procedure was drawn up for the removal of mercury from dental clinics. The Norwegian Climate and Pollution Agency encouraged such removal.¹⁰⁶ This investigation has uncovered no information showing that anybody has used this procedure.

Norbas figures show that, on average, between 300 and 500 tonnes of waste containing mercury that could stem from construction waste is declared each year. These figures include waste from offshore activities. If waste from offshore activities is excluded, the figure is between 30 and 150 tonnes per year.

6.5.6 Supervision and control of building and construction waste

Supervisory activities are carried out by both the Norwegian Climate and Pollution Agency and the county governors. Such activities are to take place annually to ensure compliance with the applicable requirement for phasing-out and removal of hazardous components from products and materials containing PCBs during rehabilitation and demolition work.¹⁰⁷

Figure 6.12 shows that the supervisory activity level has been stepped up considerably since 2006 as a result of campaigns. The number of supervisory activities decreased after the campaigns.

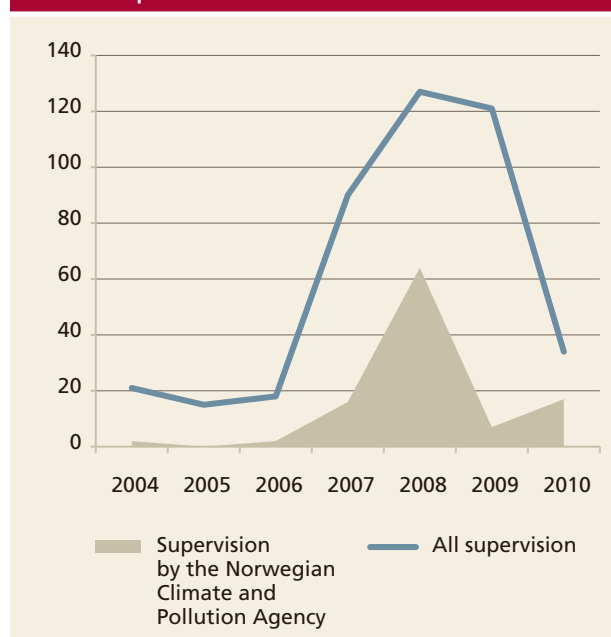
104 The Norwegian Pollution Control Authority (2008) *Kartlegging. Bromerte flammehemmere i avfallsstrømmen*. ('Survey. Brominated flame retardants in the waste stream.') TA-2380. Carried out by COWI AS in cooperation with Norsas.

105 The Norwegian Pollution Control Authority (2008) *Kartlegging. Bromerte flammehemmere i avfallsstrømmen*. ('Survey. Brominated flame retardants in the waste stream.') TA-2380. Carried out by COWI AS in cooperation with Norsas.

106 The Norwegian Pollution Control Authority (2004) *Vil ha mindre kvikksølv fra tannleger* ('Wants less mercury from dentists'). News article, 25 August 2004.

107 The Norwegian Climate and Pollution Agency (2010) *Nasjonale utslipp. Prioriterte miljøgifter: Status 2008* ('National emissions Priority environmental toxins: Status 2008'). TA-2738.

Figure 6.12 Number of supervisory activities targeting the building and construction industry in the period 2004–2010



Source: The Forurensning database

Table 6.7 gives an overview of supervisory activities and internal control procedures targeting products containing PCBs in building and construction. Special PCB campaigns were carried out in the years 2005–2009, and in the latter years the campaigns were mostly aimed at the building and construction industry. The 2009 inspection campaign shows that one out of three developers still did not handle hazardous waste properly. The PCB campaigns primarily targeted capacitors and insulating glass units that contained PCBs. As shown in Table 6.7, non-conformities were found in fewer and fewer enterprises. In 2005, 25 per cent of the enterprises had not implemented measures to phase out PCB capacitors, while in 2007 only 17 per cent of enterprises had not implemented such measures. The Norwegian Climate and Pollution Agency considered these campaigns a success. The controls in the building and construction industry were expanded to cover environmental surveys and waste handling plans.

Municipal supervision of building and construction waste

The Norwegian Building Authority (BE) has taken over some responsibility after the requirements concerning waste handling plans, specification of hazardous materials and final reports were moved to the regulations pertaining to the Planning and Building Act. BE has prepared a guide to the new regulations which was published on 1

Table 6.7 Overview of findings from supervisory activities aimed at products containing PCBs in building and construction and internal control procedures

Year	Enterprises controlled	Campaign topic	Main findings according to the Norwegian Climate and Pollution Agency
2005	Controls of more than 500 public and private enterprises, in addition to the take-back companies	Replacement of PCB capacitors and mapping of insulating glass units containing PCBs	25% of enterprises have not implemented measures to phase out PCB capacitors 25% of glaziers do not comply with the regulations for insulating glass units containing PCBs 33% of importers of insulating glass units are not members of the take-back scheme More non-conformities were found in small enterprises. Letters were sent to all the municipalities, and work to replace PCB capacitors is well under way in 50% of them
2006	Controls of more than 700 enterprises	Compliance with the deadline of 31 December 2007 for phasing out PCB capacitors	50% of enterprises have begun the phase-out work 20% of enterprises have not implemented any measures (17% of municipalities) 17% of enterprises have not surveyed their buildings for PCB capacitors Small and small private enterprises are lagging furthest behind Non-conformities were found in all links in the chain of actors The amount of windows collected continues to increase
2007	Controls of more than 700 enterprises, PCB verification was also included in other campaigns	Compliance with the deadline of 31 December 2007 for phasing out PCB capacitors	There is definite improvement. The municipal sector has greatly increased its phase-out rate. 17% of enterprises have not surveyed their buildings for PCB capacitors.
2007	100 inspections of building and construction sites	Internal control procedures, substitution, use of chemicals, waste/hazardous waste, polluted soil	50% do not fill in declaration forms correctly
2008	PCB verification was also carried out as part of other campaigns in 2008. Goal: to increase the number of controls compared with 2007.	Control objects that have not been controlled so far, such as lift shafts, air-raid shelters, lighted ski tracks/paths, graveyards etc.	No further extensions of the deadline for phasing out PCB capacitors shall be granted. There are still enterprises that have not removed lighting fixtures that contain PCBs, which means that about 200 municipalities, enterprises and owners of buildings risk coercive fines of up to NOK 150,000 and being reported to the police.
2008	55 building contractors and four responsible developers, and control questionnaires were also distributed	Internal control procedures, substitution, use of chemicals, waste/hazardous waste, polluted soil	More than 50% have inadequate procedures for handling hazardous waste and do not complete the declaration forms correctly
2009	The Norwegian Climate and Pollution Agency carried out controls of the main offices of five major building contractors, 155 controls	Internal control procedures, substitution, use of chemicals, waste/hazardous waste, polluted soil	There are few non-conformities relating to the handling of insulating glass units and waste containing PCBs on construction sites. Only two non-conformities were found in connection with the handling of brominated flame retardants. 33% of enterprises lack written internal control procedures for the handling of hazardous waste.

Sources: The Norwegian Pollution Control Authority's campaign memos for PCB and building and construction 2005–2009, the Norwegian Pollution Control Authority's PCB summary 2005, the Norwegian Pollution Control Authority's presentation to the control forum 'PCB 2005–2007 Fristen går ut, men fortsatt mye i bruk!' ('PCB 2005–2007 The deadline is expiring, but PCBs are still widely used!'), the Norwegian Climate and Pollution Agency website, news and section articles. It is not clear whether the number of controls include control questionnaires, the findings from 2007 onward have not been properly summarised in one place.

March 2011.¹⁰⁸ This guide includes guidance on municipal prioritisation of supervisory activities from 1 January 2011. The Construction Matters Regulations state that the municipalities shall

prepare a supervision strategy. This strategy shall describe goals and procedures, cooperation and competence requirements and priorities in terms of discipline areas, types of cases and topics. The investigation of the Office of the City Auditor of Trondheim shows that the municipality has not carried out any local inspections since the new

108 The Norwegian Building Authority (2011) *Siste nytt. Den nye veiledningen er her – med gratis blanketter* ('Latest news. The new guidelines are here – with free forms'). 1 March 2011.

regulations came into force. However, the municipality does carry out document control of specifications of hazardous materials. The City of Trondheim's Building Permits Office was waiting for material from the Norwegian Building Authority to prepare a procedure for local inspections. The audit shows that the municipality employee responsible for this states that making the supervision work a priority is a challenge. The Office of the City Auditor of Trondheim also reviewed the way the municipality handles its own projects and found that out of a total of six projects, one lacked a waste handling plan, two lacked a declaration of waste handed in, and one project had not submitted documentation of an environmental survey having taken place. The municipal auditor offices in Skien and Tromsø also examined supervisory activities pursuant to the Planning and Building Act. There had been no local inspections pursuant to the regulations in these municipalities either.

The Office of the City Auditor of Oslo's investigation shows that the supervision strategy for 2011 was not ready as of June that year. Nevertheless, 17 inspections relating to building and construction waste were carried out in the period until May. The municipality carried out seven building and construction waste inspections in 2010, but processed 1,200 cases involving waste handling plans and final reports during the same period.

It emerges from interviews with the county governor offices' environmental protection departments that the municipalities have different levels of competence and that the extent to which municipalities supervise building and construction activities varies. Even some large municipalities lack expertise in this area. The county governor offices understand that it is a challenge for small municipalities with limited resources to obtain sufficient competence in this area. The interview revealed that some municipalities have found that cooperating with other municipalities improves their competence and makes work more systematic.

6.6 Mercury from dentistry

The Pollution Regulations Section 15A-6 requires an amalgam separator for wastewater to be connected when wastewater containing amalgam is discharged from dental clinics and dental surgeries. The amalgam separator requirement also applies to sinks and similar that receives amalgam waste. During the 1990s there was a considerable decrease in the use of amalgam as a dental filling

material. Approximately 206 kg of mercury was used in 2001, and this equals about 15 per cent of the amount used in 1990.¹⁰⁹ The use of amalgam as a dental filling material was banned from 1 January 2011. According to the Norwegian Climate and Pollution Agency's Action Plan for Reducing Mercury Releases – 2010, these measures have reduced the amount of mercury in wastewater and sludge. In 2004, the amount of mercury in deposits in dental clinics was estimated to be 400 kg.

On behalf of the Office of the Auditor General, Mepex has updated the Norwegian Climate and Pollution Agency's estimate of the annual amount of mercury waste from dental practices, cf. *Prioriterte miljøgifter i produkter – data for 2007* ('Priority environmental toxins in products – data for 2007'). The amount for 2009 is estimated to be 425 kg in terms of pure mercury, whereas it was 666 kg for 2007. The calculations are uncertain, and they are sensitive to changes in the assumptions. A new calculation was also made on the basis of the amount of mercury still in the nation's teeth and an assumed linear phasing-out period of 50 years, which gives a result of 400–480 kg of mercury for 2011. Between 250 and 330 kg of this mercury comes from extracted teeth and replaced fillings.

The median value for the amount of amalgam waste handed in from dentists registered in Norbas in the period 2003–2010 is 2.6 tonnes per year. The figure has been adjusted for obviously incorrect Norbas registrations. In 2009, the registered amount of amalgam waste handed in from dentists was 2.5 tonnes. On assignment for the Office of the Auditor General, Mepex has calculated the amount of mercury handed in in amalgam waste on the basis of two different methods, and arrived at the figure of between 100 and 200 kg for 2009. These calculations were carried out based on Norbas figures. Documented data from a major enterprise in the dental industry indicates that the actual amount of mercury collected in Norway was 22.5 kg per year on average for the past three years, from the second half of 2007 to the first half of 2010. The estimates differ and are uncertain, but they are all lower than both the Norwegian Climate and Pollution Agency's estimate and the new estimate of the amount generated annually. There could be different reasons for this discrepancy, including a poorer cleaning effect of amalgam separators than assumed. At the same time, amalgam is also accumulated in

109 The Norwegian Pollution Control Authority (2004) *Stoff for stoff – kilde for kilde: Kvikksølv i avløpsnett* ('Substance by substance, source by source: Mercury in the sewage system'). TA-2039.

pipes and other equipment during use. When this equipment is replaced, it is not necessarily declared as hazardous waste. Moreover, errors in declaration and registration in Norbas could have a significant effect on small fractions such as amalgam from dental practices.

In its investigation for the Office of the Auditor General, Mepex did not find any documentation or indications of amalgam being disposed of as residual waste, but there are several factors to indicate that some of this waste is not being properly handled.

- It has not been possible to verify how dentists handle extracted teeth.
- There is no documentation of systematic collection procedures for discarded dental units (dental chairs with cuspidors, lights, tubes and equipment).
- No systematic treatment has been documented for the pipe system. Previous supervisory activities by the county governors show that equipment containing amalgam is rinsed in sinks that are not connected to an amalgam separator, and that some such equipment may be disposed of as residual waste.

The investigation shows that many dentists have not been registered with any amount handed in. Of the 32 dentists assumed to be active in Sarpsborg, only four declared amalgam almost every year. Amalgam from dental practices may have been declared by the collector and not the dentists, which are the waste producers. Previous supervisory activities by the county governors show that some dentists store amalgam for years, often not in the original packaging.

6.7 End-of-life vehicles and vehicle repair shops

The take-back company Autoretur states in its annual report for 2009 that the collection rate for end-of-life vehicles is 93 per cent. The statistics reported by Autoretur also cover non-members. Autoretur states in an interview that it is difficult to calculate the collection rate for vehicles. Not all deregistered vehicles are scrapped – some are stored (for example vintage cars). There are also many cars in illegal landfills and scrap cars stored on the owner's own property. It is also probable that cars are sometimes exported without a certificate of destruction being issued, for example to Africa. Export out of the EU is not registered in the Directorate of Public Roads' system.

The Norwegian Climate and Pollution Agency states in an interview that the take-back scheme for vehicles is functioning well. Autoretur states that it is a challenge that its users do not have satisfactory information about how to hand in vehicles. The licence entails a requirement to make the scheme known. Autoretur has organised several campaigns.

6.7.1 Handling of hazardous waste from end-of-life vehicles

When vehicles are scrapped, hazardous waste fractions must be separated from the scrapped vehicles to avoid hazardous substances ending up in liquid expressed when vehicles are crushed or going into the shredder in crushed scrap vehicles. In addition, there is a risk of pollution through run-off to the soil due to a lack of impermeable surfaces or collection systems or inadequate handling of the separated hazardous waste fractions. Pursuant to the Pollution Control Act, the municipality is the authority responsible for following up illegal activities at vehicle wrecking yards that are not required to hold emission permits from the authorities.

The purpose of the Norwegian Climate and Pollution Agency's 2005 inspection campaign targeting vehicle wrecking yards was to survey the vehicle breaker industry and assess the removal of hazardous substances, pollution of the surroundings and handling of hazardous waste. An overall goal of the campaign was to raise awareness in the industry and individual enterprises about their obligations, cf. the environmental regulatory framework. In its summary memo, the Norwegian Climate and Pollution Agency describes the failure to separate out components that contain mercury as one of the campaign's most critical findings.

Table 6.8 (following next page) shows the Norwegian Climate and Pollution Agency's summary of the vehicle collection enterprise campaign in 2005. Enterprises with and without licences were inspected. Storage of hazardous waste is described as unsatisfactory for half of the inspected enterprises, while inadequate handing-in was found in 15 per cent. Explanations for this non-conformity include exceeding of the one-year deadline for handing in waste and employees using fluids such as fuel and windscreen wiper fluid for their own personal use or reselling them. Thirty per cent of the enterprises inspected did not hold a licence. This group includes vehicle parts dealers, scrap dealers and other parties trading in car parts. Half of these enter-

Table 6.8 Summary of the results of the vehicle collection enterprise campaign 2005

Topic	Goals	Results	Yes %	No %
Removal of hazardous components from scrap vehicles prior to crushing	Are hazardous components satisfactorily removed from vehicles prior to crushing?	Is the number of scrap vehicles on the premises within the limits of the permit?	80	20
		Are priority fractions removed before crushing?	72	28
		Are fluids removed in a satisfactorily manner?	62	38
Pollution of the surroundings	Are the surroundings being polluted?	Pollution outside the enterprises' premises?	17	83
		Have there been complaints – from neighbours or others?	17	83
	Is there satisfactory collection of spillages when fluids are being handled?	When vehicles are crushed, is any liquid expressed collected and handed in as hazardous waste?	66	34
		Are there impermeable surfaces where required?	45	55
		Do the impermeable surfaces have run-off to a closed tank or oil separator?	81	19
	Is wastewater handled properly?	Is the closed tank/oil separator emptied regularly?	84	16
Is the oil separator dimensioned to handle the actual amounts of water?		85	15	
Hazardous waste	Is hazardous waste handled properly?	Is hazardous waste stored properly?	49	51
		Is hazardous waste handed in to an approved collector?	85	15

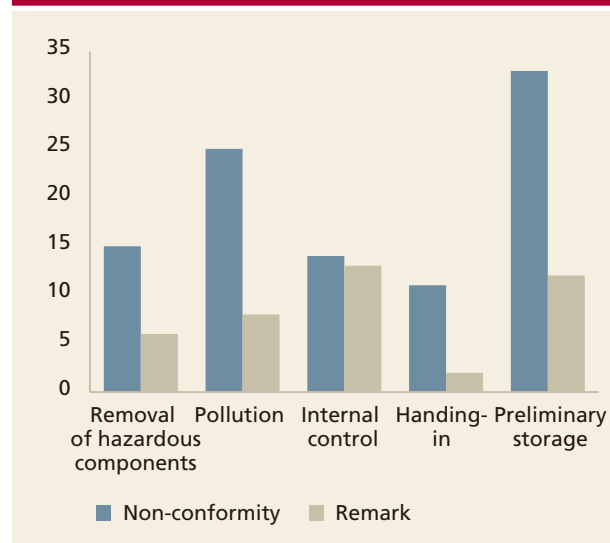
Source: The Norwegian Climate and Pollution Agency's summary of the inspection campaign.

prises were found to be subject to a licence requirement, and were thus operating illegally.

It emerges from the summary memo and the inspection reports reviewed that there are large differences between the enterprises. Some have well functioning systems, while some enterprises have many non-conformities. In the 42 inspection reports reviewed, more than a quarter of the enterprises were found to have four non-conformities, while another quarter were only found to have one. Only 12 per cent of the enterprises were found to be free of non-conformities.

According to the Norwegian Climate and Pollution Agency, 106 of 131 vehicle collection enterprises holding permits were checked in this campaign. Figure 6.13 provides an overview of non-conformity categories and remarks. Most non-conformities were related to unsatisfactory storage of hazardous waste, and poor labelling, mixing of hazardous waste with ordinary waste and storage on unsatisfactory surfaces were among the problems pointed out. The lack of impermeable surfaces is also included in the non-conformity category 'pollution of the surroundings'. This is due to somewhat differing registration practices. A waste oil facility states that there are some vehicle repair shops and wrecking yards that only hand in waste oil during the summer months. In winter, these enterprises incinerate the waste oil themselves, in violation of the regulations.

Figure 6.13 Non-conformity patterns in vehicle collection enterprises. Number of non-conformities/remarks by category



Source: Review of 42 inspection reports from selected offices of the county governor

6.7.2 EE waste from vehicles

The Waste Regulations do not require EE waste to be separated from vehicles. Analyses of light fractions from shredder plants indicate that shredding scrap vehicles can result in a higher content of heavy oil fractions and brominated flame retardants than shredding mixed metal fractions.¹¹⁰ On assignment for the Ministry of

110 The Norwegian Pollution Control Authority (2008) *Prøvetaking høsten 2007. Analyser av lettfraksjon fra fragmenteringsverk* ('Sampling autumn 2007. Analyses of light fractions from shredding plants'). TA-2359.

the Environment, the Norwegian Climate and Pollution Agency has assessed the consequences for society of including EE components removed from vehicles in a take-back system. Removing such components will come as a specifically Norwegian addition to the directive. The experiment that the Norwegian Climate and Pollution Agency has had carried out shows that the cost-benefit ratio of separating out circuit boards is similar to that of separating circuit boards from other EE products.¹¹¹ The project also found high values of brominated flame retardants in seat covers/textiles in 20–30 per cent of vehicles.

The EE take-back companies state in interviews that the proportion of plastic containing brominated flame retardants and circuit boards in modern cars is increasing. The take-back companies feel that the regulations are illogical. Autoretur states that the vehicle collection enterprises comply with the EU regulations. Autoretur emphasises that information from producers indicates that the level of pollution, for example after shredding of waste, indicates that removing components is not necessary from an environmental perspective.

6.7.3 Vehicle repair shops and corresponding workshops

Inspection reports from 128 inspections of vehicle repair shops or corresponding workshops in five selected counties show that only 10 per cent of the enterprises inspected were free of non-conformities with regulations. Thirty-eight per cent of enterprises were found to have two non-conformities, while 28 per cent had one, and 24 per cent had three or more non-conformities.

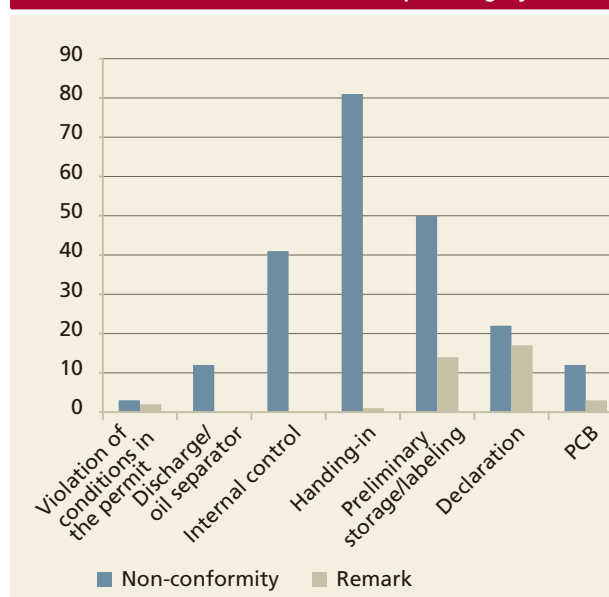
Figure 6.14 below shows an overview of non-conformities and remarks. The most common type of non-conformity is related to hazardous waste. This non-conformity is somewhat overrepresented as a result of differences in registration. Non-conformities relating to storage and declaration could therefore be included here.

6.8 Partial assessment

Common international regulations for the purpose of combating pollution from ships have been implemented through the Pollution Regulations Chapter 20. The Norwegian Maritime Directo-

111 Klif (2011) *Vurdering av behov for nye krav til miljøsanering av kasserte kjøretøy* ('Assessment of the need for new requirements regarding the removal of hazardous components from end-of-life vehicles'). Mepex. Preliminary report.

Figure 6.14 Non-conformity pattern in vehicle repair shops and corresponding workshops. Number of non-conformities/remarks per category



Source: Review of inspection reports from selected offices of the county governor

rate is responsible for monitoring ships that call at ports and checking that they comply with the provisions. The Directorate evaluated compliance with the regulations in 2005, and has since been tasked by the Ministry of the Environment with following up the evaluation. This has not been done. In addition, the Norwegian Maritime Directorate has also not been following up its duty to monitor ship-generated waste for many years. The Directorate has not made sure that it obtains the notifications sent by ships to ports regarding waste delivery, and can thus not follow up whether the ships hand in waste.

The county governors are the pollution control authorities for ports. They have not to a sufficient extent followed up whether the ports have waste handling plans, or evaluated the quality of these plans. The investigation also shows that many ports lack waste handling plans, and that existing waste handling plans do not comply with the regulatory requirements. Moreover, the investigation shows that only a small amount of waste is handed in from marinas, and that the physical collection facilities may be inadequate.

In Recommendation No 228 to the Storting (2004–2005), the Standing Committee on Energy and the Environment refers to the business community's responsibility for waste resulting from its own products, and the fact that there are producer responsibility schemes in effect for several types of waste that have shown good results. Producer

responsibility, which means that the businesses are given responsibility for the treatment and recovery of waste from their own products, is an important strategy to help to ensure that the 'polluter pays' and to reach the goals set for the waste management area. The investigation shows that the producer responsibility schemes mostly function well and help to increase the collection rate, but that neither the collection of nor the removal of hazardous components from EE waste is satisfactory.

The investigation shows that a high proportion of the EE waste produced is not collected. Waste that is not collected is stored, exported illegally or ends up in residual waste. The regulations regulate the take-back companies' duties in relation to EE waste collection, but not the overall collection rate. The authorities have no overview of how much EE waste is generated. This lack of management information makes proper follow-up of the take-back scheme more difficult.

Supervisory activities in relation to the take-back companies show that the removal of hazardous components from EE waste is not always satisfactory, and the waste is thus not handled properly. There is no requirement for the removal of hazardous components from EE waste in vehicles, even though EE waste from vehicles contains the same environmental toxins as other EE waste.

The municipalities and distributors of EE products both have a duty to receive EE waste, cf. the Waste Regulations. The municipalities are responsible for ensuring adequate services for the reception of hazardous waste from households. The investigation shows that the amount of hazardous waste and EE waste collected from households is less than the amount produced. Waste that is not collected is either stored, disposed of as residual waste or incinerated illegally, or it ends up in illegal landfills.

The purpose of the reimbursement scheme for waste oil is to encourage increased handing-in of waste oil for approved treatment, cf. Proposition No 1 to the Storting (2009–2010) *for the Ministry of the Environment*. The investigation shows that the reimbursement scheme helps to increase collection. At the same time, there have been incidents of fraud in connection with the scheme. The Norwegian Climate and Pollution Agency has put in place a detailed regulatory framework. The investigation shows that many of the facilities fail to comply fully with the regulations. Some of the errors result in inflated reimbursements being

paid out. The reimbursement claims are checked by the Norwegian Climate and Pollution Agency and Norsas by means of document control. However, there are circumstances that can only be uncovered by visiting the facilities. The Norwegian Climate and Pollution Agency has not prioritised inspection visits since 2006. The investigation also shows that it is difficult to determine the collection rate for waste fractions that contain oil.

Emissions of chemicals that pose a serious threat to health or the environment shall be continuously reduced, and emissions of mercury shall be reduced significantly by 2010 at the latest, cf. Proposition No 1 to the Storting (2009–2010) *for the Ministry of the Environment*. The investigation shows that the amount of amalgam waste containing mercury that is collected from dental surgeries is less than the amount that is probably produced. No indications have been found that amalgam waste is disposed of as residual waste. However, the investigation shows that it is uncertain whether extracted teeth, discarded equipment and pipes from dental clinics, all of which could contain mercury, are handled properly.

The regulations concerning building and construction waste shall help to ensure that hazardous waste from the industry is handled in an environmentally and socioeconomically sound manner. The investigation shows that hazardous waste from building and construction activities has been a priority. The municipalities have been assigned responsibility for a two-year effort focused on supervision of building and construction waste. The investigations of the municipal auditor offices show that of the municipalities in question, only the City of Oslo carried out local inspections during the first months of 2011.

PCB emissions were to be stopped by 2005, cf. Proposition No 1 to the Storting (2009–2010) *for the Ministry of the Environment*. The investigation shows that a lot of PCBs from building and construction have been collected, but that removing and collecting the remaining PCBs is a challenge. For several environmental toxins, the authorities do not know enough about the amounts, concentrations and the periods during which different products have been in use. This is particularly the case for the fractions perceived as new. There is also a need for existing knowledge to be communicated. Together, the above factors means that it is a major challenge to properly remove hazardous components and collect hazardous waste from building and construction activities.

7 Handling of hazardous waste at storage and treatment facilities

7.1 Introduction

Hazardous waste that is collected shall be delivered to approved facilities for reception, intermediate storage and treatment. Hazardous waste can be stored at a facility with an intermediate storage permit for a period of up to one year before it is forwarded for treatment, recovery or landfill. Hazardous waste fractions are received by treatment facilities for pre-treatment, recovery or final disposal.

As of August 2011, permits for 114 reception and intermediate storage facilities and 59 treatment facilities were registered in the Forurensning database. Table 7.1 shows that the amount of hazardous waste received for treatment has been stable since 2006. In 2009 a total of 22 per cent of this waste was sent for recycling or energy recovery. The rest went to final disposal, mainly in the form of stabilisation by means of chemical and physical pre-treatment before the waste was landfilled. Norwegian enterprises also treat hazardous waste generated abroad.

7.2 Licence application processing

7.2.1 The division of authority between the Norwegian Climate and Pollution Agency and the county governors

Those who handle hazardous waste must hold a licence issued by the Norwegian Climate and Pollution Agency, the county governor or a party authorised by the Ministry of the Environment. The environmental protection departments of the county governor offices have been delegated the authority to regulate private and municipal intermediate storage and reception facilities for haz-

ardous waste. Treatment facilities for hazardous waste must apply to the Norwegian Climate and Pollution Agency for a licence.

The Norwegian Climate and Pollution Agency states in an interview that, in principle, there is a clear distinction between reception and treatment facilities. If the hazardous waste received by a facility is changed by means of physical, chemical or biological processes, this shall be considered treatment. In practice, facilities can sometimes find it difficult to distinguish between these processes. For example, the distinction between storage and treatment of waste containing oil may be unclear. In principle, the environmental protection departments do not have the authority to regulate treatment facilities for hazardous waste. The Norwegian Climate and Pollution Agency states that it endeavours to ensure that a party that applies for a permit shall only deal with one pollution control authority. In individual cases, the Agency can delegate authority concerning treatment facilities for hazardous waste to the county governors. According to the Agency, this tends to be done for parties who already hold permits from the environmental protection departments for the storage or treatment of ordinary waste, or for facilities in which treatment accounts for only a small part of their activities. These cases are only delegated when the environmental protection departments indicate that they can handle them.

It emerges from interviews that the enterprises do not always perceive there to be a clear division of authority between the Norwegian Climate and Pollution Agency and the environmental protection departments. Among other things, enterprises point to different interpretations as regards what constitutes a storage facility and what constitutes a

Table 7.1 Hazardous waste for approved treatment in the period 2006–2009 by treatment. 1000 tonnes

Type of treatment	2006	2007	2008	2009
Generated in Norway, total	1,103	1,085	1,126	1,017
Of which goes to recycling	54	94	115	114
Of which goes to energy recovery	129	91	133	132
Of which goes to final disposal	945	898	894	855
Treated by Norwegian facilities	1,195	1,104	1,239	1,131

Source: Statistics Norway. Discrepancies are caused by changes in stocks not being shown, i.e. not all waste being treated in the year in which it is generated.



Storage of hazardous waste.

Source: Office of the Auditor General

treatment facility, and the fact that some enterprises have been granted permits for simple treatment by the environmental protection departments. They experience that the environmental protection departments do not always have the expertise required to stipulate sufficiently strict requirements for these facilities. Some enterprises prefer to deal with the environmental protection departments in order to have less stringent requirements imposed on them than would have been the case with the Norwegian Climate and Pollution Agency. The case file review has found cases in which facilities have applied to the environmental protection departments for an operating permit, and the application processing was taken over by the Norwegian Climate and Pollution Agency.

7.2.2 The duration of the permit

A permit granted by the Norwegian Climate and Pollution Agency is in principle perpetual, in the sense that there is no end date. However, the Pollution Act states that after ten years, changes may be made on no other basis than the age of the permit. The review of case files shows that before the Norwegian Climate and Pollution Agency initiated an update of all the permits in 2010, many treatment facilities had old permits. One facility had a permit from 1994 which did not regulate important emission components. This was also confirmed by reporting from facilities and supervisory activities over a long period of time, but the updated permit was not completed by the Norwegian Climate and Pollution Agency until

2010. The summary of the Agency's 2008 inspection campaign aimed at treatment facilities shows that several facilities held permits with obsolete requirements. The Agency states in an interview that it can initiate the process of changing a permit on the basis of reporting from the facility or matters uncovered through supervisory activities.

The review of the environmental protection departments' case files shows that there are many old permits, several of them more than ten years old. There are several cases in which the Norwegian Climate and Pollution Agency has transferred the authority to regulate hazardous waste treatment facilities to the county governor office, which has continued to use the Agency's permit formulated in the 1980s and 1990s. The environmental protection departments confirm in interviews that the county governor offices rarely have sufficient capacity to initiate the change process, and that enterprises apply for new permits if they plan to increase or change their production.

7.2.3 Conditions stipulated for intermediate storage and treatment facilities

The review of the Norwegian Climate and Pollution Agency's case files show that the treatment facilities are mainly granted permits for four main types of hazardous waste treatment. A large group of facilities treats waste that contains oil and organic substances from offshore activities, for example waste containing oil, the treatment processes for which primarily involves emissions

Table 7.2 Conditions stipulated in permits for treatment facilities for hazardous waste

Conditions that are to be unchanged in all permits	Conditions that are to be changed* (or can be omitted)	Separate conditions in new permits
<ul style="list-style-type: none"> • general conditions, including <ul style="list-style-type: none"> – emission limitations – a duty to comply with the limit values – a duty to reduce pollution as far as possible – measures in the event of increased pollution risk – internal control • testing and substitution of chemicals • preventive and emergency response measures against acute pollution • replacement of equipment • change of ownership • closure • supervision 	<ul style="list-style-type: none"> • production arrangements* • emissions to air • emissions to water • soil pollution and contaminated sediments • noise • energy • handling of waste and hazardous waste • emission control and reporting to the Norwegian Climate and Pollution Agency • monitoring of recipients and reporting to the Norwegian Climate and Pollution Agency • examinations and studies 	<ul style="list-style-type: none"> • storage • landfill • reception • requirements for financial security to be provided for the waste • requirements relating to the keeping of accounts for stored waste • competence requirements • requirement for a waste overview • requirements in the event of closure and stoppage of the enterprise

Source: The Norwegian Pollution Control Authority (2006/2009) *Behandling av søknader om tillatelse og endringer av tillatelse for landbasert industri (konesjonsbehandling)* ('Processing of applications for permits and change of permits for onshore industry (licence application processing)') and the Norwegian Climate and Pollution Agency (2010) *Mal for tillatelse behandlesanlegg for farlig avfall* ('Template for permits for treatment facilities for hazardous waste').

to water. Other facilities treat fractions that contain environmental toxins, the treatment of which results in emissions to air, for example mercury emissions from the recycling of fluorescent tubes. Some facilities treat polluted soil. These processes also involve emissions to water. There are also facilities that treat acids and bases and other fractions such as hazardous organic waste. Processes in such facilities can cause emissions to both air and water. The case file review shows that over time, some facilities expand their activities to include more types of treatment.

The Norwegian National Authority for Investigation and Prosecution of Economic and Environmental Crime (Økokrim) states in an interview that it faces challenges in criminal cases in the environmental field because permits granted by the Norwegian Climate and Pollution Agency are general and stipulate few specific requirements. Økokrim states that it has seen a shift from permits stating clear conditions to framework permits which leave more up to discretionary judgement. This makes the regulations more dynamic and is an advantage to the business community, but the end result could be regulations that are difficult to verify in court, and, as a result, Økokrim has had cases where it could not gain approval of its opinion in court.

The conditions set out in permits granted to reception, intermediate storage and treatment

facilities and landfills for hazardous waste are based on the provisions of important regulations and guidelines that regulate the environment, the working environment and explosion hazard. Table 7.2 shows the conditions a permit granted by the Norwegian Climate and Pollution Agency for the treatment of hazardous waste comprises.

Conditions for production conditions (condition 1)

The Norwegian Climate and Pollution Agency states that the condition in the permit concerning production arrangements (condition 1) is a key condition because it sets out the limits for the amount and types of waste that an enterprise can store and treat. Other conditions will be based on this. In order to ensure that the production and emission arrangements in this condition are specified precisely, leaving no room for misinterpretation by the licensee, the Norwegian Climate and Pollution Agency endeavours to keep the language used in permits clear. Waste codes can be used, but not all matters can be stated using codes.

The case file review shows that the degree of precision in the formulation of condition 1 in the treatment facility permits varies. For older permits, conditions relating to storage and reception are described in more general terms. For example, one treatment permit was found in which reception and storage or intermediate storage have not been stated as part of the scope of the permit.



The explosion at the Vest Tank facility.

Source: TV2

The supervision reports for treatment facilities show that permits where condition 1 also contains conditions relating to reception and storage conditions are a source of non-conformity with the permit. Some enterprises store hazardous waste long-term even if they only have a permit for temporary storage. This results in the supervisory activity identifying a non-conformity, although it is not necessarily clear from the permit where the line should be drawn. In the permits that the Norwegian Climate and Pollution Agency is now updating, separate conditions relating to reception and storage as well as landfills are included as sections 3 and 4 of the permit.

In several cases, condition 1 in permits for facilities that treat drilling waste are very general in their description of what waste fraction is permitted. Some permits use terms such as *water containing oil*, *sludge water*, *oil drilling waste* and *slop water* without defining the different terms in more detail. These are older permits, from both the 1990s and the early 2000s.

Two criminal cases illustrate how important it is for permits to be specific. In the Vest Tank case (see Fact Box 7.1), the company management was acquitted in the first instance of the count that the desulphurisation waste received by the enterprise was not within the fractions that the enterprise's permit allowed it to receive. The district court concluded that the meanings of the terms *rinse water* and *sludge water* were not clearly defined, and because the content of oil in this water could vary, the waste could be described as *rinse water* or *sludge water*. In the appeal case, however, the court of appeal deemed the desulphurisation waste not to be in accordance with the definition of *slop* given in the permit. On the other

hand, the defendant was convicted on the count of treating coker gasoline in both the lower and higher court, because this is a petrol product and thus falls outside of the wording of the permit. In the so-called Petro Oil case (see Fact Box 7.1), the Norwegian Climate and Pollution Agency reported the enterprise to the police for violation of the permit for the reception and treatment of photochemicals, but subsequently deemed the description 'water contaminated with oil and chemicals' in the permit to mean that the enterprise did hold a permit to treat photochemicals.

Fact Box 7.1 The Vest Tank and Petro Oil cases

The Vest Tank accident in 2007: The enterprise held a permit to receive waste containing oil from ships. The enterprise entered into an business agreement to receive other types of waste from petroleum production. This agreement meant that Vest Tank was to receive polluted petrol from tankers (coker gasoline), desulphurise it and then load it back onto the ships for sale on the African market. The result of this was that the enterprise was left with large quantities of desulphurisation waste that it had no permit for processing.

The enterprise started a process of cleaning the desulphurisation waste. One of the facility's tanks exploded, and the contents of one of the neighbouring tanks also flowed out and burnt up. After the accident, local residents have experienced health problems that have been linked directly to the explosion. The case ended in the courts, and the former general manager was sentenced to prison both by the lower and higher court.

The so-called Petro Oil case from 2002: Petro Oil was a reception facility for oil waste. The enterprise discharged oil directly into the natural environment from tanks and pipe networks. Samples were manipulated and the waste mixed before being sold for final disposal. Hazardous waste was also handed in to the municipal landfill, which did not hold a permit to receive it. The general manager was charged with, among other things, defrauding the Norwegian State of more than NOK 22 million. He was sentenced to imprisonment and fines.

Sources: The Norwegian Climate and Pollution Agency and the Norwegian National Authority for Investigation and Prosecution of Economic and Environmental Crime (Økokrim).

For three of the facilities in the case files, which handle substances such as contaminated soil, photochemicals and acids, EWC codes have been used in condition 1 to specify what the permit applies to. The permits refer to the chapters in the

EWC, but not to specific waste codes. The groups of waste that fall under the chapters are described in condition 1, although the list is not described as exhaustive. The permits date from 2007 and 2008, but there are other newer permits granted in the same period that do not specify EWC chapters. The Norwegian Climate and Pollution Agency states that it has increased its focus on condition 1. The new permit template now specifies that EWC codes shall be stated in the permits.

Other important conditions – emissions to air and water

The conditions relating to emissions to air and water and soil pollution are linked to the treatment processes. The Norwegian Climate and Pollution Agency's guide states that the requirement for enterprises that fall under the IPPC Directive to use solutions with the best available technology, BAT, is attended to by using what can be achieved by using BAT as a basis when stipulating limits for emissions to air and water.¹¹²

It emerges from interviews with enterprises that the permits and the requirement to use BAT-standard technology are the most important incentives for sound operation of reception and treatment facilities for hazardous waste. Predictability in relation to these requirements is an important factor in enabling enterprises to make sensible investment decisions. Some enterprises find that no BAT requirements are made of their facilities, and that facilities generally do not use BAT.

For facilities that treat waste from the oil industry, requirements apply both for the total amounts of individual components and their limit values. The review shows a particular attention to certain components. These components are COD, oil, TOC and several types of heavy metals.¹¹³ Permits from the mid-1990s did not regulate TOC, and the Norwegian Climate and Pollution Agency has therefore not had the legal authority to point out non-conformities for TOC values for these permits. The case file review shows that it can be difficult for enterprises to comply with TOC limits. This is also confirmed by inspection reports and interviews.

112 The IPPC Directive is the framework directive concerning integrated pollution prevention and control, and is implemented in the Norwegian Pollution Control Act through the Pollution Regulations Chapter 36. The IPPC Directive requires enterprises to document that they use BAT during set-up and operation.

113 COD stands for Chemical Oxygen Demand and is a measure of chemical reactions that take place when water is introduced to oxidizable substances. TOC stands for Total Organic Carbon, i.e. the amount of carbon bound in organic compounds. COD and TOC are often used as water quality indicators. The limit values state the acceptable level without a reduction of water quality.

For facilities that use incineration in their treatment of waste, requirements are stipulated for emissions of mercury and PCBs in particular. PCBs are broken down by incineration. For mercury, a requirement applies for the fraction to be forwarded for final disposal.

The Norwegian Climate and Pollution Agency states in an interview that certain hazardous waste fractions are demanding for facilities to treat, and it is therefore particularly difficult to regulate these fractions in permits. Metals and mercury, for example, cannot be destroyed. Some components, for example dioxins, are difficult for the polluter to document, partly because the analyses are expensive. This has consequences for the requirements relating to the sample collection and quality assurance needed to document the treatment. In 2011, the Norwegian Climate and Pollution Agency sent the enterprises a letter about updated requirements for sample collection to be implemented from 2012.

New requirements in the permits

On the basis of the Vest Tank case, the Ministry of the Environment in 2010 informed the Storting's Standing Committee on Scrutiny and Constitutional Affairs that treatment and reception facilities were given high priority, and that all permits for treatment facilities were to be revised and the requirements made more stringent where the Agency deemed this necessary.¹¹⁴ In 2010, work was initiated on updating all treatment facilities' permits with new conditions. The requirements regulate the reception part of treatment facilities by stipulating new and improved requirements in the following areas:¹¹⁵

- financial security for stored hazardous waste
- keeping of accounts for storage of waste (ordinary and hazardous waste)
- competence
- waste overview
- closure and stoppage of the enterprise.

The Norwegian Climate and Pollution Agency states in an interview that the new conditions will help to ensure that treatment facilities are more effectively regulated and that stocks are

114 The Ministry of the Environment (2010) *Svar på brev om tilsynsorganenes rolle i forbindelsen med eksplosjonen i Gulen* ('Reply to letter about the role of the supervisory bodies in connection with the explosion in Gulen'). Letter of 2 April 2010 from the Minister of the Environment to the Storting's Standing Committee on Scrutiny and Constitutional Affairs.

115 The Norwegian Climate and Pollution Agency (2010) *Informasjon om endring av vilkår til behandlingsanlegg for farlig avfall* ('Information about changes in conditions for treatment facilities for hazardous waste'). Letter of March 2010 from the Norwegian Climate and Pollution Agency to treatment facilities, with enclosures.



Storing of waste containing oil. Source: Office of the Auditor General

kept down. The Accounting Act confirms the duty of auditors to include stored waste as negative capital, and the fact that this condition has been included in the permits serves to highlight the requirement. Several enterprises state that the requirement for financial security for stored waste is a positive measure that could help to eliminate unscrupulous enterprises.

Conditions in permits from the county governors

Reception facility permits stipulate conditions relating to the framework for the enterprise and requirements for reception, storage and, if relevant, landfills. They also contain requirements relating to the recipient. The case file review shows that the form of permits vary between different environmental protection departments, and that requirements stipulated in addition to general requirements that follow from the Pollution Control Act may vary.

The Norwegian Climate and Pollution Agency states in an interview that the county governors have independent authority in this area, granted in 1990 in a letter from the Ministry of the Environment to the Norwegian Climate and Pollution Agency.¹¹⁶ The Agency cannot issue instructions to the environmental protection departments in individual cases, since the Agency is the appeal body. The Agency points out that the county governors also take into consideration local factors

¹¹⁶ The Norwegian Climate and Pollution Agency states that the letter in question is a letter of 5 November 1990 from the Ministry of the Environment to the Norwegian Pollution Control Authority.

that the Agency cannot assess. The Agency refers to its new template for permits for reception, storage and treatment of hazardous waste. This template was drawn up by the Norwegian Climate and Pollution Agency, but is placed at the county governors' disposal. The environmental protection departments state that they use the template, and that they have also used previous versions of it. When the form of the permits nonetheless differ greatly, this could be because many of the permits are old. Some of the county governor offices find that the template primarily functions as a checklist.

The environmental protection departments state in interviews that they have not considered whether they set the same requirements as the Norwegian Climate and Pollution Agency for similar activities (temporary storage, simple treatment etc.), but point to the fact that there are many appeal cases in which the Agency upholds the environmental protection departments' requirements. The report *Myndighetsfordeling etter forurensningsloven mellom Klif og Fylkesmannen* ('Division of authority between the Norwegian Climate and Pollution Agency and the county governors pursuant to the Pollution Control Act') points out that different requirements are made within the same industry, and that similar enterprises are treated differently. Several enterprises interviewed also have the impression that different requirements are stipulated in the permits of facilities established in different parts of the country. The enterprises also find that the Norwegian Climate and Pollution Agency and the county governors set different requirements for the same activity. Some of the enterprises express the opinion that stricter requirements are made of the large enterprises. It is also pointed out that there are cases in which permits are granted allowing waste to be landfilled without pre-treatment, even though a pre-treatment requirement applies to the waste fractions in question. The enterprises point out that the Norwegian Climate and Pollution Agency could do more to raise the environmental protection departments' competence.

Small municipal facilities are exempt from the permit requirement, and are primarily regulated by requirements set out in Appendix 2 to Chapter 11 of the Waste Regulations. Table 7.3 shows the conditions that apply to municipal as well as private storage facilities. The table describes conditions covered both in permits and in the regulations, and requirements found in permits only. A review of the environmental protection depart-

ments' permits shows that the permits contain requirements that are not explicitly stipulated for the municipal facilities.

The review of permits granted by the county governors shows that most county governors specify conditions for which types of hazardous waste the enterprise can and cannot receive. The starting point is that facilities are permitted to receive all types of hazardous waste, but with certain exceptions. A few permits limit the framework for the permit by referring to EWC, but they also refer to Appendix 1 to Chapter 11 of the Waste Regulations, which covers all types of hazardous waste. For the municipal facilities, fractions of hazardous waste are normally specified by references to the EWC list.

The permits specify the amounts and how long hazardous waste can be in intermediate storage before it must be forwarded. The appendix to the regulations also contains requirements relating to amounts and periods of storage that are stipulated for municipal facilities. For private facilities with permits, special conditions may be set in the permit stipulating that the waste must be packaged and clearly labelled. There are no corresponding conditions in the appendix to the regulations, other than general conditions for the handling of hazardous waste that apply to both types of facilities.

The review also found several other conditions that are not explicit in the requirements that apply to municipal facilities. This concerns requirements for reception control at facilities. As shown in Table 7.3, a reception facility is required to ensure that the waste holder has declared the waste. This requirement does not entail any checks of fractions received, other than the above-mentioned declaration control. The permits for the private facilities also contain requirements for internal control and risk assessment, and requirements for registration and reporting of non-conformities. Moreover, the permits for the private facilities can contain more precise requirements for storage and stipulations requiring permission from the Directorate for Civil Protection and Emergency Planning if the facilities receive waste that is normally regulated by the Directorate. The Norwegian Climate and Pollution Agency points out that it is only municipal facilities with a limited scope of operations that are exempt from the permit requirement.

The Agency states in an interview that it is working on formulating standard requirements for the reception and storage of hazardous waste, and will propose to the Ministry of the Environment that these requirements be incorporated into Chapter 11 of the Waste Regulations. In order to attend to local considerations, individual condi-

Table 7.3 Requirements stipulated by the county governors for municipal and private storage facilities

Conditions stipulated for both private and municipal facilities:

- amount and period of storage and intermediate storage
- distinction between temporary storage and long-term storage
- responsibility/replacement of persons with responsibility
- competence requirements
- pollution prevention requirements
- handling
- emergency preparedness
- notification
- requirements relating to the operation and qualities of the reception facility
- declaration requirement
- record-keeping requirement
- requirements relating to access for inspection and control
- requirement that storage should not result in run-off to soil

Conditions only found in permits for private facilities:

- specification of what types of hazardous waste can be received
- specification of what types of hazardous waste cannot be received
- packaging and labelling
- re-packaging
- reception control, including spot checks
- if relevant, approval from the Directorate for Civil Protection and Emergency Planning for the fractions regulated by the Directorate
- various requirements for internal control and related procedures, including risk assessment
- requirement for non-conformities to be registered
- specific storage conditions such as an impermeable surface, encircling wall, containers and location
- final disposal
- discharge to water
- dust and noise
- closure, including requirements for financial guarantees and operating condition
- monitoring and reporting

Source: Case file review and the Waste Regulations.

tions in separate permits will be required in addition to the conditions set out in the regulations. The county governors state that regulations defining the minimum requirements will help to regulate a larger proportion of enterprises, but point out that the largest enterprises will need permits, and that although the regulations can stipulate minimum requirements, additional requirements depending on the recipient can be stipulated in the permit. The Norwegian Climate and Pollution Agency states that it could be appropriate to set different requirements in connection with the assessments of recipients. In the Norwegian Climate and Pollution Agency's opinion, the changes it is considering will ensure a more uniform stipulation of requirements and a possibility for specific requirements to be set, depending on recipient conditions.

7.3 Reporting from facilities

Treatment facilities for hazardous waste submit an annual report to the Norwegian Climate and Pollution Agency about their activities during the previous year. The case file review shows that the enterprises report measurements of values (or amounts) through the year for components specified in their permits, but that they do not always enter as non-conformities all cases where they exceeded the limits, even if it is apparent from the reports that the measured values exceeded the permitted levels. The Norwegian Climate and Pollution Agency confirms this in an interview. In cases where the Agency considers these cases to constitute minor non-conformities, the Agency replies that it has received a report of minor non-conformities. In other cases, the correspondence shows that the Agency perceives the deficiencies in the reporting to be so serious that it asks the enterprise to submit a new report. The case file review shows that most enterprises receive standardised replies from the Norwegian Climate and Pollution Agency. The case files mostly contain reports for which the Agency has not considered the non-conformities to be of such a nature that they require follow-up.

The reporting from facilities was checked in the Norwegian Climate and Pollution Agency's inspection campaign aimed at treatment facilities in 2009. The summary of the campaign shows that there were deficiencies in the reporting of several facilities:

- missing information for several emission components

- incorrect value or unit for several of the emission components
- too few measurements carried out
- large discrepancies between the amount of hazardous waste reported and the amount reported in Norbas.

It varies whether facilities for the storage of hazardous waste submit reports to their respective county governor offices. The environmental protection departments state in an interview that reporting varies between facilities, and that professional enterprises submit good reports. Reference is also made to the fact that no reporting requirement applies to facilities that hold permits in accordance with the regulations. Follow-up of the reporting from facilities could also vary, but several of the departments state that they use such reporting in subsequent supervisory activities. This is partly confirmed by the case file review. The environmental protection departments state that the non-conformity most often reported by facilities is exceeding permit limits, e.g. for the amount of waste received.

7.4 Supervision of storage and treatment facilities

7.4.1 Forms and frequency of supervision

The Norwegian Climate and Pollution Agency and the county governors both supervise the waste management enterprises that hold permits in order to ensure that they are complying with regulations. When licence applications are processed, enterprises are assigned to risk categories on the basis of pollution risk and seriousness of a potential pollution incident. The risk categories go from 1 to 4, with 1 indicating the most serious level of pollution risk. The classification is to include an assessment of the recipient in relation to the activity taking place. The risk categories specify intervals both for inspections and audits, as shown in Table 7.4. When the Norwegian Climate and Pollution Agency updated the treatment facility permits, the Agency decided that all treatment facilities are to be assigned to risk category 2. Supervisory activities will be carried out in relation to these facilities at least once every three years in the form of inspections and audits, each of which will be carried out once every six years.

The case file review shows that the county governors' practice is not uniform. Only permits from 2008 onwards assign storage facilities to risk categories. The risk category is specified in seven

Table 7.4 Periodic risk-based supervision frequency and type

Risk category	Inspection control	System audit
1	At least once every four years	At least once every four years
2	At least once every six years	At least once every six years
3	Every 3–4 years	–
4	As needed, but as a guideline every 6–8 years	–
Not assigned to a risk category	As needed	–

Source: The Norwegian Climate and Pollution Agency.

permits or permit updates. These permits are held by four facilities assigned to risk category 2 and three facilities assigned to risk category 3. Not all the inspection reports specify a risk category. The risk category was specified in 17 of a total of 35 inspection reports, which also include municipal facilities. The Norwegian Climate and Pollution Agency's internal audit of the action plan for supervisory activities for the period 2008–2010 pointed out that many facilities are registered in the Forurensning database without being assigned a risk category. It emerges from interviews with the environmental protection departments that the way in which the Norwegian Climate and Pollution Agency's classification system is practised may differ from region to region. The environmental protection departments point out that the classification should be more uniform. Interviews with enterprises confirm that the criteria for assigning risk categories can be perceived as unclear, because different environmental protection departments emphasise different considerations. It is also pointed out that the competence and technical solutions of enterprises, which are important factors in such an assessment, are not used as the basis for assigning them risk categories.

Joint campaigns with other bodies

The experience report from the Vest Tank accident shows that there was little cooperation between the Norwegian Climate and Pollution Agency and the Directorate for Civil Protection and Emergency Planning (DSB) before and after the accident.¹¹⁷ The case file review confirms that the Norwegian Climate and Pollution Agency did not cooperate with the DSB on supervisory activities until 2007. The two parties carried out a joint inspection campaign for tank facilities in 2008 as follow-up after the accident. There has also been a joint campaign with all the HSE agencies on the

topic of risk assessments in 2009, and one with the DSB and the Norwegian Industrial Safety and Security Organisation at the Herøya industrial area in 2010.

The Norwegian Climate and Pollution Agency finds that joint supervisory activities with other agencies help to make the supervisory bodies more coordinated in terms of implementation. The Agency cannot assess tank control and explosion hazards sufficiently on its own, and such matters can therefore be supervised better through joint supervisory activities. The Agency states that there are some coordination challenges relating to joint supervisory activities. They require a lot of planning, and it takes time to complete the reports. Joint supervisory activities can be an advantage from a follow-up perspective, because it will have more of a general deterrent effect. There is more attention focused on the area when both the Norwegian Climate and Pollution Agency and the Directorate for Civil Protection and Emergency Planning report jointly.

The Norwegian National Authority for Investigation and Prosecution of Economic and Environmental Crime (Økokrim) states in an interview that it has seen examples of enterprises with a high risk of major accidents where the risk has not been uncovered despite supervisory activities. The supervisory authorities have overlooked material risk factors. Waste management enterprises state in interviews that they would like to see more attention paid to fire and explosion hazards during supervisory activities. It is also pointed out that non-conformities with the Major Accident Regulations are not always interpreted in the same way by all supervisory bodies. It would therefore be more expedient if the supervisory bodies were better coordinated and conducted more joint supervisory activities. Coordination between the Norwegian Climate and Pollution Agency and the Directorate for Civil Protection and Emergency Planning is considered a chal-

¹¹⁷ The Directorate for Civil Protection and Emergency Planning (2007) *The Vest Tank Accident. Experiences gained from the Authorities' collective handling of the Vest Tank accident in Gulen Municipality.*

lenge, particularly for enterprises that erroneously receive fireworks and/or fractions regulated in the grey area where the two agencies' responsibilities meet.

Frequency

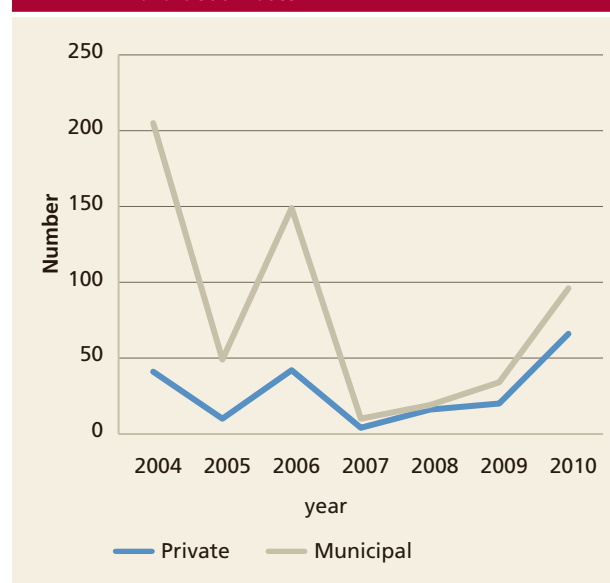
According to the Forurensning database, a total of 149 supervisory activities targeting treatment facilities for hazardous waste were carried out during the period 2001–2010. Reported data show that during the past decade, the Norwegian Climate and Pollution Agency has carried out supervisory activities in relation to 39 of the treatment facilities that the Agency regulates. Figures from Forurensning show that the number of supervisory activities in connection with treatment facilities has risen again after dropping towards 2007. The Agency's inspection reports show that one of the reasons for the increase in 2008 and 2009 was inspection campaigns with a high number of control objects. There was also an increase in 2010, when the increased supervision frequency could be a result of follow-up activities after the campaigns. The Norwegian Climate and Pollution Agency's summaries for recent years show that the number of frequency-based supervision activities has remained stable during this period (approximately seven per year).

Data retrieved from the Forurensning database for the period 2005–2010 shows 214 registered supervisory activities carried out by the county governor offices. Enterprises regulated through regulations (with the exception of crematoriums), such as municipal reception and intermediate storage facilities for hazardous waste, are not registered in Forurensning unless they have been subjected to supervisory activities. Statistics from this database therefore provide an incomplete picture of the number of inspection objects that fall under the environmental protection departments' authority. In addition, the figures from Forurensning do not comply with the number of supervisory activities arrived at through the case file review and the county governors' reporting to the Office of the Auditor General.

Figure 7.1 shows the number of supervisory activities targeting reception and intermediate storage facilities for hazardous waste carried out by the environmental protection departments, broken down by facilities regulated by permits and facilities regulated by regulations. The figure shows that the supervision frequencies for both types of facilities were highest in the years 2004, 2006 and 2010, when there were campaigns aimed at pri-

vate, intermunicipal and municipal facilities. The annual frequency for supervisory activities in relation to facilities regulated by permits has otherwise remained stable, with just under one third of the facilities being targeted each year. The number of supervisory activities aimed at municipal facilities has decreased, both in years with and in years without campaigns.

Figure 7.1 Number of supervisory activities targeting reception and intermediate storage facilities for hazardous waste



Source: Reporting from county governor offices to the Office of the Auditor General

The case file review shows that of 35 supervisory activities carried out by the county governors, seven were on the county governor's own initiative. The environmental protection departments state in interviews that they have a high level of supervisory activity, but that it would be desirable to increase the volume as well as the frequency of such activities, although not to change the supervision profile.

7.4.2 The implementation of supervisory activities

The annual reports for supervisory activities from the Norwegian Climate and Pollution Agency shows that it is important to check the handling of hazardous waste in different parts of the waste management chain in order to raise awareness about proper handling and avoid hazardous waste going astray. It is also pointed out that it pays for the industry to have large amounts of waste stored, and that the Norwegian Climate and Pollution Agency must therefore focus on this in its supervision.

The Norwegian Climate and Pollution Agency states that, in addition to supervising the treat-

ment facilities, it has tried to follow the waste streams to uncover any weaknesses in the system. This means that, after conducting controls of the waste producer, the Agency tries to follow the waste to storage facilities and final disposal. It has emerged during these supervisory activities that it can be difficult for treatment facilities to refuse to accept inadequately declared waste from major customers. Controls have shown that when waste is handed in to treatment facilities, its treatment is not necessarily completed by that facility; the waste may be sent to a competitor. The environmental protection departments also collect information during supervisory controls and try to find out where the waste goes from there, but they state that it is difficult to be systematic in this work, partly due to limited resources.

Notification

The review of the Norwegian Climate and Pollution Agency's case files shows that the majority of supervision visits are unannounced. In the case of unannounced visits, the enterprise is not aware of the supervision before the Norwegian Climate and Pollution Agency arrives, or it is notified shortly beforehand. For system audits, the enterprises are given six weeks' notice. The Norwegian Climate and Pollution Agency is of the opinion that the enterprises could not remedy any non-conformities within six weeks. However, waste management enterprises can change certain matters that could be of importance to the control, which is why inspections are unannounced. The Norwegian Climate and Pollution Agency states that whether it is expedient for the inspectors to arrive unannounced will depend on the type of enterprise to be inspected. The campaigns are usually announced in advance through the media, but the enterprises chosen as control objects are not given any direct notification. In the Norwegian Climate and Pollution Agency's opinion, the media announcements also have an effect on the enterprises that are not inspected. The most important thing for the Agency is that deficiencies are remedied. The Agency states that it sees no difference between the proportion of findings in announced and unannounced supervisory activities. There will often be more findings in audits, which are more extensive, of a longer duration and announced in advance, but the variation in findings depend more on the type of enterprise.

In the industry association NFFA's opinion, the balance between announced and unannounced supervisory activities is as it should be, and the organisation refers to the fact that announced

activities are often more extensive than unannounced ones and require access to a lot of different data. Some enterprises experience that unannounced inspections tend to be more expedient, while announced supervisory activities focus more on reviewing documents. It is also stated that in the industry's experience, enterprises often make an effort to put matters in order before announced supervisory activities.

Supervision methodology

The Norwegian Climate and Pollution Agency states in an interview that the following methods are used: document review, individual or group interviews, plenary presentations and verification at the facilities or via documentation. The Norwegian Climate and Pollution Agency believes it to be important to use several methods during each supervisory activity.

The Norwegian National Authority for Investigation and Prosecution of Economic and Environmental Crime (Økokrim) states in an interview that although the Norwegian Climate and Pollution Agency has become more offensive in the wake of the Vest Tank case, supervision generally tends to make use of controls carried out and declarations submitted by the facilities themselves, and to a lesser extent active controls and supervision. Controls carried out and declarations submitted by the enterprises are based on trust, since the enterprises themselves must disclose whether they have done something wrong. When enterprises are ordered to provide samples, they may carry out and approve analyses themselves. In Økokrim's opinion, it is possible to get around all systems, which is something the government administration needs to be aware of when planning its supervisory activities, and the government administration must also be able to carry out follow-up controls by collecting its own samples.

In the review of the Norwegian Climate and Pollution Agency's case files, it was found to be documented in 11 inspection reports (of a total of 68) that spot-check samples had been collected from the facilities. Seven of these reports concerned inspections of two facilities. When samples are collected, this is not usually described in the reports, and it can be difficult to understand from their descriptions how the non-conformities described were uncovered. From its campaign in 2009, the Norwegian Climate and Pollution Agency reports that samples were collected from four facilities, in addition to the former Vest Tank facility. The Norwegian Climate and Pollution Agency states

that the samples were useful in verifying the information provided during the inspections.

According to the Norwegian Climate and Pollution Agency, document control is necessary both during supervision of facilities and in connection with control questionnaires. The Agency points out that document control involves a review of important information, preparations for supervision visits, verification and documentation. The Agency states that follow-up activities in relation to facilities where serious non-conformities have already been discovered through ordinary observation or system audits are particularly thorough.

The Norwegian Climate and Pollution Agency states that the Vest Tank case highlighted the importance of sample collection as a method. In recent years, spot checks have been carried out by collecting samples in bottles during supervision visits. Another simple method is to smell the contents of a tank/facility or something similar in order to determine whether taking samples seems necessary. The enterprise can be ordered to use an independent company to collect samples, or to collect samples in the presence of the Norwegian Climate and Pollution Agency. The samples are sent to an accredited laboratory for analysis.

The case file review for the environmental protection departments at the county governor offices shows that samples are not usually collected during supervision visits – neither of the waste nor from the facility's surroundings. This is confirmed in interviews with the environmental protection departments, which state that sample collection requires competence, resources and a system to cover the costs of analyses. In some cases, orders are issued for samples to be collected by an accredited company. The environmental protection departments' impression is that the Norwegian Climate and Pollution Agency's sample collection material is useful for little more than superficial checks.

Interviews with enterprises confirm that supervision are mostly based on document control, and that samples are rarely collected. The supervisory activities are primarily aimed at systems and non-conformity processing (internal control requirements). According to the enterprises, collecting more samples would be beneficial, for example as regards discharges to water. It is also pointed out that the Norwegian Climate and Pollution Agency must make greater use of inspections of facilities in order to gain a proper understanding of the overall risk situation. The industry association

NFFA states in an interview that in practice, the Norwegian Climate and Pollution Agency rarely takes the initiative to have samples collected, and points out that even if an accredited laboratory is used for the analysis, enterprises can still tamper with samples in connection with their collection, which is what happened in the Petro Oil case.

7.4.3 Non-conformities uncovered during supervisory activities

The Norwegian Climate and Pollution Agency's supervision reports specify what should be registered as non-conformities and what should be registered as remarks. The Agency states that it does not find it problematic to distinguish between the two categories in practice, but in areas where the regulatory framework is not sufficiently clear or good enough, the Agency can nonetheless require some remarks to be followed up because they are environmentally serious. However, the Norwegian Climate and Pollution Agency perceives the practical interpretation of the concepts to be uniform.

The Norwegian Climate and Pollution Agency states that many of the non-conformities registered during supervisory activities have no direct environmental consequences, but increase the risk of damage to the environment. The Agency must assess what is serious on a case-by-case basis. It is important to try to ensure that non-conformities are assessed as uniformly as possible in terms of what constitutes a serious non-conformity, so that reactions to non-conformities are as uniform as possible.

The environmental protection departments state that there has been a trend towards emphasising serious non-conformities and categorising insignificant findings as remarks. Most consider the essential thing to be for the enterprise to rectify these matters, and attach less importance to the distinction between non-conformity and remark. For some enterprises, however, it may be important not to have non-conformities. This applies to certified enterprises in particular, or in connection with acquisitions. The environmental protection departments state that they issue non-conformities regardless of the motivation – ignorance of the regulations is not a mitigating factor.

The Norwegian Climate and Pollution Agency states that the Agency uses an auxiliary document concerning serious non-conformities in all areas. The campaign memos also define what constitutes a serious non-conformity in connec-

tion with campaigns, and these memos serve as guides to the county governors during supervision activities. The Norwegian Climate and Pollution Agency's internal audit of the action plan for supervisory activities for the period 2008–2010 shows that the Agency primarily uses the overview as a basis for assessing the seriousness of a non-conformity. Of the counties asked, only half base their assessments on this overview. In total, only four inspectors used the pre-defined non-conformity wordings.

Figure 7.2 shows non-conformities registered as a result of violation of the Waste Regulations for 20 treatment facilities and 24 storage facilities during the period 2005–2010. The figure only includes facilities for which non-conformities have been registered in the Forurensning database. The figure shows that more violations of the regulations are registered for storage facilities than for treatment facilities. This is especially so for the Waste Regulations Section 11-5 concerning requirements for responsible storage of hazardous waste and Section 11-8 concerning violations of the duty to hand in waste.

Treatment facilities

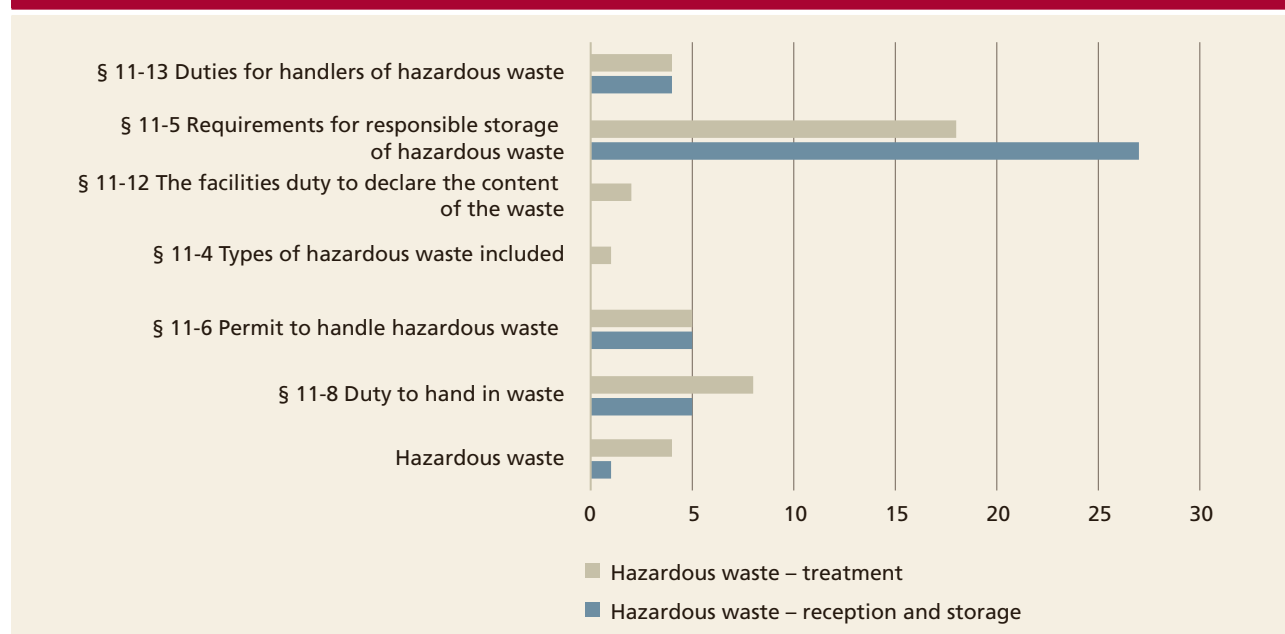
The Norwegian Climate and Pollution Agency's supervision campaign targeting hazardous waste and tank facilities, organised in cooperation with the Directorate for Civil Protection and Emergency Planning in 2008, covered 14 facilities.¹¹⁸ The main topic of the campaign was the handling of water containing oil with a varying content of

flammable components. The experience gained from this campaign was that the tank facilities for several of the enterprises were poor, with used, old and worn-out tanks. The highest number of non-conformities was related to inadequate risk assessments, inadequate status control and maintenance of tank facilities and inadequate reception control for waste fractions. Six facilities did not operate in accordance with their permits from the Norwegian Climate and Pollution Agency and the Directorate for Civil Protection and Emergency Planning. In addition, five facilities had inadequate emergency preparedness provisions. Follow-up inspections were carried out at three of the facilities with the poorest results, and the inspections found that the regulations were still being violated. Coercive fines were issued for two of the facilities.

As a result of the high number of violations of regulations by the hazardous waste management industry, the Norwegian Climate and Pollution Agency chose to target the treatment facilities in a 2009 campaign too. This campaign included 21 inspections of 19 different facilities. The goal of the campaign was to obtain an overview of waste streams for offshore-related waste and an overview of facilities that receive waste from the offshore sector. Reception control, tank storage, emission-related matters and flow were checked.

A total of 48 non-conformities were found during the 2009 campaign. The most frequently occurring non-conformities were related to unsatisfac-

Figure 7.2 The number of registered non-conformities resulting from violation of the Waste Regulations for the period 2005–2010



Source: Forurensning "Hazardous waste" describes violation of the facility's permit, which is related to hazardous waste

tory storage of waste and non-conformity with emission control. After this campaign, the Norwegian Climate and Pollution Agency reported that several of the facilities had improved their work of maintaining an overview of the status of their tank facilities. However, the Agency was dissatisfied with the following matters:

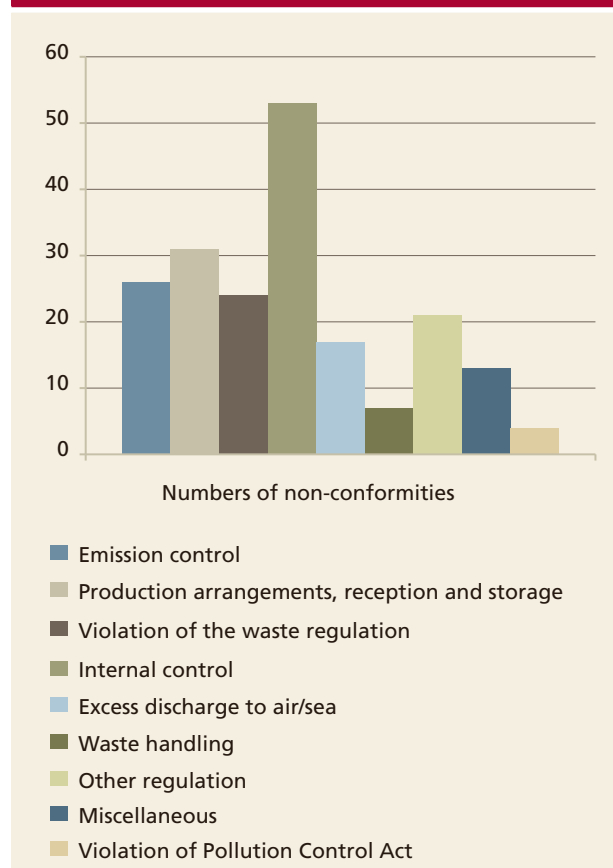
- Only one facility had no non-conformities with regulations.
- Many of the facilities lacked documentation regarding status control of tanks.
- More than half of the facilities received and stored hazardous waste that was not in accordance with regulations or permits.
- There were discharges to sea in excess of permitted amounts.
- The quality of the enterprises' reports was inconsistent.
- Some of the enterprises had the same non-conformities as during the last inspection.
- Emission permits had out-of-date, imprecise requirements.

The case file review for treatment facilities shows that the most numerous type of non-conformities is non-conformities involving violation of the Internal Control Regulations. As shown in Figure 7.3, a total of 182 non-conformities were uncovered during 68 supervisory activities, and of these, 53 are described as violations of the regulations. These non-conformities include inadequate environmental and risk assessments on the part of the facilities, shortcomings in internal control, inadequate management of cleaning plants and inadequate procedure descriptions.

Violations of permits is the second largest category of non-conformities, and includes non-conformities relating to reception control, storage period, overview of mass flows, exceeding amounts and treatment or storage of fractions for which the facility in question does not hold a permit. As described above, there are cases in which enterprises are given remarks instead of non-conformities because their permit was old and therefore no violation of the regulations has taken place.

Figure 7.4 shows the number of registered supervisory activities and non-conformities at treatment facilities for hazardous waste for the period 2001–2010. Of the total 149 supervisory activities targeting treatment facilities registered in the Forurensning database for the period 2001–2010, non-conformities were registered during 109, which means that non-conformities were registered during approximately 70 per cent of the

Figure 7.3 Non-conformities uncovered during supervisory activities targeting treatment facilities, 2001–2010



Source: Supervision reports from the Norwegian Climate and Pollution Agency

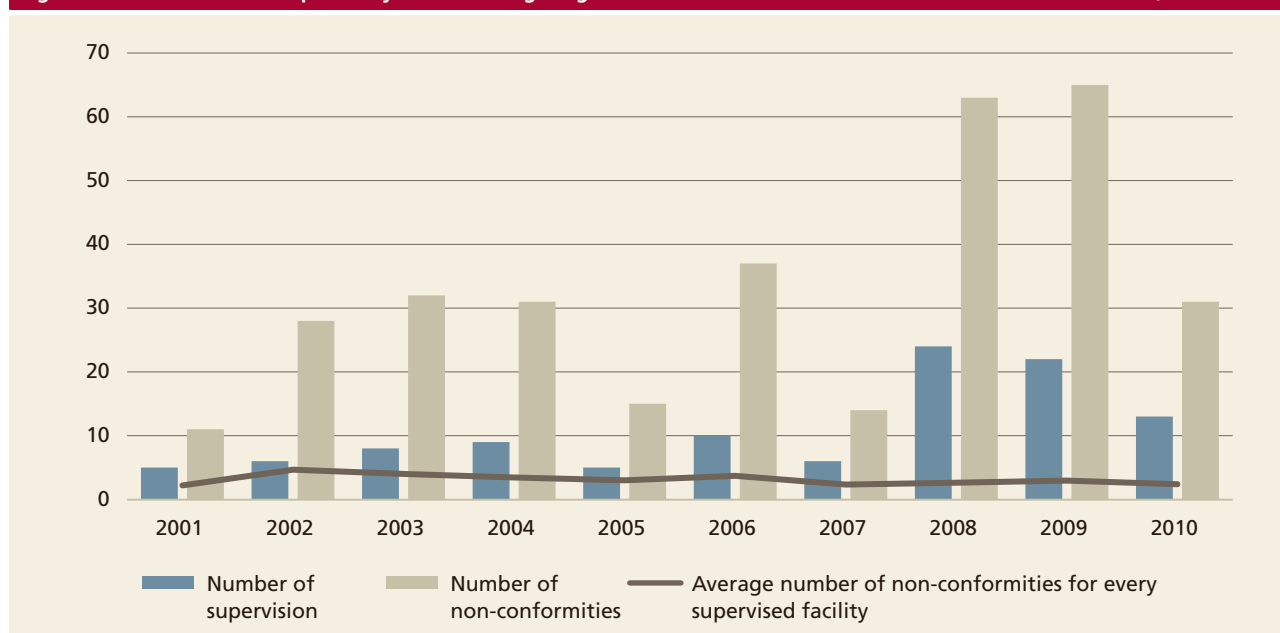
reported supervisory activities. This proportion corresponds to the result found in the Norwegian Climate and Pollution Agency's case files. The figure shows that the registered non-conformity frequency increases as the registered supervision frequency increases. According to the Forurensning database, the number of supervisory activities and non-conformities uncovered at treatment facilities was highest in the years 2008–2009.

Storage facilities

Table 7.5 shows that the number of registered non-conformities at reception and intermediate storage facilities is consistently high. The case files show that non-conformities in the form of hazardous waste not being handled in accordance with the requirements stipulated in the permits were found in 12 out of 25 reception facilities during the period 2005–2010. The non-conformities include poor documentation, unsatisfactory storage, exceeding storage periods and labelling. Half the facilities violated the internal control regulations.¹¹⁹

119 The Norwegian Climate and Pollution Agency (2010) *Alvorlige lovbrudd ved anlegg for farlig avfall* ('Serious offences at hazardous waste facilities'). News article, 14 September 2010.

Figure 7.4 The number of supervisory activities targeting treatment facilities and the number of non-conformities, 2001–2010



Source: The Forurensning database

In 14 of the 25 facilities inspected, non-conformities were found in that the facilities failed to prevent hazardous waste fractions from being mixed with or coming into contact with ordinary waste. There are also examples of hazardous waste fractions being received and stored that the reception facility has no permit to receive or store. The case file review also shows cases of facilities receiving or treating waste without permits, or compressing the waste received on a continuous basis without checking it for hazardous fractions. The environmental protection departments are to register in the Forurensning database what has been subject to control without non-conformities being found, but this registration has been given a low priority.

The case file review of inspection reports for municipal waste facilities shows that non-conformities were found in the reception control of hazardous waste in eight out of nine facilities.

This includes facilities failing to prevent hazardous waste from being mixed with non-hazardous waste, poor record-keeping for hazardous waste and receiving waste fractions that the facility cannot receive pursuant to the Waste Regulations. Seven out of nine facilities do not handle hazardous waste in accordance with the applicable requirements. Eight of the facilities had inadequate internal control as regards documentation of the handling of hazardous waste.

Follow-up

After a supervisory activity, an inspection report with a deadline for follow-up is prepared and sent to the enterprise. This report describes registered non-conformities and remarks that were uncovered during the activity. According to the Norwegian Climate and Pollution Agency's guide to serious non-conformities, the non-conformities shall be worded in a way that specifies that the

Table 7.5 Inspection campaigns – storage facilities

Year of campaign	2006	2010
Type of enterprise inspected	238 municipal, intermunicipal and private facilities	123 municipal and private reception facilities
Type of non-conformity	40 % failed to keep adequate records	56 % of the facilities had reception control violations
	30 % failed to store hazardous waste in a satisfactory manner	48 % violated the requirements concerning handling of hazardous waste
	20 % of the facilities failed to adequately pack or label hazardous waste	50 % of the facilities had inadequate internal control
	25 % were found to have inadequate declarations	

Sources: Summary reports of inspection campaigns in 2006 and 2010 from the Norwegian Climate and Pollution Agency

'deficiency uncovered is of a nature that warrants repeated control'. The guides to implementation of inspections and audits state that a notification of coercive fine shall be issued for all serious non-conformities. For serious non-conformities, follow-up activities shall be carried out within three months after the feedback deadline.

Summaries of inspection campaigns aimed at treatment facilities show that the Norwegian Climate and Pollution Agency has carried out follow-up activities for enterprises with special non-conformities. The Agency states in an interview that in the event of disagreement as to whether a non-conformity has been closed, the enterprise is asked to submit better documentation, or the Agency will conduct a short follow-up visit and issue a notification that a coercive fine will be imposed. Reporting the enterprise to the police will be considered in serious cases. The inspection reports show that such follow-up mainly applies to particularly serious non-conformities or cases where many non-conformities are uncovered. However, the usual follow-up of supervisory activities is based on correspondence through letters. Once the inspection report is final and has been sent to the enterprise, the enterprise has a certain period of time in which to remedy the non-conformities. The enterprise must then document to the Norwegian Climate and Pollution Agency that the non-conformities have been closed. A review of this correspondence shows that the Agency rarely verifies the enterprise's information other than by reviewing the documentation. The Agency is usually satisfied with the enterprise's feedback. Documentation available in the Norwegian Climate and Pollution Agency's case files shows that few follow-up activities are carried out within three months of receipt of the feedback.

It emerges from interviews with waste management enterprises that many of the non-conformities uncovered during supervisory activities are minor, and that it is not sufficiently well communicated which non-conformities are serious. The Norwegian Climate and Pollution Agency has a special overview of non-conformities uncovered during inspections that warrant special follow-up.¹²⁰ The case file review does not indicate that these non-conformities are given a more thorough follow-up than other non-conformities.

Among other things, the inspection reports show that the Norwegian Climate and Pollution Agency can uncover the same non-conformities repeatedly without doing anything other than follow the standard procedure. For example, the Agency's documentation shows that a non-conformity uncovered in 2006 was not closed until 2009, and then as a result of 'countless requests' by the Agency. Non-conformities in connection with emission control and excessive emissions are another type of non-conformity that the case file review does not clearly show whether the Norwegian Climate and Pollution Agency follows up systematically. The Agency may sometimes give orders for measurements, sample collection or reports based on findings made during supervisory activities. It is consistently difficult in the case file review to distinguish between what the Norwegian Climate and Pollution Agency considers to be serious findings and less serious findings, on the basis of the follow-up, other than notifications that coercive fines will be imposed. In the new report template from September 2010, the Agency states that the first page of the report shall state which non-conformities are deemed to be serious. One report that complies with this template was found in the case files.

The Norwegian Climate and Pollution Agency's internal audit of the action plan for supervisory activities for the period 2008–2010 concludes that the environmental protection departments' follow-up after supervisory activities is not sufficiently effective, due to failure to register the results of such activities in the Forurensning database. The case file review for the environmental protection departments shows that facilities with non-conformities quickly to implement measures to close the non-conformities. If the non-conformities are serious, the county governors can carry out a follow-up activities within three months. One example of such a follow-up inspection has been found in the case files. According to the environmental protection departments, follow-up is often time-consuming. It often takes several enquiries to close non-conformities. For serious non-conformities, the threat of being reported to the police results in the greatest improvement. Some county governor offices state that they now carry out more follow-up activities within three months than before for serious non-conformities or if the feedback is inadequate or non-existent.

120 The Norwegian Climate and Pollution Agency (2010) *Avvik som kvalifiserer til vurdering for politianmeldelse og særskilt oppfølging* ('Non-conformities that warrant consideration of special follow-up and whether to report them to the police'). Newest version. Memo.

7.5 Sanctions

7.5.1 Coercive fines

The pollution control authorities can impose coercive fines pursuant to the Pollution Control Act. The purpose is to give the party responsible for the unlawful situation a financial incentive to comply with the requirements stipulated.¹²¹

The size of the coercive fine depends on a discretionary overall assessment of what is a reasonable amount in each individual case. In its guide to the use of coercive fines, the Norwegian Climate and Pollution Agency stated the following: 'The purpose of the coercive fine is to give the party responsible a financial incentive to comply with the requirements stipulated. The coercive fine must be large enough to eliminate any advantages that the party responsible derives from an offence. It must constitute a real pressure on the party responsible to comply and a reasonable financial cost.' The Norwegian Climate and Pollution Agency also allows the seriousness of the individual case to be taken into consideration, as well as the importance of implementing the measure in question. The Agency states in an interview that an enterprise's financial capacity is not a factor that has a bearing when the size of the coercive fine is being considered. The environmental protection departments state in interviews that the size of the coercive fine must be stipulated on the basis of the principle that it should not pay to not implement measures. However, some county governor offices state that the financial capacity of enterprises is also an element in the consideration.

The review of inspection reports from the Norwegian Climate and Pollution Agency shows that 31 of 68 supervisory activities resulted in the issue of a notification of a coercive fine or in an actual coercive fine being imposed. Most notifications stated that a fine would be imposed as a one-off amount, but in some cases they also stated that a coercive fine would run from the due date. In some cases, general notifications were issued without an amount being stated. The fines in the reviewed cases were in the order of NOK 30,000–50,000.

The Norwegian Climate and Pollution Agency states in an interview that it is more demanding for the government administration to deal with daily coercive fines than one-off fines. If the costs

of implementing the improvements are very high and the enterprise is not very professional, one large sum may be a greater deterrent to the enterprise than a daily coercive fine. The Norwegian Climate and Pollution Agency states that a notification that a coercive fine will be imposed may be included in the inspection report, but could also be issued at a later date. If the matter is not rectified, the Agency or the county governor will impose a coercive fine. The decision contains a deadline for remedying the matter. If the matter is remedied as a result of the decision, the coercive fine will not be collected. The Norwegian Climate and Pollution Agency has imposed a small number of coercive fines, and has hardly collected any. For 2009, its supervisory activities in all sectors resulted in 120 notifications that coercive fines would be imposed, 20 decisions to impose a coercive fine, and four cases in which coercive fines were collected.

The Forurensning database shows that during the period 2005–2010, 87 notifications of coercive fines were issued after supervisory activities where the provisions concerning hazardous waste had been subject to control. Seventy-four of these notifications were issued by the county governors, and the remaining ones were issued by the Norwegian Climate and Pollution Agency. Of the 74 notifications issued by the county governors, 29 came from the County Governor of Rogaland.

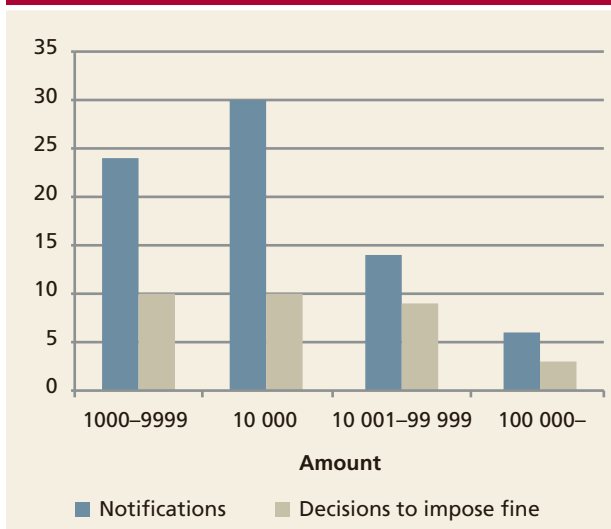
Figure 7.5 shows the distribution between notifications of and decisions to impose coercive fines, broken down by the size of the fines.¹²² Of the 74 notifications issued by county governors, decisions to impose the fine were made in 27 cases. The total amount was NOK 996,500. Most of the fines were in the amount of NOK 10,000 or less.

Several of the environmental protection departments are of the opinion that the fact that it takes so long to collect coercive fines undermines the system. Opinions differ as to whether notifications that coercive fines will be imposed have an effect. The environmental protection department of Rogaland county states that notifications of coercive fines are effective, provided that the notification is issued with realistic and tight deadlines for the enterprise to remedy the situation and that it is quickly followed up with an increasingly large fine if the enterprise fails to correct non-conformities. The environmental protection departments of Oslo and Akershus counties refer to the fact

121 The Norwegian Climate and Pollution Agency (2011) *Bruk av tvangsmulkt* ('The use of coercive fines'). Guide. TA 2758.

122 Of a total of 87 notifications registered in Forurensning, 74 of which stated the amount.

Figure 7.5 The number of notifications of and decisions to impose coercive fines by the county governors and the Norwegian Climate and Pollution Agency during the period 2005–2010



Source: Forurensning

that few cases come to the point where it becomes necessary to put the coercive fine into effect.

7.5.2 Punishment

The Pollution Control Act Section 78 a) states that any person who possesses, does, or initiates anything that may cause pollution contrary to the Act or regulations issued pursuant thereto, can be punished. There must be a clear legal authority for imposing punishment, and the traditional penal provisions in the General Civil Penal Code are therefore normally very specific.

The guides for implementation of inspections and audits specify many types of findings and criteria to determine whether reporting a case to the police is an option.¹²³ This concerns non-conformities that were also registered in the supervisory activities reviewed in the Norwegian Climate and Pollution Agency's case files:

- There is reason to believe that the enterprise has intentionally submitted misleading reports
- Occurrence of emission of priority substances
- Significant substreams/polluting emissions continuously bypass cleaning plants and/or metering stations
- Significant emissions in excess of permitted amounts occur to air and water
- Priority regulations are repeatedly violated.

123 The Norwegian Climate and Pollution Agency (2005/2010) *Gjennomføring av inspeksjoner* ('Implementation of inspections') and the Norwegian Climate and Pollution Agency (2005/2010) *Gjennomføring av revisjoner* ('Implementation of audits').

The national central criminal case register (STRASAK) does not explicitly identify criminal cases that concern violations of the Pollution Control Act and Pollution Regulations' provisions regarding hazardous waste. Hazardous waste cases have been entered under different statistical case categories. It is therefore difficult to produce a full overview of hazardous waste cases that have been reported to the police and/or prosecuted on the basis of STRASAK.

According to STRASAK, a total of 24 cases concerning violation of the provisions regarding the handling of hazardous waste (STRASAK code 6208) were considered in the years 2006–2010. Eighteen of the cases were dropped on various grounds. Two cases ended in unconditional waivers of prosecution, and four cases resulted in fines being imposed. STRASAK does not show whether the cases were reported or initiated by the prosecuting authority. Nor does it show who reported the case to the police.

The Norwegian Climate and Pollution Agency's own figures show that the number of cases that the Agency reports to the police has remained stable for the past five years. The Agency states in an interview that about ten cases per year are reported to the police for the area of pollution as a whole. Reporting cases can be problematic if the police do not have the expertise and/or capacity to investigate pollution cases. The Norwegian National Authority for Investigation and Prosecution of Economic and Environmental Crime (Økokrim) states that local police districts shall be capable of handling all types of cases. Cases concerning hazardous waste will be rare and complicated, and will represent a challenge. It is Økokrim's opinion that this type of case could have been dealt with better if there were higher levels of expertise in the police districts.

7.5.3 Changing and revoking of permits

The pollution control authorities can revoke or change the terms of permits to engage in activities that may involve pollution, if the enterprise fails to comply with statutes and regulations or the terms and conditions of the permits. The pollution control authorities have not used this instrument in relation to enterprises that fail to comply with statutes or regulations or the terms and conditions of permits granted after 2004.

7.6 Partial assessment

The Pollution Control Act states that waste shall be managed in such a way as to minimize damage and nuisance. No one may pollute unless it is lawful or they have been granted a permit to do so, cf. the Pollution Control Act. The Norwegian Climate and Pollution Agency and the county governors are to regulate treatment facilities and storage facilities by means of permits, supervision and regulations. The investigation shows that in practice, it can be unclear whether a facility is to be considered a storage or a treatment facility when waste undergoes simple treatment there. The authority to regulate individual facilities that carry out simple treatment can be delegated to the county governors. It emerges that the Norwegian Climate and Pollution Agency sets stricter requirements for such facilities than do the county governors. This results in differential treatment of activities with identical risks of pollution.

The investigation shows that the wording of many permits, both from the county governors and the Norwegian Climate and Pollution Agency, has been quite general, and the permits have contained outdated requirements. As a consequence of this, it has been difficult for the environmental authorities to determine whether enterprises are operating in accordance with their permits, and the permits have not always been in accordance with the regulations in force. During the past two years, the Norwegian Climate and Pollution Agency has reviewed and updated all permits for treatment facilities. The new requirements are more precise and stipulated in a manner that will make it easier to take legal action against enterprises that violate the requirements. In addition, EWC codes are used to a greater extent to specify the scope of the permit. Neither the Norwegian Climate and Pollution Agency nor the county governors have established procedures for updating permits regularly.

Pursuant to non-statutory principles of administrative law, the authorities shall take steps to ensure reasonable, objective and equal treatment in case processing. The environmental protection departments' permits are not formulated in a uniform manner, and they can deviate considerably from the Norwegian Climate and Pollution Agency's template. Many of the permits do not specify a risk category to indicate the pollution risk. Different offices stipulate different requirements in the permits. The investigation also shows that important requirements set for private facilities that

operate subject to a permit are not included in the regulations that govern small municipal facilities. This could result in important risk factors relating to the facilities' activities being insufficiently regulated, which could increase the risk of pollution.

The national performance goal is that practically all hazardous waste is to be dealt with in an appropriate way, so that it is either recycled or sufficient treatment capacity is provided within Norway, cf. the Ministry of the Environment's budget propositions. The Norwegian Climate and Pollution Agency and the county governors are to supervise that the Waste Regulations' provisions concerning hazardous waste and the conditions in the permits are complied with. The investigation shows that many non-conformities are uncovered during inspections of the facilities. Many of them are recurring non-conformities that were also found in previous inspections. Non-conformities of a serious nature have also been uncovered, for example the absence of reception and emission control. This indicates that some storage and treatment facilities do not handle hazardous waste properly. There are variations between county governor offices as regards the registration of non-conformities. Neither the Norwegian Climate and Pollution Agency nor the environmental protection departments' inspection reports clearly state which non-conformities are the most serious ones, which reduces the ability of the enterprises to focus on risk-reducing measures.

Supervision is to be risk-based, comprehensive and systematic, cf. Report No 14 to the Storting (2006–2007) and Recommendation No 180 to the Storting (2006–2007). Both the Norwegian Climate and Pollution Agency and the county governors carry out regular supervision activities to verify the situation at the facilities. Supervision activities are carried out in the form of visits to the facilities, where visual inspections are conducted, in addition to document controls and interviews. In some cases, samples are collected. The investigation shows that the methods used to verify whether the enterprises comply with their permits do not to a sufficient extent uncover instances of hazardous waste being unsatisfactorily handled at the facilities.

Report No 17 to the Storting (2001–2002) Concerning State Supervision, cf. Recommendation No 222 to the Storting (2002–2003), emphasised the coordination of supervisory bodies as an important area with a potential for improvement. Some of the waste fractions pose an explosion

hazard. The Directorate for Civil Protection and Emergency Planning is responsible for explosives and flammable substances, and many fractions are in the grey area between the two authorities' jurisdictions. The control objects would like to see more joint supervisory activities, and experience that the enforcement of regulations during supervision differs. The investigation shows that there was little cooperation between the Norwegian Climate and Pollution Agency and the Directorate for Civil Protection and Emergency Planning before the Vest Tank accident, and that cooperation increased after the accident.

In Report No 14 to the Storting (2006–2007), cf. Recommendation No 180 to the Storting (2006–2007), it was emphasised that sanctions for violation of the applicable regulations shall be made stricter. Enterprises that violate a permit or regulations can be issued notifications that coercive fines will be imposed or have coercive fines imposed on them by the Norwegian Climate and Pollution Agency and the county governors. The investigation shows that long case processing times reduce the effect of notifications of coercive fines. The pollution control authorities also have the legal authority to withdraw or change a permit as a sanction for violation of the regulations. The investigation shows that this instrument is not used.

The Norwegian Climate and Pollution Agency or county governors can report enterprises to the police if they violate the penal provisions of the Pollution Control Act, and the case can be pursued through the legal system, if relevant. Although large waste-related cases have been brought before the courts, the investigation shows that failure to comply with the regulations in the waste management industry has resulted in very few criminal proceedings that have led to sanctions being imposed. This could be partly due to the fact that it is difficult to verify the permits legally, and that the local police authorities lack both expertise and capacity.

8 Export of hazardous waste

8.1 Introduction

Hazardous waste exports are regulated by the Waste Regulations, which incorporate the EU's Waste Shipment Regulation into Norwegian law. The regulatory framework requires the authorities to maintain an overview and control of waste exports, with emphasis on hazardous waste. A procedure of prior written notification and consent from the authorities shall be used for exports that are not prohibited or expressly exempt from this requirement.

The procedure is to be used for:

- exports of all types of waste for final disposal in the EU/EEA/EFTA
- exports of hazardous waste, household waste, mixtures of waste, and unlisted waste for recovery in OECD countries and the EU/EEA/EFTA
- exports of certain waste fractions (so-called green-listed waste) for recovery in countries outside the OECD/EEA/EFTA, as well as the EU member states of Poland, Slovakia, Bulgaria and Romania.

Exporting waste to countries outside the EU/EFTA for final disposal is prohibited, as is the export of waste for final disposal to Poland, Slovakia, Bulgaria and Romania. Green-listed waste, i.e. waste that is a pure fraction, has no hazardous properties and is to be sent for recovery in an EU state, is exempt from the requirement for advance notification and consent.

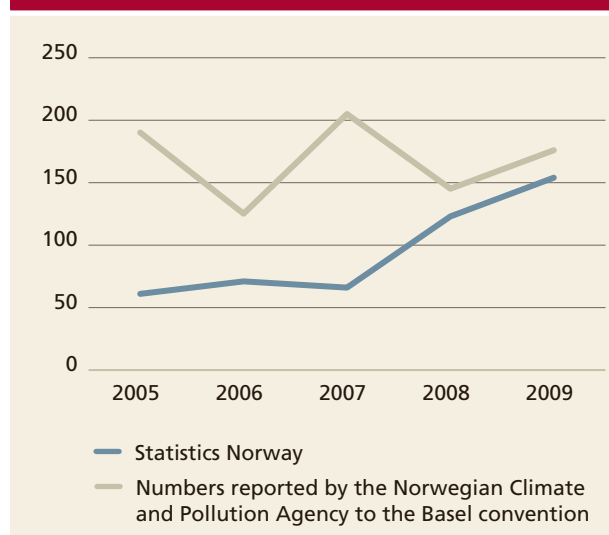
The Norwegian Climate and Pollution Agency states in an interview that the use of brokers for waste exports is increasing. Brokers operate on behalf of waste producers, and the application documents must state the identity of the waste producers.

8.2 Status

According to figures from Statistics Norway, 15 per cent of the amount of hazardous waste handed in was exported out of Norway in 2009. According to the Ministry of the Environment, six per cent of all hazardous waste handed in in 2009

was exported for final disposal abroad. Figure 8.1 compares Statistics Norway's statistics of exported hazardous waste with the Norwegian Climate and Pollution Agency's reporting under the Basel Convention. The figure shows that the figures reported to the Basel Convention exceed Statistics Norway's figures. In an interview, Statistics Norway referred to the fact that waste fractions such as EE waste and mixed household waste are reported to Basel. These waste fractions are not considered hazardous waste in Norway, and will therefore not be included in Statistics Norway's statistics. The Norwegian Climate and Pollution Agency states in an interview that Statistics Norway uses data from Miljødata (the Agency's administrative database for import and export of hazardous waste). The reason for the discrepancies between the figures could be that the Norwegian Climate and Pollution Agency's Basel reporting uses the Convention's data classification, while Statistics Norway collects its data on the basis of EWC codes. The Norwegian Climate and Pollution Agency also refers to the fact that exports of wood waste have previously been registered as hazardous waste in the Basel reporting, but not by Statistics Norway. The Agency states that during the past two years, it has carried out quality control of the data entered in the Miljødata database

Figure 8.1 Exports of hazardous waste during the period 2005–2009. A collation of official statistics from Statistics Norway and the Norwegian Climate and Pollution Agency's reporting under the Basel Convention. 1000 tonnes



Source: Statistics Norway and the Norwegian Climate and Pollution Agency as reported to the Basel Convention

and found a lot of reporting to be incorrect. This could be the reason why the discrepancies were larger for previous years. According to figures from Statistics Norway, Norway imports more hazardous waste than it exports. Neither the Norwegian Climate and Pollution Agency nor Statistics Norway prepares statistics of green-listed waste exports, which are not subject to a reporting duty.

The Norwegian Climate and Pollution Agency states in an interview that the figures that show an increase in exports of hazardous waste could be a result of improvements in the statistics and increased exports of impregnated wood for energy recovery at Swedish incineration plants. However, there could also be an actual increase, particularly of EE waste, although the total quantities are small.

According to the Norwegian Climate and Pollution Agency, 559 permits for export of hazardous waste were granted during the period 2006–2010. Table 8.1 specifies the number of applications granted by the Norwegian Climate and Pollution Agency, the country of destination and the amount of waste approved and reported. The table shows a considerable difference between the approved amount and the amount reported

to the Norwegian Climate and Pollution Agency. The Agency states that this could be because some shipments did not take place or because the exported amounts were not reported to the Agency. The Agency states in an interview that if the application indicates the country of final destination, the statistics will contain this information if the waste is re-exported. However, the Agency specifies that this is not always the case. During the period 2006–2010, 309 permits for the export of hazardous waste and 254 permits for final disposal were granted. Some permits include both recovery and final disposal. Most permits for export for final disposal were granted to Nordic enterprises, but some were also granted to other EU states. More and more permits for final disposal outside of the Nordic countries are being granted, but the amounts permitted are relatively small. During the same period, 50 permits were granted for export of EE waste. Based on reporting to the Norwegian Climate and Pollution Agency, exports of EE waste have increased from approx. 6,500 tonnes in 2006 to more than 15,000 tonnes in 2010. As shown in Figure 8.2, according to the WEEE Register, the amount of Norwegian EE waste treated abroad is significantly higher than the data reported to the Norwegian Climate and Pollution Agency. The Agency states that the main



EE waste exported to a developing country.

Source: Basel Action Network

Table 8.1 Applications for export of hazardous waste specified by country of destination, number, quantity approved for export, reported quantity and type of treatment in the period 2006–2010

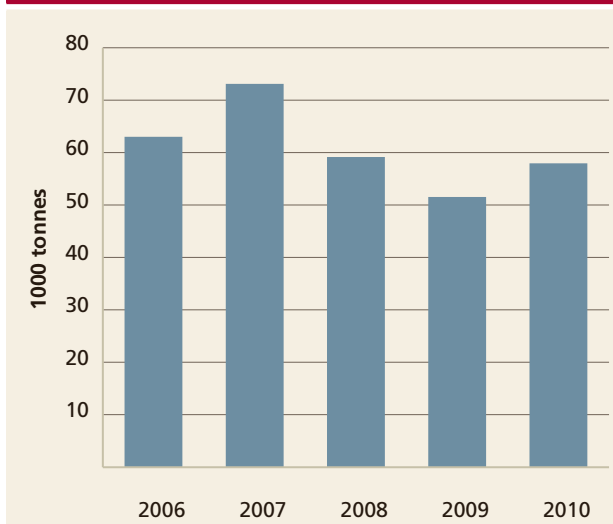
Country of destination	Total number of applications granted	Number of applications for final disposal granted	Number of applications for recovery granted	Approved quantity, 1,000 tonnes	Reported quantity, 1,000 tonnes
Sweden	174	18	158	568	137
Denmark	138	104	33	739	298
Germany	81	42	44	240	31
Finland	80	78	2	62	8
UK	21	0	21	144	41
The Netherlands	17	6	11	18	0,3
France	10	2	8	26	0.5
Belgium	9	0	9	10	0.5
Estonia	1	0	2	2	0.1
Korea	1	0	1	1	1
Spain	7	0	7	26	9

Source: The Norwegian Climate and Pollution Agency's database Miljødata. The total number of applications for final disposal and recovery differs from the total number of applications granted because some applications include both, and some applications have not stated the treatment method.

reason for this difference is lacking and incorrect reporting to the Miljødata database. According to the Norwegian Climate and Pollution Agency, reporting of the amount exported is missing for 95 of the 152 permits granted for the most commonly used EWC codes for EE waste. The Agency also refers to the potential for errors in reporting to the WEEE Register and to the fact that some exports of EE waste are not subject to the reporting duty and are therefore not registered in Miljødata. The Agency uncovered several errors and non-conformities during supervisory activities in relation to four EE take-back companies in 2010. This included illegal exports of hazardous waste as green-listed waste out of the EU/OECD area.

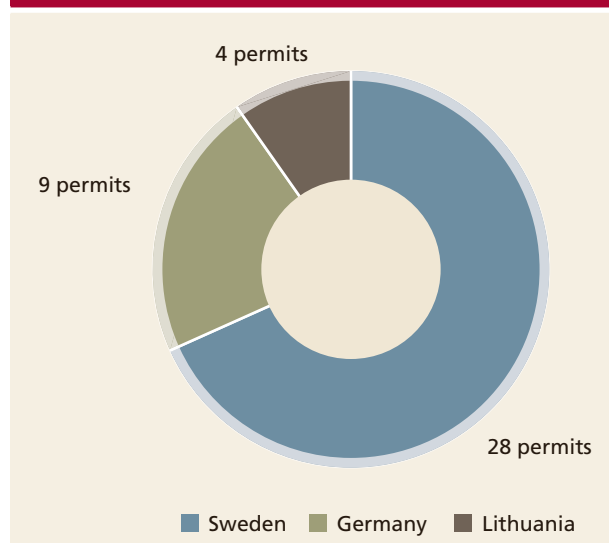
Figure 8.3 shows which countries were countries of destination for exported EE waste, based on applications granted for export for recovery. All the countries are EU states. The reporting to the WEEE Register shows that 42 per cent of the EE waste is exported for treatment (the majority of this for recovery) and that a total of 16 per cent is exported for treatment in countries outside the EU, see Figure 8.4 (following next page). The Norwegian Climate and Pollution Agency states that export permits are only granted for EE waste registered as green-listed waste.

Figure 8.2 EE waste treated abroad in the period 2006–2010. 1000 tonnes



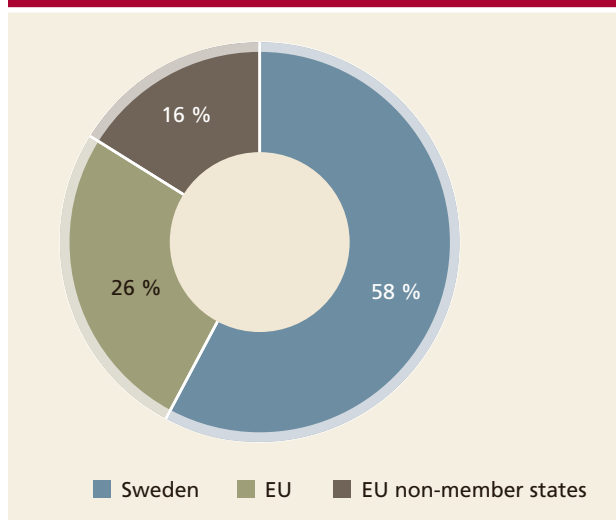
Source: The WEEE Register

Figure 8.3 Approved export of EE waste specified for country of destination and number of permits in the period 2007–2010



Source: The Norwegian Climate and Pollution Agency's database Miljødata assembled by the Office of the Auditor General

Figure 8.4 Countries of treatment for EE waste in 2010



Source: WEEE Register

8.3 National treatment capacity

It is a national goal to have sufficient treatment capacity for hazardous waste in Norway. The Ministry of the Environment states in an interview that it is aware of individual fractions for which there are no treatment solution in Norway, and which are therefore regularly exported for treatment. The Ministry states that the goal for national treatment capacity can be understood as a contingency goal, and also refers to the fact that the Norwegian Climate and Pollution Agency monitors the treatment capacity. The Ministry points out that only a small proportion of hazardous waste is exported. The Norwegian Climate and Pollution Agency states in an interview that it is sensible for different countries to specialise in different types of treatment facilities to a certain extent. The Nordic ministers for the environment have decided that the Nordic countries should function as a joint market for the treatment of hazardous waste when considering the self-reliance and proximity principles.¹²⁴

In the Norwegian Climate and Pollution Agency's opinion, Norway has sufficient national final disposal capacity for all fractions of hazardous waste. The Agency points out that it does not perceive the national treatment capacity for new hazardous waste fractions and new environmental toxins to

be a problem. It refers to the fact that even though Norway has incineration plants for hazardous waste, the facilities cannot treat all fractions. This applies in particular to fractions of the new types of hazardous waste, such as plastics containing brominated flame retardants. Sweden, Denmark and Finland have environmentally sound incineration plants for hazardous waste, and some new hazardous waste fractions are exported to these countries. It is not expedient for all countries to treat all fractions. Norway also receives hazardous waste from Nordic countries that lack treatment capacity for certain fractions. PCBs are sent to Finland for destruction.¹²⁵ The Norwegian Climate and Pollution Agency has also previously documented inadequate treatment capacity for tunnel insulation mats containing brominated flame retardants.¹²⁶

Interviews with waste management enterprises confirm that generally speaking, Norway has sufficient national treatment capacity, but mercury and certain other fractions are mentioned as exceptions. However, for reasons of costs and logistics, enterprises choose to export waste that could have been treated in Norway. It is also a widely held opinion that it is not expedient to build facilities for small amounts of waste when there are solutions elsewhere in Europe.

NOAH's facility at Langøya (see Fact Box 8.1) has disposal capacity until about 2024. After that, Norway will lose its treatment capacity for inorganic hazardous waste. NOAH states that the company is not in a position to set up a new Norwegian facility solely for hazardous waste from Norway. In order to be profitable, a new facility must be big enough for an international market even more extensive than the Nordic market. In NOAH's opinion, framework conditions must be adapted to facilitate market-based operation. The environmental authorities have not called for input on this subject to any significant extent. The Ministry of the Environment states that it is confident that the market will find a solution, but is considering the matter on an ongoing basis.

124 The Ministry of the Environment (1994) *Om eksport av spesialavfall i årene fremover. Ministererklæring om Nordisk samarbeid om minimering og behandling av farlig avfall fra mars 1994* ('On export of special waste in the years ahead. Ministerial Declaration on Nordic cooperation on the minimisation and treatment of hazardous waste of March 1994'). (92/7764) Letter of 11 March 1994 to the Norwegian Pollution Control Authority.

125 The Norwegian Pollution Control Authority (2007) *Infoark: Utfasing av strømgjennomføringer med PCB* ('Information sheet: phase-out of cable bushings containing PCBs'). TA-2346.

126 The Norwegian Pollution Control Authority (2008) *Kartlegging. Bromerte flammehemmere i avfallsstrømmen*. ('Survey. Brominated flame retardants in the waste stream.') TA-2380.

Fact Box 8.1 NOAH's facility at Langøya

In order to ensure that Norway will have an appropriate final disposal solution for hazardous waste, the authorities, in cooperation with nine major industrial enterprises, established the company Norsk Avfallshåndtering AS (NOAH) in 1991. This facility at Langøya in Vestfold county carries out treatment and final disposal of waste that is hazardous to the environment, including inorganic industrial waste and excavated soil and sediments. In 2002, the Norwegian government sold the facility to private parties.

Source: NOAH

8.4 Follow-up of exports with export permits

As the responsible environmental authority, the Norwegian Climate and Pollution Agency receives applications that are to contain notification and transport documents, a bank guarantee, a description of the treatment process and a contract between the applicant and the consignee. The agreement between the notifier and the consignee treatment facility must oblige the sender to take back the waste if it cannot be treated or if it is exported illegally. The facility undertakes to report when the treatment of the waste has been completed.

In an interview, the Norwegian Climate and Pollution Agency states that the Waste Shipment Regulation leaves little room for discretionary judgement, but that it does allow for special considerations if necessary. According to the Agency, examples include national regulations that the Agency wishes to emphasise in its case processing, such as national restrictions on the content of environmental toxins in products. Exporting mercury and brominated flame retardants for the purpose of recovery is not permitted. Waste that contains such environmental toxins may be exported for recovery, but it is a requirement that mercury and brominated flame retardants must not be recovered.

The Norwegian Climate and Pollution Agency states that export permits are rarely denied when a complete application is submitted. During the period 2006–2010, the Agency has rejected three applications.¹²⁷ The grounds for these rejections were a ban on landfilling for the fraction and a lack of contact with the authority of destination,

127 The Norwegian Climate and Pollution Agency (2011) *Svar på bestilling av dokumentasjon og data – farlig avfall* ('Response to order for documentation and data – hazardous waste'). Letter of 14 February 2011 to the Office of the Auditor General.

respectively. Two cases received preliminary rejections, but were granted after corrections had been made.

The Norwegian Climate and Pollution Agency specifies in an interview that a large part of the application processing work is providing guidance to the applicants and ensuring that applications contain sufficient documentation. The Agency refers to some fractions that are difficult to assess. Examples include brominated flame retardants and ozone-depleting substances. It is difficult to determine which types of plastic contain brominated flame retardants.

The Norwegian Climate and Pollution Agency states that applicants must always give grounds for export and elaborate on these grounds if relevant. However, it can nonetheless become necessary to export waste for final disposal in other Nordic countries:

- The national treatment capacity varies over time.
- Some parties need a flexible downstream solution, for example to Denmark, in the event that there is insufficient capacity in the relevant facilities in Norway. If consent to export is denied, enterprises could encounter storage problems and thus violate the facility's permit.
- Final disposal solutions abroad are better for certain types of waste.

8.4.1 Control of notification and movement documents

According to the Waste Shipment Regulation, the responsible environmental protection authorities must be notified of the export of hazardous waste in special notification and movement documents. All the case files reviewed in this investigation contain notification documents, and all case files for which they were required contain movement documents. The case files often show that the Norwegian Climate and Pollution Agency requests further documentation after receiving incomplete notification and movement documents.

8.4.2 Control of bank guarantees

The notifier must provide a bank guarantee that must cover the costs of transport or recovery/disposal if this cannot be completed as intended, or if the shipment is found to be illegal. The bank guarantee must be for an amount corresponding to the costs of transport, treatment and storage for 90 days. The environmental authorities must approve the bank guarantee provided by the notifier. In an interview, the Norwegian Climate and



Illegal Export of EE waste and scrapped cars.

Source: The Norwegian Climate and Pollution Agency

Pollution Agency states that the Waste Shipment Regulation stipulates general requirements relating to bank guarantees.

The case files contained two cases where there were no bank guarantees. In two other cases, there was only an agreement between the parties to comply with the Waste Shipment Regulation, and it simply refers to the fact that the notifier is to obtain a bank guarantee. The Norwegian Climate and Pollution Agency refers to the fact that the bank guarantees for the export and import of waste are stored in a separate case file in the archive system. Therefore, bank guarantees are sometimes not filed in the case file. The size of the bank guarantees varies from SEK 30,000 to NOK 2 million. There is no documentation showing how the Norwegian Climate and Pollution Agency assesses the size of the bank guarantee in relation to the costs of return or other treatment.

8.4.3 Control of agreements, process descriptions and final disposal

The Waste Shipment Regulation requires there to be a contract between the notifier and the consignee when an application for the export of hazardous waste is submitted. The case file review shows that contracts that meet the requirements of the Waste Shipment Regulation are enclosed with the vast majority of export permits. The non-conformities that do occur are immaterial.

The Norwegian Climate and Pollution Agency states in an interview that in order for an ap-

plication to be granted, it must contain a code specifying the treatment method for the waste. These codes follow a classification provided in the Waste Shipment Regulation, and distinguish between recovery and final disposal. Each code specifies treatment processes for the waste. In case of doubt, the Norwegian Climate and Pollution Agency can also demand a detailed process description. The case file review shows that in six out of twelve hazardous waste cases, there is no such process description. Of the seven case files for EE waste exports, three contain no process descriptions. In addition, the level of detail in the process descriptions varies.

In an interview, the Norwegian Climate and Pollution Agency states that it assesses whether the treatment facility specified can receive the waste, but limits itself to checking whether the facility has a permit allowing it to treat the waste fractions in question. This is done by contacting the environmental authorities of the receiving country.

Few of the case files contain documentation of re-export. In one case, the environmental authorities in the country of destination stipulated a requirement for the fractions that remained after treatment to be re-exported, since the country had no treatment capacity. Some of the fractions were exported out of the EU/OECD area. In an interview, the Norwegian Climate and Pollution Agency refers to the fact that it is not always necessary to state that the waste is to be forwarded, and that the Agency must then trust foreign authorities to follow up re-export. In interviews with enterprises in the industry, reference is made to the fact that waste can be re-exported to third countries outside the EU/OECD area. This could take place without being stated in the original contract. It is often individual fractions that remain after the treatment of EE waste that are exported to such third countries. The Norwegian Climate and Pollution Agency refers to the fact that the take-back companies for EE waste are to document final disposal, including export. The industry association NFFA states in an interview that generally speaking, the Norwegian Climate and Pollution Agency's control is inadequate, particularly for EE waste. In many cases, the price for final disposal of such products abroad is so low that the result is unlikely to be proper handling. In interviews, several enterprises in the industry express the opinion that the Norwegian Climate and Pollution Agency does not have an adequate overview of where the waste ends up. Fractions

that are separated could be exported out of the OECD area for recovery, or may be treated in an environmentally unsound manner.

The case file review documents some cases in which the Norwegian Climate and Pollution Agency requests further documentation from the environmental authorities of the country of destination. Examples have also been found where the country of destination has requested further information. Moreover, there are examples of contact with environmental authorities outside the EU to clarify whether a waste fraction is to be considered hazardous. This contact was established on the initiative of the environmental authorities in the country of destination. The Norwegian Climate and Pollution Agency states in an interview that the documentation enclosed with an application is checked on the basis of the options available to the Agency. The Agency must trust the applicant, and in case of doubt must contact the applicant. In special cases, the Agency is in close contact with the environmental authorities of the country of destination, in order to confirm the information given in the application.

The case files contain no documentation of final disposal. The Norwegian Climate and Pollution Agency states in an interview that such documentation is stored separately, and that it is only kept for three years. This documentation will be saved in the case files of cases subject to special follow-up. For this reason, not all the export cases reviewed during this investigation can be checked against this documentation. The available final documents do not show cases where the waste has been rejected by the consignee. They show that the treatment of the waste is completed within the deadlines specified in the contract, but do not specify whether the waste, or fractions of the waste (of for example EE waste) are re-exported. The final disposal documents rarely specify how the waste has been treated, other than the general confirmation inherent in signing the document.

The Norwegian Climate and Pollution Agency states in an interview that the Agency has no knowledge of the requirements stipulated in other countries' permits for the treatment of hazardous waste. The EU has drawn up guideline documents regarding waste handling standards. These standards shall have a bearing when the authorities stipulate conditions in the permit, but they will not be directly decisive.

8.4.4 The authorities' information about the regulatory framework

The Waste Shipment Regulation has not been translated into Norwegian. The Norwegian Climate and Pollution Agency states that the Ministry of Foreign Affairs has made a draft translation. The Ministry states in an interview that it has the translation under consideration. The Norwegian Climate and Pollution Agency states that the lack of a Norwegian translation of the Regulation has no significant consequences, since English is the working language for the authorities and export enterprises.

The Agency states that its emphasis is first and foremost on general information, and it has given many lectures about the regulatory framework. The regulations are also a topic during the supervision of relevant enterprises, including the take-back companies for EE waste and inspections of vehicle wrecking yards. The Agency also emphasises the use of the media to reach a broad audience.

In 2007, the Norwegian Climate and Pollution Agency published a preliminary guide in Norwegian with information about the new regulations for the export and import of hazardous waste applicable when the Waste Shipment Regulation came into force.¹²⁸ This guide presents the scope of the regulations and relevant procedures.

In 2009, the Agency published a guide in English, developed in cooperation with the Norwegian customs and Excise.¹²⁹ The guide contains brief information about the regulations and practical criteria for determining when something is deemed to be waste. The guide also contains photos as examples, and focuses on EE waste and vehicles in particular.

8.5 Illegal export

'Operation Demeter' was an international operation carried out by the World Customs Organization (WCO) in 2009. The operation was a joint initiative involving 65 countries in Europe (including Norway), Asia and Africa. The goal of the operation was to draw attention to and increase understanding of the illegal export of waste by obtaining knowledge about its scope.¹³⁰ Fifty-six

128 The Norwegian Pollution Control Authority (2007) *Nytt regelverk for eksport og import av avfall* ('New regulations for export and import of waste'). TA-2280.

129 SFT (2009) *A guide for exporters of used goods*. TA-2516.

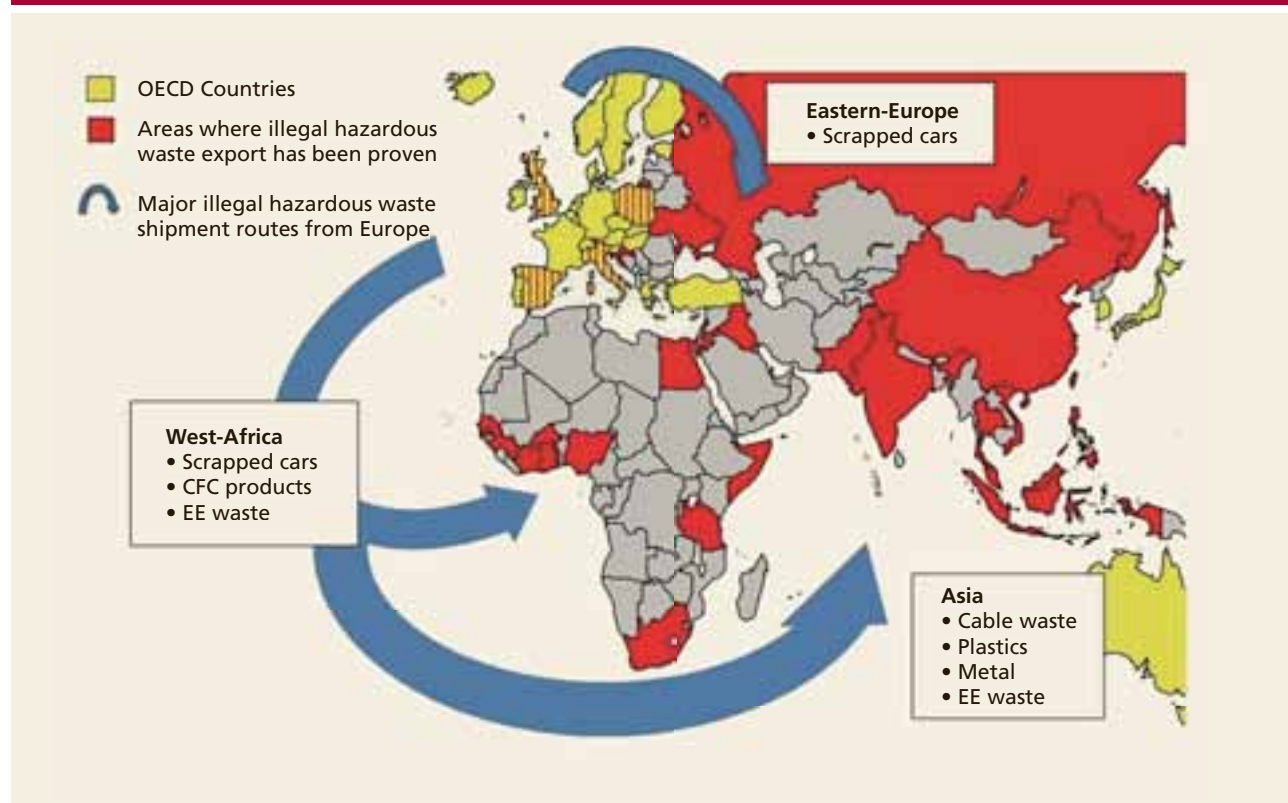
130 World Customs Organization (2009) *Operation Demeter – Final report. Customs joint operation to combat illegal transboundary movement of waste between Europe, the Asia/Pacific and Africa 23 March – 11 May 2009*.

shipments were seized in eleven countries, most of them in the Netherlands, Belgium, Italy and Hong Kong. The shipments seized mostly contained EE waste or metal. Most of the recipients of the EE waste were in Western Africa. The metal shipments seized were bound for Asia. This corresponds with the risk survey carried out by the European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL), which is illustrated in Map 8.1.

The Norwegian Climate and Pollution Agency's annual reporting to the Secretariat of the Basel Convention specified that during the period 2005–2009, illegally exported waste was returned from Germany to Norway on 15 occasions. Waste was also returned or attempted returned from Denmark and the Netherlands on four occasions during the same period. The countries of destination were stated as being in Western Africa. Norwegian Customs and Excise states in an interview that 19 shipments were returned to Norway in 2009, including a container.

In Norway, the Norwegian Climate and Pollution Agency and Norwegian Customs and Excise carried out joint campaigns in 2009 and 2010. In 2009, 10 containers were checked and more than 50 vehicles were subject to border controls. One container was withheld, but was later cleared for export after discarded refrigeration products had been removed. Sixteen cases were deemed to be so serious that notifying the police was considered as an option.¹³³ The 2010 joint campaign included document control of 133 shipments, 108 of which were waste shipments. Forty-eight of the waste shipments lacked accompanying documents as required by the Waste Regulations. Four containers were stopped at the Port of Oslo, and about 30 vehicles were inspected.¹³⁴ In addition, 12 controls were carried out at the ports of Bergen and Stavanger, and three containers of waste were stopped. Norwegian Customs and Excise stated in an interview that so far, little is known about the scope of the export of hazardous waste, and that there is thus no basis for carrying out risk assessments. Other countries' customs services consider

Map 8.1 Transport routes and proven countries of destination for illegal exports of hazardous waste from Europe



Source: Impel-TFS¹³¹ and WCO¹³² assembled by the Office of the Auditor General

131 Impel-TFS (2006) *Impel-TFS threat assessment project: the illegal shipment of waste among IMPEL member states. Project report.*

132 World Customs Organization (2009) *Operation Demeter – Final report. Customs joint operation to combat illegal transboundary movement of waste between Europe, the Asia/Pacific and Africa 23 march–11 may 2009.*

133 The Norwegian Climate and Pollution Agency (2009) *Avfall forsøkt fraktet ulovlig ut av Norge* ('Attempts to transport waste out of Norway illegally'). Online article, 14 September 2009.

134 The Norwegian Climate and Pollution Agency and Norwegian Customs and Excise (2010) *Oppsummering av aksjon grensekryssende forsendelser av avfall 2010* ('Summary of the campaign against transboundary shipment of waste 2010').

controls based on risk assessments to be the most effective way of uncovering illegal exports of hazardous waste.¹³⁵

Old cars with no market value in Norway, loaded with EE waste or used car parts, are a recurring theme in the Norwegian Climate and Pollution Agency's reporting to the Basel Convention. In the period 2005–2009, 12 attempts of this type of export were reported. Norwegian Customs and Excise states in an interview that it cannot give concrete figures for the scope of illegal export.

The Norwegian National Authority for Investigation and Prosecution of Economic and Environmental Crime (Økokrim) states in an interview that it is difficult to piece together an overall picture of the illegal export of hazardous waste. Until recently, Norway had little control of such exports. Most criminal cases concerning illegal exports arise when the hazardous waste is stopped abroad and returned to Norway. In Økokrim's opinion, port and railway controls have not been good enough, but as a result of new international regulations, Norway has also begun to pay more attention to these areas.

Some enterprises in the industry point out in interviews that much hazardous waste, particularly EE waste, is exported illegally under the pretext of being green-listed waste or products. The Norwegian Climate and Pollution Agency's 2010 inspection campaign targeting EE take-back companies uncovered several cases of EE waste being illegally exported without consent, some of it to developing countries. The Agency refers to the fact that no risk assessment has been carried out for the export of green-listed waste. An international report about hazardous waste in ports confirms that, at the international level, incorrectly labelled hazardous waste is the most frequently uncovered non-conformity.¹³⁶ The incorrect labelling could be intentional or unintentional. The report refers to three waste fractions which are most often incorrectly labelled at the international level:

- EE waste and refrigerators that contain refrigerants are declared as second-hand goods
- Batteries are described as plastic and scrap metal
- Cathode ray tubes from old television sets and computer monitors are declared as scrap metal.

135 Inece (2010) *International hazardous waste inspection project at sea-ports: Results and recommendations*

136 Inece (2010) *International hazardous waste inspection project at sea-ports: Results and recommendations*.



Leaflet that encourages export of old mobile phones to developing countries.

Source: Office of the Auditor General

8.6 Supervision and controls

8.6.1 Border control of hazardous waste

Økokrim states in an interview that waste export controls require individual customs officers to have high levels of competence. One of the sub-goals of the joint control carried out by the Norwegian Climate and Pollution Agency and Norwegian Customs and Excise in 2009 was to raise competence on transboundary shipment of waste. It was also a goal to establish good cooperation between the Norwegian Climate and Pollution Agency, Norwegian Customs and Excise and the police.¹³⁷ In the summary report after the joint control, all the customs regions that had cooperated directly with the Norwegian Climate and Pollution Agency were highly satisfied with the way they had worked together.¹³⁸ Norwegian Customs and Excise emphasises in an interview that competence must be built up over time. Hazardous waste is now included in the training of new officers.

Norwegian Customs and Excise also refers to the fact that it is difficult to define what are products and what is waste. In this field, it is the Norwegian Climate and Pollution Agency that possesses expertise on the regulatory framework, and Norwegian Customs and Excise sometimes needs expert statements from the Agency to assess this question. The two parties entered into a cooperation agreement in 2011. The Norwegian Climate and Pollution Agency states that before this agreement, the Agency had limited opportunities to

137 The Norwegian Pollution Control Authority and Norwegian Customs and Excise (2009) *Oppsummering av aksjon grensekryssende forsendelser av avfall 2009 SFT og TOLL* ('Summary of the campaign against transboundary shipment of waste 2009 The Norwegian Pollution Control Authority and Norwegian Customs and Excise').

138 The Norwegian Climate and Pollution Agency and Norwegian Customs and Excise (2010) *Oppsummering av aksjon grensekryssende forsendelser av avfall 2010* ('Summary of the campaign against transboundary shipment of waste 2010').

Fact Box 8.2 Risk-based control of illegal waste shipments in the Netherlands

In the Netherlands, the environmental inspectorate is responsible for enforcement of the Waste Shipment Regulation. The customs authorities and the police are also responsible for carrying out import and export controls. Each year, the Environmental Inspectorate, the Police and the Customs service identify potential risk areas and measures to counter the risks. The risk assessments are then developed into risk profiles. The plans and associated inspections are evaluated, revised and adopted each year.

The Dutch customs service has three types of profiles for selection of waste shipments for risk-based inspections:

1. Basic blocking profiles: The system always gives notification of high-risk shipments. Examples include end-of-life ships, asbestos and waste oil.
2. General priorities – priority waste fractions and countries of destination: The customs authorities uses this profile to uncover intentional administrative fraud. Examples include illogical combinations such as bananas from Norway or a very low value given for the shipment.
3. Urgent profiles for specific shipments, carriers etc.: These profiles can be prepared on short notice in response to specific events or indications.

If a shipment is classified as high-risk, the responsible customs officer will be notified, and the shipment can be withheld until it has been checked. The shipment is checked for the administrative and physical requirements stipulated in the Waste Shipment Regulation. In addition to the risk-based inspections, random checks are carried out. They also target other illegal exports.

Source: Dutch Authorities to the Dutch supreme audit institution (Algemene Rekenkamer) 2011

carry out controls together with the customs authorities' inspectors. In an interview, Norwegian Customs and Excise refers to the fact that it is generally a challenge to ensure quick and predictable response times from the competent authority, in this case the Norwegian Climate and Pollution Agency, in case of doubt. Experience has shown that it is difficult to reach experts after working hours. The cooperation agreement sets a 24-hour deadline for responding to enquiries.

Norwegian Customs and Excise states in an interview that it stores all export permits in its electronic information system. The system has many automatic procedures intended to identify matters that should be further investigated. Such 'filters' have been used in joint campaigns with the Norwegian Climate and Pollution Agency, but

Norwegian Customs and Excise refers to the fact that there is no systematic selection of shipments that could contain illegally exported hazardous waste. The Netherlands are an example of a country where the environmental authorities and the customs service maintain contact and have developed special systems to stop the illegal movement of hazardous waste, see Fact Box 8.2.

8.6.2 Transport of chemicals and oil by ship

Figures from Statistics Norway show that ships engaged in international traffic call at Norwegian ports approx. 60,000 times per year. In 2009, more than 17,000 of these calls were made by tankers or bulk carriers. It is not known how many of them carried hazardous waste. Each year, the Norwegian Climate and Pollution Agency grants approximately 70 applications for export or import via Norwegian ports.¹³⁹ One permit could involve more than one shipment.

After the Vest Tank accident, it emerged that the ship that delivered hazardous waste to Vest Tank had not been checked by the environmental authorities, although the Dutch customs authorities had notified the Norwegian Climate and Pollution Agency of this ship. The Agency was also notified by the Norwegian Coastal Administration that the pilot who had directed the ship to the Vest Tank facility had noted a strong smell of sulphur on board.¹⁴⁰

In the wake of the Vest Tank accident, the Norwegian Climate and Pollution Agency, Norwegian Customs and Excise, the Directorate for Civil Protection and Emergency Planning and the Norwegian Coastal Administration entered into a cooperation in 2009. The goal was to develop an efficient and coordinated system for the control of imports and exports of hazardous waste via ports.¹⁴¹

The working group has concluded that the control system should consist of the following three steps:

- 1 automated rough sorting of visiting ships
- 2 manual selection for physical inspection
- 3 physical inspection.

139 The Norwegian Pollution Control Authority (2009) *Opplegg for en mer effektiv kontroll. Ulovlig eksport og import av farlig avfall med tank- og bulkskip* ('Plan for more effective control. Illegal export and import of hazardous waste by tanker and bulk carrier'). TA-2554.

140 Knut Lervåg (2010) *Vest Tank ulykken – tilsyn uten ansvar* ('The Vest Tank accident – supervision without responsibility'). Uni Rokkan Centre memo 5 – 2010.

141 The Norwegian Pollution Control Authority (2009) *Opplegg for en mer effektiv kontroll. Ulovlig eksport og import av farlig avfall med tank- og bulkskip* ('Plan for more effective control. Illegal export and import of hazardous waste by tanker and bulk carrier'). TA-2554.

The Norwegian Maritime Directorate is responsible for controlling Norwegian-registered ships and foreign ships that call at Norwegian ports, but in an interview the Directorate refers to the fact that it lacks competence as well as instruments in this area other than to assist the pollution control authorities in any operations aimed at inspection of cargoes on board ships.

The Ministry of the Environment refers in an interview to the fact that at ministry level, this cooperation has had the support of the Ministry of the Environment. The Norwegian Climate and Pollution Agency keeps the Ministry informed of the cooperation. The Ministry does not carry out any independent assessment in addition to the Norwegian Climate and Pollution Agency's reporting. In an interview, the Agency states that the project's progress has been slower than anticipated, and that the status as of 2011 is that no public agency checks what is on board the ships. The Agency states that two inspections of cargoes of waste were carried out in 2011. One was carried out as a result of a tip, and the other one, in cooperation with the Directorate for Civil Protection and Emergency Planning and the Norwegian Coastal Administration, took place following an explosion on board the ship.

Norwegian Customs and Excise refers in an interview to the complexity of ship inspections. It has no expertise in the area, and must cooperate with other qualified public agencies to collect samples of the cargo and carry out laboratory analyses. No total overview exists of the amounts subject to controls. The primary control method is via the customs declaration. Norwegian Customs and Excise and the Norwegian Coastal Administration are cooperating on a joint reporting system to improve the control of ships that contain hazardous waste. Norwegian Customs and Excise points out that it has no procedures for collecting samples of hazardous and polluting cargo in tankers and bulk carriers. If it is deemed necessary to collect samples from such cargo, this must be done in cooperation with the Norwegian Climate and Pollution Agency or other supervisory authorities.

8.7 Sanctions

The Norwegian National Authority for Investigation and Prosecution of Economic and Environmental Crime (Økokrim) states in an interview that the legislation in this area is challenging.

Violations of regulations pursuant to the Basel Convention can only be punished with fines. This means that the authorities have fewer tools at their disposal. Økokrim, for example, cannot use any investigation methods other than questioning. Searches of premises or other methods cannot be used. Another consequence of the legislation is that attempts at illegal export or import are not liable to punishment.

The Norwegian Climate and Pollution Agency states in an interview that it perceives the regulatory framework for the import and export of hazardous waste to be insufficient and considers the sanctioning possibilities inadequate. The Agency points out that the authorities have no legal authority to seize containers of hazardous waste in connection with attempts to export. The Agency can stop the export, but attempts at exporting hazardous waste are not liable to punishment. The notifier can therefore collect the shipment and make a new attempt to export it. The Norwegian Climate and Pollution Agency does not use coercive fines, but the notifier will be charged for the costs of supervisory activities and, if relevant, of final disposal. The Agency states that one illegal export case has been reported to the police, and emphasises that if the sanctioning possibilities are not improved, supervision of exports and imports will have little effect.

In an interview, Norwegian Customs and Excise confirms that there are few sanctioning options in relation to the export of hazardous waste. Norwegian Customs and Excise can make seizures in connection with imports of hazardous waste. In relation to export, the Directorate can deny export, alternatively report the matter to the police or seize the shipment if it is not in accordance with the declaration or if no permit has been granted. A common form of sanction for violation of the import regulations, for example tax or duty evasion, is to impose an additional administrative charge.

The Ministry of the Environment states that it is working on proposals to amend the Pollution Control Act in order to improve follow-up of illegal exports of hazardous waste. Supervisory activities show that the current regulations provide no legal authority to carry out investigations into attempted illegal export activities.

8.8 Partial assessment

Norway has endorsed the Basel Convention's goal of minimizing the transboundary transport of hazardous waste. Hazardous waste shall, as far as practically possible, be treated in the country where it originates. The Standing Committee of the Storting on Energy and the Environment has asked the Government to be restrictive when it comes to granting export permits for special waste if the same type of waste can be treated in Norway, cf. Recommendation No 259 to the Storting (2000–2001). Export of hazardous waste for final disposal is an expression of whether the national final disposal capacity is sufficient, cf. Report No 25 to the Storting (2002–2003).

According to Statistics Norway, Norway exported 15 per cent of the amount of hazardous waste handed in in 2009, and exports are increasing. Approximately six per cent of the amount of hazardous waste collected was exported for final disposal. A lot of this waste is treated in the other Nordic countries. Export permits are also granted for export to other EU countries, including for final disposal. However, it is difficult for the authorities to maintain a good overview of re-export from the countries that the waste is initially exported to.

The investigation shows that there are discrepancies between the Norwegian Climate and Pollution Agency and Statistics Norway's statistics of the export and import of hazardous waste. The Norwegian Climate and Pollution Agency's reporting of export of EE waste to the Basel Convention is also considerable lower than the amounts that are treated abroad, according to the WEEE Register. The main reason for this is incomplete and incorrect reporting to the Miljødata database. Some of the difference can also be explained by the fact that not all exports of EE waste require an export permit. This suggests that the Norwegian Climate and Pollution Agency does not have a sufficient overview of the export of hazardous waste and EE waste.

The Norwegian Climate and Pollution Agency is of the opinion that Norway has sufficient final disposal capacity for all waste fractions, but enterprises in the industry think that this is not the case for certain fractions. In this context, the Ministry of the Environment considers the Nordic countries a joint market for hazardous waste in accordance with the Council of Ministers' declaration of 1994. The largest Norwegian treatment facility for hazardous waste has sufficient capacity

until 2024. After this time, the final disposal capacity will depend on the new treatment solutions being established.

The Waste Shipment Regulation sets out requirements for the authorities' case processing of applications for export permits. The investigation shows that the Norwegian Climate and Pollution Agency's case processing is mostly in accordance with regulations. Few cases have good documentation showing how the waste is to be treated, other than the predefined categories to be ticked in the form. In addition, the final disposal documents are often inadequate, and it is rarely shown whether the waste is treated in accordance with the permit.

There is no requirement for export permits from the Norwegian Climate and Pollution Agency for the export of pure waste fractions for recovery in an EU state, cf. the Waste Shipment Regulation. The investigation shows that illegal export of hazardous waste takes place under the pretext of being pure fractions for recovery. Such exports also go to countries outside of the OECD area. The authorities have no overview of the scope of these exports. Illegal waste is also sometimes exported under the pretext of being products. This is often the case for discarded EE products or cars that are exported to countries that lack the capacity to treat this type of waste properly.

Norway shall stipulate rules concerning sanctions for violations of the provisions of the Waste Shipment Regulation. The investigation shows that the authorities have few sanctions available in relation to the illegal export of hazardous waste. This reduces the effect of supervision.

Cooperation between the customs and environmental authorities is a precondition for effective control. The Norwegian Climate and Pollution Agency and the Norwegian Customs and Excise entered into a cooperation agreement in 2011, but as of today there is no systematic border control cooperation to uncover illegal export of waste. This work has been suspended because of the inadequate regulations. The Norwegian Climate and Pollution Agency, the Norwegian Customs and Excise, the Norwegian Maritime Directorate, the Directorate for Civil Protection and Emergency Planning and the Norwegian Coastal Administration have developed plans enabling public agencies to cooperate in order to improve the control of bulk carriers and tankers. The parties have not yet implemented this cooperation.

9 Overall assessments

The primary objective in the field of waste management is to ensure that waste causes as little harm as possible to people and the natural environment. The Storting's intention is that practically all hazardous waste is to be dealt with in an appropriate way, so that it is either recycled or sufficient treatment capacity is provided within Norway. This objective is based on the target of eliminating the use and discharge of chemicals hazardous to health and the environment by 2020, cf. Recommendation No 180 to the Storting (2006–2007).

The Ministry of the Environment has chief responsibility for ensuring that hazardous waste is handled properly, and it shall assess whether development in the area is satisfactory. The Norwegian Climate and Pollution Agency is responsible for implementing the policy through its administration of goals and policy instruments. Pollution control authority for most waste producers and storage facilities has been delegated to the county governors.

The investigation shows a reduction in the amount of hazardous waste subject to unknown handling. This has been a priority area for the Norwegian Climate and Pollution Agency in recent years. Special policy instruments such as the producer responsibility systems and reimbursement schemes have helped to increase the collection of hazardous waste. The waste strategies are an operationalisation of the national goals. The priorities in this field have been communicated in the county governors' assignment document. Thematic inspection campaigns in cooperation with the county governors have resulted in more targeted and comprehensive supervision, and also in a higher number of supervisory activities. In 2010, the Norwegian Climate and Pollution Agency initiated a review of all permits for the treatment of hazardous waste. This review helps to ensure that more specific requirements are stipulated, which will make it easier to take legal action against enterprises.

However, the investigation shows that many enterprises are still failing to comply with the regulations intended to ensure that hazardous waste is properly handled. The most important

weaknesses in the Ministry of the Environment's work of ensuring that hazardous waste is properly handled appear to be the following:

- There is still hazardous waste that is not collected.
- Supervisory activities show no significant improvement in waste handling at storage and treatment facilities.
- Control of the export of hazardous waste is inadequate.
- The Ministry of the Environment has failed to adequately follow up whether development in the area is satisfactory, and whether the policy instruments are functioning as intended.

These matters are obstacles to achieving the Storting's goal that practically all hazardous waste is to be dealt with in an appropriate way. It is particularly important that the Ministry of the Environment:

- improves its follow-up of the regulations, particularly for waste from ships, oil waste and the producer responsibility scheme for EE waste
- does more to ensure verification of the enterprises' information and strengthens follow-up of supervisory activities and the use of sanctions when regulations and permits are breached
- improves supervision of illegal exports of hazardous waste
- ensures better quality assurance of administrative databases and statistics.

9.1 Collection of hazardous waste

Pursuant to several international agreements and national performance goals, Norway shall help to ensure that hazardous waste is handled properly, which includes ensuring that the waste is collected. Between 2004 and 2009, there was a reduction in the amount of hazardous waste subject to unknown handling. In 2009, 72,000 tonnes of waste went to unknown handling, compared with 115,000 tonnes in 2004. Waste containing oil and waste containing heavy metals/contaminated masses were the largest quantities. The investigation shows that hazardous waste that is not collected can still contribute to the release of environmental toxins and oil pollution into the

natural environment. Supervision of the waste producers have shown that many enterprises fail to comply with the regulations for the handing-in and storage of hazardous waste.

9.1.1 Follow-up of the producer responsibility schemes

Producer responsibility, which means that the enterprises are held responsible for the treatment and recovery of waste from their own products, is an important policy instrument in relation to achieving the goals in the area of waste management, cf. Recommendation No 228 to the Storting (2004–2005). Producer responsibility schemes have been established for several types of hazardous waste. With the exception of batteries, the Norwegian Waste Regulations specify requirements for the take-back system and take-back companies. Overall, the producer responsibility schemes have a high level of participation and help to increase the amounts collected. However, it can be questioned whether the Ministry of the Environment and the Norwegian Climate and Pollution Agency have been sufficiently active in their follow-up of the collection of EE waste in relation to how much waste is produced, and whether they have adequately checked whether the take-back companies have fulfilled their obligations pursuant to the Waste Regulations.

The investigation shows that a high proportion of the EE waste that is produced is not collected. Waste that is not collected is exported illegally, stored or ends up in residual waste. The regulations regulate the take-back companies' duties in relation to EE waste collection, but not the overall collection rate. The investigation shows that the authorities do not have an overview of how much EE waste is generated, even though data are available. This lack of adequate management information makes good follow-up of the take-back scheme more difficult.

Pursuant to the Waste Regulations, take-back companies in the EE area must be controlled by an independent certification body. The investigation shows that these controls have not failed to uncover major non-conformities in the take-back companies' collection, reporting, removal of hazardous components and exports.

In order for the collection system to work, all relevant producers and importers are obliged to be affiliated to a take-back company and to pay a fee, cf. the Waste Regulations. The Norwegian Climate and Pollution Agency is responsible for

following up enterprises that do not pay, and it is empowered to impose sanctions on them. Participation has increased significantly in all areas, but new products and internet imports by parties that are not members of the schemes are a challenge. The problem is particularly great in relation to the take-back scheme for end-of-life vehicles. The investigation shows that the Ministry of the Environment has been unable to establish agreements with the customs or the transport and communication authorities to ensure more effective collection of fees.

9.1.2 Follow-up of the regulations for the handing-in of hazardous waste in ports

The Port Waste Directive is partly based on provisions in the MARPOL Convention that define which forms of waste cannot be discharged in a marine environment and require adequate port reception facilities. The Port Waste Directive is implemented in the Pollution Regulations Chapter 20. The investigation shows that the Norwegian Maritime Directorate has for many years neither followed up the assignment given to it in the allocation letter from the Ministry of the Environment of supervising the handing in of waste from ships pursuant to the Pollution Regulations, nor ensured that waste notification forms are collected from ships. This reduces its ability to check whether ships have handed in waste. The investigation questions whether the Ministry of the Environment has followed up the task assigned to the Norwegian Maritime Directorate in the allocation letter of ensuring that hazardous waste is collected from ships.

The investigation also shows that many ports lack waste handling plans, and that existing waste handling plans do not comply with the regulatory requirements. The county governors have failed to adequately follow up the ports' compliance with the regulations. In autumn 2011, the Ministry of the Environment was considering the need for changes in the regulations.

9.1.3 Waste containing oil

Discharges of oil shall not harm human health or the environment, or contribute to an increase over time in the background values of oil or substances harmful to the environment, cf. the Ministry of the Environment's budget propositions. Waste containing oil is the largest quantity of hazardous subject to unknown handling. It can be difficult to determine whether the oil is waste or a product, and thus under which regulations it falls. The investigation uncovered a difference

of opinion between the authorities and the waste management enterprises. It can be questioned whether the Norwegian Climate and Pollution Agency has helped to clarify how the regulatory framework should be interpreted in practice.

Some types of waste containing oil are difficult to handle, among other things because they involve an explosion hazard. Report No 17 to the Storting (2001–2002) concerning State Supervision, cf. Recommendation No 222 to the Storting (2002–2003), emphasised coordination of supervisory bodies as an important area with a potential for improvement. The Directorate for Civil Protection and Emergency Planning is responsible for explosives and flammable substances. Some waste containing oil falls under the area of responsibility of both the Directorate for Civil Protection and Emergency Planning and the Norwegian Climate and Pollution Agency. The control objects would like to see more joint supervisory activities, and feel that the enforcement of regulations differs between activities. The investigation shows that the Norwegian Climate and Pollution Agency and the Directorate for Civil Protection and Emergency Planning did not cooperate much before the Vest Tank accident, but that cooperation has increased since the accident. In light of the goal of ensuring that practically all hazardous waste is to be dealt with in an appropriate way, it is nevertheless questionable whether the Ministry of the Environment has facilitated the required coordination of supervisory bodies in order to improve controls of waste containing oil.

9.1.4 Challenges relating to the collection of construction waste

PCB emissions were to be stopped by 2005, cf. Proposition No 1 to the Storting (2009–2010) for *the Ministry of the Environment*. The investigation shows that the authorities are largely successful in collecting waste containing PCBs from building sites, an area that has been given priority through special policy instruments and in supervisory activities. Other construction materials that contain PCBs are not handed in to the same extent. It is also necessary to communicate the existing knowledge to the parties involved. The municipalities have a particular responsibility for construction waste in their processing of building applications and supervision, cf. the Planning and Building Act. The investigation shows that municipalities have followed up the regulations concerning building and construction waste to varying degrees. Together, the above factors make it a major challenge to ensure the proper removal of hazardous components from and collection of

hazardous waste from building and construction activities.

9.1.5 Collection and information in municipalities

The municipalities are responsible for ensuring adequate services for the reception of hazardous waste from households and small businesses, cf. the Norwegian Waste Regulations. The quantity collected per inhabitant varies between municipalities, and less waste is collected than is produced.

The hazardous waste strategy that was in effect during the period 2008–2010, cf. Proposition No 1 to the Storting (2008–2009) for *the Ministry of the Environment*, is intended to help to improve consumers and the business community's knowledge about hazardous waste. Many parties are responsible for providing information to consumers, and information is therefore fragmented and lacking a long-term perspective. The guidance material made available to the municipalities by the Ministry of the Environment and the Norwegian Climate and Pollution Agency is old and partly out of date. Even though expedient information measures have been implemented, it can be questioned whether the Ministry of the Environment has ensured that sufficient guidance and information have been provided to households and municipalities.

9.2 Permits for storage and treatment facilities

The Norwegian Climate and Pollution Agency and the county governors are tasked with regulating treatment facilities and reception and intermediate storage facilities by means of permits, supervision and regulations. Since the Vest Tank accident, the Norwegian Climate and Pollution Agency reviewed and updated treatment facilities' permits during the period 2010–2011. The investigation also shows that many of the county governors' permits for reception and intermediate storage facilities are out of date in relation to the facilities' current operations, and that the county governors do not have the capacity to initiate updates. Neither the Norwegian Climate and Pollution Agency nor the county governors have established procedures to ensure that the permits are up to date.

Pursuant to non-statutory principles for satisfactory case processing, the authorities shall take steps to ensure reasonable, objective and equal

treatment in case processing. Important requirements set by the county governors for private facilities that operate subject to a permit are not included in the regulations that govern small municipal facilities. The investigation shows that the county governors' permits vary in form and can deviate significantly from the Norwegian Climate and Pollution Agency's template. Different requirements are stipulated in the permits for similar facilities located in different parts of Norway, and the Norwegian Climate and Pollution Agency sets stricter requirements for storage, treatment and emission than the county governors. This results in differential treatment of activities with identical risks of pollution. This is in itself unfortunate in relation to the non-statutory principle of equal treatment, and it also entails a risk that not all hazardous waste is properly handled.

9.3 Supervision of hazardous waste

The Standing Committee on Energy and the Environment emphasised intensification of the supervision of hazardous waste and chemicals, cf. Recommendation No 46 to the Storting (2003–2004) and Recommendation No 180 to the Storting (2006–2007). It is also pointed out that supervision must be comprehensive, systematic and risk-based. The inspection campaigns under the auspices of the Norwegian Climate and Pollution Agency have contributed to more comprehensive and systematic supervision, among other things because many control objects are inspected in a short period of time, on a basis intended to ensure uniformity in implementation and in the registration of non-conformities. The frequency of supervisory activities carried out by the county governors has also increased, but several county governors do not carry out supervision activities other than as part of the Norwegian Climate and Pollution Agency's inspection campaigns. At the same time, the investigation shows that supervision is not fully risk-based, that the methods used are not suitable for uncovering every type of non-conformity, and that enterprises are not sufficiently followed up after non-conformities have been uncovered, cf. section 9.3.1.

Several circumstances undermine the basis for carrying out risk-based supervision:

- Insufficient maintenance and updating of the Forurensning and Norbas databases make it more difficult to plan, carry out and follow up controls.

- Many of the facilities that fall under the county governors' area of responsibility have not been assigned a risk category that specifies the supervision frequency.
- Because of the present system of fee-funding of the county governor offices' supervisory activities, the controls that result in the highest income are given highest priority.

In addition to the Norwegian Climate and Pollution Agency's risk-based priorities, supervisory activities are also carried out as a result of tips the Agency receives about environmental crime. Such tips can help to uncover matters that warrant criticism in enterprises that cannot be uncovered through ordinary supervisory activities. The investigation shows that the Norwegian Climate and Pollution Agency provides no information on its website about how tips are handled, and that the Agency has no systematic procedures for handling tips.

Supervision activities by the Norwegian Climate and Pollution Agency and the county governors are carried out in the form of visits to the facilities that include visual inspections, in addition to document controls and interviews. Other than what can be visually observed, the county governors and the Norwegian Climate and Pollution Agency do little to verify the enterprises' information about whether the waste is correctly labelled, sorted and treated, and its hazardous components removed by collecting samples. There is reason to believe that this results in cases of non-conformities not being uncovered to a sufficient extent.

The purpose of the reimbursement scheme for waste oil is to encourage increased handing-in of such waste oil for approved treatment, cf. the Ministry of the Environment's budget propositions. The investigation shows that many of the facilities fail to comply fully with the regulations, and that failure to follow up the regulations could result in them receiving inflated reimbursements. The Norwegian Climate and Pollution Agency follows up and checks that the reimbursement claims are in line with the regulations by means of document control. However, there are circumstances that can only be uncovered through inspection of the facilities. Since 2006, the environmental authorities have chosen not to follow up financial aspects during its supervisory activities. It can be questioned whether the Ministry of the Environment is doing enough to follow up that the scheme is not being abused.

9.3.1 Follow-up of supervisory activities

Enterprises that violate their permits or the regulatory framework for hazardous waste can face sanctions from the Norwegian Climate and Pollution Agency and from the county governors. Sanctions for violation of the applicable regulations are to be made stricter, cf. Recommendation No 180 to the Storting (2006–2007).

The reports prepared after supervision activities have not clearly communicated which non-conformities are particularly serious. From 2010, the Norwegian Climate and Pollution Agency introduced a new template in which the most serious non-conformities will be better highlighted. The county governors register non-conformities in different ways. The way in which follow-up is carried out has reduced the enterprises' ability to identify the most serious matters. The investigation shows that non-conformities are repeatedly found in the same enterprises.

Coercive fines should be set so high that it does not pay to continue polluting activities. The investigation shows that the county governors do not base the size of coercive fines on the seriousness of the non-conformity, but largely use standard amounts. Long case processing times also weaken the effect of the notifications of coercive fines issued by the Norwegian Climate and Pollution Agency and the county governors. The use of coercive fines is therefore not functioning as intended.

The pollution control authorities have legal authority to revoke or change a permit as a sanction for violation of the regulations. The investigation shows that this instrument is not being used. The Norwegian Climate and Pollution Agency and the county governors can report enterprises to the police if they violate the penal provisions of the Pollution Control Act, and the case can be pursued through the legal system, if necessary. Although large waste-related cases have been brought before the courts, the investigation shows that serious non-conformities and pollution cases that have been reported to the police have resulted in very few criminal proceedings with subsequent sanctions. This is partly because it has been difficult to legally verify the facilities' permits, as the permits are general and it is unclear what the enterprises actually hold permits for. Other reasons include lack of expertise and capacity on the part of the local police. It can be questioned whether the Norwegian Climate and Pollution Agency and the county governors are

making sufficient use of their powers of sanction to help to increase compliance with the regulatory framework as intended by the Storting.

9.4 Control of exports of hazardous waste

Norway has endorsed the Basel Convention's objective of minimising the transboundary transport of hazardous waste, which has also been incorporated into the Waste Shipment Regulation. As far as practically possible, hazardous waste shall be treated in the country of origin. The Standing Committee of the Storting on Energy and the Environment has asked the Government to be restrictive in granting export permits for special waste if the type of waste in question can be treated in Norway, cf. Recommendation No 259 to the Storting (2000–2001). The investigation shows that the Ministry of the Environment and the Norwegian Climate and Pollution Agency only to a very limited extent carry out supervisory activities in order to uncover the illegal export of hazardous waste.

The investigation shows that the export of hazardous waste has increased. The Norwegian Climate and Pollution Agency is responsible for processing applications for the export of hazardous waste. The Waste Shipment Regulation sets out detailed requirements concerning the authorities' case processing of applications for export permits. Most permits granted are for treatment in the other Nordic countries. Export permits are also granted for export to other EU countries, including for final disposal. These exports have also increased. The authorities do not have a good overview of re-export from the countries to which the waste is initially exported. This means that there is a risk that Norwegian waste will end up in countries that lack the capacity to handle the waste properly.

In the Norwegian Climate and Pollution Agency's opinion, Norway has a sufficient final disposal capacity for all types of waste. In this context, the Ministry of the Environment deems the Nordic countries to be a joint market for hazardous waste in accordance with the Council of Ministers' declaration of 1994. The largest Norwegian treatment facility for hazardous waste has sufficient capacity until 2024. After this time, the final disposal capacity will depend on the establishment of new treatment solutions.

It is prohibited to export hazardous waste out of the EU/EFTA area for final disposal, cf. the

Waste Shipment Regulation. On the other hand, the Waste Shipment Regulation does not require export permits for the export of pure waste fractions for recovery in an EU state or for the export of products. The investigation shows that some illegal export of hazardous waste takes place under the pretext of being products or pure fractions for recovery. The authorities have no overview of the extent of these exports. Some of these illegal exports from Norway go to countries outside the EU/EEA area that do not have the capacity to treat the waste properly.

Pursuant to the Waste Shipment Regulation, Norway is obliged to supervise transboundary transport of waste. The Norwegian Climate and Pollution Agency has entered into a cooperation with Norwegian Customs and Excise, but few supervisory activities have been carried out in relation to export of hazardous waste. Nor have adequate systematic procedures been implemented for uncovering attempted illegal exports.

Norway shall stipulate rules concerning sanctions for violations of the provisions of the Waste Shipment Regulation. The investigation shows that the authorities have few sanctions at their disposal in connection with illegal exports of hazardous waste. Because of this, the authorities do not deem supervisory activities to be expedient.

Following the Vest Tank accident, the Norwegian Climate and Pollution Agency, Norwegian Customs and Excise, the Directorate for Civil Protection and Emergency Planning and the Norwegian Coastal Administration have adopted a cooperation scheme to improve control of illegal exports and imports of hazardous waste by tanker and bulk carrier. The cooperation had not yet begun when the data collection for this investigation was concluded in mid-2011. On the basis of the lack of regular, risk-based supervision, it is questioned whether the Ministry of the Environment has followed up its overall responsibility to ensure better control of the export of hazardous waste to a sufficient extent.

9.5 Management information

9.5.1 Databases

Pursuant to the Environmental Information Act, the public sector has chief responsibility for having environmental information and making it available. According to the Regulations on Financial Management in Central Government Section

4, all agencies shall also ensure that there is sufficient management information and a proper basis for decisions, so that established objectives and performance requirements are achieved and the resource use is efficient.

Statistics Norway's hazardous waste statistics are important in relation to the authorities' prioritisation of measures. For the types of waste the investigation has focused on, it has identified major challenges associated with assessing the amount of waste collected and produced, and thus also the amount of hazardous waste that is not properly handled.

Pursuant to the Waste Regulations, waste producers have a duty to declare the contents of waste on delivery. The investigation shows that much waste is incorrectly declared, and that errors also occur during the manual transfer of data to the declaration database Norbas. Incorrect declarations create a risk of incorrect treatment, which can lead to negative environmental consequences, working environment problems and accidents at the facilities.

Pursuant to Report No 46 to the Storting (1988–89), the Ministry of the Environment must ensure that there are suitable systems in place for monitoring the state of the environment and for performance reporting and follow-up. The declaration system for hazardous waste is important for statistical purposes and for the authorities' follow-up in this area. The system is particularly important in relation to the supervision of the waste producers' duty to hand in waste. In order to prevent the declaration system from becoming too cumbersome, there is no requirement to report that waste has been treated. The investigation shows that some of the waste cannot be traced all the way to final disposal. The declaration system is thus not suited to documenting whether waste has been properly handled. Although the authorities have other sources of information for documenting proper treatment, this makes effective control of the waste handed in more difficult.

Material shortcomings in Norbas regarding specific waste fractions have consequences for the statistics and for the authorities' control of the handing in and treatment of waste. For example, weaknesses in the declaration system have probably resulted in too large a quantity of amalgam waste being registered from dental surgeries. This makes it difficult to assess how much mercury is collected through the collection of amalgam

waste from dental surgeries. This involves a risk that more of this waste is not being properly handled than the authorities assume.

The present declaration system is based on the submission of forms on paper. The investigation shows that an electronic declaration system will result in financial savings for the authorities as well as the enterprises, and will improve the quality of the information provided and the opportunities for control. Since 2004, the Norwegian Climate and Pollution Agency has been working to introduce an electronic system, but the investigation shows that little progress has been made. It can be questioned whether the Ministry of the Environment has contributed enough to implementing a better functioning declaration system that could help to improve management information.

The Forurensning database is used by the Norwegian Climate and Pollution Agency and the county governors to follow up the inspection objects. The investigation shows that several important items of information about enterprises and supervisory activities have not been registered in the database, particularly by the county governors. This makes systematic follow-up in this area more difficult.

The Norwegian Climate and Pollution Agency registers documentation for the approved export of hazardous waste and EE waste in the Miljødata database. The investigation shows that not all exported waste is registered. This means that the export figures in the statistics are too low.

Errors in the central administrative databases can contribute to the authorities basing their decisions on incorrect information. Deficiencies in the management information also make the Norwegian Climate and Pollution Agency's control work and prioritisation of measures more difficult.

9.5.2 Ownership of the declaration database

Ownership of the fee-funded declaration database Norbas was not clarified by the Ministry of the Environment when the previously partly state-owned company Norsas was sold. Therefore, operation of the declaration system has not been subject to competitive tendering, and Norsas has continued to operate it. The result is that the Ministry of the Environment cannot give other parties the chance to provide a better service.

The Norwegian Climate and Pollution Agency has not stipulated requirements in the contracts regarding how Norsas is to separate the assignment of operating the state reimbursement scheme for waste oil and the declaration system from its other activities as a private company. One consequence of this is that it is unclear to the enterprises when Norsas is acting on behalf of the environmental authorities and when it is acting as a private company. The guidance material that is provided as part of the operation of the declaration system is only available on Norsas' website, and the impression is that it is guidance from the company. Confusion regarding which recommendations are from the authorities could weaken compliance with the regulations.

10 References

Parliamentary documents

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Recommendations to the Storting

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285 18 4 588 3 6 554 735 394 216 2 577 634 492



241 344

Print: 07 Gruppen AS 2012



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